Independent Assessment of Training and Qualification Programs for Nuclear Facility Personnel at the Hanford Site

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Acronyms

BNI	Bechtel National, Inc.
CPCCo	Central Plateau Cleanup Company
CRAD	Criteria and Review Approach Document
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
EA	Office of Enterprise Assessments
FWS	Field Work Supervisor
H2C	Hanford Tank Waste Operations & Closure, LLC
HAMMER	Hazardous Materials Management and Emergency Response
HFO	Hanford Field Office
HLMI	Hanford Laboratory Management and Integration, LLC
HMIS	Hanford Mission Integration Solutions, LLC
ICWO	Inter-contractor Work Order
JTA	Job Task Analysis
LERF/ETF	Liquid Effluent Retention Facility/Effluent Treatment Facility
OFI	Opportunity for Improvement
OJE	On-the-Job Evaluation
OJT	On-the-Job Training
SOM	Shift Operations Manager
T&Q	Training and Qualification
TIM	Training Implementation Matrix
TSR	Technical Safety Requirement

INDEPENDENT ASSESSMENT OF TRAINING AND QUALIFICATION PROGRAMS FOR NUCLEAR FACILITY PERSONNEL AT THE HANFORD SITE

Executive Summary

The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) conducted an independent assessment of the effectiveness of contractor training and qualification programs implemented at the Hanford Site by Central Plateau Cleanup Company (CPCCo), Hanford Tank Waste Operations & Closure, LLC (H2C), Hanford Laboratory Management and Integration, LLC (HLMI), and Hanford Mission Integration Solutions, LLC (HMIS). These four contractors manage and operate nuclear facilities and provide mission integration for the DOE Hanford Field Office (HFO). The assessment was performed at the request of HFO in August and September 2025.

EA identified the following strength:

- The Hazardous Materials Management and Emergency Response (HAMMER) Federal Training Center, operated by HMIS, provides centralized training for most Hanford Site contractors, providing classroom and field training including the use of high-fidelity simulation. Centralized training supports a common understanding of sitewide requirements and provides efficiencies by not requiring each contractor to develop its own general safety and emergency response training.

EA also identified several areas of concern, as summarized below:

- H2C personnel at the Liquid Effluent Retention Facility/Effluent Treatment Facility inappropriately provided coaching during on-the-job evaluations.
- H2C procedures do not explicitly require continuing training for all applicable procedure changes.
- HMIS personnel performing work under inter-contractor work orders at nuclear facilities operated by other Hanford Site contractors may not be qualified to the same standards as employees of the facility-operating contractor.
- At times, documentation of completion of required qualification activities lacked consistency and rigor at each of the four assessed contractors.

In summary, training programs were adequately designed and generally adequately implemented by the reviewed contractors. However, several areas of concern were identified. Until the concerns identified in this report are addressed or effective mitigations are put in place, risk remains that some personnel who can affect compliance with the safety basis of hazard category 1, 2, or 3 nuclear facilities may not have all the knowledge, skills, and abilities intended to be attained through required training and confirmed by a qualification process.

INDEPENDENT ASSESSMENT OF TRAINING AND QUALIFICATION PROGRAMS FOR NUCLEAR FACILITY PERSONNEL AT THE HANFORD SITE

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) Office of Nuclear Safety and Environmental Assessments, within the independent Office of Enterprise Assessments (EA), conducted an assessment of the effectiveness of contractor training and qualification (T&Q) programs implemented at the Hanford Site. The assessment was performed in August and September 2025.

Nuclear facilities at the Hanford Site are managed and operated by Bechtel National, Inc. (BNI), Central Plateau Cleanup Company (CPCCo), Hanford Tank Waste Operations & Closure, LLC (H2C), and Hanford Laboratory Management and Integration, LLC (HLMI). The mission essential services contractor, Hanford Mission Integration Solutions, LLC (HMIS), provides services in support of nuclear facility operations by other Hanford contractors. Federal oversight is provided by the Hanford Field Office (HFO).

At the request of HFO, and consistent with the *Plan for the Independent Assessment of Training and Qualification Programs for Nuclear Facility Personnel at the Hanford Site, August-September 2025*, this assessment evaluated the effectiveness of CPCCo, H2C, HLMI, and HMIS[1] in developing, implementing, and maintaining T&Q programs for personnel who, by action or inaction, can affect compliance with the safety basis of a hazard category 1, 2, or 3 nuclear facility. The evaluation focused primarily on the qualification process, continuing training program, training records, and training needs assessment process.

2.0 METHODOLOGY

The DOE independent oversight program is described in and governed by DOE Order 227.1A, *Independent Oversight Program*, which EA implements through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. This report uses the terms "best practices, deficiencies, findings, and opportunities for improvement (OFIs)" as defined in the order.

As identified in the assessment plan, this assessment primarily considered T&Q requirements set forth in the contractor requirements document (adopted in the CPCCo, H2C, and HLMI contracts) of DOE Order 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*. Criteria to guide this assessment were based on the criteria of the eight objectives described in the appendix of DOE-STD-1070-94, *Criteria for Evaluation of Nuclear Facility Training Programs,* (which is invoked by DOE Order 426.2) and selected objectives from EA CRAD 30-12, Revision 0, *Safety Training Assessment*.

HMIS does not manage and operate any nuclear facilities and is therefore not contractually required to implement DOE Order 426.2. However, HMIS personnel perform work on nuclear facilities managed and operated by other Hanford contractors. HMIS also operates the Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Federal Training Center, which provides training for other Hanford contractor personnel, including training that implements DOE Order 426.2 requirements for

[1] BNI is not included in the scope of this assessment because EA recently performed a similar assessment of the BNI T&Q program, as documented in the report *Independent Assessment of the Training and Qualification Program at the Hanford Site Waste Treatment and Immobilization Plant, March 2025*.

those personnel. Therefore, a review of HMIS's role in required T&Q programs was included in this assessment.

EA examined key documents, such as system descriptions, work packages, procedures, manuals, analyses, policies, and T&Q records. EA also interviewed key personnel responsible for developing and executing the associated programs; observed training activities; and walked down significant portions of selected facilities, focusing on on-the-job training (OJT) and on-the-job evaluation (OJE). The members of the assessment team, the Quality Review Board, and the management responsible for this assessment are listed in appendix A.

There were no previous EA findings to follow up on during this assessment.

3.0 RESULTS

3.1 Management and Administration of Training and Qualification Programs

This portion of the assessment evaluated CPCCo, H2C, and HLMI programmatic T&Q procedures and processes.

CPCCo, H2C, and HLMI programmatic procedures and processes adequately implement DOE Order 426.2. These procedures adequately document the responsibilities, qualifications, and authority of training organization personnel, and define managerial roles, responsibilities, authority, and accountability. Each of these contractors has prepared a training implementation matrix (TIM), approved by HFO, and has appropriately analyzed the workforce to identify personnel who can impact the safety basis of nuclear facilities through their involvement in operations.

Hanford Site contractors provide services to one another using the *Hanford Site Services and Interface Requirements Matrix* (J-3), which contractually identifies services that are performed and received. These services are conducted using the inter-contractor work order (ICWO) process in accordance with the J-3 matrix, through a master service agreement and individual memoranda of agreements. HLMI procedures appropriately address clear roles and responsibilities as well as training expectations in accordance with DOE Order 426.2 for contractor personnel providing work under the ICWO; CPCCo and H2C procedures do not. (See **OFI-CPCCo-1** and **OFI-H2C-1**.)

Management and Administration of Training and Qualification Programs Conclusions

CPCCo, H2C, and HLMI have established adequate programmatic procedures and processes to implement DOE Order 426.2. However, of the three contractors, only HLMI has adequate implementing procedures for the J-3 matrix, which is used to define services performed and received at the Hanford Site.

3.2 Development and Qualification of Training Staff

This portion of the assessment evaluated CPCCo, H2C, HLMI, and HMIS development and qualification of training staff.

CPCCo, H2C, HLMI, and HMIS are adequately developing and qualifying training instructors. Training instructor positions are appropriately specified as positions that require qualification, in accordance with DOE Order 426.2, in procedures CPCC-STD-TQ-40177, *Instructional Staff Training Program*; TFC-BSM-TQ-STD-06, *Instructional Staff Qualification Requirements*; TFC-PLN-61, *Training and Qualification Plan*; HLMI-PLN-TQ-51126, *Personnel Training Qualification*; and HMIS-PLN-TQ-011,

