



Department of Energy

Nevada Operations Office

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OCT 16 1986

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DATA CATALOG

In accordance with the provisions of the U.S. Nuclear Regulatory Commission/U.S. Department of Energy (NRC/DOE) Site-Specific Agreement, a copy of the Sandia National Laboratories data catalog updated through July 10, 1986, is enclosed for your use.

Please contact Jerry S. Szymanski or Robert A. Levich of my office if you have any questions.



Donald L. Vieth, Director
Waste Management Project Office

WMPO:RAL-162

Enclosure:
As stated

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SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Thermal Conductivity Tests

DATA SET ID: L01A.A-06/24/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of thermal conductivity behavior in tuffs
 from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	5	SNL
2	Yucca Mtn	USW G-1	Tct	4	SNL
3	Yucca Mtn	USW G-1	Tcp	4	SNL
4	Yucca Mtn	USW G-1	Tht	3	SNL
5	Yucca Mtn	USW G-1	Tpt	3	SNL

DATA SET ID: L01A.A-01/13/81 -QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Bullfrog Member in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	4	SNL

DATA SET ID: L01A.A-01/15/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Comparison of testing techniques, (USGS).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tct	2	SNL

DATA SET ID: L01A.A-04/21/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of G-Tunnel in situ tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-RM-P-1	Tig	6	SNL

SANDIA NATIONAL LABORATORIES
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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Thermal Conductivity Tests (Con't)

DATA SET ID: L01A.A-07/16/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of thermal conductivity behavior of the
 Pah Canyon and Topopah Spring Members from hole USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpp	2	SNL
2	Yucca Mtn	USW G-2	Tpt	4	SNL

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DATA SET ID: L01A.A-10/07/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the tuffaceous beds of Calico Hills and
 of the Topopah Spring Member in USW G-1 and USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	5	SNL
2	Yucca Mtn	USW G-1	Tpt	10	SNL
3	Yucca Mtn	USW G-2	Tht	4	SNL
4	Yucca Mtn	USW G-2	Tpt	2	SNL

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DATA SET ID: L01A.A-02/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Tests run at SNL to determine the effect of composition,
 porosity, bedding plane orientation, water content, and a
 joint on thermal conductivity of tuff using a thermal
 compactor.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-HEH-1B	Tig	4	SNL
2	Yucca Mtn	USW G-1	Tcb	3	SNL
3	Yucca Mtn	USW G-1	Tct	2	SNL

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DATA SET ID: L01A.A-03/29/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the tuffaceous beds of Calico Hills in
 USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tht	11	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Thermal Conductivity Tests (Con't)

DATA SET ID: L01A.A-05/07/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization/support for G-Tunnel heater tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-SDH#1	Tig	3	SNL
2	G-Tunnel	U12g-SDH#3	Tilt5	3	SNL

DATA SET ID: L01A.A-05/17/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Comparative testing techniques examination.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	1	SNL

DATA SET ID: L01A.A-07/02/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of pure zeolites.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Zeolites	N/A	N/A	4	SNL

DATA SET ID: L01A.A-09/07/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in UE-25b#1H, USW G-2, USW GU-3, and drill holes in G-Tunnel.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25b#1H	Tcb	3	SNL
2	Yucca Mtn	UE-25b#1H	Tct	3	SNL
3	Yucca Mtn	USW G-2	Tpt	2	SNL
4	Yucca Mtn	USW G-2	Tcb	3	SNL
5	Yucca Mtn	USW G-2	Tct	3	SNL
6	Yucca Mtn	USW GU-3	Tpt	4	SNL
7	Yucca Mtn	USW GU-3	Tht	2	SNL
8	Yucca Mtn	USW GU-3	Tcp	1	SNL
9	Yucca Mtn	USW GU-3	Tcb	2	SNL
10	G-Tunnel	U12g-HB-MPBX	Tig	4	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Thermal Conductivity Tests (Con't)

DATA SET ID: L01A.A-12/02/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	4	SNL

DATA SET ID: L01A.A-02/21/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the tuffaceous beds of Calico Hills in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tht	3	SNL

DATA SET ID: L01A.A-03/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory quality and accuracy determination.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Standard	N/A	N/A	2	SNL

DATA SET ID: L01A.A-08/31/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Effects of Lithophysae on the thermal conductivity of the Topopah Spring Member at Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	4	SNL

DATA SET ID: L01A.A-01/23/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of Topopah Spring Member in UE-25a#1, USW GU-3 and USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpt	1	SNL
2	Yucca Mtn	USW GU-3	Tpt	1	SNL
3	Yucca Mtn	USW G-4	Tpt	2	SNL

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 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Confined Thermal Expansion Tests

DATA SET ID: L01B1.A-06/24/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of confined thermal expansion behavior in
 tuffs from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	5	SNL
2	Yucca Mtn	USW G-1	Tct	4	SNL
3	Yucca Mtn	USW G-1	Tcp	4	SNL
4	Yucca Mtn	USW G-1	Tht	3	SNL
5	Yucca Mtn	USW G-1	Tpt	3	SNL

DATA SET ID: L01B1.A-04/21/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of G-tunnel in situ tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-RM-P-1	Tig	3	SNL

DATA SET ID: L01B1.A-08/11/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Bullfrog Member in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	4	SNL

DATA SET ID: L01B1.A-10/07/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the tuffaceous beds of Calico Hills in
 USW G-1 and USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	5	SNL
2	Yucca Mtn	USW G-2	Tht	4	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Confined Thermal Expansion Tests (Con't)

DATA SET ID: L01B1.A-03/29/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the tuffaceous beds of Calico Hills in
 USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tht	13	SNL

DATA SET ID: L01B1.A-07/02/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of Tunnel Bed 5 and of the thermal
 expansion behavior of zeolite tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-SDH#3	Tilt5	4	SNL

DATA SET ID: L01B1.A-09/07/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in UE-25b#1H, USW G-2,
 USW G-1, USW GU-3 and G-Tunnel.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25b#1H	Tcb	3	SNL
2	Yucca Mtn	UE-25b#1H	Tct	3	SNL
3	Yucca Mtn	USW G-2	Tpt	2	SNL
4	Yucca Mtn	USW G-2	Tcb	3	SNL
5	Yucca Mtn	USW G-2	Tct	3	SNL
6	Yucca Mtn	USW G-1	Tcb	5	SNL
7	Yucca Mtn	USW G-1	Tct	2	SNL
8	Yucca Mtn	USW GU-3	Tpt	3	SNL
9	Yucca Mtn	USW GU-3	Tht	2	SNL
10	Yucca Mtn	USW GU-3	Tcb	1	SNL
11	G-Tunnel	U12g-HB-MPBX	Tig	4	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Confined Thermal Expansion Tests (Con't)

DATA SET ID: L01B1.A-12/02/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	4	SNL

DATA SET ID: L01B1.A-02/21/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the tuffaceous beds of Calico Hills in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tht	3	SNL

DATA SET ID: L01B1.A-03/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Evaluation of errors in thermal expansion testing/bondline compaction.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	2	SNL
2	Busted Butte	Outcrop	Tpt	2	SNL

DATA SET ID: L01B1.A-08/31/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Lithophysal effects on thermal expansion of the Topopah Spring Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	3	SNL

DATA SET ID: L01B1.A-01/23/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of Topopah Spring Member in UE-25a#1, USW GU-3 and USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpt	1	SNL
2	Yucca Mtn	USW GU-3	Tpt	1	SNL
3	Yucca Mtn	USW G-4	Tpt	2	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Unconfined Thermal Expansion Tests

DATA SET ID: L01B2.A-05/01/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of unconfined thermal expansion in drill holes USW G-1, USW G-2, UE-25a#1, and G-Tunnel, to gain knowledge of the expansion behavior of different tuff lithologies.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	46	SNL
2	Yucca Mtn	USW G-1	Tht	26	SNL
3	Yucca Mtn	USW G-1	Tcp	18	SNL
4	Yucca Mtn	USW G-1	Tcb	58	SNL
5	Yucca Mtn	USW G-1	Tct	66	SNL
6	Yucca Mtn	USW G-1	Tfb	1	SNL
7	Yucca Mtn	USW G-2	Tht	5	SNL
8	Yucca Mtn	UE-25a#1	Tpt	21	SNL
9	Yucca Mtn	UE-25a#1	Tht	33	SNL
10	G-Tunnel	U12g-RM-P-1	Tig	6	SNL
11	G-Tunnel	U12g-SDH#3	Tilt5	2	SNL
12	N/A-Zeolites	N/A	N/A	2	SNL
13	N/A-Silica	N/A	N/A	1	SNL

