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Department of Energy  
Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221  
AUG 25 2016

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Mr. Val Cannon, Manager  
Quality Assurance  
Nuclear Waste Partnership LLC  
P.O. Box 2078  
Carlsbad, NM 88221-2078

Subject: Verification and Acceptance of Completion of Corrective Actions for CAR 16-045  
from Audit A-16-18

Dear Mr. Cannon:

Enclosed are the results of the Carlsbad Field Office (CBFO) review and verification of completion of the corrective actions associated with CBFO Corrective Action Report (CAR) 16-045, which resulted from CBFO Audit A-16-18 of the Idaho National Laboratory Central Characterization Program, conducted June 14 – 16, 2016. The results of the verification are documented on the enclosed CAR Continuation Sheet.

The verification concluded that the associated corrective actions have been fulfilled and satisfactorily implemented. CAR 16-045 is therefore considered closed.

If you have any questions or comments, please contact me at (575) 234-7491.

Sincerely,

Dennis S. Miehl  
Senior Quality Assurance Specialist

Enclosure

cc: w/enclosure

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\*ED denotes electronic distribution



## CAR CONTINUATION SHEET

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**Block # 16 Acceptance of Corrective Action Completion:**

The Carlsbad Field Office (CBFO) has reviewed the Corrective Action Report (CAR) 16-045 closure package, including objective evidence and supporting documentation submitted via Nuclear Waste Partnership LLC (NWP) letter QA:16:00339:UFC:2300.00, from V. K. Cannon to D.S. Miehl, dated August 16, 2016, Subject: "TRANSMITTAL OF DOCUMENTATION SUPPORTING COMPLETION OF THE CORRECTIVE ACTIONS ASSOCIATED WITH CBFO CORRECTIVE ACTION REPORT 16-045, WHICH RESULTED FROM CBFO AUDIT A-16-18, IDAHO NATIONAL LABORATORY CENTRAL CHARACTERIZATION PROGRAM."

*Italicized text, taken verbatim from the Corrective Action Plan (CAP), is used to reflect the correlation between the actions required by the CAR, the actions completed, and the method used for verification.*

**REMEDIAL ACTIONS**

*CCP has taken the following remedial action:*

- 1. CCP has completed a review of all RH containers characterized at INL, to determine whether the neutron contribution to the total dose rate was ever used to make an RH determination for the waste, or whether the gamma contribution was always sufficient to determine that the waste was RH, regardless of the neutron contribution. The review showed that, in all cases, the gamma measurement was always great enough to make the RH determination for the waste, and the neutron measurement was never used for this purpose.*

**Verification:**

*Review of the scope of RH containers characterized at INL and discussions with CCP management personnel regarding need for neutron measurements for specific waste streams at specific host site locations provided acceptable evidence of completion of remedial actions for this CAR.*

**INVESTIGATIVE ACTIONS**

*As discussed during the audit and in follow-on meetings, CCP does not take neutron measurements in accordance with CCP-TP-504 at any Host location. The procedure has been revised in anticipation of taking of neutron measurements to calculate DTC for neutron-emitting radionuclides in the future, but no CCP neutron instrumentation has been purchased or installed at INL. The fact that CCP operators entered "N/A" in the neutron sections of Attachments 1 and 2 of CCP-TP-504 shows that they clearly understood that they were not taking neutron measurements as part of the procedure.*

*Neutron measurement readings unrelated to CCP-TP-504 and the CCP program were read off to INL radiological technicians during performance of gamma dose measurements, at their request. When interviewed, the DTC operators explained that the INL neutron instruments are mounted near the gamma probes used by CCP. By swiveling the camera after taking the gamma readings, the CCP operators can see the neutron readings needed by INL under their radiological control program. INL radiological technicians have fallen into the practice of allowing the CCP DTC operator to read off the instrument measurements which the technicians then enter into their INL documentation. During the audit, there was no visual confirmation of the reading by INL radiological technicians.*

*As noted in the Actions to Prevent Recurrence section of this Corrective Action Plan, CCP has directed DTC operators at INL to discontinue the practice of reading off neutron measurements to INL radiological technicians.*