HMIS Qualification and Training Plan. Each contractor appropriately ensures that training instructor candidates meet defined education and experience requirements, which include adequate alternate requirements. Reviewed qualification cards from each contractor demonstrated that all instructors were fully qualified for their position. Training staff are made aware of changes in the safety basis and take appropriate actions to update training content, as needed. Training staff members are also informed of significant facility system and component changes, applicable procedure changes, applicable industry operating experience, selected fundamentals with an emphasis on seldom used knowledge and skills necessary to ensure safety, and other training content modifications, as needed, to correct identified performance problems. Training instructors are sufficiently trained to conduct operational evaluations to ensure that candidates can demonstrate an understanding of, and the ability to perform, required operational activities. The most recent contractor T&Q program self-assessments demonstrate that contractors' training staff meet required qualifications.

Development and Qualification of Training Staff Conclusions

CPCCo, H2C, HLMI, and HMIS are adequately developing and qualifying training instructors. The reviewed instructors were fully qualified and had appropriately completed continuing training. Further, the reviewed instructors had appropriate backgrounds prior to being assigned instructor duties.

3.3 Trainee Entry-level Requirements

This portion of the assessment evaluated CPCCo, H2C, and HLMI establishment of entry-level training and experience requirements.

CPCCo, H2C, and HLMI have adequately established entry-level training and experience requirements in procedures CPCC-PRO-TQ-40165, *Training Program Administration*; TFC-PLN-61; and HLMI-PLN-TQ-51126. These governing procedures clearly identify the baseline knowledge, skills, and abilities expected of new personnel upon hire, and appropriately specify entry-level education and experience requirements for facility positions covered by DOE Order 426.2. HLMI entry-level training requirements are further determined and evaluated by management with the assistance of the human resources organization through HLMI-PRO-HR-50032 (WHL-312-2.04), *Employment*.

Trainee Entry-level Requirements Conclusions

CPCCo, H2C, and HLMI have adequately established entry-level training and experience requirements.

3.4 Determination of Training Program Content

This portion of the assessment evaluated CPCCo, H2C, HLMI, and HMIS development of training content using the systematic approach to training.

CPCCo

CPCCo conducts adequate systematic analyses of job tasks for required positions that are appropriately documented in a position job task analysis (JTA) in accordance with CPCC-MP-TQ-011, *CPCCo Qualification and Training Plan*; CPCC-PRO-TQ-40165; and CPCC-STD-TQ-40179, *Nuclear Facility Operations Training Program Description*. JTAs for process operators and supervisors appropriately identify the training tasks and methods (e.g., classroom, OJT) required for each JTA task in accordance with CPCC-STD-TQ-40179. JTAs are appropriately maintained current through a periodic review process conducted jointly by facility management, operations management, and training department personnel. Reviewed JTAs for operators and supervisors were current and accurately captured task requirements.

JTAs are appropriately incorporated into position qualification cards in accordance with CPCC-PRO-TQ-40165. Reviewed qualification cards for operators and supervisors appropriately contained all necessary elements from the applicable JTA. Pertinent requirements from the documented safety analysis (DSA) and the technical safety requirement (TSR) document were also adequately included in each qualification card, as were criticality safety controls and operating procedures necessary to operate facility equipment. Qualification cards for process operator positions are appropriately developed and well controlled by training department specialists in coordination with operations management. More than 10 interviewed personnel demonstrated good knowledge and understanding of the TSRs applicable to their positions and facilities.

Several reviewed completed qualification cards had signatures for multiple tasks recorded on the same day. In some cases, more than 25 items were signed off on a single day. In one case, the final qualification card signature predated the sign-offs of the individual qualification card elements. These practices suggest a lack of formality and rigor in the qualification card verification process. (See **OFI-CPCCo-2**.)

H2C

H2C conducts adequate systematic analyses of job tasks for required positions that are appropriately documented in a position JTA in accordance with TFC-PLN-61 and TFC-BSM-TQ-STD-23, *TOC Training Implementation Matrix*. Operator and shift management qualifications are appropriately defined in TFC-BSM-TQ-STD-17, *Operator Qualification Program Description*, and TFC-BSM-TQ-STD-02, *Operations SM Qualification Requirements*. JTAs for operators and shift operations managers (SOMs) appropriately identify the training tasks and method (e.g., classroom, OJT) required for each JTA task in accordance with TFC-PLN-61. JTAs are appropriately maintained current through a periodic review process conducted by facility management, operations management, and training department personnel. Reviewed JTAs for an operator and a SOM were current and accurately captured task requirements.

