

## STATEMENT OF WORK: 2103

- Task 1. Dr. Stothoff will continue work already in progress in documenting the results of the software program SoilGen 1.0 and completing the required tasks to satisfy technical operating procedure TOP-018. SoilGen1.0 generates soil depths across a terrain by solving equations for flow of water and sediment. A journal article is nearly complete and the software development plan has been completed. The bulk of the effort for this task will be to complete and/or support the completion of TOP-018 requirements, which include software documentation, acceptance testing, and validation testing. This work will be documented in the formal software validation testing plan. The estimated level of effort to complete this work is 120 hours.
- Task 2. Dr. Stothoff will continue to contribute to TPA code development. This work may include code testing and validation for USFIC and TEF KTIs, and preparation of documentation for the TPA user's guide. Using his previous experience in both ambient and thermally-perturbed percolation and seepage, Dr. Stothoff's tasks will be assigned on an as-needed basis. Such tasking would be coordinated with or provided by the Manager of Performance Assessment, particularly when funded in part or entirely by the TSPA I KTI. The estimated level of effort for this work is 120 hours.
- Task 3. Dr. Stothoff will continue his contributions to ongoing research on shallow infiltration, ambient and thermally-perturbed percolation and seepage, and groundwater flow at Yucca Mountain, Nevada and in the Death Valley regional watershed. Work under this task may include review of the DOE Analysis Model Reports and supporting documents, communication of review findings to CNWRA staff, computer simulation of unsaturated or saturated flow, and tabulation or visualization of model results for inclusion in CNWRA reports. It is expected this task will require up to 120 hours of Dr. Stothoff's time.
- Task 4. Dr. Stothoff may also be requested to assist TEF KTI staff with assessment of the potential for preferential flow to breach the dryout zones surrounding repository drifts. This work would entail the use of a boundary element model with separate fractures crossing the matrix continuum. Up to 250 hours of Dr. Stothoff's time may be needed for this effort.

These tasks fall mainly under the auspices of the USFIC KTI, which is guided by James Winterle of CNWRA staff, and the TEF KTI, which is guided by David Farrell. As in the past, Dr. Stothoff's assistance will likely be needed in other phases of CNWRA work. Such additional work may include, and is not limited to, assistance to other KTIs and on various Work for Others projects.