



Department of Energy
 Office of Civilian Radioactive Waste Management
 Yucca Mountain Site Characterization Office
 P.O. Box 98608
 Las Vegas, NV 89193-8608

JUL 05 1996

Overnight Mail

Michael J. Bell, Chief
 Engineering and Geosciences Branch
 Division of Waste Management
 Office of Nuclear Material Safety
 and Safeguards
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555

**TRANSMITTAL OF APPROVED YUCCA MOUNTAIN STUDY PLAN 8.3.1.8.2.1,
 "TECTONIC EFFECTS: EVALUATIONS OF CHANGES IN THE NATURAL AND
 ENGINEERED BARRIER SYSTEMS RESULTING FROM TECTONIC EFFECTS AND
 PROCESSES," REVISION 1 (SCP: 8.3.1.8.2.1)**

Enclosed is a controlled copy of Study Plan 8.3.1.8.2.1, Revision 1, prepared by the U.S. Department of Energy (DOE) for the Yucca Mountain, Nevada, site. The study plan numbers correspond to the same numbers used in the Site Characterization Plan (SCP) for the Yucca Mountain, Nevada, site. This document has the same number as Revision 0 (accepted by U.S. Nuclear Regulatory Commission [NRC] on November 19, 1993), which was prepared by a different participant. It has been completely rewritten and has a new title and contents. The revised study plan resulted because extensive overlaps and redundancies existed among the several studies and activities whose principal objectives are to collect and synthesize data on tectonic events and processes, and to evaluate their potential effects on waste containment. Such studies and activities include: (1) all of those listed in the SCP for Investigations 8.3.1.8.2 (studies to provide information required on rupture of waste packages due to tectonic events), 8.3.1.8.3 (studies to provide information required on changes in the unsaturated and saturated-zone hydrology due to tectonic events), and 8.3.1.8.4 (studies to provide information required on changes in rock geochemical properties resulting from tectonic processes), which are aimed primarily toward data compilation and synthesis; and (2) those efforts involving collection of field and laboratory data on tectonic events and processes (fault studies, etc.) which provide the basic information for the compilation, synthesis, and evaluation of data mentioned in (1) above.

Study Plan 8.3.1.8.2.1, Revision 1, consolidates all of the studies and activities originally assigned in the SCP to Investigations 8.3.1.8.2, 8.3.1.8.3, and 8.3.1.8.4 into one investigation (labeled 8.3.1.8.2) and one study (labeled 8.3.1.8.2.1), and divides the latter into five activities which incorporate all of the primary objectives listed for the three integrated investigations. In order to

MH03

9607160297 960705
 PDR WASTE PDR
 WM-11

102.8

JUL 05 1996

Michael J. Bell

-2-

eliminate duplication of effort, the revised study plan also discusses in detail the relationships between the consolidated study and those data-collecting investigations supplying basic information on tectonic events and processes. It cites the specific studies and activities from which data will be forthcoming to address all of the parameters originally listed in the SCP.

Enclosure 2 provides responses to the recommendations contained in your letter of November 19, 1993, that provided review comments on Revision 0 of this study plan.

Study plans are prepared, reviewed, and approved under Yucca Mountain Site Characterization Office quality assurance procedures. It should be noted that there may be some inconsistencies in the milestone report titles and schedules given in this study plan and those in the SCP. Study plans, in general, represent a further evolution of the study in the areas related to schedules and milestones relative to the SCP and, as such, represent DOE's current plans.

DOE has reviewed the study plan for consistency with the content requirements for study plans, as given in Attachment 1 to the 1993 DOE/NRC Level of Detail agreement and review process for study plans.

The Document Transmittal/Acknowledgment Record for your controlled copy of the study plan should be signed, dated, and returned to the Document Control Center in Las Vegas, Nevada.