JTAs are appropriately incorporated into position qualification cards in accordance with TFC-PLN-61. Reviewed qualification cards for operators and supervisors appropriately contained all necessary elements from the applicable JTA. Pertinent requirements from the DSA and TSR document were also adequately included in each qualification card. Qualification cards for process operator positions are developed and well controlled by training department specialists in coordination with operations management. More than 10 interviewed personnel demonstrated good knowledge and understanding of the TSRs applicable to their positions and facilities.

An interviewed H2C training specialist who manages the maintenance training program was using an uncontrolled document entitled *H2C Maintenance Training Program Plan*. This document adequately described the maintenance training plan and appropriately specified which positions are covered by the TIM; however, at the time of the assessment, this document was not included in H2C's document control system. H2C was in the process of issuing this document as a controlled document. (See **OFI-H2C-2**.)

HLMI

HLMI conducts adequate systematic analyses of job tasks for required positions that are appropriately documented in a position JTA in accordance with HLMI-PLN-TQ-51126 and HLMI-PRO-TQ-50911, *Conduct of Training Program Administration*. Management and technical staff qualifications are appropriately described in HLMI- STD-TQ-50090, *Field Work Supervisors* [FWSs] *and Shift Operations Managers Training and Qualification Description*, and HLMI-STD-TQ-50925, *Technical Staff Training and Qualification Description*. JTAs for operators, FWSs, and SOMs appropriately identify the training tasks and methods (e.g., classroom, OJT) required for each JTA task in accordance with HLMI-PRO-TQ-

50911. JTAs are appropriately maintained current through a periodic review process conducted by facility management, operations management, and training department personnel. Reviewed JTAs for an operator and a SOM were current and accurately captured task requirements.

JTAs are appropriately incorporated into position qualification cards in accordance with HLMI-PRO-50911. Reviewed qualification cards for operators and supervisors appropriately contained all necessary elements from the JTA for each position. Pertinent requirements from the DSA and TSR document were also adequately included in each qualification card. Qualification cards for process operator positions are appropriately developed and well controlled by training department specialists in coordination with operations management. More than 10 interviewed personnel demonstrated good knowledge and understanding of the TSRs applicable to their positions and facilities.

HMIS

HMIS conducts adequate systematic analyses of job tasks for all required positions in accordance with HMIS-PLN-TQ-011. Craft personnel, FWSs, and various engineering positions (e.g., fire protection engineering) have appropriate JTAs that are properly incorporated into qualification cards. However, HMIS is not currently required by contract to have a DOE Order 426.2 compliant T&Q program, even though HMIS personnel perform tasks in nuclear facilities operated by other Hanford Site contractors and could affect compliance with the safety basis of these facilities. (See **OFI-HMIS-1**.)

Determination of Training Program Content Conclusions

CPCCo, H2C, HLMI, and HMIS conduct adequate systematic analyses of job tasks, maintain JTAs, and ensure that qualification card content is accurately derived from position JTAs. JTAs are periodically reviewed by management and training personnel to ensure that they are maintained current. Interviewed and observed personnel demonstrated good knowledge and understanding of facility operations and pertinent TSR controls. However, weaknesses were identified in the formality of the CPCCo qualification card sign-offs and the document used to manage H2C's maintenance training program. Further, HMIS is not currently required by contract to have a DOE Order 426.2 compliant T&Q program, though work performed by HMIS personnel could affect the safety basis of nuclear facilities operated by other Hanford Site contractors.

3.5 Design and Development of Training Programs

This portion of the assessment evaluated CPCCo, H2C, HLMI, and HMIS training program materials to ensure that the knowledge and skills necessary for the positions are appropriately provided in training.

Learning objectives were appropriately identified for five observed training activities (a dry run of an operation in the Building 324 mock-up facility [CPCCo]; unreviewed safety question refresher and event investigation courses [H2C]; conduct of operations training [HLMI]; and job hazard analysis process training [HMIS]). Learning objectives were clearly communicated at the beginning of each course, with a direct link to trainees' JTAs. Trainees demonstrated a clear understanding of the objectives prior to the training. The lesson plans were accurate, supported the learning objectives, and promoted effective delivery of the training. The lesson plans clearly identified all tasks that needed to be demonstrated and further distinguished which tasks constituted critical training objectives. A well-executed pre-job briefing was conducted prior to the training activity in the Building 324 mock-up facility.

