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Department of Energy
Carlsbad Field Office
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JAN 13 2017

Mr. Johnny Moore, Site Manager
Oak Ridge National Laboratory
1 Bethel Valley Road
Oak Ridge, TN 37830

Mr. John A. Mullis II, Acting Manager
Oakridge Office of Environmental Mgmt.
200 Administration Road
Oak Ridge, TN 37831

Subject: Distribution of DOE CBFO and NWP LLC Generator Site Technical Review GSTR-OR-1-16-01 Final Report

Dear Mr. Moore and Mr. Mullis:

As co-permittees of the Waste Isolation Pilot Plant (WIPP), Department of Energy (DOE) Carlsbad Field Office (CBFO) and Nuclear Waste Partnership LLC (NWP) conducted a Generator Site Technical Review (GSTR) of the transuranic waste management activities currently ongoing at the Oak Ridge Reservation. Successful completion of this review is required by the WIPP DSA prior to shipment of the newly certified waste to WIPP. The review, identified as GSTR-OR-1-16-01, was conducted in accordance with the DOE CBFO 16-3563, *GSTR Plan*; and DOE WIPP-16-3564, *GSTR Procedure*.

The GSTR is intended to assess the sufficiency of generator site activities applicable to treatment, packaging, and management of transuranic waste, before newly certified waste is presented to the CBFO-approved waste certification program. The review is designed to identify and mitigate deficiencies that could adversely affect the certification program.

On site review activities were conducted beginning on September 19, 2016 and concluding on September 23, 2016. The participating organizations included North Wind Solutions, LLC, responsible for the TRU Waste Processing Center; UCOR, responsible for the TRU waste storage facilities for the site; University of Tennessee-Battelle, LLC, responsible for the Oak Ridge National Laboratory, and BWXT Technologies, owners of Nuclear Fuel Services in Erwin, Tennessee.

The final report for GSTR-OR-1-16-01 is enclosed. Ten issues were identified, some of which have already been closed. Please provide your responses for the remaining items by the end of February 2017. In accordance with the WIPP DSA, CBFO and NWP concurrence with closure of all items is required before the newly certified waste may be disposed at WIPP.

Thank you for the excellent support provided during the performance of the review. If you have any questions or comments, please contact Mr. Courtland Fesmire, CBFO TRU Site Technical Review Coordinator, at (575) 706-0044.

Sincerely,

Todd Shrader, Manager
Carlsbad Field Office

Philip J. Breidenbach, Project Manager
Nuclear Waste Partnership LLC

Enclosure

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DOE-CBFO AND NUCLEAR WASTE PARTNERSHIP LLC
GENERATOR SITE TECHNICAL REVIEW GSTR-OR-1-16-01

12/13/16

I. EXECUTIVE SUMMARY

The U.S. Department of Energy Carlsbad Field Office (DOE-CBFO) and Nuclear Waste Partnership LLC (NWP), as co-permittees, performed Generator Site Technical Review (GSTR) OR-1-16-01 September 19 – 23, 2016. The review was conducted at the Oak Ridge National Laboratory (ORNL) TRU Waste Processing Center (TWPC), the Radiochemical Engineering Development Center (REDC), URS CH2M Oak Ridge (UCOR), and Nuclear Fuel Services (NFS).

The purpose of the review was to assess the sufficiency of generator site activities applicable to treatment, packaging, and management of transuranic (TRU) waste conducted to prevent or mitigate deficiencies similar to the chemical incompatibilities described in the DOE Accident Investigation Board (AIB) report, *Radiological Release Event at the Waste Isolation Pilot Plant, February 14, 2014.* The review team concluded that the ORNL and ancillary TRU waste generating and processing/packaging facilities and organizations are satisfactorily implementing their respective programs and established procedural requirements. The processes reviewed also demonstrated competence needed to prevent or mitigate deficiencies similar to those described in the AIB report.

The TWPC, managed by North Wind Solutions, LLC (NWS), for the DOE Office of Environmental Management (EM), is the primary processing facility for TRU waste at the ORNL site. The TWPC does not generate TRU waste itself (other than secondary or process-generated waste), but rather serves as a centralized facility to process all TRU waste inventory currently stored at ORNL for final acceptance at the Waste Isolation Pilot Plant (WIPP). The inventory consists primarily of legacy containers generated by operations at the ORNL, both contact-handled (CH) and remote-handled (RH), as well as TRU waste from several off-site generators. The Central Characterization Program (CCP) has an established Certified Program at the TWPC, providing acceptable knowledge (AK), characterization, certification, and transportation services for both CH and RH waste.

Demolition and environmental cleanup activities on the Oak Ridge Reservation are managed by UCOR for DOE-EM. While the majority of the current activities are associated with the cold war era uranium enrichment facilities at the East Tennessee Technology Park, and therefore do not generate TRU waste, future DOE-EM decontamination and decommissioning activities at ORNL have the potential to generate TRU waste, although such activities are not scheduled to begin for several years. UCOR currently provides the centralized storage facilities for TRU waste (one for CH and one for RH) for the entire Oak Ridge Reservation. UCOR controls the waste acceptance criteria for the storage facilities, which must be met by all TRU waste generators. The storage facilities feed TWPC processing operations, and transfers occur frequently in both directions, sending waste materials to TWPC for processing, and sending the repackaged waste back to UCOR for storage. Thus, UCOR is in the unique position of maintaining and operating TRU storage facilities, but not yet generating TRU waste.

The ORNL, managed by University of Tennessee-Battelle (UT-Battelle) for the DOE Office of Science, is a multi-purpose research laboratory. Historical work involving reactor chemistry, fuel design, fuel reprocessing development, and isotopic separations has generated the majority of the ORNL TRU waste inventory. Because wastes may be generated by numerous individual researchers during laboratory operations, ORNL has established a central waste management group, the Transportation and Waste Management Division (TWMD), to direct, coordinate, and control waste generation and management activities. In this fashion, waste management expertise for the various types of waste produced throughout the lab is consolidated, and procedures require TWMD involvement throughout waste generation and processing activities.

Here is a link to the FFRDC requirements page.

http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/fardfars/far/35.htm

The FFRDC stuff starts at 35.017

The TWMD interfaces with UCOR for acceptance and storage of TRU waste, and with TWPC for processing of TRU waste.

Currently, isotope generation and separation activities are the primary generators of TRU waste. The REDC operates in conjunction with the High Flux Isotope Reactor (HFIR) to produce transuranium isotopes for research. Since beginning operations in 1966, it has been the nation's main center of production, storage, and distribution of transuranium elements for the DOE's heavy-element research program. It includes the Transuranic Facility (REDC-1, Building 7920) and the Thorium-Uranium Recycle Facility (REDC-2, Building 7930). REDC includes nine heavily shielded hot cells. Four of the hot cells contain chemical processing equipment for dissolution, solvent extraction, ion exchange, and precipitation operations, and three contain equipment for the preparation and inspection of transuranic element targets. One hot cell is used for analytical chemistry operations and one is used for waste collection and sorting.

REDC-1 is a two-story Category 2, non-reactor nuclear facility that includes glove boxes, laboratories; two heavily shielded small hot cells (shielded caves), support areas, and an office wing. Major activities include target preparation, the recovery and purification of transuranium elements, and the development of processing and separations flow sheets. REDC-1 fabricates target rods containing americium and curium, which is then irradiated in HFIR before being returned for processing in the hot cells. Activities also include recovery and purification of TRU elements from irradiated targets, power reactor fuel-cycle studies, production of special isotopes for research, alpha glove box laboratories, and analytical chemistry.

REDC-2 is a three-story Category 2, non-reactor nuclear facility that includes a high bay area housing a hot cell bank, hot cell support areas, laboratories, and offices. Activities include chemically processing californium; fabricating, packaging, and shipping neutron sources; recovering Cm-248 from californium; and providing neutron irradiation services.

Because of the size and complexity of operations conducted in multiple hot cell facilities, ORNL has an additional organization, the Nonreactor Nuclear Facilities Division (NNFD), to control and coordinate operations. The NNFD interfaces between the individual researchers and the TWMD.

DOE plans to transfer TRU waste certification activities for newly generated ORNL CH and RH waste from TWPC to ORNL starting with RH in fiscal year (FY) 2017, followed by CH in FY 2018 . As such, CCP will establish a program directly with ORNL analogous to the current program at TWPC. Following transition, the amount of newly generated TRU waste from ongoing research work is expected to be very small, as compared to historical processing rates of legacy waste at the TWPC.

Nuclear Fuel Services (NFS) managed and owned by BWX Technologies in Erwin, Tennessee, is involved in the manufacture of fuel for the U.S. Navy, as well as the downblending of weapons-grade materials into fuel. The TRU waste generated at NFS is associated with the D&D of a former mixed oxide (MOX) fuel fabrication facility, which has been completed. The only TRU waste being shipped from NFS to ORNL today consists of contaminated soils from the former MOX facility D&D.

As described in detail the Issues section of this report, ten issues were identified by the GSTR team, nine of which will require resolution by the applicable parties (ORNL facilities/organizations) prior to closure issue. The issues primarily involve procedural content, improved operator training to waste disposal requirements, better and more widespread use of AK, and federal oversight of the TRU program once transitioned to ORNL.

II. REVIEW DETAILS

Purpose and Scope:

The purpose of this GSTR was to assess ORNL Waste Management Program and Certified Program processes that govern TRU waste packaging, treatment, certification and management. The review was conducted to ensure that necessary and sufficient processes and procedures are in place and are implemented to assure TRU waste containers meet WIPP Waste Acceptance Criteria (WAC) requirements prior to transfer or re-entry into the Certified Program, and that deficiencies are detected and corrected prior to shipment of waste to WIPP. The review focused on the following programs:

- Quality assurance program, including training for waste generators
- Performance Assurance program and issues management system
- Conduct of operations, including verification that changes to existing procedures and processes related to TRU waste management are incorporated into AK
- Federal oversight at the ORNL
- TRU waste management programs at the ORNL that result in the following:
  - Waste generation, treatment, and packaging processes
  - RCRA permitting and implementation
  - Hazardous waste determinations
- Deferred maintenance (i.e., potential impacts to TRU waste processes)

The scope included, but was not be limited to, TRU waste packaging and processes at the TWPC, REDC, UCOR and NFS facilities, prior to presentation to the WIPP Certified Program(s), and consisted of the following elements:

- Evaluation of waste generator repackaging operations that prepare TRU waste for characterization
- Implementation of waste generator site processes as they relate to TRU waste management
- Verification that changes to processes are correctly incorporated into AK summary reports
- Verification of effective implementation documentation and programs to ensure that waste generator activities comply with the generator site RCRA permit
- Evaluation of local site office oversight of TRU waste operations
- Evaluation of waste generator site deferred maintenance in TRU waste program operations

The scope also included the following Key Element (KE), included in DOE/WIPP 07-3372, *WIPP Documented Safety Analysis (DSA)*, Chapter 18-4: "The WIPP M&O Contractor performs Generator Site Technical Reviews, which are reviews of DOE Sites and Certified Programs implementation of WIPP requirements (excluding DOE activities)."

