



United States Government

Department of Energy

memorandum

 Carlsbad Field Office
 Carlsbad, New Mexico 88221


DATE: November 23, 2004

REPLY TO
ATTN OF: CBFO:OCT:KWW:GS:04-2299:UFC 5822.00

SUBJECT: Annual Recertification of the Hanford Site TRU Waste Program and Expansion to Include the Dart HSG Sampling System – Audits A-04-19

TO: Keith Klein, Manager, DOE-RL

The Carlsbad Field Office (CBFO) conducted Audit A-04-19 on June 15-18, 2004, to evaluate the continued compliance of Hanford Site's transuranic (TRU) waste characterization, certification, and transportation activities for homogeneous solids (S3000) and debris waste (S5000). The technical and quality assurance (QA) programs were found to be in compliance with the "Waste Analysis Plan" (WAP) of the WIPP *Hazardous Waste Facility Permit* (HWFP), the *Quality Assurance Program Document* (QAPD), the *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (CH-WAC), the *TRUPACT-II Authorized Methods for Payload Control* (TRAMPAC), and other CBFO requirements. In addition, the audit team evaluated the dart sampling system and found it to be effectively implemented during Audit A-03-25 that was conducted at Hanford on September 8-11, 2003, and reevaluated during audit A-04-19.

Based on the results of Audit A-04-19, the CBFO is continuing the Hanford Site's authority for the characterization, certification, and transportation of contact handled, retrievably stored and newly generated debris waste (S5000) and expanding the authority to include use of the self-tapping screw (NFT dart sampling system) in support of headspace gas sampling. Attachments to this letter contain complete lists of currently certified procedures, documents, and systems.

Hanford may ship debris waste (S5000), including the mixed oxide waste stream, for disposal at the WIPP. No homogeneous solids (S3000) may be certified and shipped until the Environmental Protection Agency approves the acceptable knowledge and CBFO issues authority to resume shipments of S3000 waste.

TRU waste characterization, certification, or transportation using significantly revised or new processes, systems, or procedures must be evaluated by the CBFO prior to their implementation.

Lloyd Piper
Acting Manager

Attachments

041130



Keith Klein

-2-

November 23, 2004

cc: w/attachments

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CBFO M&RC

CTAC Document Control Coordinator
WIPP Operating Record, MS 486-06

HANFORD CERTIFICATION PROGRAM STATUS

Based on the results of Audit A-04-19, the CBFO is continuing the Hanford Site's authority for the characterization, certification, and transportation of contact handled, retrievably stored and newly generated debris waste (S5000) and expanding the authority to include use of the self-tapping screw (NFT dart sampling system) in support of headspace gas sampling.

No homogeneous solids (S3000) may be certified and shipped until the Environmental Protection Agency approves the acceptable knowledge and CBFO issues authority to resume shipments of S3000 waste.

Attachments 2 and 3 provide complete lists of currently certified systems and procedures that constitute the bounds of the Hanford authority.

The following processes are currently approved at the Hanford Site:

<u>S5000 - Debris Waste</u>	<u>S3000 - Homogeneous Solids (pending EPA approval)</u>
<ul style="list-style-type: none"> ➤ Acceptable knowledge ➤ Data verification and validation ➤ Headspace gas sampling and analysis (including hydrogen and methane & dart sampling) ➤ Radiography ➤ Visual examination ➤ Visual examination technique ➤ PFP Non-destructive assay (Rm. 172 Calorimetry/SGSAS & SGSAS Rm. 170) ➤ WRAP Non-destructive assay (IPAN A & IPAN-B, GEA-A & GEA-B) ➤ Transportation ➤ WIPP Waste Information System interface 	<ul style="list-style-type: none"> ➤ Acceptable knowledge ➤ Data verification and validation ➤ Headspace gas sampling and analysis (including hydrogen and methane & dart sampling) ➤ Visual examination technique ➤ PFP Non-destructive assay (Rm. 172 Calorimetry/SGSAS & SGSAS Rm. 170)