For all four contractors, qualified personnel have continuing training appropriately assigned in accordance with the training program administration procedure. Continuing training is determined through a rigorous process involving the training department, the training coordinator, and facility and operations management.

All personnel observed and interviewed during this assessment (over 25) were adequately familiar with their continuing training responsibilities and were knowledgeable about how to access their training requirements to ensure that they completed training in accordance with the continuing training schedule.

Design and Development of Training Programs Conclusions

Training materials adequately identify and support the knowledge and skills needed by trainees to perform necessary tasks. Lesson plans for all five observed training activities were accurate and supported the learning objectives. One mock-up OJT activity was appropriately conducted by qualified operators and OJT evaluators. Continuing training is appropriately assigned to all required positions, and a systematic approach is used to update continuing training content.

3.6 Conduct of Training

This portion of the assessment evaluated CPCCo, H2C, HLMI, and HMIS conduct of training to ensure that it was consistently and effectively presented.

CPCCo

Two observed classroom training activities were appropriately conducted using approved and current training materials. In addition, an observed simulated maintenance activity adequately demonstrated the use of the CPCCo mock-up facility to enhance the performance of maintenance. Eight reviewed qualification cards demonstrated that CPCCo is using its established formal qualification process in accordance with CPCC-PRO-TQ-40164, *Personnel Training and Qualification*, and CPCC-PRO-TQ-40170, *On-the-Job Training and Evaluation, Performance Demonstration, and Operational Evaluation*.

H2C

H2C generally adequately conducts employee training. During three observed training activities, training was appropriately conducted using approved and current training materials. Observed OJT was conducted by a qualified Liquid Effluent Retention Facility/Effluent Treatment Facility (LERF/ETF) OJT instructor who effectively used the operating procedure to address key elements. The OJT trainer also quizzed the trainee to confirm knowledge of plant operations. Fifty-four reviewed H2C qualification cards demonstrated that H2C is appropriately using its established formal qualification process in accordance with its conduct of training procedures. However, the following weaknesses were identified:

- Contrary to DOE Order 426.2, attachment 1, chapter I, section 7.a.(2), H2C procedure TFC-PLN-61 does not explicitly require continuing training for applicable procedure changes. (See **Deficiency D-H2C-1**.) Not requiring continuing training on applicable procedure changes could result in the operation of safety equipment outside of safety basis assumptions.
- An observed OJT trainer did not address the potential hazards of the job as recommended by TFC-BSM-TQ_IMP-C-04, *Conduct of On-The-Job Training/Evaluation (OJT/OJE)*, section 4.2, which states that "[w]hen reviewing the OJT card requirements, the OJT instructor should stress safety issues and emergency response actions related to the training." (See **OFI-H2C-3**.)
- H2C procedure TFC-BSM-TQ_IMP-C-04 does not restrict marking any section of a training document as "not applicable" ("N/A"). (See **OFI-H2C-4**.) Two reviewed training documents (H2C OJT/OJE/PD record 433087, section 23, *Operation of POR06 Exhauster*, and H2C OJT/OJE/PD record 213566, section 18, *Operate the SY VTP Systems*) were marked as N/A without documented justification. Unlike H2C, CPCC-PRO-TQ-40170, section 3.6, more appropriately requires a documented rationale for any OJT/OJE tasks marked as N/A.

HLMI

HLMI-STD-TQ-50935, *HLMI Training Implementation Matrix*, appropriately identifies sample custodians as a position that can affect the safety basis through their involvement in the operation of the 222-S Laboratory, which has two safety basis requirements (a radioactive inventory limit and a fissile inventory limit). Sample custodians ensure that these limits are not exceeded during sample receipt operations. The TIM states that "the 222-S Sample Custodian is the only role at 222-S that aligns with the DOE Order 426.2 role of 'operator.'" Two interviewed sample custodians adequately demonstrated their knowledge of safety inventory limits, the software programs used to track those limits, and appropriate response and notification procedures in the event that audible alerts occur when inadvertent mistakes or real conditions result in exceeding those limits. Further, two reviewed qualification cards demonstrate that HLMI is appropriately using its established formal qualification process in accordance with its conduct of training procedures.

