

OCT 27 2014

SRR-CWDA-2014-00094
Revision 0
RSM Track #: 10667

Sherri R. Ross, Program Manager
Waste Removal and Tank Closure
Waste Disposition Programs Division
Savannah River Operations Office

Dear Ms. Ross:

ACTION ITEM FOLLOW-UP IN SUPPORT OF U.S. NUCLEAR REGULATORY COMMISSION ONSITE OBSERVATION VISIT ON MARCH 26-27, 2014

Ref:

1. SRR-CWDA-2014-00029, *Savannah River Site F-Tank Farm NRC Onsite Observation Visit, March 26-27, 2014*, Savannah River Site, Aiken, SC, Revision 1, March 2014.
2. 13-FTF-170, *Radiological Work Permit Tanks 5 & 6 – Bulk Grout Placement Activities*, Savannah River Site, Aiken, SC, Revision 2, December 2013.
3. 5Q1-1 Manual, Procedure 505, *ALARA Review Procedure*, Savannah River Site, Aiken, SC, Revision 5, February 2014.
4. SRR-CWDA-2014-00020, *Tanks 5 and 6 Final Configuration Report for F-Tank Farm at the Savannah River Site*, Savannah River Site, Aiken, SC, Revision 0, July 2014.
5. SRNL-STI-2011-00551, Stefanko, D.B. and Langton, C.A., *Tanks 18 and 19-F Structural Flowable Grout Fill Material Evaluation and Recommendations*, Savannah River Site, Aiken, SC, Revision 1, April 2013.
6. SRNL-STI-2011-00749, Stefanko, D.B. and Langton, C.A., *Tanks 18-F and 19-F Tank Fill Grout Scale Up Test Summary*, Savannah River Site, Aiken, SC, Revision 0, December 2011.

An F-Tank Farm (FTF) onsite observation visit by the U. S. Nuclear Regulatory Commission (NRC) was held at the Savannah River Site on March 26-27, 2014. During the outbrief for the visit a number of Action Items were captured (Reference 1, slides 38-43). Information relative

to seven of the remaining open Action Items is provided below. The seven Action Items include the following:

2. *DOE to provide NRC an electronic copy of Tank 5 and 6 Grouting Post Job ALARA Reviews when available.*
6. *DOE to provide NRC a copy of the Tank 5/6 Final Configuration Report when available.*
- 11c. *DOE to provide NRC documentation available regarding DOE response to recent earthquake event.*
14. *DOE to provide NRC documentation relative to completion of full-scale batching (i.e., qualification testing) as recommended (page 24) in SRNL-STI-2011-00551.*
15. *DOE to provide NRC information relative to differences in grout density values listed in Tables 3-4 and 3-5 of SRNL-STI-2011-00551.*
18. *DOE to provide NRC total volume of tremie lubricant (i.e., Slick Willie) added to Tanks 5 and 6 during grouting activities.*
19. *DOE to provide NRC water-to-cement ratios for all batch tickets from grouting activities on 9/19/2013 & 9/23/2013.*

Action Item 2

For bulk fill grout additions to Tanks 18 and 19, considering these were the first tanks to be grouted utilizing the current methods, Pre-Job and Post-Job ALARA reviews were performed for the grouting activities. A copy of the reviews for Tanks 18 and 19 were previously provided to the NRC. Based on the observations from the grouting activities for Tanks 18 and 19, radiological protection personnel determined that a formal Pre-Job ALARA review was not necessary for bulk fill grouting activities for Tanks 5 and 6. Grouting activities for both tanks were performed under one Job Specific Radiation Work Permit (JSRWP) (Reference 2), which identified radiological conditions, protective measures, specific entry requirements, worker protection requirements, and monitoring requirements. An electronic copy of the JSRWP is being provided with this transmittal. The cumulative worker dose received under the JSRWP was 456 mrem. Because the job did not exceed the radiological criteria within the *ALARA Review Procedure*, 5Q1-1 Manual, Procedure 505 (Reference 3), a formal Post-Job ALARA review was not required and not performed. Pre- and Post-Job ALARA reviews were performed for the more unique activities associated with sampling of Tanks 5 and 6. Copies of those reviews, and the *ALARA Review Procedure*, were previously provided under Action Items 7 and 9 via e-mail from S. Ross to H. Felsher dated 5/13/2014.

Action Item 6

Tanks 5 and 6 Final Configuration Report for F-Tank Farm at the Savannah River Site, SRR-CWDA-2014-00020 (Reference 4), has been approved by South Carolina Department of Health and Environmental Control. An electronic copy of the document is being provided with this transmittal.