This review was performed in accordance with prepared lines-of-inquiry/checklists. Review activities included review of documentation, personnel interviews, and observations of processing activities.

Criteria/Requirements Documents:

- DOE/CBFO-16-3563, *Waste Isolation Pilot Plant Generator Site Technical Review Plan*
- DOE/WIPP-16-3564, *Generator Site Technical Review Procedure*

- DOE/WIPP 07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis;* Chapter 18, Key Element 18-4
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
- DOE Order (O) 226.1B, *Department of Energy Oversight Policy*
- DOE O 227.1A, *Independent Oversight*
- DOE O 414.1D, *Quality Assurance*
- DOE O 422.2, *Conduct of Operations*
- DOE O 435.1, *Radioactive Waste Management*

Review Team:

CBFO GSTR Coordinator	Courtland Fesmire, DOE CBFO
GSTR Team Lead	Pete Rodriguez, NWP
GSTR Team Members	Tom Carver, DOE/CBFO Mark Doherty, Technical Specialists, LLP Dave Haar, Haar Engineering, PLLC Steve Pye, AECOM/URS Professional Solutions, LLC
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Date of Review:	September 19 – 23, 2016

Location(s) of Review: ORNL/TWPC/REDC/UCOR
Oak Ridge, Tennessee

NFS
Erwin, Tennessee

Conclusions:

Quality Assurance/Performance Assurance:

TWPC
The program documents reviewed, coupled with personnel interviews, demonstrated that adequate and sufficient Quality Assurance (QA) and Performance Assurance program measures have been established and implemented. These program measures also demonstrate sufficient assurances that deficiencies similar to the chemical incompatibilities described in the DOE AIB

report would be prevented or mitigated by this organization. The QA and Performance Assurance program requirements and relevant implementation of other TRU waste generators/DOE prime contractors as cited throughout this report are accomplished through their respective programs and waste acceptance criteria, to support CCP activities and DOE-mediated interfaces.

Documents and objective evidence associated with the QA program, Performance Assurance, procurement processes, document control, internal and external assessments, packaging/re-packaging and presentation to CCP for certification, training, and deficiency reporting including resolution, were reviewed and/or observed by the team. This information included, but was not limited to:

- CM-A-QP-001, *Quality Assurance Program Description*
- CM-A-QA-002, *Contractor Assurance System Description*
- DOE ORO EM correspondence approving NWS/TWPC QA Program, Integrated Safety Management System Description (ISMS)
- Other TWPC programs

Internal management assessments, performance assessments, and Timely Order suspension records for the use of poly sorbents with potential oxidizing liquids were also examined. Other relevant documents included CH-REF-OP-014, *Absorbing Liquids in the Glovebox and Box Breakdown Area*; CM-P-AD-061, *Document Preparation, Review and Approval*; and CM-P-AD-083, *Deficiency Reporting and Investigation*.

Note: Other documents as cited throughout this report and in Attachment 2, Table of Documents Reviewed, substantiate the sufficiency of the QA and Performance Assurance programs.

ORNL, including REDC, TWMD, and NNFD

The QA and Performance Assurance program requirements, including implementation, indicated that satisfactory assurances are in place at these facilities. GSTR team determinations were based on personnel interviews, observations of TRU processing/packaging, and document reviews. Facility documents were reviewed included:

- ORNL Waste Certification Roll-Up Performance Assessments
- ORR Standards Based Management System (SBMS)
- Waste and Environmental Management Training
- Functions/Roles, etc.
- Activity Assessments
- Management Assessments
- NNFD Performance Assessment documents
- ORNL Waste Certification Program Independent Assessments and Assessment & Commitment Tracking System (ACTS) reports.

Attachment 2 lists numerous program documents that demonstrate the sufficiency of the QA and Performance Assurance programs at these facilities.

Review elements associated with Procurement and Training of Waste Processing Personnel; Contractor Assurance & Deferred Maintenance; Waste Management processes including generation, treatment, packaging, RCRA and Hazardous Waste Determinations; and Conduct of Operations, are cited throughout this report and attest to the establishment and satisfactory implementation of program requirements.

UCOR

As previously mentioned, UCOR provides the centralized storage facilities for TRU waste throughout the ORNL site. Discussions with UCOR personnel and associated document reviews indicate that they implement such documents as the UCOR-4141, *Quality Assurance Program Plan*; UCOR-4187, *Waste Certification Program Plan*; UCOR-4188, *Waste Characterization Plan*; PROC-TC-0702 *Training Program*; PROC-WD-1501, *Waste and Material Acceptance*; and PPD-WM-2400, *Waste Management Program Plan.* Other program documents reviewed are listed in Attachment 2. These documents, coupled with interviews conducted at the UCOR offices, demonstrate satisfactory establishment and implementation of QA and Performance Assurance programs and practices.

Under the UCOR contract with the DOE-OREM and the mandate of DOE Orders such as 435.1, *Radioactive Waste Management*; 414.1, *Quality Assurance*; 422.1, *Conduct of Operations* and many others, this facility is required to demonstrate satisfactory implementation and compliance with the applicable programs as mentioned in the Purpose and Scope section of this report.

NFS

The program documents associated with NFS are recorded in Attachment 2. These documents, interviews of personnel and observations of field operations indicated that sufficient programs and controls have been established and satisfactorily implemented. Specific programs, procedures and documents that addressed the QA and Performance Assurance aspects of this review and for this facility included:

- NFS-M-48, *Quality Assurance Program*
- NFS-Q-178, *Quality Assurance Audit Procedure*
- NFS-DC-139, *Container Inspection & Repackaging Procedure*
- NFS-Q-224, *Quality Assurance Shipping Vendor Qualification Procedure*
- NFS-PUR-A-053, *Procurement Document Control*
- NFS-PUR-A-054, *Control of Purchased Items and Services*
- NFS-PUR-A-055, *Guidance for Procurement Concurrence Request Submittals*

Other documents relative to the NFS facility, cited throughout this report and listed in Attachment 2, demonstrate the sufficiency of NFS QA and Performance Assurance programs.

Procurement/Training of Waste Processing Personnel/Contractor Assurance and Deferred Maintenance:

Procurement:

The GSTR team evaluated procurement of items and components important to waste processing to ensure that items procured have the necessary pedigree to conform to procedures, safety evaluations, and quality standards. Such items include waste containers, filtered vents, liners, and chemicals that may be added to the waste container, such as absorbents. This portion of the review was conducted to ensure protections are in place to prevent the substitution of inferior components important to waste management as happened at Los Alamos National Laboratory (LANL) with the substitution of organic absorbents in place of the required inorganic absorbents.

The GSTR team determined that all components procured by the organizations evaluated that have the potential to affect waste performance are procured using formal purchase orders, material specifications, receipt inspections, and vendor certifications. Procurement documents, including revisions, were determined to have an appropriate set of reviewers. The team concluded that procurement processes are sufficient to preclude use of inferior materials, inappropriate

changes, or selection and/or acceptance of prohibited materials. Specific information for each of the facilities is provided below.

TWPC
TWPC has identified waste containers, filters, gaskets, liners, and absorbents as procured components or materials that have the potential to adversely affect waste processing. Each of these materials is procured in accordance with CM-P-PC-002, *Procurement of Items and Services*, which identifies the responsibilities and describes the processes and controls for procuring items and services, and CM-P-PC-004, *Procurement Quality Assurance*, which describes the QA processes and controls applicable to the procurement process, including use of a graded approach.

Several such components, including the various waste containers and filters, have been identified as Safety Significant (SS) within the DSA, and therefore invoke the highest level of QA involvement, including component specifications, vendor evaluations, material certifications, and certificates of compliance. Those components not determined as Safety Class (SC) or SS are evaluated in accordance with CM-P-AD-039, *Graded Approach*, and are assigned a Mission Quality (MQ) or Commercial Quality (CQ) category. All items identified as important to waste management activities have at least a MQ designation, and therefore invoke formal purchase orders, material or component specifications, and receipt inspections.

ORNL, including REDC, TWMD, and NNFD

ORNL currently sends all of its TRU waste to the centralized ORNL storage facilities managed by UCOR, for subsequent processing and shipment through the TWPC. As such, ORNL packages its TRU waste to comply with the applicable UCOR master waste profiles to ensure the waste will ultimately be accepted at WIPP. The UCOR profiles specify procurement specifications for drums and filters, the required process knowledge, and appropriate prohibitions on incompatible chemicals.

ORNL implements these requirements through its *Waste Certification Program Plan* and associated implementing procedures. The plan identifies items and services deemed critical to waste management activities, such as absorbents used to meet RCRA treatment, storage, and disposal facility (TSDF) waste acceptance criteria, and requires such procurements to include specified requirements, vendor evaluations, and receipt inspections.

UCOR
As UCOR primarily supports TRU waste storage and transfer to the TWPC in support of the DOE TRU Program and the Site Treatment Plan (STP) milestones for TRU waste, no evaluation of UCOR procurement activities was performed during this GSTR.

NFS
In a manner similar to ORNL, NFS also sends all of its TRU waste to the centralized ORNL storage facility managed by UCOR, for subsequent processing and shipment through the TWPC. Going forward NFS plans to ship TRU waste directly to TWPC. However, NFS uses DOE-N-435.1, *CH and RH TRU Waste Packaging Instructions*, to ensure the waste will ultimately be accepted at WIPP. These instructions include specifications for waste containers and filters, which NFS implements via its procurement program.