If you have any questions, please contact Juliana M. Herrington at (702) 794-1312.

for 
Stephan J. Brocoum
Assistant Manager for
Suitability and Licensing

AMSP:JMH-1733

Enclosures: (NOT RECORDS MATERIAL)

1. Study Plan 8.3.1.8.2.1, Revision 1
2. Responses to NRC Comments on
Study Plan 8.3.1.8.2.1, Revision 0

JUL 05 1996

Michael J. Bell

-3-

cc w/encls:

C. E. Einberg, HQ (RW-36) FORS
A. B. Brownstein, HQ (RW-36) FORS
R. A. Milner, HQ (RW-30) FORS
Samuel Rousso, HQ (RW-40) FORS
Alice Cortinas, CNWRA, San Antonio, TX
T. J. Hickey, State of Nevada, Carson City, NV
R. R. Loux, State of Nevada, Carson City, NV
Cyril Schank, Churchill County, Fallon, NV
D. A. Bechtel, Clark County, Las Vegas, NV
J. D. Hoffman, Esmeralda County, Goldfield, NV
Eureka County Board of Commissioners, Battle Mountain, NV
Jason Pitts, Lincoln County, Pioche, NV
V. E. Poe, Mineral County, Hawthorne, NV
L. W. Bradshaw, Nye County, Tonopah, NV
P. A. Niedzielski-Eichner, Nye County, Chantilly, VA
William Offutt, Nye County, Tonopah, NV
Wayne Cameron, White Pine County, Ely, NV
S. E. LeRoy, M&O, Las Vegas, NV

cc w/o encls:

W. D. Barnard, NWTRB, Arlington, VA
W. R. Keefer, USGS, Denver, CO
R. W. Craig, USGS, Las Vegas, NV
M. C. Brady, M&O/SNL, Las Vegas, NV
L. D. Foust, M&O, Las Vegas, NV
J. R. Leonard, M&O, Las Vegas, NV
J. D. Agnew, M&O, Las Vegas, NV
C. T. Statton, M&O, Las Vegas, NV
D. G. Horton, OQA (RW-3), YMSCO, NV
J. M. Herrington, YMSCO, NV
S. J. Brocoum, YMSCO, NV
A. V. Gil, YMSCO, NV
S. B. Jones, YMSCO, NV
R. L. Patterson, YMSCO, NV
J. R. Summerson, YMSCO, NV
Records Processing Center

Complete only applicable items.

DATE 05/13/96	TO BELL MICHAEL J	COPY NO. 103483.0	LOCATION LAS VEGAS	-MS/523
------------------	----------------------	----------------------	-----------------------	---------

Description of Document(s)

TITLE	DOCUMENT IDENTIFIER	EFFECTIVE DATE	NO. OF SHEETS
8.3.1.8.2.1 Rev. 1 ICN 0 "TECTONIC EFFECTS": EVALUATIONS OF CHANGES IN THE NATURAL AND ENGINEERED BARRIER SYSTEM RESULTING FROM TECTONIC PROCESSES AND EVENTS.		05/09/96	

Instructions/Remarks

Please incorporate changes required per the instructions
of this CDI on the effective date noted.

REPLACE : 8.3.1.8.2.1, REV 0
IN ITS ENTIRETY WITH
8.3.1.8.2.1, REV 1.

*** DESTROY SUPERSEDED MATERIAL ***

Sign and return to:
TRW/DCC Mail Stop 423
101 Convention Center Drive
Las Vegas, NV 89109

DUE BY: 06/11/96

Receipt Acknowledgement

NAME	SIGNATURE	DATE
------	-----------	------

Contact the Document Center staff member named below with any questions regarding these instructions.

BY DCC LAS VEGAS	LOCATION TES3/423	PHONE (702) 295-5464
---------------------	----------------------	-------------------------

Study Plan
for
Study 8.3.1.8.2.1

**TECTONIC EFFECTS: EVALUATIONS OF CHANGES IN THE
NATURAL AND ENGINEERED BARRIER SYSTEMS RESULTING
FROM TECTONIC PROCESSES AND EVENTS**

Rev. 1

December 19, 1995

U. S. Geological Survey