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Contract No. NRC–02–02–012
Account No. 20.06004.01.006
NMSS06n: PROJ0734; PROJ0735

U.S. Nuclear Regulatory Commission
ATTN: Mr. Ryan Whited
Division of Waste Management and Environmental Protection
Two White Flint North
11545 Rockville Pike
Mail Stop T7–J8
Washington, DC 20555

Subject: Transmittal of Final Copy of Model/Code and Documentation for a Biosphere Model in GoldSim [Intermediate Milestone (IM) 06004.01.006.215]

Dear Mr. Whited:

The purpose of this letter is to transmit the subject deliverable. This final copy of the model/code and documentation was prepared to document activities under Task 6 (Develop a Biosphere Model Using GoldSim), Subtask C, and describes the biosphere model, BDOSE, developed within the GoldSim software platform. The title of the document has been modified from that in the operations plan to Description of Methodology for Biosphere Dose Model BDOSE to better reflect its contents. The document describes the basic scenarios modeled by the software, the radionuclides tracked in the dose assessments, and the underlying equations used in the calculations. An appendix to the document also includes justification of the parameters and their associated distributions used within the model. As requested by the U.S. Nuclear Regulatory Commission (NRC), the software validation test report has also been included for information only. The intent is for the model to be broadly applicable to non-high level waste determination consultations and waste incidental to reprocessing reviews that will be conducted by NRC and Center for Nuclear Waste Regulatory Analyses (CNWRA) staff for tank decommissioning activities at Savannah River, Idaho National Laboratory, West Valley, and Hanford.

During the development of the model NRC and CNWRA staff identified a few areas which were beyond the original scope of work but would improve the model. These suggestions are listed below and we would appreciate the opportunity to discuss these with your staff.

(1) Summarization of input parameters into some type of database to make data entry easier.

(2) Addition of statistical correlation between parameters to improve realism.

(3) Coupling the dose model to an existing groundwater model to increase its usefulness.

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(4) Revision of methodology document to a user guide format to make the code easier to use.

(5) The current model with existing results has large memory requirements. This could potentially be minimized with future development.

We plan to revise this document in response to any NRC comments and transmit the revised letter report (IM 06002.01.006.225) by July 13, 2007, as stated in the Operations Plan. To allow time for CNWRA internal reviews, we request any NRC comments by June 22, 2007. Coordinating the comments through Ms. Anita Turner Gray, the Task 6 Technical Monitor will help expedite preparation of the July 13, 2007, deliverable.

Also, as we have discussed with Ms. Turner Gray and Christepher McKenney once we have finalized the software, we plan to begin the process to copyright BDOSE. Please note that this would not change NRC access to this or subsequent versions of the software.

If you have any questions regarding this report, please contact Ali Simpkins at (210) 522–6260 or me at (210) 522–2139. Your cooperation in this matter is appreciated.

Sincerely,

David R. Turner
Assistant Director
Non-Repository Programs

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