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Heat Capacity Tests

DATA SET ID: L01C.A-07/23/85 QA LEVEL II STATUS: PLANNED
 DESCRIPTION: Heat capacity measurements of selected Tuff units from Yucca Mountain to be used to verify the accuracy of calculated heat capacities and to quantify the heat absorbed or released in reactions involving zeolites and clay rich tuffs

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tht	0	SNL
2	Yucca Mtn	USW G-1	Tpt	0	SNL
3	Yucca Mtn	USW G-1	Tht	0	SNL
4	Yucca Mtn	USW G-2	Tpt	0	SNL
5	Yucca Mtn	USW GU-3	Tpt	0	SNL
6	Yucca Mtn	USW G-4	Tpt	0	SNL
7	Yucca Mtn	USW G-4	Tht	0	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix)

DATA SET ID: L02A1.A-03/01/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuffs from the Nevada Test Site.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpc	5	SNL
2	Yucca Mtn	UE-25a#1	Tpt	5	SNL
3	Yucca Mtn	UE-25a#1	Tht	5	SNL
4	Yucca Mtn	UE-25a#1	Tcp	5	SNL
5	Yucca Mtn	UE-25a#1	Tcb	4	SNL
6	G-Tunnel	Laser Drift	Tig	20	SNL

DATA SET ID: L02A1.A-06/24/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of mechanical behavior of tuffs from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	30	SNL
2	Yucca Mtn	USW G-1	Tct	14	SNL
3	Yucca Mtn	USW G-1	Tcp	14	SNL
4	Yucca Mtn	USW G-1	Tht	7	SNL
5	Yucca Mtn	USW G-1	Tpt	7	SNL

DATA SET ID: L02A1.A-04/14/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison using the Bullfrog Member in USW G-1, (Terra Tek data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	11	SNL

DATA SET ID: L02A1.B-04/14/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Lab comparison using the Bullfrog Member in USW G-1, (SNL Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	11	SNL

SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix) (Con't)

DATA SET ID: L02A1.A-04/21/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of G-tunnel in situ tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-RM-P-1	Tig	3	SNL

DATA SET ID: L02A1.A-06/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Mechanical testing of the Bullfrog Member in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	7	SNL

DATA SET ID: L02A1.A-07/30/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Lab comparison using the Prow Pass, Bullfrog, and Tram Members in USW G-1, (Terra Tek Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	2	SNL
2	Yucca Mtn	USW G-1	Tcb	20	SNL
3	Yucca Mtn	USW G-1	Tct	2	SNL

DATA SET ID: L02A1.A-08/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Lab comparison using the Prow Pass, Bullfrog, and Tram Members in USW G-1, (SNL Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	2	SNL
2	Yucca Mtn	USW G-1	Tcb	16	SNL
3	Yucca Mtn	USW G-1	Tct	1	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix) (Con't)

DATA SET ID: L02A1.A-09/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Bullfrog Member in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	19	SNL

DATA SET ID: L02A1.A-10/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Lab comparison using the Calico Hills Member in USW G-1, (SNL Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	44	SNL

DATA SET ID: L02A1.A-10/07/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison using the tuffaceous beds of Calico Hills in USW G-1, (Terra Tek data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	20	SNL

DATA SET ID: L02A1.A-12/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison of the Prow Pass and Tram Members in USW G-1, (SNL data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tct	25	SNL
2	Yucca Mtn	USW G-1	Tcp	2	SNL

DATA SET ID: L02A1.A-12/16/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison using the Prow Pass and Tram Members in USW G-1, (Terra Tek Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	2	SNL
2	Yucca Mtn	USW G-1	Tct	20	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix) (Con't)

DATA SET ID: L02A1.A-03/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	15	SNL

DATA SET ID: L02A1.A-09/07/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW GU-3.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	21	SNL
2	Yucca Mtn	USW GU-3	Tpt	19	SNL
3	Yucca Mtn	USW GU-3	Tht	6	SNL
4	Yucca Mtn	USW GU-3	Tcb	20	SNL

DATA SET ID: L02A1.A-02/11/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Mechanical testing of the Topopah Spring Member in USW GU-3.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpt	35	SNL

DATA SET ID: L02A1.A-06/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	5	SNL

DATA SET ID: L02A1.A-07/29/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison of Busted Butte outcrop, (Terra Tek data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	9	SNL
2	N/A-Standard	N/A	N/A	1	SNL
3	N/A-Standard	N/A	N/A	1	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix) (Con't)

DATA SET ID: L02A1.A-08/04/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison of Busted Butte outcrop, (SNL Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	9	SNL
2	N/A-Standard	N/A	N/A	1	SNL
3	N/A-Standard	N/A	N/A	1	SNL
4	N/A-Standard	N/A	N/A	2	SNL
5	N/A-Standard	N/A	N/A	1	SNL
6	N/A-Standard	N/A	N/A	1	SNL
7	N/A-Standard	N/A	N/A	1	SNL

DATA SET ID: L02A1.B-08/04/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Laboratory comparison of Busted Butte outcrop, (RE/SPEC Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	8	SNL &/or RE
2	N/A-Standard	N/A	N/A	1	SNL &/or RE
3	N/A-Standard	N/A	N/A	1	SNL &/or RE

DATA SET ID: L02A1.A-10/12/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	52	SNL

DATA SET ID: L02A1.A-12/07/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of G-tunnel in situ tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-FH#2A	Tig	6	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix) (Con't)

DATA SET ID: L02A1.A-02/24/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determination of the effect of sample size on mechanical properties of the Topopah Spring Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	16	SNL

DATA SET ID: L02A1.A-03/30/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member in USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpt	36	SNL

DATA SET ID: L02A1.B-03/30/84 QA LEVEL III STATUS: ONGOING
 DESCRIPTION: Parameter effects (temperature, pressure, strain rate, and saturation) on mechanical properties of the Topopah Spring Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	10	RE/SPEC

DATA SET ID: L02A1.A-04/01/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Effects of lithophysae on the mechanical properties of large diameter samples of the Topopah Spring Member at Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	10	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Compression Tests (Matrix) (Con't)

DATA SET ID: L02A1.A-12/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Testing to determine parameter effects (temperature, pressure, strain rate, and saturation) on mechanical properties of the Topopah Spring Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	32	SNL

DATA SET ID: L02A1.A-05/01/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Complete characterization of mechanical properties of welded Topopah Spring Member in UE-25a#1:

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpt	2	SNL

DATA SET ID: L02A1.A-06/26/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determinations of the effect of sample size on the mechanical properties of the welded Topopah Spring Member, Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	16	SNL

Mechanical Tensile Tests (Matrix)

DATA SET ID: L02A2.A-12/07/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of G-tunnel in situ tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-FH#2A	Tig	6	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Mechanical Creep Tests (Matrix)

DATA SET ID: L02A3.A-06/04/84 QA LEVEL III STATUS: ONGOING
 DESCRIPTION: Mechanical creep testing of the Topopah Spring Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	0	SNL

Mechanical Tests (Fractured Samples)

DATA SET ID: L02B.A-06/06/84 QA LEVEL III STATUS: ONGOING
 DESCRIPTION: Fracture normal and shear behavior experiments.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	9	SNL

Miscellaneous Mechanical Tests

DATA SET ID: L02C.A-01/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Examination of acoustic emissions during compression of welded tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	RMD	Tig	9	SNL

DATA SET ID: L02C.A-06/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Cutting force determination for evaluation of mining machine requirements.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	3	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information)

DATA SET ID: L03.A-06/24/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization/support of mechanical and thermal property testing on tuff samples from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	38	SNL
2	Yucca Mtn	USW G-1	Tct	22	SNL
3	Yucca Mtn	USW G-1	Tcp	22	SNL
4	Yucca Mtn	USW G-1	Tht	13	SNL
5	Yucca Mtn	USW G-1	Tpt	13	SNL

DATA SET ID: L03.A-08/01/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of Grouse Canyon Member of the Belted Range Tuff to determine where to site rock mechanics field experiments.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	RMD	Tig	5	SNL

DATA SET ID: L03.A-11/04/80 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of Grouse Canyon Member of the Belted Range Tuff to determine where to site rock mechanics field experiments.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	RMD	Tig	14	SNL

DATA SET ID: L03.A-01/13/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units from USW G-1 and UE-25a#1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	14	SNL
2	Yucca Mtn	USW G-1	Tcb	25	SNL
3	Yucca Mtn	USW G-1	Tct	32	SNL
4	Yucca Mtn	USW G-1	Tfb	4	SNL
5	Yucca Mtn	USW G-1	Trt	7	SNL
6	Yucca Mtn	USW G-1	TtA	4	SNL
7	Yucca Mtn	USW G-1	TtB	2	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-01/13/81

STATUS: COMPLETED

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
8	Yucca Mtn	USW G-1	TtC	8	SNL
9	Yucca Mtn	USW G-1	Tpt	13	SNL
10	Yucca Mtn	USW G-1	Tht	7	SNL
11	Yucca Mtn	UE-25a#1	Tht	3	SNL
12	Yucca Mtn	UE-25a#1	Tcp	9	SNL

DATA SET ID: L03.A-04/21/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of G-Tunnel in situ tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-RM-P-1	Tig	9	SNL

DATA SET ID: L03.A-05/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Prow Pass and Topopah Spring Members from USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpp	2	SNL
2	Yucca Mtn	USW G-2	Tpt	4	SNL

DATA SET ID: L03.A-05/21/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units from USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpy	8	SNL
2	Yucca Mtn	USW G-2	Tpp	13	SNL
3	Yucca Mtn	USW G-2	Tpt	38	SNL
4	Yucca Mtn	USW G-2	Tht	42	SNL
5	Yucca Mtn	USW G-2	Tcp	18	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-06/11/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units from UE-25b#1H.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25b#1H	Tcp	23	SNL
2	Yucca Mtn	UE-25b#1H	Tcb	34	SNL

DATA SET ID: L03.A-07/29/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Bullfrog and Tram Members in UE-25b#1H.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25b#1H	Tcb	2	SNL
2	Yucca Mtn	UE-25b#1H	Tct	68	SNL

DATA SET ID: L03.A-07/31/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tcp	7	SNL
2	Yucca Mtn	USW G-2	Tcb	14	SNL
3	Yucca Mtn	USW G-2	Tct	18	SNL

DATA SET ID: L03.A-08/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-1 in support of mechanical testing.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	1	SNL
2	Yucca Mtn	USW G-1	Tcb	11	SNL
3	Yucca Mtn	USW G-1	Tct	1	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-09/15/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tct	5	SNL
2	Yucca Mtn	USW G-2	Tfb	5	SNL
3	Yucca Mtn	USW G-2	Trt	26	SNL
* * * * *					

DATA SET ID: L03.A-10/05/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of mechanical testing on the Calico Hills Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	11	SNL
* * * * *					

DATA SET ID: L03.A-10/07/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of thermal and mechanical property testing on tuff samples from USW G-1 and USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	9	SNL
2	Yucca Mtn	USW G-1	Tpt	12	SNL
* * * * *					

DATA SET ID: L03.A-10/23/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	2	SNL
2	Yucca Mtn	USW G-1	Tcb	2	SNL
3	Yucca Mtn	USW G-1	Tct	10	SNL
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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-11/02/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-1, USW VH-1 and
 USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	2	SNL
2	Yucca Mtn	USW G-1	Tcb	6	SNL
3	Yucca Mtn	USW G-1	Tct	1	SNL
4	Yucca Mtn	USW VH-1	Tcp	1	SNL
5	Yucca Mtn	USW VH-1	Tcb	11	SNL
6	Yucca Mtn	USW G-2	Trt	8	SNL
7	Yucca Mtn	USW G-2	Tfb	15	SNL
8	Yucca Mtn	USW G-2	Tfb	19	SNL
9	Yucca Mtn	USW G-2	Tfb	10	SNL
10	Yucca Mtn	USW G-2	Tt	3	SNL

DATA SET ID: L03.A-01/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization in support of thermal conductivity testing
 on lithophysal Topopah Spring Member from Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	6	SNL

DATA SET ID: L03.B-01/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determination of grain density of bentonite clay as a
 function of sample hydration.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Clay	N/A	N/A	1	SNL

DATA SET ID: L03.A-01/05/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: An experimental comparison of water immersion and gas
 intrusion pycnometer techniques.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	12	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-01/06/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support for mechanical testing on tuff samples from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	1	SNL
2	Yucca Mtn	USW G-1	Tct	9	SNL

DATA SET ID: L03.A-02/22/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	2	SNL
2	Yucca Mtn	USW G-1	Tcb	5	SNL
3	Yucca Mtn	USW G-1	Tct	3	SNL

DATA SET ID: L03.A-04/06/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Tiva Canyon Member outcrops
 at Yucca Mountain in cooperation with Bob Scott, USGS.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	Outcrop	Tpc	71	SNL

DATA SET ID: L03.A-04/28/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of USW GU-3 stratigraphy and laboratory
 comparison, (H&N Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	4	SNL
2	Yucca Mtn	USW GU-3	Tpt	8	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-05/07/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization/support of G-Tunnel heater tests.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-SDH#1	Tig	3	SNL
2	G-Tunnel	U12g-SDH#3	Tilt5	3	SNL

DATA SET ID: L03.A-05/27/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of USW GU-3 stratigraphy and laboratory comparison, (H&N Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpt	5	SNL
2	Yucca Mtn	USW GU-3	Tht	2	SNL
3	Yucca Mtn	USW GU-3	Tcp	2	SNL
4	Yucca Mtn	USW GU-3	Tcb	9	SNL

DATA SET ID: L03.A-05/28/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine dry bulk densities and grain densities in support of hydrologic calculations; used in porosity and saturation calculations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	8	SNL
2	Yucca Mtn	USW GU-3	Tpt	5	SNL
3	Yucca Mtn	USW GU-3	Tcp	3	SNL
4	Yucca Mtn	USW GU-3	Tht	3	SNL

DATA SET ID: L03.A-06/21/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of USW GU-3 stratigraphy and laboratory comparison, (Terra Tek Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	16	SNL
2	Yucca Mtn	USW GU-3	Tpt	42	SNL
3	Yucca Mtn	USW GU-3	Tht	5	SNL
4	Yucca Mtn	USW GU-3	Tcp	20	SNL
5	Yucca Mtn	USW GU-3	Tcb	30	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-07/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of samples of the Tiva Canyon, Topopah Spring, and Calico Hills Members from an outcrop at Yucca Mountain in cooperation with Bob Scott, USGS.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	Outcrop	Tpc	21	SNL
2	Yucca Mtn	Outcrop	Tpt	34	SNL
3	Yucca Mtn	Outcrop	Tht	6	SNL

DATA SET ID: L03.A-07/02/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of zeolites and G-Tunnel Tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Zeolites	N/A	N/A	4	SNL
2	G-Tunnel	U12g-SDH#3	Tilt5	4	SNL
3	G-Tunnel	U12g-SDH#1	Tig	4	SNL

DATA SET ID: L03.A-08/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine long term ambient, vacuum and pressure generated saturation levels in support of analyses of hydrology experiments.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	2	SNL
2	Yucca Mtn	USW G-1	Tht	2	SNL
3	Yucca Mtn	USW G-1	Tcb	1	SNL
4	Yucca Mtn	USW G-1	Tct	1	SNL

DATA SET ID: L03.A-09/02/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Tiva Canyon and Topopah Spring Members in USW GU-3.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	14	SNL
2	Yucca Mtn	USW GU-3	Tpt	8	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-09/07/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization/support of mechanical and thermal testing
 on samples from USW G-2, USW GU-3, UE-25b#1H, and G-Tunnel.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpt	2	SNL
2	Yucca Mtn	USW G-2	Tcb	2	SNL
3	Yucca Mtn	USW G-2	Tct	3	SNL
4	Yucca Mtn	USW GU-3	Tpt	4	SNL
5	Yucca Mtn	USW GU-3	Tht	2	SNL
6	Yucca Mtn	USW GU-3	Tcp	1	SNL
7	Yucca Mtn	USW GU-3	Tcb	2	SNL
8	Yucca Mtn	UE-25b#1H	Tcb	1	SNL
9	Yucca Mtn	UE-25b#1H	Tct	3	SNL
10	Yucca Mtn	USW G-1	Tcb	5	SNL
11	Yucca Mtn	USW G-1	Tct	2	SNL
12	G-Tunnel	U12g-HB-MPBX	Tig	6	SNL