Training and Qualification:

The GSTR evaluated the generator site training and personnel qualification for waste processing activities to ensure all responsible personnel possess an adequate understanding of the requirements of waste management, including the requirements for waste processing, the regulatory framework, and the waste acceptance criteria of the facility ultimately accepting the

waste for disposal. Responsible personnel includes anyone actually handling the waste (operations), those supporting waste processing (e.g., industrial safety, hygiene, environmental, radiological controls) responsible management, and oversight. This portion of the review evaluated protections against errors and omissions that may occur primarily during waste repackaging operations, where repackaging personnel may not have the depth of technical understanding as compared to the personnel who originally packaged the waste.

The GSTR determined that all evaluated organizations expend significant resources to train personnel, have established programs that comply with DOE-O-426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, and have developed training specific to the LANL/WIPP release event. However, the team identified weaknesses in the training of waste handling personnel in two of the organizations, as detailed below (see the Issues section of this report).

TWPC

The TWPC, as a repackaging facility, is the most similar to the LANL repackaging operations in that operations personnel repacking the waste do not have the depth of technical understanding of waste components as the original generating personnel. As such, TWPC has developed a comprehensive set of training modules designed to protect both the workers and the waste certification programs.

The GSTR team reviewed several modules, including CM-L-OP-023, Rev, 0, *Classical Physics & Chemistry*; CM-L-EN-001, Rev. 9, *RCRA Training*; CM-L-OP-048 Rev. 0, *Energetic Materials*; and a primer on reactives, ignitables, and corrosives. All were found sufficiently detailed to provide the trainees with the information necessary to safely and compliantly perform work. The basic physics and RCRA modules, in particular, are impressive in the scope of information included.

Nonetheless, interviews with individual waste operators indicated a lack of knowledge relative to RCRA, such as the purpose of RCRA, the permitting process, the application of hazardous waste codes, the regulatory authority, and the definition of ignitables, reactives, and corrosives that were not clear or consistent (see the Issues section in this report). In the opinion of the GSTR team, this is not an indication of a weak or ineffective waste repackaging program, but rather is a result of waste processing procedures that mandate the RCRA and AK Expert staff resolve technical issues, removing this responsibility from the waste operator. While this approach is acceptable and protective of the program, it tends to diminish the engagement of the waste operator. The operators were presented with the appropriate information via the training modules, but because they do not use the information during their daily activities, it was not retained.

In a similar issue, the waste operators use a shortened summary of the AK information, limiting their familiarity with the nuances of each waste stream (e.g., where it came from, the processes that generated the waste, the chemicals used, the identified hazards, how this waste differs from other wastes).

In both of these issues, diminished engagement of the waste operator could potentially result in an operator failing to recognize a discrepancy or hazard, and subsequently failing to notify the appropriate technical personnel. Waste operator knowledge is an important defense-in-depth component of the program, and as such, the GSTR team believes additional work is needed to enhance the operator's technical knowledge (see the Issues section in this report).

ORNL, including REDC, TWMD, and NNFD

The laboratory personnel are generating waste, as opposed to repackaging it, and are thus intimately familiar with the chemical hazards. The GSTR interviewed four such personnel (researchers), all of whom displayed a thorough understanding of the cause of the LANL/WIPP release event, as expected, based on their advanced level of technical competence relative to chemistry.

The generators do not, however, have expertise in waste management. Waste management expertise is provided by the Transportation and Waste Management Division (TWMD), a

centralized group responsible for the disposition of many categories of waste, including TRU waste.

A Waste Generator Awareness training module is provided to all generators, and describes the different types of waste along with the generator responsibilities, of which a significant component is notification and involvement of waste management personnel. Researchers are required by procedure to involve TWMD personnel in the planning phase, well before any waste is generated, and the TWMD personnel provide guidance and direction throughout waste generation, characterization, and packaging activities.

TWMD personnel are trained in accordance with EPWSD-OQS-PL-220-CN-1, *TWMD Training and Qualifications Program Plan*. Baseline training requirements are specified for each job position in the Internal Training Requirements Matrix, and additional requirements for specific operations are specified in the Functional Training Matrix. Training modules and qualification records are maintained online via the Learning Resource Network (LRN). The Program Plan requires a reevaluation of training requirements when new positions are created, or when new information or conditions arise, as in the case of the LANL/WIPP release event.

Although all personnel interviewed were knowledgeable concerning TRU waste processing and packaging requirements, there is no WIPP or TRU waste-specific training module in the LRN. The DOE order associated with training mandates that personnel be trained commensurate with their duties. Although the interviewed personnel displayed the appropriate level of knowledge, they have developed their expertise from other sources, such as participation in the DOE national TRU Program (NTP) Corporate Board meetings, discussions with TWPC personnel processing ORNL waste, and compliance to the UCOR master waste profiles. Lack of a comprehensive WIPP-specific training module reduces the likelihood that as new personnel enter the program, they will receive consistent and appropriate information.

The GSTR team believes a WIPP-specific training module is needed, and should contain information such as WIPP lessons learned, histories of nonconformances, bases of acceptance criteria, etc., in a format consistent with the rest of the TWMD training program.

NFS

NFS, a privately owned facility licensed by the NRC, is exempted from the DOE order on training. However, they use an on-line training and qualification system, defined in NFS-PD-001, which is similar to the system described for ORNL.

Specific training requirements for the TRU waste packaging task is derived from NFS Procedure SOP-335-L, *Waste Packaging for WIPP Disposal*, which is designed to implement the requirements of DOE-N-435.1, *CH and RH TRU Waste Packaging Instructions*. These instructions are very specific, allowing little or no interpretation of the requirements, and require video of the entire packaging operation.

NFS uses personnel qualified as Highly Enriched Uranium Material Handlers to perform the TRU waste packaging operations, which involves a diverse and comprehensive training program, in addition to the task-specific requirements.

The GSTR team interviewed two waste packaging operators, both of whom displayed a detailed understanding of the LANL/WIPP release event, the origin of the waste they are packaging, procedural requirements, RCRA requirements, and fundamental concepts of physics and chemistry.

Based on the limited scope of TRU waste generating activities at NFS, highly qualified personnel, and the extremely prescriptive nature of the packaging instructions and the associated procedure, the GSTR team identified no issues with the NFS training program.

Contractor Assurance System:

The GSTR team evaluated the Contractor Assurance System (CAS) in place at each organization to ensure the contractor is tracking and trending waste processing performance, identifying issues

and trends, determining corrective actions, and tracking corrective actions to closure. This portion of the review is intended to protect against inappropriate decisions and actions in field operations due to lack of management involvement and oversight.

The GSTR team found that all organizations have an active CAS (or equivalent Performance Assurance system) in place, approved by the customer, performing its intended functions.

TWPC

CM-A-QA-002, *Contractor Assurance System Description*, defines the CAS at TWPC. It incorporates the appropriate programs, including CM-A-AD-A-049, *Integrated Comprehensive Assessment Planning and Results Analysis*, CM-A-PA-001, *Leading Indicator Program Plan*, CM-P-AD-046, *Lessons Learned*, CM-P-AD-083, *Deficiency Reporting and Investigation*, and CM-P-AD-060, *Management Assessment*.

The GSTR team reviewed the assessment schedule, several lessons learned and deficiency reports, and two annual trending and occurrence reports. The reviewed documentation indicates that NWS is appropriately engaged in field operations and oversight activities.

ORNL, including REDC, TWM, and NNFD

The ORNL *Waste Certification Program Plan* provides a roadmap of the CAS program components related to waste management activities. Within TWMD, procedure EPSTWM-AP-201, *Standard Operating Procedure for Documenting Problem Events*, specifies the process for identifying, documenting, and dispositioning nonconforming issues or problems that could affect waste. Corrective actions identified as a result of the problem event reporting process are entered and tracked in the ORNL ACTS database. Procedure EPWSD-AP-209, *Standard Operating Procedure for Planning and Conducting Waste Certification Program Assessments and Reviewing the Effectiveness of Associated Corrective and Preventive Actions*, describes the process for planning, scheduling, conducting, and documenting assessments, and reporting results to responsible management.

The GSTR team reviewed the 2015 year-end review assessment, the FY 2016 TWMD *WCP Surveillance Summary*, and a sampling of issues reported and tracked within the ACTS database. The reviewed documentation indicates that UT-B waste management personnel are appropriately engaged in field operations and oversight activities.

NFS

NFS, as a privately owned facility licensed by the NRC, is exempted from the DOE order on oversight. However, NFS incorporates the components of a CAS system in its NQA-1 based Quality Assurance Program (QAP). This program provides for the identification and control of items (section 4.8), processes (section 4.9), nonconforming conditions (section 4.15), a corrective action program to track, trend, investigate issues, and develop associated corrective actions, and an audit program (section 4.18) to verify compliance with all applicable requirements of the QAP and determine its effectiveness. Audits are performed by personnel who do not have direct responsibility for performing the activities being audited.

The GSTR team conducted interviews with NFS technical management personnel, all of whom demonstrated detailed knowledge of the waste generating activities, as well as the packaging instruction requirements.

Based on the limited scope of TRU waste generating activities at NFS, and the knowledge and involvement of the management staff, the GSTR team identified no issues with the NFS oversight program.

Deferred Maintenance:

The GSTR reviewed the status of maintenance activities for equipment that could potentially impact the safety boundary of the waste containers. This portion of the review is intended to protect against a situation similar to the deferred maintenance on the mining equipment at WIPP, which ultimately contributed to the February 2014 fire.

The GSTR interviewed maintenance and operations personnel. No issues with the potential to affect waste safety were noted.