Action Item 11c

The February 14, 2014 earthquake occurred near Edgefield County, South Carolina, approximately 40 miles from the Savannah River Site boundary. Strong motion accelerometers located within the SRS boundary, including one located in FTF, did not trip and record the motion. The trip level for the accelerometers is set at 0.02g. A United States Geological Survey station in Williston, South Carolina, near the SRS boundary, reported a ground motion of 0.0066g. While the event was felt by workers at the Site, there was no damage to FTF or any of the SRS Liquid Waste Facilities. All Liquid Waste Facilities, including FTF, resumed normal operations following verification that no damage resulted from the event.

Response within FTF to an earthquake event is governed by an Emergency Operating Procedure. In response to the February 14, 2014 earthquake, Site Operations implemented the Emergency Operating Procedure. Implementation of the procedure requires immediate operator actions including shutdown of the following, if in operation at the time: active waste transfers, Tank Farm evaporators, waste tank mixing devices, salt dissolution activities, waste tank liquid additions. Subsequent to the immediate actions, Operations personnel perform a walk down of the facility for unsafe conditions including, but not limited to, the following: dangers, downed power lines, leaks/spills, sink holes/physical depressions, failed buildings, and potential safety concerns. Any hazards identified are reported to the shift manager. Based on the facility walk downs, a plan is initiated to return the facility to a safe condition. During implementation of the Emergency Operating Procedure in response to the February 14, 2014 earthquake no damage to FTF facilities were identified. Outside of implementation of the Emergency Operating Procedure, no additional documentation regarding the seismic event and impacts of the event was developed relative to FTF.

Action Item 14

The recommended action (i.e., full scale batch testing) noted on page 24 of *Tanks 18 and 19-F Structural Flowable Grout Fill Material Evaluation and Recommendations*, SRNL-STI-2011-00551 (Reference 5) was implemented prior to the grouting of Tanks 18 and 19 and was recorded in *Tank 18-F and 19-F Tank Fill Grout Scale Up Test Summary*, SRNL-STI-2011-00749 (Reference 6). An electronic copy of SRNL-STI-2011-00749 is being provided with this transmittal.

Action Item 15

In *Tanks 18 and 19-F Structural Flowable Grout Fill Material Evaluation and Recommendations*, SRNL-STI-2011-00551 (Reference 5), the density estimate of 2.21 g/cm³ (~138 lb/ft³) listed in Table 3-4 for LP#8-16 represents the density of freshly mixed grout and therefore includes the initial moisture content. The density value of 1.97 g/cm³ (~123 lb/ft³) in Table 3-5 represents the dry bulk density, “Dry Density”, as measured by MACTEC. Attachment 1 of SRNL-STI-2011-00551 provides the data sheets from the testing performed by MACTEC. The “Wet Density” for the LP#8-16 mix recorded on the data sheets (~137 lb/ft³) is consistent with the value provided in Table 3-4 of the document.

Action Item 18

The total volumes of tremie lubricant additions to Tanks 5 and 6 were quantified by reviewing grout logs and identifying new pump starts that would have required lubricant addition. Lubricant quantities were estimated at approximately 50 gallons per lubricant addition during the first two weeks and approximately 25 gallons per lubricant addition after the first two weeks. Lubricant addition volumes were reduced to minimize additions to the tanks after the second week. Tank 5 had 30 additions of pump and slick line lubricant totaling approximately 1050 gallons. Tank 6 had 26 additions of pump and slick line lubricant totaling approximately 875 gallons.

Action Item 19

Attachment 1 of this letter provides the water-to-cement ratios from grouting activities on 9/19/2013 and 9/23/2013. On those two days, grout additions were only made to Tank 6. The water-to-cement ratios plotted represent each of the batch tickets from those two days of grouting activities.

Action Items –General

Including this transmittal, available information has been provided for all but four of the Action Items from the NRC March FTF onsite observation visit. The remaining Action Items are the following:

- 11. DOE and NRC to arrange for telecon regarding on-going NRC waste tank structural analysis calculations.*
- 13. DOE to provide NRC available information regarding adiabatic temperature rise in tank fill grout.*
- 16. DOE to provide NRC information regarding DOE decision to not utilize shrinkage compensating admixtures in tank grout formulation.*

21. DOE and NRC to arrange for telecon regarding on-going residual waste testing.

Regarding Action Items 13 and 16, no additional documentation is available to provide in response to the Action Items. Appropriate site personnel are scheduled to participate in the upcoming teleconference scheduled for 10/29/2014, and will be available for follow-up discussions during the phone call. Action Items 11 and 21 are in reference to future discussions which have not been scheduled at this time.