DATA SET ID: L03.A-11/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of USW G-4 stratigraphy.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	3	SNL
2	Yucca Mtn	USW G-4	Tht	5	SNL
3	Yucca Mtn	USW G-4	Tcp	5	SNL

DATA SET ID: L03.B-11/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of mechanical testing on samples of the Topopah
 Spring Member from USW GU-3.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpt	14	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.C-11/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units in USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	3	SNL
2	Yucca Mtn	USW G-4	Tpp	1	SNL
3	Yucca Mtn	USW G-4	Tpt	33	SNL
4	Yucca Mtn	USW G-4	Tht	16	SNL
5	Yucca Mtn	USW G-4	Tcp	17	SNL

DATA SET ID: L03.A-01/27/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of USW G-4 stratigraphy and laboratory comparison, (Terra Tek Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tcp	4	SNL
2	Yucca Mtn	USW G-4	Tcb	22	SNL
3	Yucca Mtn	USW G-4	Tct	11	SNL

DATA SET ID: L03.B-01/27/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of USW G-4 stratigraphy and laboratory comparison, (H&N Data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tcp	1	SNL
2	Yucca Mtn	USW G-4	Tcb	8	SNL
3	Yucca Mtn	USW G-4	Tct	3	SNL

DATA SET ID: L03.A-01/31/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of lithophysal Topopah Spring Member from USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	20	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-02/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine dry bulk and grain densities of USW G-4 samples.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	2	SNL
2	Yucca Mtn	USW G-4	Tpp	1	SNL
3	Yucca Mtn	USW G-4	Tpt	8	SNL
4	Yucca Mtn	USW G-4	Tht	4	SNL
5	Yucca Mtn	USW G-4	Tcp	6	SNL
6	Yucca Mtn	USW G-4	Tcb	2	SNL
7	N/A-Zeolite	N/A	N/A	1	SNL

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DATA SET ID: L03.A-07/11/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization/support of mechanical testing on the Topopah Spring Member samples from Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	28	SNL

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DATA SET ID: L03.A-02/01/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine saturation levels in support of analysis of hydrology experiments.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpt	4	SNL
2	Busted Butte	Outcrop	Tpt	2	SNL

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DATA SET ID: L03.A-04/17/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of tuff units from USW G-1 and G-Tunnel.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	2	SNL
2	Yucca Mtn	USW G-1	Tht	2	SNL
3	Yucca Mtn	USW G-1	Tcb	1	SNL
4	G-Tunnel	U12g-FH #2A	Tig	6	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-08/31/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of lithophysal Topopah Spring Member from Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	20	SNL

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DATA SET ID: L03.A-09/17/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Dry bulk density measurements in support of analyses of hydrology experiments.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	2	SNL
2	Yucca Mtn	USW G-4	Tht	1	SNL
3	Yucca Mtn	USW G-4	Tcp	1	SNL

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DATA SET ID: L03.A-10/15/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Grain density measurements in support of hydrologic property analysis to be used to determine porosities and saturations of samples.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	2	SNL
2	Yucca Mtn	USW G-4	Tpt	8	SNL
3	Yucca Mtn	USW G-4	Tht	5	SNL
4	Yucca Mtn	USW G-4	Tcp	5	SNL
5	Yucca Mtn	USW G-4	Tcb	2	SNL
6	Yucca Mtn	USW GU-3	Tpc	8	SNL
7	Yucca Mtn	USW GU-3	Tpt	5	SNL
8	Yucca Mtn	USW GU-3	Tht	3	SNL
9	Yucca Mtn	USW GU-3	Tcp	3	SNL

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SNL CONTACT: Francis B. Nimick, Div. 6313

Physical Properties (Supporting Information) (Con't)

DATA SET ID: L03.A-01/18/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of the Topopah Spring Member tuff on holes
 UE-25a#1, USW G-2 & USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpt	23	SNL
2	Yucca Mtn	USW G-2	Tpt	7	SNL
3	Yucca Mtn	USW G-4	Tpt	2	SNL
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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mineralogy (Supporting Information)

DATA SET ID: L04.A-10/15/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of mechanical and thermal testing on tuff samples
 from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	2	SNL &or LANL

DATA SET ID: L04.A-10/19/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of mechanical thermal testing on tuff units from
 USW G-1 and USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	5	SNL
2	Yucca Mtn	USW G-2	Tht	1	SNL

DATA SET ID: L04.A-10/23/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Test support.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	2	SNL

DATA SET ID: L04.A-03/29/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of thermal expansion and thermal
 conductivity samples from USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tht	17	SNL
2	Yucca Mtn	USW G-2	Tpt	4	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mineralogy (Supporting Information) (Con't)

DATA SET ID: L04.B-03/29/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of thermal properties testing on tuff samples from
 USW G-1 and USW G-2.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	3	SNL
2	Yucca Mtn	USW G-2	Tht	17	SNL
3	Yucca Mtn	USW G-2	Tpt	4	SNL

DATA SET ID: L04.A-04/26/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of thermal & mechanical testing on tuff samples
 from USW G-1.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tht	11	SNL
2	Yucca Mtn	USW G-1	Tcb	20	SNL

DATA SET ID: L04.A-08/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: X-ray diffraction.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcb	3	SNL&/or LANL
2	N/A-Zeolites	N/A	N/A	4	SNL&/or LANL

DATA SET ID: L04.A-05/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of components of lithophysal samples from
 Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	10	SNL

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mineralogy (Supporting Information) (Con't)

DATA SET ID: L04.A-08/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Mineralogic characterization of the welded Topopah Spring Member.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	12	SNL
2	G-Tunnel	SDHF	Tilt5	2	SNL

DATA SET ID: L04.A-01/31/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of hydrologic properties testing on tuff samples from USW GU-3 and USW G-4.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	1	SNL
2	Yucca Mtn	USW G-4	Tpc	2	SNL
3	Yucca Mtn	USW GU-3	Tpt	4	SNL
4	Yucca Mtn	USW GU-3	Tht	2	SNL
5	Yucca Mtn	USW G-4	Tpt	4	SNL
6	Yucca Mtn	USW G-4	Tht	1	SNL
7	Yucca Mtn	USW G-4	Tcp	2	SNL
8	N/A-Zeolite	N/A	N/A	1	SNL

DATA SET ID: L04.A-02/09/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of SNL mechanical testing on large-diameter lithophysal samples from Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	10	UNM

DATA SET ID: L04.A-02/13/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of mechanical testing (SNL) on samples of the Topopah Spring Member from Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	11	UNM

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LABORATORY TEST

SNL CONTACT: Francis B. Nimick, Div. 6313

Mineralogy (Supporting Information) (Con't)

DATA SET ID: L04.A-05/01/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Support of thermal properties testing on lithophysal Topopah Spring Member from Busted Butte.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	6	SNL

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DATA SET ID: L04.A-01/10/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of samples in support of heat capacity measurements, (X-ray, bulk chemical, and petrologic data).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpt	1	UNM
2	Yucca Mtn	UE-25a#1	Tht	1	UNM
3	Yucca Mtn	USW G-1	Tpt	3	UNM
4	Yucca Mtn	USW G-2	Tpt	1	UNM
5	Yucca Mtn	USW G-2	Tpt	3	UNM
6	Yucca Mtn	USW GU-3	Tpt	2	UNM
7	Yucca Mtn	USW G-4	Tpt	7	UNM
8	Yucca Mtn	USW G-4	Tht	2	UNM

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DATA SET ID: L04.A-06/26/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterization of rock sample from drill hole RF-3 to determine rock type and origin for use in the interpretation of surface facility siting studies.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	RF-3	Tmr	1	SNL

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DATA SET ID: L04.A-02/21/86 QA LEVEL II STATUS: PLANNED
 DESCRIPTION: Petrographic X-ray characterization of samples for detailed analysis of porosity--strength and porosity--Young's Modulus relationships.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	UE-25a#1	Tpc	0	N/A
2	Yucca Mtn	USW G-1	Tht	0	N/A
3	Yucca Mtn	USW G-1	Tcb	0	N/A