***Extent***

*CCP has confirmed that the practice observed by the auditors is limited to CCP at INL. CCP operators do not read off information to Host site personnel anywhere but INL. In addition, CCP operators universally enter "N/A" for neutron information, in DTC data sheets, at all locations where DTC is performed, since CCP does not take neutron measurements under CCP-TP-504 anywhere.*

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**Impact**

The CAR condition states that the neutron measurements at INL are not accurate, based on manufacturer recommendations for response time considerations. CCP obtains neutron measurement data from Host location radiological programs and uses it in determining whether waste containers are Remote-Handled (RH) or Contact-Handled (CH). Based on the statement in the CAR condition, CCP performed a review of all RH waste characterized at INL to evaluate whether the neutron contribution to the total dose rate was ever used to make an RH determination for the waste. As discussed in the Remedial Action section of this Corrective Action Plan, the review showed that the gamma measurement was always great enough to make the RH determination for the waste, and the neutron measurement was never used for this purpose. Neutron measurements taken under the INL radiological control program have had no impact on the CCP program.

**Qualification of Dose-to-Curie Operators at INL**

The CAR condition states that, during the audit, no objective evidence was provided that the CCP Operators are trained in the use of the radiological instruments specified in the procedure. The only radiological instruments used for DTC at INL are the FHZ 612 gamma probe and the FH 40 G gamma display instrument. During initial qualification and two-year requalifications, DTC operators must complete a qualification that includes On-the-job Practical Requirements, where they demonstrate proficiency in the DTC process, including use of the radiological instruments. DTC operators are observed by a Subject Matter Expert, and satisfactory performance is documented on the DTC qualification card.

DTC qualification cards are available in CCP Training files, and CCP will provide an example of a completed DTC qualification card for CCP at INL in the closure documentation for this CAR.

**Verification:**

The taking and use of neutron measurements was discussed with CCP management and technical personnel who indicated that the ORNL host site location is the only location currently needing to implement neutron measurements. CCP training personnel stated that a training qualification card has been created with specific training requirements for neutron measurements and that only ORNL personnel are currently trained to the card. CCP training personnel explained the implementation of sections of CCP TP-504 at the INL host site location. Gamma measurements are taken and documented and neutron measurements and training of personnel in the taking of neutron measurements are not necessary and are documented using N/A on forms at the INL host site location. Review of objective evidence in the CAR closure package and discussions with CCP management personnel regarding the need for neutron measurements and the need to train personnel in taking neutron measurements provides acceptable evidence of completion of investigative actions for this CAR.

**ROOT CAUSE**

A root cause analysis was not required for this CAR.

**ACTIONS TO PRECLUDE RECURRENCE**

1. CCP has directed DTC operators at INL to discontinue the practice of reading off neutron measurements to INL radiological technicians.
2. CCP will issue a Lessons Learned reminding personnel that performing actions outside the CCP scope, even when requested to do so, can impact the integrity of other programs.

**Verification:**

Objective evidence of e-Mail communications between CCP and Fluor and Canberra operators was provided directing that gamma and neutron measurements not be called out between organizations.

CCP Lessons Learned document LL-2016-03 dated July 26, 2016, was issued and provided in the closure package. The content was reviewed and was determined to be adequate regarding performance of gamma and neutron measurements and documentation of values in accordance with CCP DTC

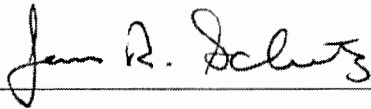
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procedure steps. Acknowledgement of distribution of LL-2016-03 to CCP personnel was provided in the closure package. This evidence was reviewed and determined to provide adequate reinforcement of procedure steps and requirements for taking and documenting gamma and neutron measurements in accordance with the CCP program.

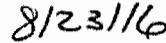
Review of objective evidence in the CAR closure package regarding taking, documenting, and communicating neutron measurements provides acceptable evidence of completion of actions to preclude recurrence for this CAR.

**ACCEPTANCE**

Review of objective evidence presented in NWP letter QA:16:00339:UFC:2300.00 indicates that the corrective actions, as stated in the approved corrective action plan, have been completed and that they address all conditions adverse to quality identified in CAR 16-045; that remedial and investigative actions address their respective scope of the conditions; and that adequate measures have been taken to preclude recurrence. Therefore, it is recommended that CBFO CAR 16-045 be closed.



Verification Performed By: J.R. Schuetz



Date: