Febuary 3 NRC Teleconference – Proposed Modeling Discussion

	Issue	Related RAIs	Proposed Modeling Path Forward
A	Tank Liner failure timing is optimistic in Base Case (Type I/III/IIIA tank failure times after 10k)	RAI-PA-1.3a (RAI-NF-16 etc.)	Perform PORFLOW sensitivity run (*) using base case (Case A), but allow the liners to fail early (year 75 for Type IV tanks, year 500 for other tanks).
B	None of the Alternate Configurations considered the scenario where the Contaminant Zone is not buffered by reducing grout	RAI-NF-15	Perform PORFLOW sensitivity run (*) using the Fast Flow case (Case D), but 1) increase the flow direct to the fast flow path by keeping the grout intact for 20k years and 2) don't allow any of the grout's reducing capacity to be imparted onto the CZ.
C	Waste Release Model is important to Base Case but includes significant uncertainty (Fe co-precipitation, transition timing, percent CZ impacted)	RAI-PA-1.3bc,d (RAI-NF-9, etc)	Perform PORFLOW sensitivity run (*) using base case (Case A), but assuming Pu, Tc and U are not Fe co-precipitated. Proposed waste release model sensitivity run inputs provided in table below.
D	Moisture characteristic curve modeling	CC-NF-9	Perform PORFLOW sensitivity run (*) using base case (Case A), except use moisture retention curves from the literature data suggested by NRC (same as HTF PA).
E	Transfer Line Failure time non-conservative	RAI-PA-1.3b	No modeling required to support RAI response
F	Dispersion model approach is non conservative	RAI-FF-3	Scoping study to assess impact of using different dispersivity values.
G	Base Case inventory non-conservative for some radionuclides	RAI-PA-1.1a,b,c	No modeling required to support RAI response
H	Soft Zones not considered in modeling	RAI-FF-1 and others	No modeling required to support RAI response

(*) Proposed Approach for non-base case PORFLOW sensitivity runs

- PORFLOW sensitivity run scope will be limited to same as Barrier analyses (Tanks 5, 18, and 33 for 8 important rads: Tc-99, Ra-226, Np-237, Pu-239, Th-230, U-233, U-234, and Am-241)
- PORFLOW sensitivity run will provide 100m concentration results
- Sensitivity run concentration results will be compared with FTF PA Rev 1 base case concentration results

Waste Release Model Sensitivity Run Inputs

	Run	Reduced Region II Solubility (moles/L)	Oxidized Region II Solubility (moles/L)	Oxidized Region III Solubility (moles/L)
Pu	Base Case	4.1E-12 (Fe co-precipitation)	4.0E-14 (Fe co-precipitation)	5.70E-05 (Pu(OH)4)
	Sensitivity Run	1.7E-09 ($Pu(OH)_4$)	1.4E-07 ($Pu(OH)_4$)	5.70E-05 (Pu(OH)4)
Tc	Base Case	3.1E-11 (Fe co-precipitation)	3.0E-13 (Fe co-precipitation)	No solubility control - modeled as instantaneous release
	Sensitivity Run	3.3E-08 ($TcO_2.H_2O$)	No solubility control - modeled as instantaneous release	No solubility control - modeled as instantaneous release
U	Base Case	1.7E-09 (Fe co-precipitation)	1.60E-11 (Fe co-precipitation)	3.40E-05 (Becquerelite)
	Sensitivity Run	3.5E-05 ($UO_{2)}$	1.5E-05 (Becquerelite)	3.40E-05 (Becquerelite)