Waste Management – generation, treatment, packaging, RCRA and Hazardous Waste Determination:

The ORNL waste management portion of the GSTR confirmed that appropriate processes and procedures governing the treatment, packaging, certification, and management of TRU waste are adequately implemented at the organizations reviewed. The TWPC, UCOR, TWMD, NNFD at REDC, and the NFS soils excavation project produce TRU waste containers that are compliant with WIPP requirements. The processes and procedures in place are sufficient and are implemented such that TRU waste containers either meet the WAC requirements for the UCOR or TWPC facilities that will store the waste or they initially meet WIPP WAC requirements prior to storage and prior to being offered to the certification program at TWPC for characterization. The TRU waste management programs at the TWPC, UCOR, TWMD, NNFD at REDC, and NFS were reviewed for:

- Waste generation, treatment, and packaging processes
- RCRA permitting and implementation
- Hazardous waste determinations

Review of those programs included:

- Evaluation of waste generator repackaging operations that prepare TRU waste for characterization at TWPC
- Implementation of waste generator site processes as they relate to TRU waste management at TWPC, REDC, and NFS
- Verification that changes to processes are correctly incorporated into AK summary reports at each of the organizations
- Verification of effective implementation documentation and programs to ensure that waste generator activities comply with the generator site RCRA permit at each of the organizations

The results for the reviews are provided below. The GSTR Waste Management checklist provides details regarding documents reviewed and the interview results. The following common themes were noted across the organizations:

- Workers have little or no exposure to the CCP AK report for their waste streams
- Supervisors, rather than the hands-on waste generators, are more likely to receive the AK briefing provided by the CCP AK Expert
- Workers are provided little training or information specific to the WIPP TRU waste program and in interviews workers demonstrated a cursory-level knowledge of RCRA
- Personnel who are trained to make hazardous waste determinations for waste or to review procedures for hazards are given little information regarding incompatible materials, but they are expected to be able to identify incompatible materials during reviews.

The TWMD stated that a WIPP-sponsored training program related to the TRU program, the AK process, and chemical compatibility issues would be of great benefit. They also stated that they would like a closer relationship with NTP as they begin to assume TRU waste management and interface responsibilities with CCP.

TWPC

The GSTR Team conducted document reviews and interviews at TWPC to determine if the organization provides adequate waste management for TRU waste being repackaged for disposal at WIPP. TWPC repackages legacy waste to meet the WIPP WAC and Waste Analysis Plan (WAP) with a well-managed, mature TRU waste management program. TWPC works closely with CCP and, because TWPC is so closely aligned with the certified program, fully understands WIPP requirements. TWPC has a compliant and acceptable waste repackaging process.

The team concluded there is high confidence that waste repackaging operations performed at TWPC would identify and segregate incompatible materials and other WIPP-prohibited items. TWPC has shown the ability to make and control these items in the past and their document control procedures ensure that the rigor in the operating procedures should not change.

ORNL, including REDC, TWMD, and NNFD

The GSTR team interviewed personnel working for the TWMD and NNFD, and personnel performing research or operating the REDC (specifically Building 7920) processes to determine if direction provided to the waste handlers and researchers is adequate to ensure that the waste as packaged by the generators will meet the WIPP WAC. The REDC waste management program is designed to meet the UCOR Master Profiles, which are relied upon to ensure the waste will not need to be repackaged. The interviews with the REDC waste technicians and the researchers that actually generate the TRU waste provided high confidence that they are aware of the implications of incompatible materials, can identify them in their daily activities, and understand the importance of adhering to the established waste management procedures. Continued compliance with the Master Profiles will result in WIPP-compliant drums; however, because TWPC will be ending its mission soon, the NNFD packaging procedures will need to be evaluated against the WIPP WAC to ensure compliance and to ensure that AK information is collected and protected.

The process for completing Waste Form 2109 provides for collection of process knowledge information. That information eventually becomes AK information used by CCP. The information collected is focused on the contents of the drum, but will need to be expanded to include the TRU waste management information required by the WAP. It need not be included in the 2109 data package, but it should be collected and stored such that the AK Expert will have the required information necessary to explain the operations that resulted in the generated waste.

The objective evidence file documenting the defense origin of the waste (required by the Master Profile), is apparently not a formal record. These documents will need to be protected and made available to the CCP AK Expert in the near future.

The GSTR team conducted document reviews and interviews to determine if TWMD provides adequate waste management for TRU waste from REDC being packaged for disposal at WIPP. TWMD provides the Waste Services Representatives (WSRs) that assist generators to characterize their waste. The WSRs then ensure the data packages generated for the waste meets the requirements found in the UCOR Master Profiles. There has not been an issue with the directions provided to REDC regarding waste packaging and the process provides containers that should pass radiography examination when characterized by the Certified Program.

The WSRs provide daily assistance to the waste generator organizations and assist with performance of hazardous waste determinations. They would likely be the personnel to identify new hazards or hazardous materials, but they also bring in additional ORNL expertise as needed. The TWMD procedures are published under a formally established document control process.

The GSTR team determined that TWMD procedures are adequate; however, procedure TWMD-TP-574-CN-1, Rev. 4 as currently written would allow the operator to add precautionary absorbent to TRU waste drum, which is not the accepted TWMD practice. The procedure needs to include that practice and prohibition to ensure that no precautionary absorbents are added to TRU drums

until they have been evaluated for chemical compatibility under the pending CBFO Basis of Knowledge program (see the Issues section in this report).

The TWMD WSR noted the identification of aluminum powder in two casks. The WSR identified this as a potential problem and initiated an investigation to determine if the powder was a regulated or hazardous material. While the investigation only addressed the powder itself and not its compatibility with other materials, this demonstrates that the WSR performs a rigorous review and has the knowledge to identify abnormal or unusual circumstances. It is likely that other items that may be hazardous or incompatible with the waste would be identified because of the training, qualifications, and work practices in place at TWMD (see the Issues section in this report – commendable effort).

UCOR

The GSTR team conducted document reviews and an interview at the UCOR offices to determine how UCOR provides direction to TWMD that is ultimately implemented in the field at REDC during waste packaging. UCOR does process small amounts of TRU waste; however, that waste was not included in the scope of this review. This review focused on the requirements UCOR passes on to the TRU waste generators at REDC in the form of the CH and RH Master Profile forms. The Master Profiles capture the necessary WIPP WAC items.

Waste management requirements are identified in the Standards Based Management System and incorporated in the TRU Master Profiles for CH and RH waste. Those profiles reflect the TWPC WAC, in addition to the UCOR TSDF requirements. The Master Profiles include identification of prohibited items and packaging requirements. Changes to the UCOR waste management process are adequately controlled under a formal change control process that ensures changes are reviewed for hazards that could impact TRU waste.

NFS

The GSTR team visited the NFS site to observe field operations for packaging of soils/gravel waste. Interviews and document reviews were conducted after those observations. NFS packages its TRU waste in accordance with CBFO CH waste packaging instructions. The NFS excavation and packaging operation has been in place long enough that the process is mature and well understood by the operators. No drums produced using this process have required remediation at TWPC.

NFS personnel stated that on at least one occasion they repackaged some soil drums because the video of the packaging operation was lost. It should be noted that the process in place was sufficient and that NFS could have documented the loss of the video and made the case that there was no need to reopen those containers because there was high confidence that they would pass radiography inspection. The purpose of the packaging instruction was to minimize the need to repackage waste; loss of the video did not alter the physical process that packaged the waste. Future questions regarding the need to repackage waste should be brought to CBFO for consultation.

Conduct of Operations:

TWPC, REDC, UCOR and NFS have well established conduct of operations programs as observed in site procedures and other site documents referenced in this report. The technical review concluded that these organizations' waste operations, organizational structures, roles, responsibilities, and accountabilities for accomplishing program objectives were clearly defined, understood, and implemented. REDC will be taking on the responsibility of processing their TRU waste after June 2017 due to TWPC support ceasing at that time, which will result in changes to their roles, responsibilities and accountabilities.

Interviews with workers demonstrated an awareness of applicable procedure and guidance document requirements as well as professional attitudes in respect to their assigned duties. Workers throughout the facilities were aware of and indicated a commitment to procedural compliance and the use of work pause when necessary. It was noted during interviews at TWPC that operators used a shortened AK summary to familiarize themselves with waste contents, which has the potential for omitting important details regarding waste sources and contents.

At each facility, supervisors were observed to be involved with waste generating and processing activities. Pre-job briefings and post-job assessments were conducted to provide personnel with pertinent information regarding daily duties and activities, and supervisors provide current operator aides to the workers when deemed necessary, as reflected in applicable procedures referenced in this report.

Procedures for each facility reflect a system to gather, evaluate, and disseminate data relevant to conduct of operations to higher levels of management throughout each facility's various organizations and functional areas.

Each DOE facility has a qualified Facility Representative assigned to TRU waste activities. NFS, being a Nuclear Regulatory Commission (NRC)-regulated facility, is assigned a qualified NRC resident inspector. The DOE and NRC have required training programs to qualify their oversight personnel.

GSTR team interviews with personnel and site procedures demonstrate that deviations from requirements are identified by each facility, as well as evaluated and approved by the responsible DOE office. The Unreviewed Safety Question (USQ) process is used by all facilities and each facility is staffed by qualified personnel. There was no evidence that deviations presented an undue risk to workers or public health and safety.

GSTR team review of procedures referenced in this report, and interviews with personnel, confirm that each site has an independent verification program to ensure correct facility operation and the correct position of components. Filter and gasket placement on waste containers are verified to be correctly positioned.

Procedures for each facility reflect their responsibility to maintain facility operating records that provide a detailed history of facility operations and environmental safety and health events and functions. Log book recordkeeping was observed at the TWPC facility. Procedures for records maintenance at each facility are referenced in this report.

A system is in place for providing an accurate picture of facility status with regard to shift turnover for these facilities. TWPC uses both written and verbal communication, as well as equipment walk-downs as part of turnover activities. NFS waste packaging operates on a single shift; therefore, no turnover is required. However, checks are performed at the beginning of the shift to verify conditions. Turnover systems are reflected in each of the site-specific procedures as referenced in this report.

A formal process for establishing the development and approval of modifications for procedures and facility configuration is reflected in applicable procedures. Operating personnel interviewed were found to be cognizant of processes.

Program Management and Federal Oversight:

DOE ORNL

The DOE Office of Science uses a model that integrates oversight under DOE Order 226.1B and waste management under DOE Order 435.1 into an overall management system described in the *Management System Description* document submitted by the ORNL Site Office to the DOE Office of Science. This model appears to be successful for the types of activities expected in an

academic and research organization. The GSTR team found no indications in this limited review that this system is inadequate, especially as the focus of this review was only on TRU waste.

