

SRR-CWDA-2021-00061

Revision 0

July 12, 2021

To: K. H. Rosenberger, 705-1C

From: S. P. Hommel, 705-1C

**Electronic Data Associated with the Percolation Models Described in Section 4.4 of SRR-CWDA-2021-00040**

DOE Order 435.1 Performance Assessments (PAs) of the F-Tank Farm, H-Tank Farm, and Saltstone facilities rely on model simulations of subsurface flow and solute transport using the PORFLOW and GoldSim codes among other software. The US Nuclear Regulatory Commission (NRC) is currently reviewing the Saltstone Disposal Facility (SDF) PA (SRR-CWDA-2019-00001) in an oversight role under Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005. In furtherance of that review, the NRC staff has requested supplemental information (*Preliminary Review of the U.S. Department of Energys Submittal of the 2020 Savannah River Site Saltstone Disposal Facility Performance Assessment*, Letter from Stephen S. Koenick (NRC) to James L. Folk, Jr. (DOE) dated October 5, 2020 [ML20254A003]). As a follow-up request, the NRC has sent an email requesting data associated with percolation modeling described in Section 4.4 of the *Evaluation of the Uncertainties Associated with the SDF Closure Cap and Long-Term Infiltration Rates* (SRR-CWDA-2021-00040).

Per the Appendix, the SRS Classification Office has previously reviewed modeling files supporting tank closure and SDF Performance Assessments and determined that

“Updates to the GoldSim and PORFLOW modeling files and programs, used for the calculations described above, do not require further review by the Classification Office. This also applies to modeling data for other waste tanks as we move through the decommissioning and closure process.”

and advised the SRR Waste Disposal Authority to

“generate a Request for Information Review and Release and attach this email when updates or new tanks are modeled and require submission to the regulators.”

This memorandum serves as a unique identifier for the associated electronic files assembled for transmission to the NRC for a Request for Information Review & Release (ROI).

The files being transmitted for this submittal include the percolation model files listed in Table 1. These model files were developed using WinUNSAT-H modeling software as described in SRR-CWDA-2021-00040. Additionally, one Excel file used to summarize and analyze the model file results will also be transmitted to the NRC: *Section\_4.4\_Percolation\_Model\_Results.xlsx*. All of these files will be transmitted via the zipped directory: *Section\_4.4\_Percolation\_Models.zip*.

Note that the results show water balance values wherein the sum of the runoff, evapotranspiration, percolation, and soil storage exceed the precipitation values. This is because each of these models was run with initial suction head values greater than 0, which is interpreted as an initial volume of water in the system (assumed to be the soil water storage present in the system from the previous year).

**Table 1. Percolation Model Files**

<b>Simulation ID from Table 4.4-1 of SRR-CWDA-2021-00040</b>	<b>WinUNSAT-H Model File</b>	<b>WinUNSAT-H Result File</b>
HW P76 2Thk36	HW P76 2Thk36.wuh	HW P76 2Thk36.res
HW P76 2Thk24	HW P76 2Thk24.wuh	HW P76 2Thk24.res
HW P76 2Thk12	HW P76 2Thk12.wuh	HW P76 2Thk12.res
HW P76 2Thk0	HW P76 2Thk0.wuh	HW P76 2Thk0.res
HC P60 3Thk36	HC P60 3Thk36.wuh	HC P60 3Thk36.res
HC P60 3Thk24	HC P60 3Thk24.wuh	HC P60 3Thk24.res
HC P60 3Thk12	HC P60 3Thk12.wuh	HC P60 3Thk12.res
HC P60 3Thk0	HC P60 3Thk0.wuh	HC P60 3Thk0.res
HD P44 9Thk36	HD P44 9Thk36.wuh	HD P44 9Thk36.res
HD P44 9Thk24	HD P44 9Thk24.wuh	HD P44 9Thk24.res
HD P44 9Thk12	HD P44 9Thk12.wuh	HD P44 9Thk12.res
HD P44 9Thk0	HD P44 9Thk0.wuh	HD P44 9Thk0.res
IW P62 3Thk36	IW P62 3Thk36.wuh	IW P62 3Thk36.res
IW P62 3Thk24	IW P62 3Thk24.wuh	IW P62 3Thk24.res
IW P62 3Thk12	IW P62 3Thk12.wuh	IW P62 3Thk12.res
IW P62 3Thk0	IW P62 3Thk0.wuh	IW P62 3Thk0.res
IC P49 5Thk36	IC P49 5Thk36.wuh	IC P49 5Thk36.res
IC P49 5Thk24	IC P49 5Thk24.wuh	IC P49 5Thk24.res
IC P49 5Thk12	IC P49 5Thk12.wuh	IC P49 5Thk12.res
IC P49 5Thk0	IC P49 5Thk0.wuh	IC P49 5Thk0.res
ID P36 8Thk36	ID P36 8Thk36.wuh	ID P36 8Thk36.res
ID P36 8Thk24	ID P36 8Thk24.wuh	ID P36 8Thk24.res
ID P36 8Thk12	ID P36 8Thk12.wuh	ID P36 8Thk12.res
Not Applicable. Model files support ID P36 8Thk0	ID P36 8Thk06.wuh	ID P36 8Thk06.res
ID P36 8Thk0 <sup>a</sup>	ID P36 8Thk0.wuh	ID P36 8Thk0.res
LW P47 8Thk36	LW P47 8Thk36.wuh	LW P47 8Thk36.res
LW P47 8Thk24	LW P47 8Thk24.wuh	LW P47 8Thk24.res
LW P47 8Thk12	LW P47 8Thk12.wuh	LW P47 8Thk12.res
LW P47 8Thk0	LW P47 8Thk0.wuh	LW P47 8Thk0.res
LC P38 8Thk36	LC P38 8Thk36.wuh	LC P38 8Thk36.res
LC P38 8Thk24	LC P38 8Thk24.wuh	LC P38 8Thk24.res
LC P38 8Thk12	LC P38 8Thk12.wuh	LC P38 8Thk12.res
Not Applicable. Model files support LC P38 8Thk0	LC P38 8Thk06.wuh	LC P38 8Thk06.res
LC P38 8Thk0 <sup>a</sup>	LC P38 8Thk0.wuh	LC P38 8Thk0.res
LD P29 4Thk36	LD P29 4Thk36.wuh	LD P29 4Thk36.res
LD P29 4Thk24	LD P29 4Thk24.wuh	LD P29 4Thk24.res
LD P29 4Thk12	LD P29 4Thk12.wuh	LD P29 4Thk12.res
LD P29 4Thk0	LD P29 4Thk0.wuh	LD P29 4Thk0.res

## Appendix



### Release of Information (PORFLOW and GoldSim Calculations)

**John Monahan** to: Steven Hommel

05/14/2012 12:59 PM

Dorinda Fountain, Kent Rosenberger, Richard Sheppard, Barry

Cc: Lester, Joann Wingard, Daniel Campbell, George Rodrigues, Michael  
Burch, Reginald Waltz

Over the past few years, the Classification Office has performed several information release reviews of data files associated with calculations for radiation dose to a theoretical person that builds their house on top of an SRS decommissioned waste tank. These models will be required for each waste tank as we proceed through the decommissioning and closure process. The modeling software and tables containing basic science information for the residual radioisotopes in the tanks are unclassified subject areas.

Updates to the GoldSim and PORFLOW modeling files and programs, used for the calculations described above, do not require further review by the Classification Office. This also applies to modeling data for other waste tanks as we move through the decommissioning and closure process.

As we discussed, please generate a Request for Information Review and Release and attach this email when updates or new tanks are modeled and require submission to the regulators.

NOTE: If any technical discussion of SNM processing or how SNM is used in nuclear weapons is included, then the full document must be reviewed for information security concerns.

John J. Monahan  
SRNS Classification Officer