

NRC Saltstone Monitoring Follow-up Action List
March 30, 2010

- RAI** Follow-up action rolling over into a Request for Additional Information (RAI)
- MP** Follow-up action tentatively closed but will be acknowledged in the NRC monitoring plan (MP) update occurring roughly in the 2nd quarter of FY 2011
- ML091320439** Letter to T. Gutmann, DOE RE: "NRC March 25-26, 2009 Onsite Observation Report for the SRS Saltstone Facility"
- ML092650394** 08/05/2009 Summary of Meeting with Dept. of Energy Regarding NRC Monitoring Activities at the Savannah River Site, Saltstone Facility
- ML092170006** Letter to T. Gutmann, DOE RE: "NRC June 6, 2009 Onsite Observation Report for the SRS Saltstone Facility"
- ML092380273** Topics for Denham Technical Review Inquiry - Thermodynamic and Mass Balance Analysis of Expansive Phase Precipitation in Saltstone"

Action Index	Issue Definition	Status
ML092650394-001	Provide details on the amount of variability observed in the measured concentration of the non-sediment control sample	Open
ML091320439-011	Clarify the impact of changing pore solution concentration on measured hydraulic properties on page 8 of Report 7	RAI
ML091320439-013	Justify the use of logarithmic averages for recommended hydraulic property values on p. 19	RAI

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ML091320439-017	Explain how cracks are incorporated into the sulfate attack representation in the PA model, since cracks could significantly impact the degradation assessment (page 15). Explain assumption I that the transport rate through damaged concrete of sulfate ions is not different from undamaged concrete (page 21)	RAI
ML091320439-020	Explain why it is appropriate to neglect minor species (page A2-14)	RAI
ML091320439-021	Justify the use of Berner's approach for these materials and solutions (page A2-15)	RAI
ML091320439-006	DOE should continue to investigate the source of iodine-129 detected in soil samples	MP
ML091320439-014	Provide up-to-date copy of the PA maintenance plan	MP
ML091320439-005	Inform NRC when DOE is ready to exit its ARP/MCU management control plan	MP
ML091320439-015	Evaluate the sensitivity of grid spacing to predicted front propagation in the sulfate attack evaluation	Closed
ML091320439-019	Clarify the conceptual model represented by case 2 (page 6). If the concentration was diluted by diffusion, then what is the fate of diffused species? If species are diffusing through the vault wall, then why isn't the vault wall degraded?	Closed

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ML091320439-001	DOE agreed to take photographs of construction joints, prior to covering the joints with additional construction layers or concrete	Closed
ML091320439-002	At NRC staff's request, DOE will provide a complete set of Vault 2 design drawings	Closed
ML091320439-007	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	Closed
ML091320439-008	Clarify the pH of the calcite solution used in these experiments (page 9 and 16 state the pH = 10; page 7 states that solution pH = 8.3)	Closed
ML091320439-009	Clarify the selenium Kd value reported in Table 5, which is different than the value reported previously in the report	Closed
ML091320439-010	Clarify whether bleedwater was leaking from sealed containers during the hydraulic properties study, when the report indicated the samples were sealed	Closed
ML091320439-012	Explain how uncertainty will be addressed for moisture characteristic curves that are fit to data reported on page 18 of Report 7	Closed

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ML092380273-001	What was the basis for choosing the solid phases included in the initial saltstone normative composition (Table 3) and the suite of minerals that were allowed to precipitate in the saltstone (Table 6)? Specifically, what was the basis for including gibbsite, quartz, and kaolinite in these sets of phases? What effect does the inclusion of gibbsite, quartz, and kaolinite in the solid phases have on the results obtained?	Closed
ML092380273-002	What data and observations are available to compare to and constrain the modeling calculations?	Closed
ML092380273-003	This study does not consider the effects of organic additives or pozzolanic replacement on the dissolution and precipitation of cement-related compounds. These components of concrete and grout may have an effect on the generation of expansive phases.	Closed
ML092380273-004	Geochemical modeling seems to have many unknowns (initial conditions, phase selection or suppression, fundamental thermodynamic data, kinetics) that would impact the confidence in any particular result.	Closed
ML092380273-005	This study is a deterministic analysis. A probabilistic (stochastic) analysis would provide insights into the importance and sensitivity of the model results to certain thermodynamic or physical properties.	Closed
ML092380273-006	Geochemists Workbench is based on an equilibrium reaction model. However, reaction kinetics could result in metastable products that are often associated with an increase in volume.	Closed
ML092380273-007	The staff observes that the conclusions reached in this study area could be integrated with other ongoing or recently completed studies. Dixon (2008) recently completed a study on the physical properties of grout, which included bulk porosity measurements.	Closed
ML092170006-001	Request for vendor-supplied historical documentation of the performance of various construction materials as well as documentation of materials testing performed by the disposal cell vendor	Closed

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ML091320439-016	Explain how spatial representation in the numerical experiments of sulfate attack will be translated into a PA model, since the geometries of the real system will be much more complex (e.g., a random collection of different size blocks determined by crack distributions) than those considered in the numerical experiments	Closed
ML091320439-018	Clarify the conceptual model for sulfate attack. For example, does sulfate attack proceed along a front, or is it a generalized mechanism	Closed
ML091320439-003	Provide sufficient documentation to support quarterly Saltstone Permit Reports for the period from third quarter 2007 through second quarter 2008	Closed
ML091320439-004	Provide evaluation of Tank 50 material balance, from third quarter 2007 to present	Closed