However, The GSTR team has a concern that once the certification programs are transferred to ORNL, the current level of oversight will not be adequate. There are significant differences in the nature of oversight activities when comparing the Office of Science work scope to that of the Office of Environmental Management. Specifically, the Office of Science work scope requires more collaboration with the contractor, and is uniquely tailored to the experiments or activities being conducted. The office of Environmental Management is much more requirement and compliance driven, resulting in more formalization and standardization of oversight procedures and policies. This is particularly true for TRU waste disposal activities. TRU waste disposal requirements are very prescriptive, and require the personnel performing oversight to possess a detailed understanding of the AK, characterization, certification, and transportation requirements for both CH-TRU and RH-TRU, participate frequently in the observation of field activities, perform formal assessments in accordance with oversight procedures, and attend and participate in the National TRU Program Corporate Board meetings, audits, external assessments, and discussions with CBFO.

DOE OREM

TRU waste is a significant portion of the activity at TWPC. DOE OREM utilizes a more proscriptive model for oversight than the ORNL Site Office. This system is one that is more common in an industrial type application. OREM has a large oversight staff and a robust process for oversight under DOE O 226.1B. The OREM oversight program includes OREM-OM-IP-09, *Oversight Procedure*; OREM-OM-IP-06, *Formal and Informal Assessments*; OREM-OM-IP-01, *Walkthrough Program*; OREM-OM-IP-03, *Performance Objectives, Measures, and Commitments-Annual Performance Plan*; OREM-OM-IP-02, *Integrated Assessment Program*; and OREM-FO-IP-03, *Facility Representative Program*.

OREM management and staff are required by their performance plans to spend quality time in the field observing contractor operations. They meet monthly with UCOR and provide a status of how the contractor is performing. A similar meeting will be held with Northwind every other month. They also report contractor performance into Contractor Performance Assessment Reporting System (CPARS). Overall, the Federal Oversight and Waste Management Program related to TRU waste appear healthy.

NFS

The NFS site is a private corporation operated under the auspices of the Naval Nuclear Propulsion Program and a NRC license. Therefore, this facility is exempt from the requirements of DOE O 435.1 and any application of the requirements of DOE O 226.1B. This facility is under the purview of the Deputy Administrator for Naval Reactors and was not examined by the GSTR team in regard to DOE Orders. Other aspects of NFS relating to TRU waste were reviewed, as described in the applicable sections of this report. It should also be noted that the personnel interviewed demonstrated knowledge of the requirements associated with this review.

Safety and Security:

Program areas evaluated during this review were primarily administrative in nature and those various operations and activities that were observed did not require special personal protective equipment (PPE) to be worn by the GSTR team members. Appropriate and required protocols and signage were understood and followed by the review team and as instructed by the host.

Issues

Issue [I-1] OR-1-16-01 (TWPC)

A concern was identified relative to a station inner glove box door not closing as designed. Manual assistance was required to close the door. No current maintenance issue and/or repair order was opened. The GSTR team was told that Maintenance has tried to make repairs in the past, and that Operations has discontinued turning in repair orders (TWPC/S.P). The team identified this as a concern because acceptance of inappropriately functioning equipment sends the wrong message to the Operators, and could begin to weaken the conduct of operations program.

Issue [I-2] OR-1-16-01 (TWPC)

This issue relates to a USQ procedure which states, "Formal Training on this procedure" is required every two years. The objective evidence provided and examined during the review, however, does not appear to satisfy/address the requirement.

Issue [I-3] OR-1-16-01 (REDC/TWMD)

This issue addresses REDC/TWMD procedure TWMD-TP-574-CN-1, Rev. 4. This procedure needs to clearly describe expectations for TRU waste packaging, especially with regard to adding precautionary absorbents during drum preparation.

Issue [I-4] OR-1-16-01 (REDC)

This issue addresses the need to include all personnel involved with waste repackaging activities in the AK briefing(s).

Issue [I-5] OR-1-16-01 (REDC)

This issue addresses the need to develop the AK with CCP as the waste is initially generated, rather than after it is packaged and in storage.

Issue [I-6] OR-1-16-01 (REDC)

This issue acknowledges and commends REDC and TWMD for documenting a small amount of aluminum powder recorded in the packaging logs and subsequent identification of the need for further regulatory status, as well as evaluation of safety basis reactivity concerns. *Good job!*

Issue [I-7] OR-1-16-01 (REDC)

This issue addresses the lack of WIPP specific training modules within the UT-Battelle training program. UT-Battelle has requested assistance from CBFO in developing and delivering such training.

Issue [I-8] OR-1-16-01 (TWPC)

This issue addresses a lack of knowledge relative to RCRA by TWPC Operations personnel. Specifically, the purpose of RCRA, the permitting process, the application of hazardous waste codes, the regulatory authority, and the definition of ignitables, reactives, and corrosives were all areas where additional understanding is required.

Issue [I-9] OR-1-16-01 (TWPC)

This issue addresses the TWPC Operations practice of using a shortened AK summary and generally being unfamiliar with CCP AK reports. As a consequence, personnel are unaware of the source and potentially the full content of the waste. While these individuals are able to perform the work adequately, as they rely heavily on the environmental and waste programs support, this approach removes a layer of defense-in-depth.

Issue [I-10] OR-1-16-01 (DOE ORNL)

This issue addresses the different oversight requirements that will be imposed on the ORNL as the TRU waste certification programs are transitioned in the near future.

Note[1]: The aforementioned issues are not of a severity level or of a magnitude that would affect or be detrimental to future WIPP shipments.

Note[2]: "Issue" as used herein is an all-inclusive term used by the GSTR team to document subject(s) or problem(s) that the review team are thinking and talking about; an issue is also a final conclusion or decision about something arrived at after the teams' consideration. "Issues" are not necessarily "findings" in the negative sense nor are they "conditions adverse to quality". If however, an issue *is* identified as a "condition adverse to quality" it will be elevated and documented through the appropriate CBFO Issue Collection and Evaluation (ICE) system. Conditions adverse to quality protocols would then be followed by identifying the specific requirement(s) violated, how they were violated, significance, expected corrective actions, impact statement request and etc.

III. ATTACHMENTS

Attachment 1, Table of Personnel Contacted
Attachment 2, Table of Documents Reviewed

IV. SIGNATURES

Prepared by: _____
P. V. Rodriguez, GSTR Team Lead
Assurance Programs

Approved by: _____
C. Fesmire, CBFO GSTR Coordinator

Attachment 1, *Table of Personnel Contacted*
[A] Attended Review Entrance Meeting
[B] Contacted During the Review
[C] Attended Review Exit Meeting

Name	A	B	C
TWPC			
Mickey Alexander, Lead Waste Requisitioner	X		
Thomas Giovanni Barton, CCP Interface Lead	X	X	X
Linda Beach, Program Manager	X	X	X
Quincy Canter, FM			X
Chris Chadwell, Maintenance	X	X	X
Jason Cooper, Waste Operator		X	
Kevin East, Process Superintendent	X	X	X
Ron Gentry, Senior Technical Advisor	X	X	X
Dan Goade, WTLM WM	X		X
Latravia Harmon, NWP QA - CCP/ORNL	X		X
Fred Heacker, Waste Ops. and Programs Manager	X	X	X
Guy Hopper, Waste Characterization	X		X
Robert Hunt, Waste Processing Manager	X		X
Joseph Jones, Nuclear Safety Manager			X
Larry Llanusa, Training		X	X
Scott Loveless, Waste Program Mgr.	X		X
Jack MacRae, Business Services Manager	X	X	X
Stacey Malenovsky, Floor Supervisor		X	
Mike McCauley, LLWCO			X
Ray Peters, NW ESH&Q Manager	X		X
Steve Poppy, Con. Ops.	X		X
Ray Riner, Senior Project Controls Lead		X	
Mike Ritchie, Con. Ops. Specialist	X		X
Billy Roberts, TM WM	X		
Chris Shannon, CAS / Quality Engineering Lead	X	X	X
Rob Szozda, Technical Services / CONOPS Manager	X	X	X
Pat Tilmon, PM CCP/NWP	X		X
Sam Thomas, EPM	X		
Carol Ann Van Dyner, DCRM		X	
Gary Ward, Waste Operator		X	
Chris Wilson, Waste Operator		X	
REDC/UT-Battelle/NNFD/			
Laetitia Delmau, Researcher, UT-B		X	
Chuck Eblen, UT-B, TWMD	X	X	
Tim Forrester, UT-B, TWMD Rad. Eng.		X	
Jon Garrison, UT-B		X	
Tom Hylton, Researcher, UT-B		X	
Suzanne Johnson, UT-B, Training		X	
Tim Lehberger, Waste Operations, NNFD, UT-B, REDC		X	
John Norman, Researcher		X	
Brian Oakley, WM ORNL	X	X	X
Robert (Bob) Orrin, UT-B	X	X	
John Powell, ORNL ESH Director, UT-B			X
Andrew Rosenman, UT-B, TWMD	X	X	
Denise Saunders, UT-B			
Jimmy Selph, UT-B		X	
Nate Sims, Researcher, UT-B			
UCOR			

Name	A	B	C
Akhlesh Bisaria		X	
Brett Stockdale, DOE Support/UCOR	X	X	X
NFS			
Dominic Arcidiacono, D&D Mgr., Naval Nuclear Labs. - Knolls	X	X	X
Daniel Boss, Decommissioning Unit Mgr.	X	X	X
Greg Chandler, Program Analyst	X	X	X
Dave Deming, Prog. Field Office Manager, Naval Nuclear Labs	X	X	X
Aaron Fite, HEU Material Handler		X	
Benn Foulk, Engineering	X	X	X
Janice Greene, Program Manager	X	X	X
Becky Lind, Q.A. Unit		X	
Jason Mann, HEU Material Handler		X	
Brad McKeehan, Transportation and Waste Mgr.	X	X	X
Danielle M. Rogers, Waste Mgmt. & Decom. Section Mgr.	X	X	X
Jason Walker, Sr. Project Manager	X	X	X
DOE – OREM – OSO			
William Bailey, DOE OREM Facility Rep.,	X		X
James Barnard, DOE OSO	X	X	
Mary Bennington, DOE OREM Facility Rep.	X	X	
Scott Boyd, DOE OREM Cost Analyst		X	
Brian DeMonia, DOE OREM, Branch Chief-SSW			X
Ken Dziedzic, DOE OREM Program Analyst		X	
George Gregory, DOE OREM Facility Rep.,	X		X
Matthew Hancsarik, DOE OREM Contracting Officer		X	
Brenda Hawks, Sr. Tech. Advisor, OREM	X	X	X
Chelsea Hubbard DOE-OREM/FOBBC			X
Josh Kerr, DOE PBMD/P2S (OREM)		X	
David Queen, DOE-OREM Program Manager	X	X	X
Bill McMillan, DOE OREM Portfolio Federal Project Director	X	X	X
Jay Mullis, DOE-OREM Deputy Manager			X
Karen Shears, DOE OREM Procurement & Contracts Group, Lead		X	
Brett Stockdale, DOE Support, UCOR		X	
Alan Stokes, DOE OREM PED		X	

