Table 15-1. Natural Analogues in This Report and Their Potential Applications to Performance Assessment (cont.)

Section in Natural Analogue Report	Conceptual Model Development (Applied Processes from Natural Analogues)	Use of Specific Parameters in Yucca Mountain TSPA Model	Use for Model Validation of Yucca Mountain Characterization
11.2	Mineral dissolution associated with condensation, as observed at The Geysers (CA) geothermal field		
11.2, 11.3	Reduction in porosity and permeability due to silica precipitation, as observed at the Dunes (CA) and Yellowstone (WY) geothermal fields, and in reinjection wells at Otake (Japan), Rotokawa, Ohaaki, and Wairakei (NZ) geothermal fields		
11.2, 11.3	Use of thermodynamic models to predict fluid-mineral reactions at reservoir conditions		Model validation performed comparing observed and simulated mineral assemblages calculated using EQ3/6 codes, measured geothermal fluid compositions, and observed reservoir conditions at Yellowstone (WY) and Wairakei (NZ) geothermal fields
11.4			Modeled possibility of forming opal-filled veins with source of silica derived from host rock at Paiute Ridge
11.5	Localized U mobility in tuff at temperatures comparable to repository		
11.6			Qualitative- Relative TM stability under sub-boiling conditions in heterogeneous host rock at K-26 (Russia)
12.3			UMTRA plumes – weak to no uranium retardation in examples studied
12.4	Various sites in UZ – some portion of U, Th, and REE transported as colloids		
13.4			Resuspension of radionuclides in dust particles increases by an order of magnitude after soil tillage
13.4		Environmental ½-life of ^{137}Cs in food 0.4–22 yrs (shorter than predicted)	

Table 15-1. Natural Analogues in This Report and Their Potential Applications to Performance Assessment (cont.)

Section in Natural Analogue Report	Conceptual Model Development (Applied Processes from Natural Analogues)	Use of Specific Parameters in Yucca Mountain TSPA Model	Use for Model Validation of Yucca Mountain Characterization
13.4			Neglecting soil erosion as means of radionuclide removal increases model conservatism
13.4			Chernobyl – irrigation with contaminated water causes radionuclide buildup factor
13.4			Chernobyl showed that ingestion pathway constitutes small part of total dose; external pathway predominates, except for agricultural workers
14.3		Intrusion/extrusion ratio near 1 supported by Paiute Ridge field studies and reexamination of dike systems at San Rafael volcanic field	
14.3		Eruptive style and magmatic composition with combination of scoria cone, spatter cones and lava cones on the surface, and one or more dikes in the subsurface based on Lathrop Wells volcano	
14.3			Cerro Negro, in Nicaragua, used to validate the ASHPLUME code's ability to simulate an eruption
14.4	Enhanced ability of underground structures to withstand damage from earthquakes demonstrated by lack of damage in underground facilities during major earthquakes		
14.4			The DRKBA code used to model rockfall probabilities using quasi-static method of reducing the joint strength parameters to account for the seismic effect was verified based on the test runs using the dynamic functions of the distinct element code UDEC.

Source: Simmons 2002 [157578], YMP-LBNL-AMS-NA-2, pp. 11-14.

16. INPUTS AND REFERENCES

The following is a list of the references cited in this document. Column 1 represents the unique six digit numerical identifier, which is placed in the text following the reference callout (e.g., CRWMS M&O 2000 [144054]). The purpose of these numbers is to assist the reader in locating a specific reference. Within the reference list, multiple sources by the same author (e.g., CRWMS M&O 2000) are sorted alphabetically by title.

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