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SNL CONTACT: Francis B. Nimick, Div. 6313

Mineralogy (Supporting Information) (Con't)

DATA SET ID: L04.A-02/21/86

STATUS: PLANNED

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
4	Yucca Mtn	USW G-1	Tct	0	N/A
5	Yucca Mtn	USW GU-3	Tpt	0	N/A
6	Yucca Mtn	USW G-4	Tpt	0	N/A

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LABORATORY TEST

SNL CONTACT: Elmer A. Klavetter, Div. 6313

Gas Permeability (Saturated Matrix)

DATA SET ID: L05A1.A-09/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine gas permeability in support of unsaturated flow calculations; to be used in near-field modeling calculations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	1	SNL

Water Permeability (Saturated Matrix)

DATA SET ID: L05B1.A-01/28/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Permeability measurements in support of the Tuff Radionuclide Migration field experiment.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	RNM#7	Tilt5	2	SNL

DATA SET ID: L05B1.A-05/28/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine saturated matrix permeability in support of hydrologic calculations; data used for preliminary estimation of hydrology of units above the water table.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	8	SNL
2	Yucca Mtn	USW GU-3	Tpt	5	SNL
3	Yucca Mtn	USW GU-3	Tcp	3	SNL
4	Yucca Mtn	USW GU-3	Tht	3	SNL

DATA SET ID: L05B1.A-02/22/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine saturated permeability in support of hydrologic calculations, matrix permeabilities needed in modeling efforts.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	2	SNL
2	Yucca Mtn	USW G-4	Tpp	1	SNL
3	Yucca Mtn	USW G-4	Tpt	8	SNL

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LABORATORY TEST

SNL CONTACT: Elmer A. Klavetter, Div. 6313

Water Permeability (Saturated Matrix) (Con't)

DATA SET ID: L05B1.A-02/22/83

STATUS: COMPLETED

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
4	Yucca Mtn	USW G-4	Tht	4	SNL
5	Yucca Mtn	USW G-4	Tcp	6	SNL
6	Yucca Mtn	USW G-4	Tcb	2	SNL
7	N/A-Zeolite	N/A	N/A	1	SNL

DATA SET ID: L05B1.A-08/04/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine matrix saturated conductivities in support of hydrology calculations for initial variability investigations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	2	SNL
2	Yucca Mtn	USW G-4	Tht	1	SNL
3	Yucca Mtn	USW G-4	Tcp	1	SNL
4	Yucca Mtn	USW G-4	Tcb	1	SNL

DATA SET ID: L05B1.A-11/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine saturated permeability of the matrix in support of hydrologic experiments/analysis; used for equipment check and in determining data variation.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	1	SNL

DATA SET ID: L05B1.A-04/12/84 QA LEVEL III STATUS: PLANNED
 DESCRIPTION: Determination of fracture geometry as it might influence fluid flow.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	0	LBL
2	Yucca Mtn	USW G-4	Tpt	0	LBL
3	Yucca Mtn	USW G-4	Tht	0	LBL

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LABORATORY TEST

SNL CONTACT: Elmer A. Klavetter, Div. 6313

Water Permeability (Saturated Matrix) (Con't)

DATA SET ID: L05B1.A-04/13/84 QA LEVEL III STATUS: PLANNED
 DESCRIPTION: Investigate matrix hydrologic properties in support of hydrologic calculations of Lawrence Berkley Laboratory (LBL) for use in the computer code TOUGH.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tht	0	LBL

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DATA SET ID: L05B1.A-05/14/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Measure saturated hydraulic conductivities in support of hydrologic calculations and to determine permeability variation.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	2	SNL
2	Yucca Mtn	USW G-4	Tpt	3	SNL
3	Yucca Mtn	USW G-4	Tht	1	SNL
4	Yucca Mtn	USW G-4	Tcp	2	SNL
5	Yucca Mtn	USW G-1	Tpt	1	SNL
6	Busted Butte	Outcrop	Tpt	1	SNL

* * * * *

DATA SET ID: L05B1.A-11/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine saturated permeabilities in support of hydrologic property variability investigations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	8	SNL
2	Yucca Mtn	USW G-1	Tht	3	SNL
3	Yucca Mtn	USW G-1	Tcp	6	SNL
4	Yucca Mtn	USW GU-3	Tpt	5	SNL
5	Yucca Mtn	USW G-4	Tpc	3	SNL
6	Yucca Mtn	USW G-4	Tpp	1	SNL
7	Yucca Mtn	USW G-4	Tpt	9	SNL
8	Yucca Mtn	USW G-4	Tht	4	SNL
9	Yucca Mtn	USW G-4	Tcp	1	SNL

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LABORATORY TEST

SNL CONTACT: Elmer A. Klavetter, Div. 6313

Water Permeability (Saturated, Fractured Samples)

DATA SET ID: L05B2.A-02/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine fracture permeability as a function of time
 and stress in support of other hydrologic experiment design
 and analysis.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	1	SNL

DATA SET ID: L05B2.A-08/04/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine fracture saturated permeabilities in support of
 hydrology calculations for rock mass permeabilities.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	3	SNL
2	Yucca Mtn	USW G-4	Tht	1	SNL
3	Yucca Mtn	USW G-4	Tcp	1	SNL

DATA SET ID: L05B2.A-11/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine fracture saturated permeability in support of
 hydraulic experiments; initial data for scoping of fracture
 permeability values.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	1	SNL

Thermal Dependence of Permeability (Saturated Matrix)

DATA SET ID: L05C1.A-09/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine liquid permeability at different temperatures in
 support of near-field hydrologic calculations; initial data.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	1	SNL

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SNL CONTACT: Elmer A. Klavetter, Div. 6313

Thermal Dependence of Permeability (Saturated, Fractured Samples)

DATA SET ID: L05C2.A-10/31/84 QA LEVEL III STATUS: ONGOING
 DESCRIPTION: Determine thermal dependence of fracture permeability
 in support of near-field hydrologic analyses and modeling;
 initial data.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	0	SNL

DATA SET ID: L05C2.A-11/15/84 QA LEVEL III STATUS: ONGOING
 DESCRIPTION: Determine fracture permeability response to temperature in
 support of near-field hydrologic analyses; initial data.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	0	SNL

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SNL CONTACT: Elmer A. Klavetter, Div. 6313

Unsaturated Water Retention Characteristics (of Tuff)

DATA SET ID: L07.A-03/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine drying and imbibition characteristics of tuff in support of unsaturated hydrologic analyses; instrumentation check for initial hydrologic investigation.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	U12g-HEH-1B	Tig	1	SNL

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DATA SET ID: L07.A-05/28/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine water retention characteristics in support of hydrologic calculations for initial investigation of hydrologic properties above the water table.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW GU-3	Tpc	8	SNL
2	Yucca Mtn	USW GU-3	Tpt	5	SNL
3	Yucca Mtn	USW GU-3	Tcp	3	SNL
4	Yucca Mtn	USW GU-3	Tht	3	SNL

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DATA SET ID: L07.A-02/22/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine water retention characteristics in support of unsaturated hydrologic calculations. Resulting capillary pressure vs saturation data used in modeling efforts.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	2	SNL
2	Yucca Mtn	USW G-4	Tpp	1	SNL
3	Yucca Mtn	USW G-4	Tpt	8	SNL
4	Yucca Mtn	USW G-4	Tht	4	SNL
5	Yucca Mtn	USW G-4	Tcp	6	SNL
6	Yucca Mtn	USW G-4	Tcb	2	SNL
7	N/A-Zeolite	N/A	N/A	1	SNL

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SNL CONTACT: Elmer A. Klavetter, Div. 6313

Unsaturated Water Retention Characteristics (of Tuff) (Con't)

DATA SET ID: L07.A-08/04/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine water retention characteristics in support of
 unsaturated hydrology calculation; initial investigation
 into property variability.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpt	3	SNL
2	Yucca Mtn	USW G-4	Tht	1	SNL
3	Yucca Mtn	USW G-4	Tcp	1	SNL
4	Yucca Mtn	USW G-4	Tcb	1	SNL