Attachment 2 Table of Documents Reviewed - GSTR-OR-1-16-01

Document Identification	Document Title or Description
TWPC	
Id 2332 FINAL - Prepared: M Pribish, QMSD; Concurred: J. Mullis, OREM Deputy Mgr.; Approved: S. Cange, OREM Mgr.; 9/25/15 Assessee's: OREM; CH2M; TWPC; Isotek; UCOR; All 3 Primes; and CTI;	Oak Ridge Office of Environmental Management FY 16 Integrated Assessment Schedule;
DOE OREM; DE-EM0000323; 9/18/15	Request for Factual Accuracy-Packaging and Transportation Assessment; re.: OREM assessment of the Wastren Advantage Inc. (WAI) Packaging and Transportation (P&T) Program, 8/31 – 9/2/15; per DOE O 460.2A, and 460.1C
DOE OREM; Cont. No. DE-EM0003760; 2/22/16	Review of the Radioactive Waste Management Basis; OREM informal review of the North Wind Solutions, LLC Rad. Waste Mgmt. Basis (RWMB); 1/4/16 – 2/19/16 review, per DOE O 435.1.
DOE ASM-ORO-EM-ED-3.22.2016-258720	DOE Office of Science, Walkthrough assessment of: Glove Box Operation – Informal Work Instruction; 3/3/16
OREM-OM-IP-01, Rev. 3, 9/9/14	OREM-OM-IP-01 Walkthrough Program; (DOE Oak Ridge Office of Environmental Management Procedure)
OREM-OM-IP-06, Rev. 0, 12/1/14	OREM-OM-IP-06 Formal and Informal Assessments; (DOE Oak Ridge Office of Environmental Management Procedure)
OREM-OM-IP-09, Rev. 0, 12/19/14	OREM-OM-IP-09 Oversight Program (DOE Oak Ridge Office of Environmental Management Procedure)
OREM-OM-PL-02, December 2014	Functions Responsibilities Authorities and Accountabilities (Oak Ridge Office of Environmental Management (OREM)
CCP-PO-027	CCP/TWPC/ORN Interface document
CM-A-AD-003	Training and Qualification Program Plan
CM-A-AD-005	Operations Training Program description
CM-A-EG-004	Safety-Class, Safety Significant, and Worker Safety Structures, Systems and Components
CM-A-EN-006	Regulatory Management Plan
CM-A-OP-006, Rev. 3	TWPC Operating Facility
CM-A-PC-002	Procurement Management Plan
CM-A-QA-002	Contractor Assurance System Description
CM-A-WP-008	TWPC Waste Management Plan
CM-O-AD-003, Rev. 4	Technical Services/CONOPS Org. Chart
CM-O-AD-004, Rev. 3	Environmental, Safety, Health and Quality Org. Chart
CM-O-AD-005, Rev.4	Waste Operations and Programs Org. Chart
CM-P-PC-002	Procurement of Items and Services
CM-P-PC-004	Procurement Quality Assurance
CM-P-QA-018, Tuesday, August 16, 2016	TWPC Integrated Comprehensive Assessment Plan – TWPC Comprehensive Assessment Plan

CM-P-QA-004-R9; PO No: 080839; ROP #080756-009; RIR-2016-0365; Att. E; NorthWind; Aug, 22, 2016	NorthWind TWPC Receipt Inspection Report, No: RIR-2016-0365; Supplier: CTI; A325 Bolts for ROP 080756-009; Chem. Test Report
CM-P-QA-004-R8; PO No: 080293-0022; No: RIR-2015-0350; Att. E; May 13, 2015	WAI TWPC Receipt Inspection Report, No: RIR-2015-0350; Supplier:Nochar Inc.;Nochar, Inc. C-O-C;
CM-I-OP-006	Turnover
CM-I-OP-007	Log Keeping
CM-I-OP-008	Shift Routines and Operating Practices
CM-I-OP-002	Independent Verification
CM-I-OP-024	Conduct of Operations
CM-I-OP-026	Control Area Activities
CM-I-OP-028	Control of Equipment and System Status
CM-I-OP-033	Senior Supervisory Watch
CM-I-OP-001-R8; Att. B: Long Term Timely Order to Operators; Number: OPS-TOO-2016-07, Rev #:0, 9/1/16; and Rev #:1, 9/13/16	NorthWind TWPC; Suspension of the Use of Poly Sorbents with Potential Oxidizing Liquids; Eff.: 9/6/16 – Exp: 9/6/17, (Rev. 0); and Rev. 1, Eff.: 9/13/16 – Exp: 9/13/17; Pending evaluation under the CBFO Basis of Knowledge (BOK) Report and approval by the Nat. TRU Prog. (NTP) … (e.g. Nochar, Quick Solid or Solid-A-Sorb)
CM-I-QA-003	Statistical Sampling During Receipt Inspection
CM-I-QA-004	Quality Assurance/Quality Control Inspections
CM-P-PC-004/R1; Procurement of Items and Services	Att. C: Supplier Quality Evaluation Form: SQE-2014-003; Seller: Nochar, Inc.; Item: Liquid Absorbent Materials
CM-P-AD-061	Document Preparation, Review and Approval
CM-P-AD-036	Change Request
CM-P-AD-083,	Deficiency Reporting and Investigation
CM-P-AD-074	Transition of TWPC Documents
CM-P-AD-087	Work Pause
CM-P-AD-039. R5; Graded Approach; QPS, 011708	Att. G: Quality Specification Checklist for Category A, B or C Items and Services; Item or Service: Liquid Absorbent Materials; WBS Index Ref. No: 2.01.18 M1; Category: B;
CM-P-AD-039. R5; Graded Approach; QPS, 030111	Att. G: Quality Specification Checklist for Category A, B or C Items and Services; Item or Service: Liquid Absorbent Materials; WBS Index Ref. No: 33.3.5.16 M2; Category: B; Item or Service: Drum Venting & Sampling Components
CMP-P-AD-039. R5; Graded Approach	Att. G: Quality Specification; Supersedes: QPS-071405; QPS-012506; Record No.: QPS-141001-1; QCD: SS; Activity, Item, Service or System: Lidded Metal/Concrete Container (CH)
CM-P-PC-004/R3; Procurement of Items and Services	Att. C: Supplier Quality Evaluation Form: SQE-2014-063; Supplier: Skolnik Industries, Inc.; Item/Activity: Lidded Metal Container
SQE-2014-063, Att. 2	TWPC Quality Assurance Audit of Skolnik Industries, Inc., Nov. 4 & 5, 2014; Applicable portions of ASME NQA-1-2008/2009, 10CFR830.122 and DOE G414.1-3

CM-P-PC-004/R1; Procurement of Items and Services	Att. C: Supplier Quality Evaluation Form: SQE-2014-022; Supplier: Nuclear Filter Technology, LLC (NFT); Item/Activity: Drum Venting & Sampling Components
CM-R-AD-001	TWPC Documented Safety Analysis (DSA)
IWMDL-September 19, 2016	TWPC Interface Waste Management Document List
CH-X-AD-001	CH-TRU Mixed Waste Acceptance Criteria
RH-X-AD-001	RH-TRU Mixed Waste Acceptance Criteria
THNW-145 February 3, 2010	TWPC Final Permit; U.S. DOE – ORNL, EPA ID# TN1 89 009 003; Controlled Doc. No. 145-011; Class 1 Mod. No. 19, (A-1004), TRU Storage Areas; RH-TRU-Bldgs.; 7855,7860A,and 7883; CH-TRU Bldgs.; 7572, 7574, 7823, 7879,and Portable Unit No. 1; and CH and RH storage areas in the TWPC …
OPS-TOO-2016-007	Suspension of the Use of Poly Sorbents with Potential Oxidizing Liquids
CM-R-WP-004	Energetics Material Program
CM-R-WP-005, R0	Identification of Potential Unanalyzed Material
CM-Z-AD-016	Peer Review Specialists & SMEs for Technical Procedures
CM-Z-AD-023	TWPC Radioactive Waste Management Basis
CH-REF-OP-013	Contact Handled Waste Repackaging
RH-REF-OP-003, Rev. 7	Remote Handled Drum In/Out Operations
RH-REF-OP-016, Rev. 1	72-B Canister Handling for Empty Drum Insertion
RH-REF-OP-021, Rev. 3	Remote Handled Waste Repackaging
CH-REF-OP-013, Rev. 10	Contact Handled Waste Repackaging
CH-REF-OP-014	Absorbing Liquids in the Glovebox and Box Breakdown Area
CH-REF-WP-001	Contact Handled Waste Container Selection Process
CH-REF-WP-011	CH Waste Container Selection
RH-REF-WP-001	Remote Handled Waste Container Selection Process
CH-REF-OP-014	Absorbing Liquids in the Glovebox and Box Breakdown Area
CH-REF-OP-044	Operations Prohibited Item Processing
RH-UET-OP-002, Rev. 6	Hot Cell Operations
ORNL/REDC/TWMD/NNFD	
EPSTWM-AP-200	Standard Operating Procedure for Document Control
UT-Battelle, LLC, ORNL, Environmental Protection Services Division and Transportation and Waste Management Division; EPSTWM-AP-200-CN-1, Rev. 12, 2/11/16	Standard Operating Procedure for Document Control; describes the process used by the Environmental Protection Services Division (EPSD) and Transportation and Waste Management Division (TWMD) to define and establish requirement for developing, distributing, revising, reviewing, and controlling internal admin. and tech. procedures/ guidance documents, forms tech. reports and etc./ [Integrated Document Management System (IDMS), SharePoint, etc.]
UT-Battelle ORNL Supplier Audit -ORNL-NNFD-2015-003; Nov. 2015	Supplier Audit of Nuclear Filter Technologies, Golden, CO; Conducted September 21 – 2, 2015 per NQA-1 requirements.