PROGRAM STATUS

- All program elements remain complete
- The following required site documents have been revised, approved, and are in place identifying how the site complies with the CBFO upper-tier documents and other CBFO requirements:
 - QAPjP - *Hanford Site Transuranic Waste Characterization Quality Assurance Project Plan*, HNF-2599, Revision11 (approved by CBFO on April 29, 2004 - Memo CBFO:NTP:RMK:VW:04-1400:UFC:5822)


- WCP - *Hanford Site Transuranic Waste Certification Plan*, HNF-2600, Revision 13 (approved by CBFO on April 30, 2004 - Memo CBFO:NTP:KWW:JGW:04-1415:UFC:5822)
- QAP - Section 5.0 of WCP
- TRAMPAC and QA Plan - Section 4.0 of WCP
- Packaging QA Plan - Section 5.0 of WCP
- Certified Systems - see attachment 2 for the complete list of certified systems
- Standard operating procedures - see attachment 3 for the complete procedure list
- Hanford Site participation in the following performance demonstration programs (PDPs):
 - **NDA**
 - NDA PDP participation was satisfactory in cycle 11A (memo CBFO:NTP:MB:JGW:04-2019:UFC:5822 dated September 22, 2004 for the following systems and methods:
 - GEA-A (HA01/HAG1) & GEA-B (HA02/HA-G2) using Methods WRP1-OP-0906, Revision I-2, and WMP-350, Section 2.2, Revision 21. (Approval expires 8/19/05)
 - IPAN-A (HA03/HAN1) and IPAN-B (HA04/HAN2) using Methods WRPI-OP-0905, Revision E-2, WRPI-OP-0906, Revision 1-2, and WMP-350, Section 2.2, Revision 21. (Approval expires 8/19/05)
 - **HSG**
 - HSG PDP Cycle 18A approved for VAP#6 (2HG3, WC80557), VAP#7 (2HG1, WC68672) and VAP#8 (2HG2, WC 68671) - memo CBFO:NTP:MRB:JGW:04-1163:UFC:5822 dated April 12, 2004.
 - HSG PDP Cycle 18A for the Idaho National Engineering and Environmental Laboratory TRU Waste Characterization Program (INEEL TWCP) Environmental Chemistry Laboratory (ECL) – memo CBFO:NTP:MRB:VW:04-1119:UFC:5822 dated March 29, 2004.
 - **RCRA**
 - Cycle 11A - INEEL TWCP approved for metals, aqueous extractable VOCs, purgeable VOCs and SVOCs - memo CBFO:NTP:JGW:04-1426:UFC:5822, dated May 13, 2004.
- One CAR 04-030 was issued for Audit A-04-19 and successfully closed on August 3, 2004.
- The CBFO issued the interim report for Audit A-04-19 on July 7, 2004 and issued A-03-25 on October 6, 2003. The Final Audit Report for A-04-19 was issued on August 13, 2004 and a revised B6 checklist was sent to NMED on September 20, 2004. Final Audit Report A-03-25 was issued to NMED on December 2, 2003.
- Final Audit Report A-04-19 was approved by NMED on September 7, 2004. Email was received on September 24, 2004 adding clarification on their approval of the Dart Sampling System.
- **EPA QA Approvals**

- EPA issued QA reports dated June 24, 2003, July 21, 2003 & closeout for QA concerns on March 9, 2004.
- **EPA Technical Reports**
 - EPA issued technical inspection report (EPA-Hanford-06.03-8 and 24) on August 7, 2003 approving disposal of debris waste (S5000). However, EPA did not approve shipments of S3000 stating that the AK was not approved.
 - EPA approved six additional calorimeters for limited methods on October 23, 2003.
 - EPA approved additional calorimeter methods on March 26, 2004.
 - EPA issued technical inspection report (EPA-Hanford-06.04-24) on August 19, 2004 approving the IPAN and GEA systems for continued compliance for assaying debris waste.
 - EPA issued a letter on November 12, 2004 releasing shipments of debris waste, including the mixed oxide waste stream, but imposing restrictions on further shipments of homogeneous solids (S5000) pending their evaluation of acceptable knowledge for the PFP homogeneous solid wastes.