DATA SET ID: L07.A-05/14/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine water retention characteristics of tuff matrix in
 support of unsaturated hydrologic calculations and to
 investigate experimental saturation procedures.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	1	SNL
2	Busted Butte	Outcrop	Tpt	1	SNL

DATA SET ID: L07.A-11/05/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine water retention characteristics in support of
 hydrologic property variability investigations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	7	SNL
2	Yucca Mtn	USW G-1	Tht	3	SNL
3	Yucca Mtn	USW G-1	Tcp	5	SNL
4	Yucca Mtn	USW GU-3	Tpt	3	SNL
5	Yucca Mtn	USW G-4	Tpc	1	SNL
6	Yucca Mtn	USW G-4	Tpp	1	SNL

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SNL CONTACT: Elmer A. Klavetter, Div. 6313

Unsaturated Water Retention Characteristics (of Tuff) (Con't)

DATA SET ID: L07.A-12/04/85 QA LEVEL II STATUS: ONGOING
DESCRIPTION: Experimental series to investigate water movement under both isothermal and non-isothermal conditions in support of water migration analyses and computer code verification and validation process.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	0	SNL
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SNL CONTACT: Elmer A. Klavetter, Div. 6313

Pore Size Distribution

DATA SET ID: L08.A-07/01/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Estimate pore size distribution in support of radionuclide transport calculations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	G-Tunnel	EV-5	Tilt5	15	SNL

* * * * *

DATA SET ID: L08.A-10/20/81 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Estimate pore size distribution for tuff matrix structural characterization - initial investigation of tuff matrix.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tcp	4	SNL
2	Yucca Mtn	USW G-1	Tcb	4	SNL
3	Yucca Mtn	USW G-1	Tct	10	SNL

* * * * *

DATA SET ID: L08.A-04/01/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Estimate pore size distribution in support of unsaturated hydrologic property calculations.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-4	Tpc	2	SNL
2	Yucca Mtn	USW G-4	Tpp	1	SNL
3	Yucca Mtn	USW G-4	Tpt	6	SNL
4	Yucca Mtn	USW G-4	Tht	4	SNL
5	Yucca Mtn	USW G-4	Tcp	1	SNL
6	Yucca Mtn	USW G-4	Tcb	2	SNL
7	N/A-Zeolite	N/A	N/A	1	SNL

* * * * *

DATA SET ID: L08.A-10/07/85 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine pore size distribution by mercury porosimetry techniques in support of hydrologic property analyses (comparison with saturation-pressure head data from psychrometer testing).

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-1	Tpt	12	SNL
2	Yucca Mtn	USW G-1	Tht	5	SNL

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SNL CONTACT: Elmer A. Klavetter, Div. 6313

Pore Size Distribution (Con't)

DATA SET ID: L08.A-10/07/85

STATUS: COMPLETED

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
3	Yucca Mtn	USW G-1	Tcp	3	SNL
4	Yucca Mtn	USW GU-3	Tpc	8	SNL
5	Yucca Mtn	USW GU-3	Tpt	8	SNL
6	Yucca Mtn	USW GU-3	Tht	3	SNL
7	Yucca Mtn	USW GU-3	Tcp	3	SNL
8	Yucca Mtn	USW G-4	Tcp	1	SNL
9	Yucca Mtn	USW G-4	Tpp	2	SNL
10	Yucca Mtn	USW G-4	Tpt	3	SNL
11	Yucca Mtn	USW G-4	Tht	2	SNL
12	Busted Butte	Outcrop	Tpt	1	SNL

* * * * *

SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Joseph A. Fernandez, Div. 6314

Seal Materials Evaluation

DATA SET ID: L09.A-04/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Measure properties of concrete made using tuff as a coarse aggregate to establish basic properties of tuff concrete for use as a potential sealing component.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
I	N/A-Concrete	N/A	N/A	37	SNL/WES

DATA SET ID: L09.B-04/01/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Characterize constituents of tuff concrete to establish initial premixture compositions.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
I	N/A-Concrete	N/A	N/A	14	SNL/WES

DATA SET ID: L09.A-04/06/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Measure the mechanical properties of concrete/mortar in G-Tunnel after exposure to nonwelded tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
I	N/A-Concrete	N/A	N/A	108	SNL/WES

DATA SET ID: L09.A-11/27/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Perform analysis on old, cementitious-based materials.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
I	N/A-Concrete	N/A	N/A	28	SNL/PSU

DATA SET ID: L09.B-11/27/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine the mineralogical alterations of selected grout and concrete materials under accelerated conditions.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
I	N/A-Concrete	N/A	N/A	111	SNL

SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Joseph A. Fernandez, Div. 6314

Seal Materials Evaluation (Con't)

DATA SET ID: L09.C-11/27/82 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine the initial composition of materials and fluids used in grout formulation, as well as grout in its initially hardened state, to compare initial compositions to a final composition exposed to elevated temperatures and pressures.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Grout	N/A	N/A	16	SNL

DATA SET ID: L09.A-02/22/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Determine the mechanical, hydrologic and bulk properties of grout at various temperatures and times, including some tests using densely welded Busted Butte outcrop tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Grout	N/A	N/A	872	SNL

DATA SET ID: L09.A-10/24/84 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Saturated matrix hydraulic conductivities and unsaturated matrix water retention testing on grout and concrete samples.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Grout	N/A	N/A	6	SNL
2	N/A-Concrete	N/A	N/A	6	SNL

SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Joseph A. Fernandez, Div. 6314

Backfill Properties

DATA SET ID: L10A.A-03/28/85 QA LEVEL II STATUS: ONGOING
 DESCRIPTION: To determine the effect of fine-sized material on hydraulic conductivity of crushed tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Busted Butte	Outcrop	Tpt	0	WES
2	Busted Butte	Outcrop	Tpt	0	WES
3	Busted Butte	Outcrop	Tpt	0	WES
4	Busted Butte	Outcrop	Tpt	0	WES
5	Busted Butte	Outcrop	Tpt	0	WES
6	Busted Butte	Outcrop	Tpt	0	WES
7	Busted Butte	Outcrop	Tpt	0	WES

* * * * *

SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Thomas W. Eglinton, Div. 6311

Surface Soil Properties

DATA SET ID: L11.A-05/13/83 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Evaluate material properties for excavation and foundation conditions.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	SFS-3	Qal	3	SNL
2	Yucca Mtn	SFS-4	Qal	2	SNL
3	Yucca Mtn	SFS-5	Qal	3	SNL
4	Yucca Mtn	SFS-7	Qal	3	SNL
* * * * *					

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Elmer A. Klavetter, Div. 6313

Geochemistry of Water

DATA SET ID: L12A.A-05/02/85 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Geochemical analyses of water from elevated temperature permeability tests to assess chemical changes in water after flowing through tuff sample.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	N/A-Water	N/A	N/A	2	SNL

* * * * *

SANDIA NATIONAL LABORATORIES
 NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Scott Sinnock, Div. 6315

Radiometric Testing

DATA SET ID: L13.A-03/19/79 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Potassium-argon age determinations for basalts in Crater Flat, Nevada. (Krueger Enterprises Inc., Geochem Lab Div)

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Crater Flat	Outcrop	Qb	4	SNL
2	Crater Flat	Outcrop	Tb	4	SNL
3	Crater Flat	Outcrop	Tb	4	SNL
4	Crater Flat	Outcrop	Qb	4	SNL
5	Crater Flat	Outcrop	Qb, Tb	8	SNL
* * * * *					

DATA SET ID: L13.B-03/19/79 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Potassium-argon age determinations for basalts in Crater Flat, Nevada. (Department of Geology & Geophysics, University of California, Berkley)

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Crater Flat	Outcrop	Qb	4	SNL
2	Crater Flat	Outcrop	Tb	4	SNL
3	Crater Flat	Outcrop	Tb	4	SNL
4	Crater Flat	Outcrop	Qb	4	SNL
5	Crater Flat	Outcrop	Qb, Tb	8	SNL
* * * * *					

DATA SET ID: L13.C-03/19/79 QA LEVEL III STATUS: COMPLETED
 DESCRIPTION: Potassium-argon age determinations for basalts in Crater Flat, Nevada. (Department of Geosciences, University of Arizona)

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Crater Flat	Outcrop	Qb	4	SNL
2	Crater Flat	Outcrop	Tb	4	SNL
3	Crater Flat	Outcrop	Tb	4	SNL
4	Crater Flat	Outcrop	Qb	4	SNL
5	Crater Flat	Outcrop	Qb, Tb	8	SNL
* * * * *					

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
LABORATORY TEST

SNL CONTACT: Steve Bauer, Div. 6314

Thermal Degradation of Densely Welded Tuff

DATA SET ID: L14A.A-04/01/84 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Measurements of percent moisture content of USW G-2 samples
in support of near-field thermal degradation in Topopah
Spring Tuff.