While HLMI has formal processes in place for the conduct of training, it has not implemented an effective corrective action for an issue associated with OJT/OJE signature documentation. HLMI identified an issue (HLMI-ASMT-2023-0014, *Training: Conduct of Training*) with OJT trainers and OJE evaluators signing sample custodian qualification cards on the same day. A reviewed 2023 sample custodian OJT/OJE qualification card contained all OJT/OJE signatures on the same day. Subsequently, HLMI revised HLMI-PRO-TQ-50917, *Conduct of on-the-Job Training/Evaluation (OJT/OJE)*, to require justification for this practice within the qualification card (iCAS HLMI-AR-2023-0638, OFI 03, *Clarify Requirements for OJT/OJE Scheduling*). However, a reviewed qualification card completed in 2025 contained all OJT/OJE signatures on the same day with an insufficient justification that "due to logistics and task performance, OJT/OJE conducted on the same day." As illustrated by this example, in the absence of additional compensatory measures, the corrective action will not prevent fast-tracking a trainee's qualification. (See **OFI-HLMI-1**.)

HMIS

Two reviewed qualification cards demonstrate that HMIS is generally using its established formal qualification process in accordance with HMIS-PRO-TQ-60971, *Conduct of On-the-Job Training/Evaluation (OJT/OJE)*. However, HMIS does not require the validation of training completion due to an identified documentation issue with one of its OJT/OJE qualification cards (see section 3.7 for further discussion).

A tour of HMIS's HAMMER Federal Training Center demonstrated the depth and breadth of devices available to adequately meet various training needs at the Hanford Site. The wide variety of high-fidelity training mock-ups appropriately includes a buried simulated waste site for waste characterization training, a burn building for fire training and hostage rescue scenarios, a trench for confined space entry training, a hoisting and rigging pad and props for critical lift training, a flammable liquid burn prop, a hazardous material training pad, and a training tower. The facility also has several classrooms available. Reviewed OJT/OJE classroom training materials appropriately addressed the concepts of OJT/OJE and presented several scenarios requiring participation by the trainees.

Conduct of Training Conclusions

CPCCo, H2C, HLMI, and HMIS have formal processes in place for the conduct of training. Observed training by CPCCo and H2C was conducted using current, approved training materials that were effectively presented, and instructors demonstrated good formality and communication during training. However, weaknesses were identified associated with training for procedure changes and potential safety

hazards (H2C), marking sections of training documents as N/A (H2C), and OJT/OJE signature documentation (HLMI).

3.7 Trainee Examinations and Evaluations

This portion of the assessment evaluated CPCCo, H2C, HLMI, and HMIS evaluation of trainees to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CPCCo

CPCCo has appropriately established a formal process for the administration and control of written exams through CPCC-PRO-TQ-40163, *Examination Administration and Control*. Through interviews and virtual walkthroughs, CPCCo demonstrated adequate processes for developing written qualification exams, retaining in-progress exam records awaiting training approval, and limiting access to in-process and completed exam records. CPCCo also adequately demonstrated the use of software tools to build exams by randomly selecting questions from exam banks to ensure that the exam process is not compromised over time.

CPCCo has appropriately established a formal process for OJT/OJE through CPCC-PRO-TQ-40170 to ensure that trainees acquire the knowledge and skills necessary to perform their jobs efficiently and effectively. Reviewed completed qualification cards confirmed that trainees are formally undergoing evaluations during OJE.

H2C

H2C has established an adequate formal process for administration and control of written exams through TFC-BSM-TQ_IMP-C-05, *Conduct and Administration of Knowledge Checks*. H2C demonstrated adequate processes for developing written qualification exams, retaining in-progress exam records pending training approval, and limiting access to in-process exams (i.e., those not yet approved by a manager) as well as completed exam records. These processes were confirmed through interviews with training managers and specialists, along with virtual walkthrough demonstrations of their respective training tools. H2C adequately demonstrated the use of software tools to build exams by randomly selecting questions from exam banks, ensuring that the exam process is not compromised.

H2C has also established a formal process for OJT/OJE through TFC-BSM-TQ_IMP-C-04. Fifty-four reviewed completed OJEs demonstrate that, in general, trainees are evaluated as required by the procedure. However, contrary to TFC-BSM-TQ_IMP-C-04, section 4.3, which requires that OJE be conducted without coaching from the evaluator, H2C personnel at LERF/ETF provided coaching during OJE in several instances. (See **Deficiency D-H2C-2**.) Providing coaching during OJE can result in an operator being qualified without demonstrating full competence to perform nuclear safety functions. Two LERF/ETF outside operators (one a trainee and one qualified) stated that they received "fine tuning" (i.e., coaching) while being evaluated under OJE. One control room operator stated that he provided coaching while conducting OJE.