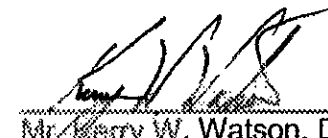
RECOMMENDATION

The recommendation to the CBFO Manager is to continue the Hanford Site's authority for the characterization, certification, and transportation of contact handled, retrievably stored and newly generated debris waste (S5000) and expanding the authority to include use of the self-tapping screw (NFT dart sampling system) in support of headspace gas sampling as evaluated in A-03-25 and re-evaluated during A-04-19. No homogeneous solids (S3000) may be certified and shipped until the Environmental Protection Agency approves the acceptable knowledge and CBFO issues authority to resume shipments of S3000 waste.

CONCURRENCE


Ms. Ava L. Holland, Manager
Quality Assurance

11-23-04
Date


Mr. Kerry W. Watson, Director
CBFO Office of Characterization and Transportation

11-23-04
Date

Hanford Certified Equipment List

WIPP #	Site Equipment Number	Title	Description	Components	Software
Headspace Gas					
2HG1	HSG US00033159	Hewlett Packard GC/MS (7) (PDP ID – VAP#7, WC68672)	Gas Chromatograph/Mass Spectrometer – VOCs analysis Procedure LA-523-410	<input type="checkbox"/> GC/MS (method described in procedure LA-523-410)	<input type="checkbox"/> EnvironQuant ChemStation G1701BA
2HG2	HSG US00032565	Hewlett Packard GC/MS (8) (PDP ID – VAP#8, WC68671)	Gas Chromatograph/Mass Spectrometer – VOCs analysis Procedure LA-523-410	<input type="checkbox"/> GC/MS (method described in procedure LA-523-410)	<input type="checkbox"/> EnvironQuant ChemStation G1701BA
2HG3	HSG S336A58373	Agilent GC/MS (6) (PDP ID – VAP#6, WC80557)	Gas Chromatograph/Mass Spectrometer – VOCs analysis Procedure LA-523-410	<input type="checkbox"/> GC/MS (method described in procedure LA-523-410)	<input type="checkbox"/> EnvironQuant ChemStation G1701DA
Non-destructive Assay					
2SG1	PPF Room 170 SGSAS	PPF Room 170 SGSAS	PPF Room 170 Segmented Gamma Scan Assay System Procedure ZA-948-385	<input type="checkbox"/> 2 HPGe detectors associated vertical drive and turntable <input type="checkbox"/> 1 30% relative SEGe and BEGe detector	<input type="checkbox"/> Genie PC Software Suite, version 2.2 including Gamma Waste Assay Software (GWAS), v.2.3.a <input type="checkbox"/> Multiple Group Analysis (MGA) v.9.5 CI <input type="checkbox"/> PFPTMU <input type="checkbox"/> Automated Independent Technical Review (AITR)
2SG2	PPF Room 172 SGSAS	PPF Room 172 SGSAS	PPF Room 172 Segmented Gamma Scan Assay System Procedure ZA-948-392	<input type="checkbox"/> 1 coaxial detector <input type="checkbox"/> 1 LEGe detector	<input type="checkbox"/> NDA-2000 Software, Version 3.1 <input type="checkbox"/> MGA v. 9.63B
2GE1	Canberra 104- ND-06-102A	GEA-A (PDP ID – HA01/HAG1)	Gamma Energy Assay System Unit A Methods: WRP1-OP-0906, WMP-350 Section 2.2	<input type="checkbox"/> GEA system consisting of: o 4 high resolution coaxial germanium detectors to detect the main spectrum of gamma radiation o 2 high resolution planar germanium detectors to detect the low energy gamma spectra	<input type="checkbox"/> Genie PC Spectroscopy System Software, version 2.2 <input type="checkbox"/> Gamma Waste Assay Software (GWAS), v.2.3.a <input type="checkbox"/> Multigroup Analysis Software (MGA) v.9.5
2GE2	Canberra 104- ND-06-102B	GEA-B (PDP ID – HA02/HA-G2)	Gamma Energy Assay System Unit B Methods: WRP1-OP-0906, WMP-350, Section 2.2	<input type="checkbox"/> GEA system consisting of: o array of 4 high resolution coaxial germanium detectors to detect the main spectrum of gamma radiation o 2 high resolution planar germanium detectors to detect the low energy gamma spectra	<input type="checkbox"/> Genie PC Spectroscopy System Software, version 2.2 <input type="checkbox"/> Gamma Waste Assay Software (GWAS), v.2.3.a <input type="checkbox"/> Multigroup Analysis Software (MGA) v.9.5

WIPP #	Site Equipment Number	Title	Description	Components	Software
2CA1	ANTECH AR-1	AR-1	R-Series Calorimeter (Endpoint & Prediction Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA2	ANTECH AR-5	AR-5	R-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA3	ANTECH AR-8	AR-8	R-Series Calorimeter (Prediction & Equilibrium Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA4	ANTECH P-13	P-13	P-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA5	ANTECH P-14	P-14	P-Series Calorimeter (Endpoint & Equilibrium Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA6	ANTECH P-15	P-15	P-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA7	ANTECH Q-1	Q-1	Q-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods) Procedure ZA-948-393	<input type="checkbox"/> Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2IP1	Pajarito 104-ND-06-101A	IPAN-A (PDP ID -- HA03/HAN1)	Imaging Passive-Active Neutron System A Methods: WRP1-OP-0905, WRP1-OP-0905, WMP-350 Section 2.2	Pajarito Scientific Corp. (now owned by BNFL) IPAN unit consisting of: <input type="checkbox"/> Shielded vault <input type="checkbox"/> Zetatron Neutron Generator <input type="checkbox"/> Multiple He ³ detector banks with Pulse Forming Networks	KEH.exe Version 3.28 KEH.xls Version 1.1 KEH_A_AMX.xls v 4.0A KEH_A_PMX.xls v 4.1A KEH_A_TMU.xls v 1.0A
2IP2	Pajarito 104-ND-06-101B	IPAN-B (PDP ID -- HA04/HAN2)	Imaging Passive-Active Neutron System B Methods: WRP1-OP-0905, WRP1-OP-0905, WMP-350 Section 2.2	Pajarito Scientific Corp. (now owned by BNFL) IPAN unit consisting of: <input type="checkbox"/> Shielded vault <input type="checkbox"/> Zetatron Neutron Generator <input type="checkbox"/> Multiple He ³ detector banks with Pulse Forming Networks	KEH.exe version 3.28 KEH.xls version 1.1 KEH_B_AMX.xls v 4.0B KEH_B_PMX.xls v 4.1B KEH_B_TMU.xls v 1.0B
Non-destructive Examination					
2RR1	104-ND-06-104A NDE-A	NDE-A	VJ Technology real-time radiography unit	VJ Technology RTR unit consisting of: <input type="checkbox"/> shielded vault <input type="checkbox"/> drum manipulator	None

WIPP #	Site Equipment Number	Title	Description	Components	Software
				<input type="checkbox"/> 1 x-ray tube with diaphragm shutters <input type="checkbox"/> image intensifier <input type="checkbox"/> video camera and shutters <input type="checkbox"/> Linear Diode Array detector	
2RR2	104-ND-06-104B NDE-B	NDE-B	VJ Technology real-time radiography unit WRP1-OP-0908	VJ Technology RTR unit consisting of: <input type="checkbox"/> shielded vault <input type="checkbox"/> drum manipulator <input type="checkbox"/> 1 x-ray tube with diaphragm shutters <input type="checkbox"/> image intensifier <input type="checkbox"/> video camera and shutters <input type="checkbox"/> Linear Diode Array detector	None

HANFORD LIST OF CERTIFIED PROCEDURES/DOCUMENTS

#	PROCEDURE NUMBER	TITLE
1.	DO-080-009 Superceded by TRU-OP-001 on May 3, 2004.	Obtain Headspace Gas Samples of TRU Waste Containers
2.	FSP-PFP-5-8, section 16.2	Data Management
3.	FSP-PFP-5-8, section 16.3	Establishing QC Criteria for the SGSAS
4.	FSP-PDP-5-8, section 16.4	Calibration Confirmation for the SGSAS at PFP
5.	HNF-2599	Hanford Site Transuranic Waste Characterization Quality Assurance Project Plan
6.	HNF-2600	Hanford Site Transuranic Waste Certification Plan
7.	HNF-4050	Total Measurement Uncertainty for Nondestructive Assay of Transuranic Waste at the Receiving and Processing Facility
8.	HNF-4051	Quality Assurance Objectives for Nondestructive Assay of Transuranic Waste at the Receiving and Processing Facility
9.	HNF-5148	Calibration Report for the WRAP Gamma Energy Assay System
10.	HNF-17808	HNF/INEEL Interface Document
11.	LA-523-410	Determination of VOCs in TRU/Mixed Waste Container Headspace
12.	LA-523-426 Reactivated September 10, 2003	Determination of Permanent Gases in Waste Container Headspace
13.	LO-080-407	Cleaning SUMMA Canisters for TRU Headspace Gas Sampling
14.	LO-090-450	TRU Project Sample Storage, COC, Acceptance, and Disposal
15.	TRU-OP-001 Replaced DO-080-009 on May 3, 2004.	Headspace Gas Samples of TRU Waste Containers
16.	WMP-350, section 2.2	Calculation of Assay Results
17.	WMP-350, section 2.3	Data Management
18.	WMP-350, section 2.5	GEA Energy and Efficiency Setup and Baseline Establishment
19.	WMP-350, section 2.8	WRAP NDA Measurement Control Program
20.	WMP-350, section 2.9	Performing Calibration Verifications and Confirmation for Nondestructive Assay at WRAP
21.	WMP-400, section 1.1.2	TRU Graded Approach
22.	WMP-400, section 1.2.1	TRU Training and Qualification Plan
23.	WMP-400, section 1.2.2	Qualification and Certification of Inspection and Test Personnel
24.	WMP-400, section 1.2.3	Qualification and Certification of Audit Personnel
25.	WMP-400, section 1.3.1	TRU Corrective Action Management
26.	WMP-400, section 1.3.2	TRU Nonconforming Item Reporting and Control System
27.	WMP-400, section 1.3.3	TRU Corrective Action Reporting and Control
28.	WMP-400, section 1.4.1	TRU Document Control
29.	WMP-400, section 1.5.1	TRU Records Management
30.	WMP-400, section 2.1.1	TRU Process Control
31.	WMP-400, section 2.1.2	TRU Operating Procedure Preparation and Approval
32.	WMP-400, section 2.1.3	TRU Administrative Procedure Preparation and Approval
33.	WMP-400, section 2.1.4	TRU Handling and Storage
34.	WMP-400, section 2.1.5	TRU Transportation Logistics
35.	WMP-400, section 2.1.6	TRU Analytical Procedure Process
36.	WMP-400, section 2.3.1	TRU Procurement Planning
37.	WMP-400, section 2.3.2	TRU Procurement Document Control
38.	WMP-400, section 2.3.3	TRU Control of Purchased Items and Services
39.	WMP-400, section 2.4.1	TRU Inspection Control
40.	WMP-400, section 2.4.2	TRU Test Control