If you have any questions please contact me at 557-8960.

Sincerely,



Steven A. Thomas
Manager
Waste Disposal Authority

st/lr

Att.

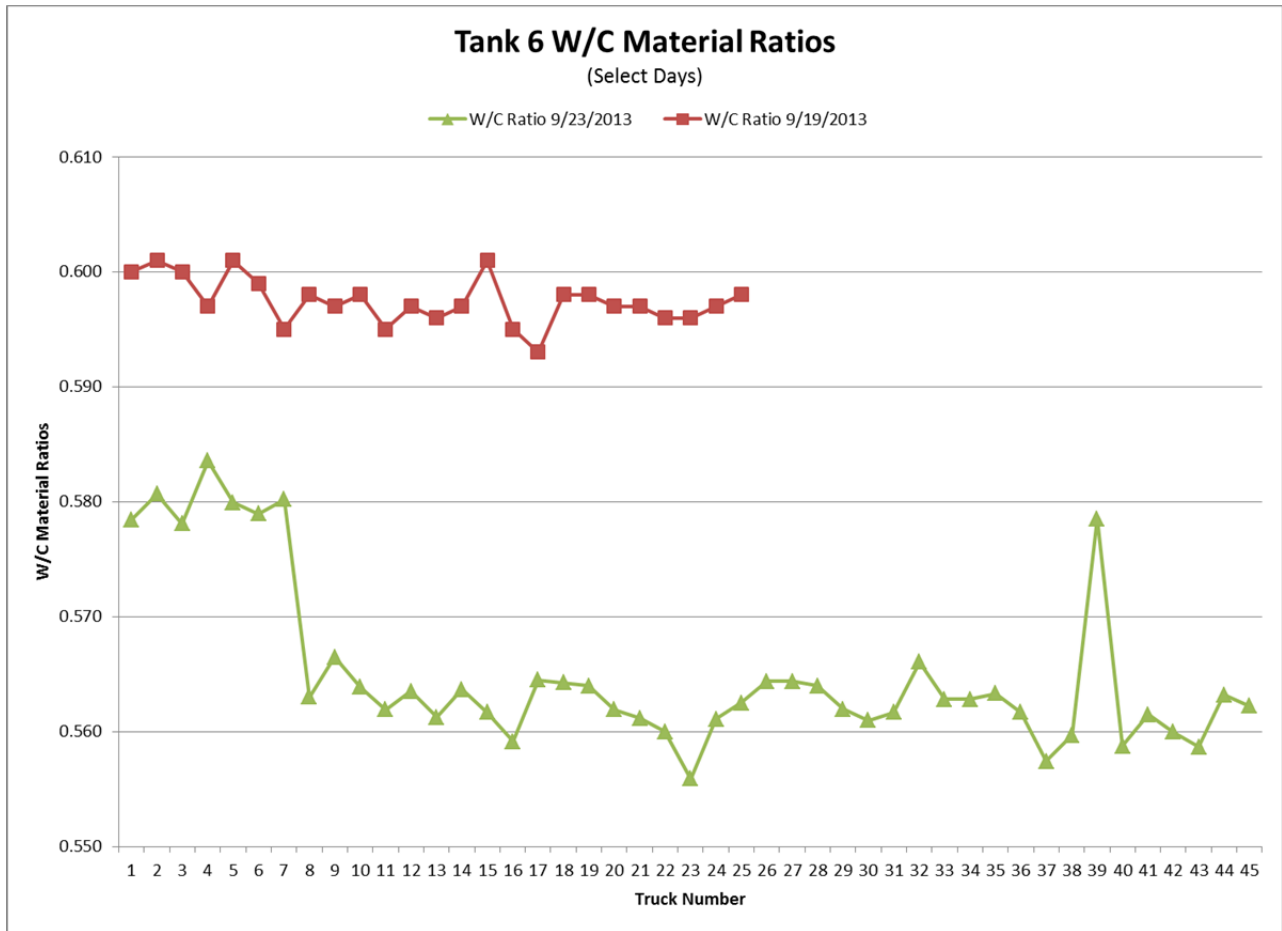
c:

K. H. Rosenberger, 705-1C
L. B. Romanowski, 705-1C
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Attachment 1

Water-to-Cement Ratios for Tank 6 on 9/19/2013 and 9/23/2013



[Determined from Tank 6 Batch Tickets]