

Items Announced at the FRTR Meeting on May 9, 2017

by NRC Staff, Bobby Abu-Eid, NRC/NMSS and Tom Nicholson, NRC/RES

1. The U.S. NRC's Draft Regulatory Basis for Comment (Federal Register, Vol. 82, No. 49, Wednesday, March 15, 2017): NRC Published Draft Regulatory Basis to Support a proposed rulemaking that would amend NRC's Regulations for the Decommissioning of Nuclear Power Reactors. In this context, the NRC issued an advanced notice of proposed rulemaking (ANPR) (Federal Register 80, FR 72358; November 19, 2015) to obtain stakeholder feedback. Currently, NRC staff is seeking public comments on the regulatory bases in support of the rulemaking.
2. The U.S. NRC staff has developed a three-day training course on the Geochemistry Code PHREEQC (developed by the USGS). The next schedule for training will be on September 12-14; 2017 which will be given at PDC/NRC HQ. NRC is planning in the future to have vacant training seats for NRC's Agreement State staff as well as Federal Agencies Staff. The training will be cost free for NRC's AS and Federal Agencies. For future interest please contact Bobby Eid at Bobby.abu-eid@nrc.gov.
3. Federal Agencies (NRC, DOE, and EPA) expressed interest in coordinating a panel session and possibly an oral presentation or poster Session at **Waste Management 2018 Symposia**, to discuss risk assessment approaches to in decommissioning and cleanup of radiologically contaminated sites. Interested individuals may contact WM Symposia Secretariat Shelley Sullivan Technical Program Coordinator & Meeting Planner Shelley@wmarizona.org.
4. The NEA/OECD recently established an expert task group named "Expert Group for Legacy Management (EGLM)." The EGLM main goal is develop to a practical and harmonized approach for the regulation of nuclear legacy sites and installations, taking into account the results of other relevant activities carried out by NEA, IAEA, NCRP, and international good practices at different types of legacy sites. FRTR members may be interested in participation in EGLM activities.
5. The U.S. NRC recently issued a research report, NUREG/CR-7221 "Integrating Model Abstraction into Subsurface Monitoring Strategies." Dr. Yakov Pachepsky, USDA/Agricultural Research Service was the principal research investigator and author. An electronic copy of the report is available on the NRC Public Website at: <https://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr7221/> .

NUREG/CR-7221 reports on integrating modeling abstraction techniques into subsurface monitoring strategies. This research is the culmination of many field and modeling studies conducted by the USDA/Agricultural Research Service (ARS) at their Beltsville Area Research Center in cooperation with the U.S. NRC. The research design was to identify and examine near-surface water flow pathways by monitoring performance indicators within the unsaturated zone and local water-table system. The peak tracer concentration and the time to peak concentration at several monitoring locations served as the performance indicators. The objective was to apply model abstraction techniques in designing monitoring networks such as those used at nuclear waste and decommissioned facilities. The level of spatial and temporal detail in characterizing soil properties (e.g. water contents and hydraulic conductivities) is based upon the model abstraction considerations. Simplifications may omit significant

processes and conditions that control the water and contaminant migration. The ARS field studies provided detailed databases for modeling water and chemical tracer movement in 2- and 3- dimensions to facilitate understanding of what processes and properties could be simplified (abstracted). Model abstractions included using pedotransfer functions for hydraulic conductivity, soil profile homogenization, and unsaturated zone omission. This latter abstraction proved to be the most accurate in generating a monitoring network that reflected the calibrated model. A comprehensive sensitivity analysis was performed to identify possible directions of model simplification in the model abstraction process. The integration of model abstraction into monitoring strategies based upon the ARS field and modeling findings was documented and reviewed by international soil scientists. The studies were jointly funded by NRC and USDA/ARS.

6. The U.S. NRC issued a new guide in its “Regulatory Guide” series. This series was developed to describe and make available to the public information regarding methods that are acceptable to the NRC staff for implementing specific parts of the agency’s regulations, techniques that the NRC staff uses in evaluating specific issues or postulated events, and data that the NRC staff needs in its review of applications for permits and licenses.

Regulatory Guide (RG) 4.25 “*Assessment of Abnormal Radionuclide Discharges in Ground Water to the Unrestricted Area at Nuclear Power Plant Sites*” describes a method that the staff of the NRC considers acceptable for assessing abnormal, inadvertent radioactive releases which may result in discharges of contaminated ground water from the subsurface to the unrestricted area at commercial nuclear power plant sites. The guide endorses **American National Standards Institute/American Nuclear Society (ANSI/ANS)–2.17–2010 (R2016)** “*Evaluation of Subsurface Radionuclide Transport at Commercial Nuclear Power Plants,*” which provides such methods. The ANSI/ANS standard does not specify the use of any specific ground-water flow and transport model and it provides a graded, risk-informed approach for evaluating the effects of subsurface radionuclide transport. However the appendix to Regulatory Guide 4.25 provides a simple ground water flow and transport model that is acceptable for use with simple hydrogeologic conditions and geometry such as steady-state saturated flow in homogeneous porous sand layers. The model is in the form of a spreadsheet format to facilitate its use.

RG 4.25 and its Appendix – Simple Ground Water Model for Estimating Offsite Tritium Activity Flux (Excel Spreadsheet Model) are available at: <https://www.nrc.gov/reading-rm/doc-collections/reg-guides/environmental-siting/rg/division-4/division-4-21.html> (please click on the “Publish Date” for the RG, and “Appendix title” to view the ground-water model, and click on the EXCEL file for the code.)