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Sent: Wednesday, July 8, 2020 8:21 AM
To: Larson, Leo M CTR (USA) [leo.m.larson.ctr@navy.mil]
Subject: FW: S3 Pre-Operational Testing Follow Up
Attachments: HPNS_S3_PreOp_Testing_Demo_Questions Final.pdf

From: Bacey, Juanita@DTSC <Juanita.Bacey@dtsc.ca.gov>
Sent: Tuesday, July 7, 2020 12:13 PM
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Cc: Praskins, Wayne <Praskins.Wayne@epa.gov>; Sanchez, Yolanda <Sanchez.Yolanda@epa.gov>; Stoick, Paul T CIV USN (USA) <paul.stoick@navy.mil>; Han, Terry@CDPH <Terry.Han@cdph.ca.gov>; Kappelman, David <Kappelman.David@epa.gov>
Subject: [Non-DoD Source] Fw: S3 Pre-Operational Testing Follow Up

Hi Liz and Derek,
Yesterday I sent CDPH's draft comments, here are the final. I don't believe the comments have changed, except to add comment #1. Comment #1, is meant for the Navy to address. The other comments are technical and are meant for Aptim. Let me know if you have any questions. Thx.

Nina

Inquires on S3 Pre-Op Testing Demo on 06/23/2020

1) According to the video presentation and the ISO-Pacific Remediation Technologies, Inc. (ISO) Final Soil Sorting Operation Work Plan (S3 WP)[1], soil sorter is set to pass any soil that contains Ra-226 less than 1pCi/g + the Ra-226 concentration at the background reference area as "clean for backfill" soil. Therefore, the situation could occur where soil passing through the soil sorter may have Ra-226 concentration above the background reference area. Since CDPH compares the distribution of soil sample results to the background reference area data as part of our consideration for accepting soil sample results for unrestricted release, CDPH may find the un-diverted soil not suitable for backfill or unrestricted release if the soil sample result from laboratory analysis shows the un-diverted soil has Ra-226 levels higher than the background reference area. Hence, CDPH encourages Navy to share the soil sample laboratory analysis results before use of un-diverted soil for backfilling.

2) In the video presentation on 6/23/2020 and Section 4.3 in S3 WP[1], it was described that acceptance range for the daily source check results is +/- 30% from average value derived after pre-operational testing and before commencement of sorting operation. What is the justification for this larger-than-typical tolerance, +/- 30%? The industry standard of daily source check readings of instrument aim for results within 10% or 20% of the average reading.

3) After the pre-op testing, did ISO conduct the Cs-137 source check that would establish the acceptance range for the future daily source response check? If so, can ISO include that data in the pre-op report? In order to ensure the S3 was functioning properly throughout the operational period, CDPH believes the acceptance range for daily functional check should be established right after the system was calibrated with Ra-226 and Eu-157. In addition, this Cs-137 data will help us to assess if the +/- 30% tolerance mentioned in 2) is appropriate.

4) In the daily functional check with Cs-137 sources, what parameter is being compared to the values established after pre-op? Was it the total counts, count rate in certain ROIs, the Cs-137 peak location, or some other parameter? The method of daily functional check was not clear or mentioned in the video presentation or in the S3 Work Plan.

5) In Section 1.1.4 of the same literature (DOD/DOE QSM 5.3)[2] sited in S3 WP, it states the Calibration Verification should be conducted every five-day operation period and can be extended to a maximum of 30 operation days. What is the frequency of Calibration Verification ISO plans to conduct?

6) Does ISO conduct the distributed contamination calibration verification with Eu-152 for every detector in S3 system? In the video presentation it appears the Eu-152 test was only conducted one time with Eu-152 source placed in the middle of the belt, roughly under detector 4 and 5. If the Ra-226 verification test is conducted 30+ times across all the detectors with various geometries, CDPH suggests to conduct the distributed contamination calibration test with Eu-152 for all detectors ensuring every detector is set up correctly.

7) When replying to one question regarding which ROI was used for the Ra-226 verification test, ISO stated the ROI 2 was used and the plot shown in the video consisted the ROI1 typo in the

title. However, in Section 4.1 of the S3 WP, it states the ROI1 is utilized in the LLRO Ra-226 diversion test. Please provide a clarification on the discrepancy.

8) CDPH recommends ISO to establish video cameras recording the soil before and after passing the detector arrays during operation, especially immediate prior and after any S3 alarm is triggered.

9) Will the ROI 3 (625-698keV) be turn on for Cs-137 detection? If so, what is the trigger level?

Reference:

1. FINAL SOIL SORTING OPERATIONS WORK PLAN HUNTERS POINT NAVAL SHIPYARD SAN FRANCISCO, CALIFORNIA January 2020, ISO-Pacific Remediation Technologies, Inc.
2. Department of Defense/Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories, Revision 5.3, May 2019