NSTec-SA-15-18	National Security Technologies, LLC (NSTec) Supplier Assessment Report of Skolnik Industries, Inc.; Haz. And Rad. Waste material packaging ...
DOE NNSA Surveillance of the UT-Battelle/ORNL, Waste Certification Program; Feb. 17, 2016 Letter	Surveillance RWAP-S-16-07; Jan. 20-21, 2016
DOE NNSA C/A Request Closure RWAP-C-16-04 (UT-Battelle, ORNL)	Closure of Corrective Action Request RWAP-C-16-04 issued during Radioactive Waste Acceptance Program Surveillance RWAP-S-16-07, on the UT-Battelle ORNL Waste Certification Program
Assessment & Commitment Tracking System (ACTS) – 18848 – Acceptance Program Impromptu Surveillance	ACTS Object Level Tree-View; Assessment View; RWAP-S-16-07: NNSA/NFO Radioactive Waste Acceptance Program Impromptu Surveillance; Jan. 20-21, 2016
ORR Standards Based Management System (SBMS); Activity Assessments; 10/21/13	Integrated Performance Management/Audits and Assessments; this procedure (Activity Assessments), describes activity assessments that include but are not limited to walk-throughs, inspections, surveillances, and equipment checks.
ORR Standards Based Management System (SBMS); Management Assessments; 10/21/13	Management Assessment; this procedure applies to line managers, supervisors, management system owners et. al. who conduct, participate and/.or document management assessments.
ORR Standards Based Management System (SBMS); Nonconformance Control; 07/10/15	Identify, Report, and Close Nonconformances
ORR Standards Based Management System (SBMS); Acquisition management; Purchasing Goods and Services; Evaluate Supplier, 6/24/15	Evaluate Supplier; for staff who prepare or review purchase requisitions for quality significant material, and/or services, quality representatives, qualified lead auditors, and Quality Programs manager.
ORR Standards Based Management System (SBMS); Acquisition management; Purchasing Goods and Services; Procurements for Quality-Significant Items and Services, 6/27/16	Procurements for Quality-Significant Items and Services
ORR Standards Based Management System (SBMS); Acquisition management; Purchasing Goods and Services; Special Requirements for Procuring Materials/Services, 6/27/16	Special Requirements for Procuring Materials/Services
ORR Standards Based Management System (SBMS); Acquisition management; Purchasing Goods and Services; Purchase Goods and Services, 6/27/16	Purchase Goods and Services
UT-Battelle, LLC, ORNL, Environmental Protection and Waste Services Division; EPWSD-OQS-PL-220-CN1/R5., 7/19/11	Training and Qualifications Program plan
UT-Battelle, LLC, ORNL, Transportation and Waste Management Division; TWMD-PL-221/R2, 2/9/16	Training Program Plan for the Hazardous Material Spill Response Team
TWMD-TP-574-CN-1/R4, 5/1/15; UT-Battelle, LLC, ORNL, Transportation	Standard Operating Procedure for Assisting Generators with Waste and Excess Materials

and Waste Management Division	
TWMD-TP-515-CN-1/R5, 9/26/13; UT-Battelle, LLC, ORNL, Transportation and Waste Management Division	Guidance for Completion of Waste Acceptance Activities for Transportation and Waste Management Division
TWMD-TP-509/R4, 4/8/16; UT-Battelle, LLC, ORNL, Transportation and Waste Management Division	Guidance for Characterization of Hazardous, Polychlorinated Biphenyl, and Mixed Waste
TWMD-TP-508/R7, 7/28/15; UT-Battelle, LLC, ORNL, Transportation and Waste Management Division	Guidance for radiological Characterization of Solid Radioactive Waste
TWMD-TP-506/R6, 8/19/15; UT-Battelle, LLC, ORNL, Transportation and Waste Management Division	Standard Operating Procedure for Defining Data Quality Objectives
NNFD-REDC-004/R0, 7/20/15	Nonreactor Nuclear Facilities Division; CH-TRU Waste handling at REDC
NNFD-011/R2-CN-3, 4/15/11	Nonreactor Nuclear Facilities Division; Administrative; Conduct of Operations
NNFD-011/R4-CN-5, 5/4/16	Nonreactor Nuclear Facilities Division; Administrative; Conduct of Operations
NNFD-007, R8, 4/1/16	NNFD Roles, Responsibilities, Accountabilities, and Authorities (R2A2s)
NNFD-004, R9-CN-1, 4/1/16	Nonreactor Nuclear Facilities Division; Work Control
NNFD-001	Document Development, Review and Approval
NNFD-002/R7-CN-1, 5/25/16	Nonreactor Nuclear Facilities Division; Change Control of Modifications
NNFD-7920AP-003, Rev. 1	Shift Turnover
NNFD-PLAN-018R8, 8/16/16	Performance Assessment Plan
NNFD Organization Chart; 7/28/16	ORNL Organization Chart; includes: NNFD, REDC, Bethal Valley, Transportation Activity, Research Support, Integrated Operations et. al. support groups
NNFD-PLAN-018, Rev. 8, Eff. 8/16/16	NNFD Performance Assessment Plan; Describes approach that NNFD uses to implement its Performance Assessment Program & ensure continuous improvement.
Assessment & Commitment Tracking System (ACTS) – Assessment Number: 17979; EPWSD-WCP-16-08	Waste Certification Program Performance Assessment Report; EPWSD-WCP-16-08; Implementation of Preventative/Corrective Actions for Radiochemical Engineering Development Center (REDC) Non-conforming Items in REDC Contact Handled (CH) TRU Waste Containers.
ORNL, Waste Certification Program, Independent Assessment (Roll-Up Report); TWMD-WCP-15-01; ACTS 17230; 10/23/15	UT-Battelle/ORNL Waste Certification Program Roll-up Report Performance Assessment; this independent assessment/Roll-up, documents all eight (8) surveillances/performance assessments of all applicable elements of the NNSSWAC.
ORNL, Waste Certification Program, Independent Assessment (Roll-Up Report); TWMD-WCP-16-09; ACTS 18764; 09/30/16	UT-Battelle/ORNL's Transportation and Waste management Division (TWMD) conducted surveillances (performance assessments) of the UT-B Waste Certification Program (WCP) in lieu of an annual independent assessment. This report rolls-up seven surveillances and includes all applicable elements of the NNSS Waste Acceptance Criteria (WAC).

ORNL QA Quarterly Assessment; August 2016	NNFD Configuration Management and Associated Work Control Program Assessment; ACTS Assessment 18704
Integrated Document Management System (IDMS) – ORNL- 9/20/16 print-screen	IDMS Division Reports/ Nonreactor Nuclear Facilities Division (X108), Standing Orders; includes listing of Doc. Development, Review, and Approval; Checklists; Comments Resolution; Change Request; Doc. Control Records Management; Inspection Prog.; Training Prog.; CGD; Con. Ops.; Assessments and etc.
UT-Battelle, LLC, ORNL, Environmental Protection Services Division and Transportation and Waste Management Division; EPSTWM-AP-201, Rev. 9, 2/11/16	Standard Operating Procedure for Documenting Problem Events;
FY 2016 TWMD WCP Surveillance Summary	TWMD WCP Surveillance Summary cites the FY 2016 ACTS (Assessment & Commitment Tracking System) ID #s; Surveillances/NNSSWAC Requirement(s)/Surveillance Completion Date(s); Findings; Observations; Opportunities for Improvement; Strengths; and Status
RSS Procedure 10; 4/29/13	Charter - Research Hazards Analysis and Control System Users Group (RHACS)
RSS Procedure 9; 5/10/12; (SBMS Home Page)	Initiate Stop Work Authority Resolve Concerns, and Restart Work Activities
RSS Procedure 8; 9/30/15; (SBMS Home Page)	Propose and Accept Work-Screen for Work Acceptance in Nuclear Facilities; Implement ISM in Research and Development; Implement Work Control for Operations, Maintenance and Services; **Maintain ISM in Laboratory Space**; Implement ISM for Other Work
RSS Procedure 7	Research Hazards Analysis and Control System; cites Division Codes and Names, Director and respective RHAC Points of Contact
RSS Procedure 6; 1/7/16	Worker Safety and Health – Integrated Safety Management System (ISMS) Program and Description
RSS Procedure 5; 3/20/15; (SBMS Home Page)	Guideline: Effective Application of Skill of the Worker Concept
RSS Procedure 4; 3/20/15; (SBMS Home Page)	Exhibit: Creating an Effective Research Safety Summary (RSS)
RSS Procedure 3; 9/30/15; (SBMS Home Page)	Exhibit: Summary of Expectations for Staff Involved in the Research Safety Summary (RSS) Development and Review Process
RSS Procedure 2; Source- RHAC POC Training (Jan 2014)	Implementing ISM in R&D – Process for implementing ISM in R&D (RHACS Process); includes "Change Management" flow-chart/process
RSS Procedure 1; 9/30/15; (SBMS Home Page)	Propose and Accept Work-Screen for Work Acceptance in Nuclear Facilities; **Implement ISM in Research and Development**; Implement Work Control for Operations, Maintenance and Services; Maintain ISM in Laboratory Space; Implement ISM for Other Work
UCOR	
UCOR-4141/R2; February 2014	URS I CH2M Oak Ridge LLC; Quality Assurance

	Program Plan, Oak Ridge, Tennessee; and includes sufficient performance assurance requirements and measures as well ...
UCOR-4187/R1; June 2012	URS I CH2M Oak Ridge LLC; Waste Certification Program Plan, Oak Ridge, Tennessee
UCOR-4188/R1; May 2013	URS I CH2M Oak Ridge LLC; Waste Characterization Plan, Oak Ridge, Tennessee
PPD-EH-1400/R2; 5/14/14	URS I CH2M Oak Ridge LLC; Integrated Safety Management System Description; procedure includes performance measurement baseline requirements, including process objectives, measures and commitments ...
PROC-FS-1001/R5; 2/5/14	Integrated Work Control Program
PROC-NS-1001/R2; 6/2/14	Unreviewed Safety Question Determinations for Nuclear Category 2 & 3 Facilities
PROC-WD-1400/R2; 3/11/13	Change Log Process
PROC-WD1501/R0; 2/14/12	Waste and Material Acceptance
PROC-WM-2010/R8; 10/2/14	Waste Container Management
PROC-WM-2020/R5; 9/18/14	Pre-Job Planning for Waste Generating Activities
PROC-WM-2022/R3; 3/10/14	Preparation of the UCN-2109 Data Package
PROC-WM-2400/R2; 5/13/14	UCOR Waste Management Program Plan
PROC-TC-0702/R2; 2/27/14	URS I CH2M Oak Ridge LLC; Training Program; procedure requires oversight of subcontractor training activities per PROC-PQ-1420, *Management Assessment*
UCOR-4865; Master Profile No. TRU-CH-7, Rev. 1	URS I CH2M Oak Ridge LLC (UCOR); ORR Waste Certification Program, Document Control System; Master Profile Number: TRU-CH-7. Rev. 1, 3/21/16
UCOR-4864; Master Profile No. TRU-RH-6, Rev. 2	URS I CH2M Oak Ridge LLC (UCOR); ORR Waste Certification Program, Document Control System; Master Profile Number: TRU-RH-6. Rev. 2, 3/21/16
NFS	
NFS-ACC-010, Rev. 38, Eff. 4/17/15	Procedure for Tamper Sealing
NFS-CAP-009	The NFS Corrective Action Program
NFS-CM-004, Re. 17, 6/20/16	NFS Change Control Process; "eB" system is their commercial software package for data control systems and change control/configuration mgmt. tool
NFS-DC-129, Rev. 1, Eff. 1/8/15	Operation of Platform Truck Scales
NFS-DC-133, Rev. 10, Eff 11/5/15	Soil Excavation, Processing & Packaging for the 234 Excavation Facility
NFS-DC-135, Rev. 2, Eff. 8/6/13	Building 234 Soil & Groundwater Sampling & Analysis Plan
NFS-DC-138, Rev. 1, Eff. 4/10/13	Operating Procedure for Repackaging Decommissioning Waste Containers Inside the 234 Excavation Facility
NFS-DC-139, Rev. 1, Eff. 10/29/15	Container Inspection and Repackaging Procedure
NFS-DOC-002, Rev. 007, Eff. 5/9/16	Procedure Development Standards
NFS-GH-65	Problem Identification, Resolution and Correction System (PIRCS)
NFS-HPL-001, Rev. 001, Eff. 8/26/13	Human Performance Process
NFS-M-48, Rev. 005, Eff. 3/18/13	Quality Assurance Program

NFS-MGT-04-006, Rev. 6, Eff. 9/14/15	NFS General Policy - NFS Safety Conscious Work Environment Policy
NFS-OPS-001	Conduct of Operations
FM-OPS-001	Operator Status Log
FM-OPS-002	Review Log
NFS-OPS-002, Rev. 1, Eff. 8/8/16	Operator Aids
NFS-PD-001, Rev. 6, Eff. 12/9/13; PCN# Rev. 6.A: 6/15/15	Management of the On-Line Training and Qualification (T&Q) System
NFS-PUR-A-053, Rev. 7, 1/24/14	Procurement Document Control
NFS-PUR-A-054, Rev. 8, 12/9/15	Control of Purchased Items and Services
NFS-PUR-A-055, Rev. 2, 9/10/14	Guidance for Procurement Concurrence Request Submittals
NFS-Q-178, Rev. 08	Quality Assurance Audit Procedure
NFS-Q-224, Rev. 001	Quality Assurance Shipping Vendor Qualification Procedure
NFS SOP 335	Gen. Req. for Waste Handling & Packaging
NFS-TN-008, Rev. 14, Eff. 12/15/14	NFS Training Procedure
SOP-335-L, Rev. 3, Eff, 5/27/14	Waste Packaging for WIPP Disposal
FM-WST-022 Rev. 17; 38T-16-0089; Form Eff. 8/8/16;	NFS Online Copy of: Radwaste Package Certification Record
66T-15-0009; HPL-HTG-001, Rev.0; HPL-04-01; Eff. 11/30/15	NFS Pre-job Brief How-To-Guide
Program Management and Federal Oversight	
Id 2332 ; 9/22/15	Oak Ridge Office of Environmental Management FY 16 Integrated Assessment Schedule; includes assessment drivers: DOE O 151.1C; O 226.1B; G 423.1-1B; O 231.1B; O 413.3B; O 414.1D; O 420.1C; O 425.1D; O 433.1B; O 440.1B; O 450.4; O 458.1 and others
OREM-FO-IP-03	Facility Representative Program
OREM-OM-IP-01 Rev. 3, Eff. 12/31/14	DOE EM Procedure: Walkthrough Program
OREM-OM-IP-02	Integrated Assessment Program
OREM-OM-IP-03	Performance Objectives, Measures and Commitments-Annual Performance Plan
OREM-OM-IP-06	Formal and Informal Assessments
OREM-OM-IP-09	Oversight Procedure
AK Reports	
CCP-AK-ORNL-001	Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory; Waste Streams: OR-NFS-CH-HET-A; OR-NFS-CH-SOIL; OR-NFS-CH-HOM-A; OR-NFS-CH-HOM-B; Rev. 10, 3/31/14
CCP-AK-ORNL-002	Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste; Waste Stream: OR-REDC-CH-HET; Rev. 4, 2/22/16
CCP-AK-ORNL-003	Oak Ridge National Laboratory Radiochemical Processing Research and Development Contact-Handled Transuranic Waste; Waste Stream: OR-RAPD-CH-HET; Rev. 3, 4/10/14; Organic and

	inorganic waste debris … inorganic absorbent pads(e.g., Solid-A-Sorb) … organic matrix/Nochar polymer absorbent …
CCP-AK-ORNL-004	Oak Ridge National Laboratory Reactor Fuels Research & Development Contact-Handled Transuranic Waste; Waste Stream: OR-RF-CH-HET; Rev.3, 3/16/16
CCP-AK-ORNL-005	Oak Ridge National Laboratory C-H TRU from Analytical Chemistry Lab. Operations; Waste Stream: OR-CHEM-CH-HET; Rev. 3, 1/14/16; … inorganic sorbents (e.g., silica gel, vermiculite), … organic matrix/Nochar polymer absorbent
CCP-AK-ORNL-006	Oak Ridge National Laboratory General Research and Development C-H TRU Waste; Waste Stream: OR-GENR-CH-HET; Rev. 2, 4/21/14; … inorganic sorbents (e.g., silica gel, vermiculite), … organic matrix/absorbents, Nochar, Quick-Solid
CCP-AK-ORNL-007	New Brunswick Laboratory C-H TRU Waste Stored at Oak Ridge National Laboratory; Waste Stream: OR-NBL-CH-HET; Rev. 2, 4/8/14; … organic and inorganic matrix/absorbents … Organic such as Nochar or Quick Solid / inorganic such as Solid-a-sorb
CCP-AK-ORNL-008	Oak Ridge National Laboratory Isotopes Programs C-H TRU Waste; Waste Stream: OR-ISTP-CH-HET; Rev. 3, 1/8/15; … organic and inorganic matrix/absorbents
CCP-AK-ORNL-009	Oak Ridge National Laboratory Solid Waste Storage Area 5 North 7802N Trench Area Contact-Handled Transuranic Waste; Waste Stream: OR-SWSA-CH-SOIL and OR-SWSA-CH-HET; Rev.1, 5/2/14
CCP-AK-ORNL-010	Oak Ridge National Laboratory Metal Recovery Facility Contact-Handled Transuranic Waste; Waste Stream: OR-MRF-CH-HET; Rev.0, 11/3/14
CCP-AK-ORNL-011	Paducah Gaseous Diffusion Plant Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory; Waste Streams: OR-PGDP-CH-HET, OR-PGDP-CH-HET-A; Rev.0, 2/5/15
CCP-AK-ORNL-012	Contact-Handled Transuranic Waste Oxide Waste Stored at Oak Ridge National Laboratory; Waste Stream: OR-OXIDE-CH-HET; Rev. 0, Draft-B, Month xx, 2016 - … Need final approved versions of CM-R-AD-001, TWPC DSA, Rev 29 (P432) and CH-REF-OP-401, Room 122 Redistribution and Oxidation Operations, Rev 0 (P1429) before issuance of report.
CCP-AK-ORNL-013	Oak Ridge National Laboratory Contact-Handled Transuranic Waste from Curium Recovery Facility; Waste Stream: OR-CRF-CH-HET; Rev. 0, 5/4/16
CCP-AK-ORNL-500	Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste; Waste Stream: OR-REDC-RH-HET; Rev. 5, 3/1/16
CCP-AK-ORNL-501	CCP Remote-Handled Transuranic Radiological Characterization Technical Report for RH TRU Waste from Oak Ridge National Laboratory

	Radiochemical Engineering Development Center; Waste Stream: OR-REDC-RH-HET; Rev. 5, 7/8/16
CCP-AK-ORNL-502	Central Characterization Program RH TRU Certification Plan for 40 CFR Part 194 Compliance for ORNL REDC RH Waste; Waste Stream: OR-REDC-RH-HET; Rev. 5, 2/6/14
CCP-AK-ORNL-503	Oak Ridge National Laboratory Quality Assurance *Equivalency Report and Procedure Matrix* for Remote-Handled Transuranic Debris Waste; Rev. 2, 10/3/13
CCP-AK-ORNL-510	Oak Ridge National Laboratory Irradiated Fuels Examination Laboratory Remote-Handled Transuranic Waste; Waste Stream: OR-RF-RH-HET; Rev. 1, 3/5/14
CCP-AK-ORNL-515	Central Characterization Program Sampling and Analysis Plan for ORNL Building 3525 Remote-Handled Debris Waste; Waste Stream: OR-RF-RH-HET, Rev. 1, 11/8/13
CCP-AK-ORNL-520	Oak Ridge National Laboratory Remote-Handled Transuranic Waste from Analytical Chemistry Laboratory Operations; Waste Stream: OR-CHEM-RM-HET; Rev. 0, Draft-A, Month xx, 2016