41.	WMP-400, section 2.4.4	TRU Control of Measuring, Test, and Data Collecting Equipment
42.	WMP-400, section 2.4.5	TRU Identification and Control of Items
43.	WMP-400, section 3.1.1	TRU Management Assessment
44.	WMP-400, section 3.1.2	Quality Assurance Reports to Management
45.	WMP-400, section 3.2.1	TRU Independent Assessments
46.	WMP-400, section 3.2.2	TRU Surveillance Program
47.	WMP-400, section 6.1.1	TRU Software Quality Assurance
48.	WMP-400, section 7.1.1	TRU Waste Data Quality Objectives Reconciliation and Reporting
49.	WMP-400, section 7.1.3	Transuranic Waste Repackaging, Visual Examination, and Sampling
50.	WMP-400, section 7.1.4	Sampling Design and Data Analysis for RCRA Characterization and Visual Examination of Retrievably Stored Transuranic Waste
51.	WMP-400, section 7.1.5	WIPP Waste Information System Data Entry and Reporting
52.	WMP-400, section 7.1.6	TRU Waste Project Level Data Validation and Verification
53.	WMP-400, section 7.1.7	TRU Waste Container Management Activities
54.	WMP-400, section 7.1.8	Transuranic Waste Transportation and Disposal Certification
55.	WMP-400, section 7.1.9	Acceptable Knowledge Documentation Management
56.	WMP-400, section 7.1.10	TRU Waste Visual Examination Technique
57.	WMP-400, section 8.1.1	Logkeeping Practices for WIPP Activities for Headspace Gas Sampling and Analysis
58.	WMP-400, section 8.1.8	Headspace Gas Sampling and Analytical Results
59.	WRP1-OP-0503	Move Drums Throughout WRAP
60.	WRP1-OP-0521	Receive and Load TRUPACT-II Containers
61.	WRP1-OP-0522	Assemble and Stretch Wrap TRUPACT-II Payload
62.	WRP1-OP-0524	Helium Leak Test of the TRUPACT-II Shipping Container
63.	WRP1-OP-0722	TRU RWM Glovebox Automatic Mode Operation
64.	WRP1-OP-0725	TRU Sorting Glovebox Operation
65.	WRP1-OP-0726	TRU Loadout Glovebox Operations
66.	WRP1-OP-0729	Visual Examination
67.	WRP1-OP-0905	Imaging Passive/Active Neutron Assay Operation
68.	WRP1-OP-0906	Gamma Energy Assay Operations
69.	WRP1-OP-0908	Operation of Drum Nondestructive Examination System
70.	WRP1-OP-0911	Storage and Use of Special Nuclear Material (for PDP work only)
71.	WRP1-OP-1225	Radiological Support of TRUPACT-II Shipping and Receiving
72.	ZA-400-301	SGSAS Energy and Efficiency Setup and Baseline Determination
73.	ZA-400-302	Calculation of Assay Results
74.	ZA-400-303	Energy and Efficiency Setup and Baseline Determination Using NDA 2000
75.	ZA-400-304	ANTECH Calorimeter Calibration
76.	ZA-948-385	Nondestructive Assay Using the Segmented Gamma Assay System (SGSAS)
77.	ZA-948-392	NDA Using the NDA 2000 (Room 172 SGSAS) 2 nd SGSAS
78.	ZA-948-393	NDA Using Room 172 ANTECH Calorimeters
79.	ZO-160-080	Pipe-N-Go Operations
80.	ZO-160-081	Pu/Al Alloys Operation
81.	ZO-160-082	Residue Solid Sampling
82.	ZO-170-057	VE Technique of PFP Debris

Hanford Inactive or Cancelled Procedures

#	Procedure Number	Procedure Title	Date
1.	WMP-350, section 2.4	Quality Assurance Objectives for NDA at WRAP Cancelled - Replaced by WMP-350, sections 2.8 and 2.9	5/17/02
2.	FSP-PFP-5.8, 16.1	Quality Assurance Objectives for NDA at PFP Cancelled - Replaced by FSP-PFP-5-8, sections 16.3 and 16.4	5/17/02

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