BSC

Scientific Analysis
Administrative Change Notice

Complete only applicable items.

1. Document Number:	ANL-MGR-MD-000009	2. Revision:	04	3. ACN:	01
4. Title:	Nominal Performance Biosphere Dose Conversion Factor Analysis				
5. No. of Pages Attached:	1				

6. Approvals:

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7. Affected Pages	8. Description of Change:
7-6	Citation update Section 7.2 "How Acceptance Criteria Are Addressed", 1st paragraph on page 7-6, 4th sentence, change: *"The uncertainty in the model and its input parameters is propagated onto and reflected in the BDCFs through the development of the BDCF vectors representing individual model realizations (see Section 7.1.2), consistent with the ACs 2.2.1.3.13.3, 2.2.1.3.13.4, and 2.2.1.3.14.3 (see Table 4.2-2)."* To: ***"The uncertainty in the model and its input parameters is propagated onto and reflected in the BDCFs through the development of the BDCF vectors representing individual model realizations (see Section 7.1.2), consistent with the ACs 2.2.1.3.13.3 and 2.2.1.3.14.3 (see Section 4.2)."*** This change is associated with CR 6093

In addition, the ACs identified as applicable to this analysis in Section 4.2, that are related to the model abstraction were addressed. The biosphere modeling does not utilize the model abstraction step, but rather, the BDCFs are calculated as the model output. In this sense, the BDCFs, which are the input to the TSPA-LA model, serve as a collapsed model abstraction. The uncertainty in the model and its input parameters is propagated onto and reflected in the BDCFs through the development of the BDCF vectors representing individual model realizations (see Section 7.1.2), consistent with ACs 2.2.1.3.13.3 and 2.2.1.3.14.3 (see Section 4.2).

The specific ACs were addressed as follows:

Section 2.2.1.3.13.3: Redistribution of Radionuclides in Soils

AC 1 (1): As discussed in Sections 1 and 7.1.2, because the BDCFs are used directly in the TSPA, the TSPA adequately incorporates the results of human exposures to groundwater.

AC 1(2): By including the BDCFs for the groundwater exposure scenario, the TSPA identifies and describes an aspect of radionuclide redistribution in soil that is important to repository performance. See, Section 7.1.2 and 7.1.3. The technical bases for the groundwater exposure scenario are adequately described in Section 6.1.2.

AC 1 (3): Relevant site FEPs (Section 1), including climate change (Section 6.1.3), receptor characteristics (Section 6.1.4), and the biosphere model (Section 6.1.5) have been appropriately modeled in the BDCFs. Sufficient technical bases are provided for the BDCFs.

AC 2 (1): The BDCF development process described in Section 6 shows that the BDCFs used in the license application are justified. Adequate descriptions of how data was used to develop BDCFs are presented in Section 6.2, which includes a pathway analysis (Section 6.2.5), climate change (Section 6.2.2), and uncertainty (Section 6.2.1).

AC 2 (2): As shown in Sections 4.1.1 and 4.1.2, sufficient data are available to adequately define the parameters for the BDCFs.

AC 3 (1): The calculations described in Section 6.2.2 for the incorporation of climate change, the resulting BDCFs presented in Section 6.2.3, and the development of dose factors described in Section 6.3 show that the parameter values are technically defensible, reasonably account for uncertainties, and do not result in an under-representation of the risk.

AC 3 (2): The model input data related to agricultural parameters (Section 4.1.1) are consistent with the current farming practices. Data on the airborne particulate concentration is based on the resuspension of appropriate material in a climate and level of disturbance, which is expected to be found at the location of the RMEI.

AC 3 (3): Sections 6.2.1 and 7.1.1 shows that uncertainty was adequately represented in the BDCFs by a probability distribution which was generated from a thousand realizations using a Monte Carlo technique.