HLMI

HLMI has appropriately established formal processes for developing exams, maintaining exam security, and proctoring and remediating exams through HLMI-PRO-TQ-50911 and HLMI-PRO-TQ-50918, *Conduct and Administration of Examinations*. HLMI adequately demonstrated, through interviews and virtual walkthroughs, processes for developing written qualification exams, retaining in-progress exam

records pending training approval, and limiting access to in-process and completed exam records. HLMI is appropriately incorporating requirements into HLMI-PRO-TQ-50918 for revising exam banks as needed based on periodic training reviews and rotating exam questions based on training class frequency. HLMI also appropriately established a formal process for OJT/OJE through HLMI-PRO-TQ-50917. A review of completed OJEs demonstrated that trainees are being evaluated in accordance with qualification card requirements.

HMIS

HMIS personnel receive technical training through the HAMMER Federal Training Center; the Center administers written exams, as applicable, for training classes and through other site contactors, as needed. The HMIS training organization does not administer written exams to HMIS personnel.

HMIS has appropriately established a formal process for OJT/OJE through HMIS-PRO-TQ-60971. However, a reviewed HMIS completed qualification record showed an inadequate approach to qualifying a trainee, as OJT signatures were dated two weeks after OJE signatures. The training manager explained that the trainer had accidentally signed on the OJE line, and then, not realizing the mistake, the evaluator signed on the open OJT line. The qualification card was then sent directly to training records for processing without correction. HMIS procedure HMIS-PLN-TQ-011 does not require training specialists to validate completion of training. (See **OFI-HMIS-2**.) While the HMIS contract with HFO does not require compliance with DOE Order 426.2 (see sections 2.0 and 3.4 for further discussion), a lack of such a requirement is contrary to DOE Order 426.2, attachment 2, which defines validation of training completion as one of the responsibilities of training organizations.

Trainee Examinations and Evaluations Conclusions

CPCCo, H2C, HLMI, and HMIS appropriately use formal processes for administering and controlling examinations and evaluations to ensure that personnel are qualified to safely and efficiently perform their job functions. However, weaknesses were identified associated with coaching during OJE (H2C) and OJT/OJE signature documentation (HMIS).

3.8 Training Program Evaluation

This portion of the assessment examined CPCCo, H2C, and HLMI evaluation of T&Q programs in accordance with DOE Order 426.2 and DOE-STD-1070-94.

CPCCo, H2C, and HLMI are effectively collecting and using course feedback information. Level-one evaluations (completed by trainees at the end of each course) are appropriately reviewed and, when necessary, actions are taken to improve the training environment and/or course material. Reviewed plans (e.g., CPCCo and H2C simulator improvement) and interviews identified examples of such actions being implemented to improve the training process. However, interviewed HLMI OJT trainers and OJE evaluators described instances in which needed updates took nearly a year to complete. (See **OFI-HLMI-2**.)

Further, CPCCo, H2C, and HLMI adequately performed periodic systematic evaluations of their T&Q programs (at intervals not to exceed three years) in accordance with formal processes (CPCC-MP-TQ-011; TFC-BSM-TQ_MGT-P-07, *Training Evaluation*; and HLMI-PLN-TQ-51126). As required by DOE Order 426.2, CPCCo, H2C, and HLMI are appropriately assessing the entire scope of DOE-STD-1070-94 during a three-year cycle. These assessments included classroom evaluations, OJT, OJEs, simulator evaluations, line management evaluations, student feedback, and program reviews. For example, CPCCo is using a systematic approach to training in the development of its simulator program and is expanding

its training facilities. H2C completed an assessment of its training program at contract transition; corrective actions addressing findings and deficiencies related to DOE-STD-1070-94 are currently in progress. H2C also evaluated its simulator program and developed a three-year plan to integrate and improve simulator training. CPCCo and HLMI appropriately performed self-assessments against each DOE-STD-1070-94 objective, with follow-up corrective actions assigned as appropriate.