<u>SAMPLE GROUP</u>	<u>SAMPLE LOCATION</u>	<u>HOLE/OR STATION</u>	<u>USGS FORM</u>	<u>SAMPLES COMPLETED</u>	<u>RECORDS LOCATION</u>
1	Yucca Mtn	USW G-2	Tpt	4	SNL
* * * *	* * * *	* * * *	* * * *	* * * *	* * * *

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

GTUF Geotechnical Measurements

DATA SET ID: F01.A-02/01/81 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Ambient temperature borehole measurements in the Grouse
Canyon welded tuff at G-Tunnel to (1) establish baseline
reference data, and (2) gain yield testing experience in
welded tuff.

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

Small Diameter Heater Measurements #1

DATA SET ID: F02A.A-04/12/82 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Heater experiment that measures temperature distributions
and monitors water migration phenomena in welded tuff in
G-Tunnel. Data are used to evaluate heat transfer models and
to aid in evaluation of waste canister environment.

RECORDS
LOCATION: SNL

Small Diameter Heater Measurements #2

DATA SET ID: F02B.A-08/31/82 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Heater experiment that measures temperature distributions
and monitors water migration phenomena in non-welded tuff
in G-Tunnel. Data are used to evaluate heat transfer models
and to aid in evaluation of waste canister environment.

RECORDS
LOCATION: SNL

Small Diameter Heater Measurements #3

DATA SET ID: F02C.A-07/31/84 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Heater experiment that measures temperature distribution
and monitors water migration and thermal expansion phenomena
in welded tuff in G-Tunnel. Data are used to evaluate heat
transfer and thermomechanical models and aid in evaluation
of waste canister environments.

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

G-Tunnel Heated Block Experiment

DATA SET ID: F03.A-02/01/82 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Utilize excavation flatjack pressure changes and heat
fluxes in stages of slot cutting, ambient temperature, and
of thermal cycle testing to evaluate coupled thermal,
mechanical thermomechanical, and hydrothermal behavior
of a large block (ca. 8cu. m) of jointed welded tuff.
Data are used as input to numerical models and repository
conceptual design.

RECORDS

LOCATION: SNL &or SAIC

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

G-Tunnel Pressurized Slot Testing

DATA SET ID: F04.A-03/08/83 QA LEVEL III STATUS: ONGOING
DESCRIPTION: Machine thin slots in welded tuff that can be used for
direct pressure testing using flatjacks. Use slots to
measure tunnel surface stresses, mechanical deformation
properties, and evaluate strength properties for use in
repository conceptual designs.

RECORDS

LOCATION: SNL &or SAIC

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

G-Tunnel Mining Evaluations

DATA SET ID: F05.A-11/01/84 QA LEVEL III STATUS: ONGOING
DESCRIPTION: Evaluate 1) responses of welded tuff to repository scale excavations for model evaluations; 2) instrument placement and measurement techniques during mining activities; and 3) mining and drift stabilizing techniques for application to repository conceptual designs and to serve as a prototype for exploratory shaft testing.

RECORDS
LOCATION: SNL &or SAIC

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

G-Tunnel Corehole Logs and/or Fracture Mapping

DATA SET ID: F07.A-02/01/79 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Measure fracture orientations of core from pretest water migration holes to characterize fracture for water migration experiment.

RECORDS
LOCATION: SNL &/OR F&S

DATA SET ID: F07.B-02/01/79 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Videotape of pretest water migration holes to characterize fracturing prior to water migration heater experiment.

RECORDS
LOCATION: SNL &/or F&S

DATA SET ID: F07.A-06/01/80 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Logs of corehole associated with rock mechanics drift to characterize the Grouse Canyon Member of the Belted Range Tuff. (The discontinuities within it and the extent of the rock unit) for the purpose of determining where to site field experiments.

RECORDS
LOCATION: SNL &/or F&S

DATA SET ID: F07.B-06/01/80 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Maps of rock mechanics drifts to characterize the Grouse Canyon Member of the Belted Range Tuff (the discontinuities within it and the extent of the rock unit) for the purpose of determining where to site field experiments.

RECORDS
LOCATION: SNL &/or F&S

DATA SET ID: F07.C-06/01/80 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Videotapes of posttest water migration holes to characterize fracturing after water migration heater experiment for comparison with videotapes of fracturing prior to water migration heater experiment.

RECORDS
LOCATION: Unknown

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Roger M. Zimmerman, Div. 6313

G-Tunnel Corehole Logs and/or Fracture Mapping (Con't)

DATA SET ID: F07.A-08/01/80 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Logs of coreback holes associated with the water migration
experiment to characterize, after test completion, the
portion of the rock heated.

RECORDS

LOCATION: SNL &/or F&S

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Chittor Subramanian, Div. 6311

Weapons Test Seismic Studies

DATA SET ID: F08.A-06/30/66 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Ground motion data from underground nuclear detonations during FY78 were added to data from earlier detonations; the data were used to formulate a tentative equation for predicting ground motion at the Nevada Test Site. Additional measurements to explore an unexplained seismic anomaly in Jackass Flats are described. Methods used in automatic processing of ground motion data are explained (SAND79-1002).

RECORDS
LOCATION: SNL

DATA SET ID: F08.B-06/30/66 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: This report assumes reasonable criteria for NRC licensing of a nuclear waste storage facility at the Nevada Test Site, where it would be exposed to ground motion from underground nuclear weapons tests. Prediction equations and their standard deviations have been determined from measurements on a number of nuclear weapons tests. (SAND80-1020)

RECORDS
LOCATION: SNL

DATA SET ID: F08.C-06/30/66 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Proceedings of the conference on DOE ground motion and seismic programs on, around, and beyond the NTS. (SAND83-2625)

RECORDS
LOCATION: SNL

DATA SET ID: F08.A-04/05/77 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Measurement of ground motion were made at some of seven locations on 28 different underground nuclear weapons tests in Yucca Flats. Each location had measurements at the surface and at a depth ranging from 61m to 76m, permitting an assessment of the effect of depth on ground motion (SAND82-1647).

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Chittor Subramanian, Div. 6311

Weapons Test Seismic Studies (Con't)

DATA SET ID: F08.B-04/05/77 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: A least-squares linear prediction method using an optimum finite impulse response filter was used to predict a downhole velocity waveform. A filter was determined from surface and downhole velocity waveforms from several underground nuclear test events at each of a number of locations (SAND82-2478).

RECORDS
LOCATION: SNL

DATA SET ID: F08.A-04/11/78 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Measurements of ground motion from ten Pahute Mesa weapons tests were made at seven locations on the Nevada Test Site. Each location had measurements at the surface and at a depth ranging from 61m to 762m, permitting an assessment of the effect of depth on ground motion.(SAND82-0174)

RECORDS
LOCATION: SNL

DATA SET ID: F08.A-01/24/79 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Ground motion generated by a magnitude 4.3 earthquake at Massachusetts Mountain on the Nevada Test Site was measured at the control point and compared with ground motion generated at about the same distance by four underground nuclear weapons tests.(SAND81-2214)

RECORDS
LOCATION: SNL

DATA SET ID: F08.A-04/16/80 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Three orthogonal components of acceleration were measured by three canisters, one containing Kistler 303 accelerometers, one containing Q-Flex 1100 accelerometers, and the third containing Q-Flex 1200 accelerometers. Measurements were made of ground motion from six different nuclear weapons tests with the three canisters located at the same station. (SAND81-0784)

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Chittor Subramanian, Div. 6311

Weapons Test Seismic Studies (Con't)

DATA SET ID: F08.A-07/25/80 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: The stress and strain imposed on Yucca Mountain by an under-
ground nuclear explosion of 700kt at a distance of 22.8km is
estimated. Surface motion measurements at Yucca Mountain
from an underground nuclear explosion on Pahute Mesa were
scaled to 700 kt assumed to be at the southern part of the
Buckboard area. (SAND83-1553)

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: James T. Neal, Div. 6311

Surface Facility Subsurface Borings

DATA SET ID: F09.A-01/04/84 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Subsurface borings are obtained to determine alluvial thick-
ness and nature of alluvial/bedrock interface. Data are
used for determining seismic suitability of surface facili-
ties, especially waste handling facilities.

