TECHNICAL REVIEW COMMENT SHEET Saltstone Facility

UNITED STATES DEPARTMENT OF ENERGY Document Review Record SAVANNAH RIVER SITE SRR-CWDA-2009-00008, R0									
Document No./Title: SRNS-STI-2008-00045, Saltstone and Concrete Interactions with Radionuclides: Sorption (K_d), Desorption, and Reduction Capacity Measurement			th ts	Rev. No.: 0	Doc. Date: Oct 30, 2008				
Reference: 3/25/09 – 3/26/09 NRC Onsite Observation Report for Saltstone (NRC Document No. ML091320439)									
No.	Comments			Comment Resolution					
SRNS-STI-2008-00045, Saltstone and Concrete Interactions with Radionuclides: Sorption (K _d), Desorption, and Reduction Capacity Measurements									
SRNS-STI-2008-00045, Saltstone and Concrete Interactions with Radionu Measurements ML091320439 Explain what measures were taken to ensure that experiments with technetium were not affected by experimental losses, such as technetium holdup in labware, resulting in underestimates of technetium concentration.		Batch Tc K _d values are measured by adding concentrated Tc to a suspension of sediment and then determining how much adsorbed to the sediment by estimating the difference in the concentration of the Tc concentration before and after adding the sediment. In actuality, it is customary to use no-sediment spiked samples containing only the aqueous phase that are carried through the entire equilibrium, phase separation, and analytical process to estimate the amount of spike (Tc in this case) added to each tube. By treating it as another sample and carrying it through the entire experiment, it is possible to account for sorption to glassware, volatilization, precipitation, and other processes that may be misunderstood as sediment sorption. The following equation is used to calculate K _d values (mL/g): $K_d = \frac{(C_0 - C_f) \times V_{sol}}{C_f \times m_{sed}};$ where C _o is the non-sediment control sample containing the Tc spike (Ci/mL), C _f is the final aqueous Tc concentration in the equilibrium solution (Ci/mL), V _{sol} is the volume of the aqueous phase (mL), and m _{sed} is the mass of the sediment (g). Thus, the C							
ML091320439 #8	Clarify the pH of the calcite solution used in (page 9 and 16 state the pH = 10; page 7 st = 8.3).	these experiments tates that solution pH	The correct pH pH 8.3. This tra descriptions of t	of the calcite solution is very anscription error will be corre this work.	strongly buffered at cted in future				

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No.		Comments		Comment Resolution				
ML091320439 #9			able 5, which is in the report.	The recommended Se K_d value for Stage 3 reported in Table 5 is 300 mL/g. This is a transcription error. It should remain unchanged like the Se K_d values for Stages 1 & 2 (Table 4). The correct Se K_d value for a Stage 3 concrete environment is 150 mL/g.				