Training Program Evaluation Conclusions

CPCCo, H2C, and HLMI have established a systematic program for the evaluation of training effectiveness to ensure that the training program conveys required skills and knowledge. H2C has initiated program and simulator assessments, with corrective actions in progress. However, HLMI training updates are not always timely.

4.0 BEST PRACTICES

No best practices were identified during this assessment.

5.0 FINDINGS

No findings were identified during this assessment.

6.0 DEFICIENCIES

Deficiencies are inadequacies in the implementation of an applicable requirement or standard. Deficiencies that did not meet the criteria for findings are listed below, with the expectation from DOE Order 227.1A for site managers to apply their local issues management processes for resolution.

Hanford Tank Waste Operations & Closure, LLC

Deficiency D-H2C-1: H2C procedure TFC-PLN-61 does not explicitly require continuing training for applicable procedure changes. (DOE Order 426.2, att. 1, ch. I, sec. 7.a.(2))

Deficiency D-H2C-2: H2C personnel at LERF/ETF inappropriately provided coaching during OJE in several instances. (TFC-BSM-TQ_IMP-C-04, sec. 4.3)

7.0 OPPORTUNITIES FOR IMPROVEMENT

EA identified the OFIs shown below to assist cognizant managers in improving programs and operations. While OFIs may identify potential solutions to findings and deficiencies identified in assessment reports, they may also address other conditions observed during the assessment process. These OFIs are offered only as recommendations for line management consideration; they do not require formal resolution by management through a corrective action process and are not intended to be prescriptive or mandatory. Rather, they are suggestions that may assist site management in implementing best practices or provide potential solutions to issues identified during the assessment.

Central Plateau Cleanup Company

OFI-CPCCo-1: Consider revising procedure CPCC-PRO-TQ-40165 to include training-related roles and responsibilities and procedures for employees performing work through ICWO agreements that could impact compliance with the safety basis at CPCCo nuclear facilities.

OFI-CPCCo-2: Consider increasing the formality and rigor of qualification card completion to ensure that qualification card elements are adequately assessed prior to sign-off.

Hanford Tank Waste Operations & Closure, LLC

OFI-H2C-1: Consider revising procedure TFC-BSM-TQ_MGT-P-07 to include training-related roles and responsibilities and procedures for employees performing work through ICWO agreements that could impact compliance with the safety basis at H2C nuclear facilities.

OFI-H2C-2: Consider expediting the document approval process to establish the *H2C Maintenance Training Program Plan* as a controlled document.

OFI-H2C-3: Consider revising TFC-BSM-TQ_IMP-C-04 to require trainers to address potential safety hazards during OJT.

OFI-H2C-4: Consider revising TFC-BSM-TQ_IMP-C-04 to require justification when sections of OJT/OJE qualification cards are marked as N/A.

Hanford Laboratory Management and Integration, LLC

OFI-HLMI-1: Consider revising HLMI-PRO-TQ-50917 to require the separation of time between OJT and OJE, unless training manager approval is requested and obtained prior to conducting the OJT/OJE.

OFI-HLMI-2: Consider evaluating ways to improve the timeliness of updating training.

Hanford Mission Integration Solutions, LLC

OFI-HMIS-1: Consider establishing a DOE Order 426.2 compliant T&Q program for personnel who perform work in nuclear facilities managed by other Hanford Site contractors.

OFI-HMIS-2: Consider revising HMIS-PLN-TQ-011 to require training specialists to validate training completion.

Appendix A
Supplemental Information

Dates of Assessment

August 19 to September 15, 2025

Office of Enterprise Assessments (EA) Management

John E. Dupuy, Director, Office of Enterprise Assessments
William F. West, Deputy Director, Office of Enterprise Assessments
Kevin G. Kilp, Director, Office of Environment, Safety and Health Assessments
David A. Young, Deputy Director, Office of Environment, Safety and Health Assessments
Brent L. Jones, Acting Director, Office of Nuclear Safety and Environmental Assessments
David Olah, Director, Office of Worker Safety and Health Assessments
Jack E. Winston, Director, Office of Emergency Management Assessments
Brent L. Jones, Director, Office of Nuclear Engineering and Safety Basis Assessments

Quality Review Board

William F. West, Advisor
Kevin G. Kilp, Chair
John S. Boulden III
Timothy B. Schwab
William A. Eckroade

EA Site Lead for the Hanford Site

Eric A. Ruesch

EA Assessment Team

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Jeffrey L. Robinson
Jodi E. Wilson
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