From: Clark, Fatina Ann Washburn
To: Dembek, Stephen
Subject: [External_Sender] RE: RE: RE: RE: SRS Alternate Grout Request
Date: Thursday, May 27, 2021 7:24:26 AM
Attachments: image001.png

Thank you for your response. I will forward to the team and to SRS.

Fatina A. W. Clark
Industrial Wastewater Permitting Section
Bureau of Water
S.C. Dept. of Health & Environmental Control
Office: (803) 898-3136
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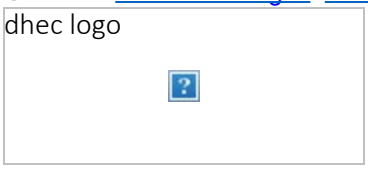

From: Dembek, Stephen <Stephen.Dembek@nrc.gov>
Sent: Thursday, May 27, 2021 6:56 AM
To: Clark, Fatina Ann Washburn <clarkfaw@dhec.sc.gov>
Subject: FW: RE: RE: RE: SRS Alternate Grout Request

Good Morning Fatina,

Here are the results of our staff's review of the closure module and alternate grout request. As noted below, we do not have any significant concerns at this time. Thank you for providing this to us for our information.

If you have any follow up questions for us, please let me know.

Steve

From: Barr, Cynthia <Cynthia.Barr@nrc.gov>
Sent: Tuesday, May 25, 2021 4:20 PM
To: Dembek, Stephen <Stephen.Dembek@nrc.gov>; Felsher, Harry <Harry.Felsher@nrc.gov>
Cc: George, Mathews <Mathews.George@nrc.gov>; Alexander, George <George.Alexander@nrc.gov>; Dinwiddie, Cynthia L. <cynthia.dinwiddie@swri.org>; McKenney, Chris <Christepher.McKenney@nrc.gov>
Subject: RE: RE: RE: RE: SRS Alternate Grout Request

Hi Steve:

The FTF tank farm team reviewed the closure module and alternative grout request (and supporting documentation), and although I still have 2 pending reference requests that will hopefully close the loop on a couple of questions I still have, we do not have any significant

concerns at this time. So as not to hold SC DHEC up with their review and approval of DOE's request, we offer the following summary of our review:

Closure Module Review Summary (SRR-CWDA-2020-00011, Rev. 0)

- DOE assumes that pump pits, catch tanks, diversion boxes, and valve boxes contain no significant contamination and therefore, no inventory is estimated for these components for the purposes of the Performance Assessment or PA. Diversion boxes are shielded reinforced concrete structures that contain transfer line nozzles to which jumpers are connected to direct waste transfers. The majority of the diversion boxes are below ground and are lined with stainless steel or sealed with water proofing compounds and are also stated to be accessible for cleaning at the time of closure (SRR-CWDA-2010-00023, Rev. 6).

- DOE concludes that because FDB-5 and FDB-6 transfer lines were typically flushed several times with clean water after each transfer, only minimal waste might be present inside jumpers located inside the diversion boxes. In fact, camera inspections show only a small salt deposit in FDB-6 thought to be associated with a leak due to an inadequate seal between a wall mounted nozzle and jumper. DOE SRS estimates that the volume of waste in FDB-6 is 0.3 gallons with an uncertainty range of 0.1 to 0.6 gallons. Besides the small deposit in FDB-6, no accumulated solids were visible upon inspection of FDB-5 and FDB-6.

- Although no inventory was developed for diversion boxes such as FDB-5 and FDB-6 for the PA, DOE developed an inventory for these diversion boxes for the purpose of a special analysis (SA). Representative, FTF radionuclide concentrations based on tank concentration and waste transfer data from the Waste Characterization System were calculated and used to calculate inventories for each radionuclide for FDB-5 and FDB-6 based on the affected surface area of each diversion box.

- DOE prepared an SA using the Tanks 5/6 SA model as the starting point and simply adding two new sources to represent FDB-5 and FDB-6. The contributions to peak dose from the diversion boxes were negligible. The updated SA estimated the maximum dose to a future hypothetical MOP resulting from the waste potentially in FDB-5 at 0.006 mrem/yr and from FDB-6 at 0.01 mrem/year.

- ***Given the apparent low risk associated with residual waste that may be present in the FDB-5 and FDB-6 diversion boxes, NRC staff concur that reducing grout is not likely needed to fill the diversion boxes. In the future, DOE should clarify the reason for abandonment of jumpers in the diversion boxes and specifically evaluate the potential for a small volume of waste to be present in plugged jumpers if these jumpers cannot be characterized. DOE should also clarify the accessibility of the diversion boxes given that DOE indicates the diversion boxes are accessible in SRR-CWDA-2010-00023, Rev. 6, and the closure module indicates that plugged jumpers were disconnected and flushed near the surface of the diversion box with waste water collecting in the sump in SRR-CWDA-2020-00011, Rev. 0. On the other hand, DOE appears to rely***

primarily on diversion box access ports to support final inspection and characterization in SRR-CWDA-2020-00011, Rev. 0.

Alternative Grout Request Review Summary

- Bulk fill grout (C-SPP-00055) and high-flow grout (C-SPP-Z-00012) were the only two fill grouts previously listed for use in the Consolidated General Closure Plan for F-Area and H-Area Waste Tank Systems (SRR-CWDA-2017-00015). Grout evaluations performed by SRR in support of closing F-Area Diversion Box 5 (FDB)-5 and FDB-6 identified two additional cementitious materials that DOE prefers to use to fill ancillary structures at the tank farms: non-structural concrete A2000-6-0-2-A and a zero bleed controlled low-strength material (ZB-CLSM), which is the same as zero bleed structural flowable fill with no. 8 stone ZB-FF-8-D (C-SPS-G-00096).

- ***Low Slump Concrete (mix A2000-6-0-2-A) is not meant to be a structural concrete, but only needs to plug openings in the sump, so that when the more flowable ZB-CLSM/ZB-FF-8-D is placed into the diversion box, it does not uncontrollably flow out into other parts of the system. This mix appears appropriate to perform this task. Based upon the similarity between tank fill grout LP#8-6 and ZB-CLSM/ZB-FF-8-D (differing only in that the amount of slag used in LP#8-6 is replaced with an equivalent amount of fly ash in ZB-CLSM/ZB-FF-8-D), if ancillary structures, such as diversion boxes, contain insignificant quantities of waste such that chemically imparting reducing conditions on infiltrating water is unnecessary, then ZB-CLSM/ZB-FF-8-D will likely function in an equivalent physical manner to provide structural stability to ancillary structures.***

Let us know if you need any other information.

Hope this helps,
Cynthia

Cynthia Barr
Senior Risk Analyst
U.S. Nuclear Regulatory Commission
+1-301-415-4015 (work--forwarded)

From: Dembek, Stephen <Stephen.Dembek@nrc.gov>
Sent: Tuesday, May 4, 2021 10:59 AM
To: Barr, Cynthia <Cynthia.Barr@nrc.gov>; Felsher, Harry <Harry.Felsher@nrc.gov>
Subject: FW: RE: RE: RE: SRS Alternate Grout Request

Hello Cynthia and Harry,

South Carolina sent this to us, for our information I assume. Based on your past experience, do we give these a quick review and let SC know if we have any questions on the submittal and SC's approval letter?

Steve

From: Clark, Fatina Ann Washburn <clarkfaw@dhec.sc.gov>
Sent: Tuesday, May 04, 2021 10:35 AM
To: Dembek, Stephen <Stephen.Dembek@nrc.gov>
Cc: Rippy, Crystal <RIPPYCD@dhec.sc.gov>; Mullinax, Barry <MULLINBS@dhec.sc.gov>
Subject: [External_Sender] RE: RE: RE: SRS Alternate Grout Request

Good morning Stephen.

I apologize for the delay. I left you a voicemail with some details regarding the alternate grout request SRS submitted for the closure of diversion boxes 5 and 6 in the F-Area tank farm. Please find the request and approval letter attached. If you have any questions, please feel free to reach out to myself or Barry Mullinax. Thank you!

Fatina A. W. Clark
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