UNITED STATES
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

BIBLIOGRAPHY OF PUBLICATIONS RELATED TO THE
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT
PREPARED BY U.S. GEOLOGICAL SURVEY PERSONNEL
THROUGH APRIL 1991

By

V.M. Glanzman

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ABSTRACT

Personnel of the U.S. Geological Survey have participated in nuclear-waste management studies in the State of Nevada since the mid-1970's. A bibliography of publications prepared principally for the U.S. Department of Energy Yucca Mountain Site Characterization Project (formerly Nevada Nuclear Waste Storage Investigations) through April 1991 contains 475 entries in alphabetical order. The listing includes publications prepared prior to the inception of the Nevada Nuclear Waste Storage Investigations Project in April 1977 and selected publications of interest to the Yucca Mountain region.

INTRODUCTION

The U.S. Geological Survey has been involved in nuclear-waste management studies in Nevada since the mid-1970's. Early studies include those by Ekren and others (1974) regarding geologic and hydrologic considerations for various concepts of disposal within the conterminous United States. Under the Nuclear Waste Terminal Storage Program (NWTSP) established in 1976, the Geological Survey performed studies to evaluate various geologic media in the State of Nevada (Schneider and others, 1982). Studies included geologic mapping of the Lone Mountain pluton (Maldonado, 1984), an inventory of granitic rock masses in the State of Nevada (Spengler and others, 1979), and an inventory of clay-rich bedrock and metamorphic derivatives in eastern Nevada (Simpson and others, 1979).

Following the establishment of the Nevada Nuclear Waste Storage Investigations (NNWSI) program in April 1977, the Geological Survey studies were focused on locating and characterizing rock masses at the Nevada Test Site (NTS, fig. 1) that could provide suitable host media for disposal of high-level nuclear waste. Areas of investigation were Syncline Ridge, Twinridge, and Timber Mountain. In 1978, the southwestern part of the NTS was deemed suitable for further exploration, and studies were undertaken in the areas of the Calico Hills, Wahmonie Flat, and Yucca Mountain (fig. 1). Regional studies of tectonics, volcanism, and erosion rates in the southern Great Basin were also initiated. A seismic network was established within a 160-km radius of NTS to locate and study earthquakes (Rogers and others, 1981). Hydrologic studies focused on determination of present and past hydrologic regimes of the NTS area. In mid-1979, Yucca Mountain was selected as the area for concentrated studies, the emphasis being on the thick tuff units beneath the water table.

The emphasis in the United States and in all foreign programs for developing permanent disposal facilities had concentrated on the saturated zone (Roseboom, 1983). A Peer Review Committee for the Yucca Mountain site raised the question of possible

use of the unsaturated zone in early 1982. Geological Survey scientists subsequently recommended to the U.S. Department of Energy that the unsaturated zone at Yucca Mountain could provide a favorable environment for storage of radioactive waste. The Geological Survey also provided recommendations to the Nuclear Regulatory Commission (NRC), regarding draft rule 10 CFR Part 60, to include the unsaturated zone in repository studies. The NRC subsequently modified the draft rule to include both the saturated and unsaturated zones (Roseboom, 1983). The Nuclear Waste Policy Act of 1982 (signed in January 1983) established the Office of Civilian Radioactive Waste Management (OCRWM) within the Department of Energy; OCRWM subsequently identified Yucca Mountain as one of nine potentially acceptable sites for characterization. In December 1987, Congress amended the Nuclear Waste Policy Act to focus site characterization efforts on the Yucca Mountain site (U.S. Department of Energy, 1990). The NNWSI was renamed the Yucca Mountain Project in 1988, and subsequently the Yucca Mountain Site Characterization Project in 1990.

DESCRIPTION OF BIBLIOGRAPHY

This compilation is an alphabetical listing of publications, including abstracts for meetings and symposia, prepared by Geological Survey personnel on radioactive-waste disposal studies in the NTS area. The majority of publications in this bibliography were prepared under the cooperative program with the U.S. Department of Energy (Interagency Agreement DE-AI08-78ET44802, formerly EW-78-A-08-1543). The listing includes publications of early reconnaissance studies and the Yucca Mountain Site Characterization Project through April 1991. Additional selected publications of interest to the Yucca Mountain region, although not prepared under the cooperative program, have also been included. Figures 2 through 5 show geologic, surficial geologic, gravity, and aeromagnetic map coverage of the Yucca Mountain region at varying scales up to 1:100,000. Maps at scales of 1:250,000 and greater are not shown on the figures. Entries in the Index are keyed to the numbers of the listed publications.

ORDERING INFORMATION FOR GEOLOGICAL SURVEY PUBLICATIONS

Book publications of the Geological Survey may be obtained from the Books and Open-File Reports Section, U.S. Geological Survey, Box 25425 Federal Center, Denver, Colo. 80225. U.S. Geological Survey maps may be obtained from the Map Distribution Section, U.S. Geological Survey, Box 25286 Federal Center, Denver, Colo. 80225. For additional ordering information the reader is referred to U.S. Geological Survey Circular 900. Reports with the designation USGS-1543-xx may be ordered from the U.S. Department of Commerce, National Technical Information Service, Springfield, Va. 22161.

Figure 1.--Index map of Yucca Mountain and vicinity.

Figure 2.--Geologic maps of the Yucca Mountain region (irregular and overlap boundaries are approximate).

Figure 3.--Surficial geologic maps of the Yucca Mountain region (irregular and overlap boundaries are approximate).

Figure 4.--Gravity maps of the Yucca Mountain region (irregular and overlap boundaries are approximate).

Figure 5.--Aeromagnetic maps of the Yucca Mountain region (irregular and overlap boundaries are approximate).

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