RECORDS
LOCATION: SNL

DATA SET ID: F09.A-06/11/85 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Subsurface borings are obtained to establish subsurface
geometry and material properties beneath the reference con-
ceptual site for repository surface facilities and make re-
commendations regarding preliminary validation of the site,
with particular emphasis on seismic engineering.

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: Elmer A. Klavetter, Div. 6313

In-situ Tuff Water Migration/Heater Experiments

DATA SET ID: F10.A-02/14/79 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: This in-situ experiment describes an initial assessment of
the water generation/migration response of tuff to a thermal
input.

RECORDS
LOCATION: SNL

SANDIA NATIONAL LABORATORIES
NNWSI DATA CATALOG
FIELD TEST

SNL CONTACT: HR MacDougall, Div. 6311

Meteorology

DATA SET ID: F11.A-11/01/81 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Meteorological data at site YR (Yucca Ridge) in support of
environmental, engineering design, and possible air
quality assessment requirements.

RECORDS
LOCATION: SNL

DATA SET ID: F11.A-11/02/81 QA LEVEL III STATUS: COMPLETED
DESCRIPTION: Meteorological data at site YA (Yucca Alluvial) in support
of environmental, engineering design, and possible air
quality assessment requirements.

RECORDS
LOCATION: SNL



Department of Energy

Nevada Operations Office
P. O. Box 14100
Las Vegas, NV 89114-4100

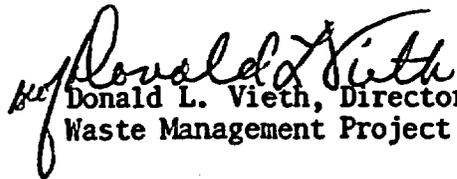
DEC 04 1986

Lawrence D. Ramspott, LLNL, Livermore, CA
William W. Dudley, Jr., USGS, Denver, CO
Donald T. Oakley, LANL, Los Alamos, NM
Thomas O. Hunter, SNL, 6310, Albq., NM
Michael E. Spaeth, SAIC, Las Vegas, NV
James P. Pedalino, H&N, Mercury, NV
Vincent Gong, REECo, Mercury, NV
Sheldon D. Murphy, F&S, Las Vegas, NV

STATE PARTICIPATION IN NUCLEAR REGULATORY COMMISSION/DEPARTMENT OF ENERGY (NRC/DOE) TECHNICAL INTERACTIONS

Enclosed for your information is a memorandum dated November 26, 1986, from James P. Knight, DOE/HQ, which specifically states the Office of Geologic Repositories policy that State participation in "substantive discussions of technical matters or other issues between the NRC and DOE ... should be encouraged."

Therefore, you may expect regular State participation at future formal technical interactions between Nevada Nuclear Waste Storage Investigations Project and the NRC.


Donald L. Vieth, Director
Waste Management Project Office

WMPO:RAL-511

Enclosure:
As stated

cc w/encl:

R. R. Loux, NWPO, Carson City, NV
P. T. Prestholt, NRC, Las Vegas, NV
M. A. Glora, SAIC, Las Vegas, NV
D. M. Dawson, SAIC, Las Vegas, NV
V. J. Cassella, DOE/HQ (RW-222) FORS
D. W. Gassman, OCC, DOE/NV
M. B. Blanchard, WMPO, DOE/NV
L. P. Skousen, WMPO, DOE/NV
W. R. Dixon, WMPO, DOE/NV
W. N. Kozai, WMPO, DOE/NV
J. S. Szymanski, WMPO, DOE/NV
R. A. Levich, WMPO, DOE/NV

memorandum

DATE: NOV 26 1986

REPLY TO: RW-24

ATTN OF:

SUBJECT: NRC Request for Site Visit

TO: Don Vieth, WMPO

ACTION _____

CC: Vieth

CC: Blanchard

CC: Szymanski

CC: Lewis

CC: Dixon

CC: Barnes/WAPA

REC'D IN WMPO

11/26/86

We have reviewed your memorandum of November 7, 1986, which provided notification of NRC's request for a site visit with Parsons Brinckerhoff, Bechtel National Inc., and Sandia National Laboratory to discuss surface and subsurface facility design. As discussed between E.P. Regnier of my staff and M. Glora of Science Applications International Corporation on November 14, 1986, I agree with your proposal for a one day interaction in Albuquerque, New Mexico during the week of December 8, 1986.

In discussion with E.P. Regnier, NRC Project Manager N.K. Stablein suggested that the NRC staff spent one additional day in Albuquerque to examine available documentation. If you believe that this could be productive for the NRC and would not interfere with the critical ongoing NNWSI tasks, I would also agree to this data examination.

Your memorandum of November 21, 1986 which transmitted a copy of a letter from Robert Loux, Executive Director of the Nevada Nuclear Waste Project Office, requesting that a representative of his staff attend the interaction and which requested a headquarters position on such matters has also been received. Your concern about consistency among the projects in this regard is appropriate. As you are aware, the Office of Geologic Repositories (OGR) general policy is to encourage openness, consultation, and cooperation with the States and Tribes. Because OGR believes that Appendix 7 is not an appropriate mechanism to govern short term NRC headquarters personnel visits to DOE sites we are presently working to develop a more appropriate procedure for short term visits and meetings. A specific policy on State representative attendance at "Appendix 7" meetings has not been formalized and may not be necessary under more appropriate procedures for NRC/DOE meetings.

The above notwithstanding, the following can be stated as an OGR policy: When it appears likely that there will be substantive discussions of technical matters or other issues between the NRC

ACTION WMPO

INFO _____

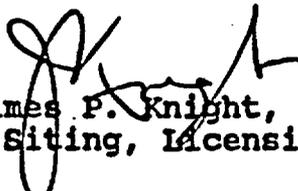
R.F. _____

AMA _____

AME & S ✓

AMO _____

and DOE the attendance of State and Tribal representatives should be encouraged. Based on the agenda proposed by NRC for this interaction, it appears to me that such discussions are likely in this case.


James P. Knight, Director
Siting, Licensing & QA Division

cc: Jeff Neff, SRPO
John Antonnen, BWIP

**Department of Energy**

Nevada Operations Office
P. O. Box 14100
Las Vegas, NV 89114-4100

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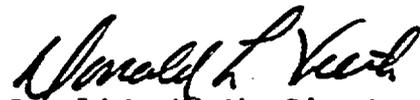
Robert R. Loux, Jr.
Executive Director
Nuclear Waste Project Office
State of Nevada
Evergreen Center
Suite 252
1802 North Carson Street
Carson City, NV 89701

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS (NNWSI) PROJECT NUCLEAR REGULATORY COMMISSION (NRC) APPENDIX 7 INTERACTION

In your letter of November 4, 1986, you requested that James Grubb of your staff attend an Appendix 7 interaction between the NNWSI Project and NRC that was originally under consideration for the week of November 17. As you know, the NRC visit was delayed and has now been scheduled for December 9, 10, and possibly part of the eleventh in Las Vegas, and for December 12 at the Sandia National Laboratories facilities in Albuquerque. Mr. Grubb is welcome to attend the interactions. Since this visit will be conducted under the provisions of Appendix 7 to the Site Specific Agreement between the NRC and the NNWSI Project, we do not plan on providing any advance materials or handouts.

On December 10-11, the interaction will be conducted at the office of the NRC Onsite Representative at 1050 E. Flamingo Road, Suite 319 beginning at 8:30 a.m. each day. The exact meeting location at the SNL facilities in Albuquerque is currently being arranged and we will provide you with more specific information as it becomes available.

Please contact Jerry S. Szymanski of my office if you have any questions.


Donald L. Vieth, Director
Waste Management Project Office

WMPO:JSS-505



COMMISSION ON NUCLEAR PROJECTS

Capitol Complex
Carson City, Nevada 89710
(702) 885-3744

AGENDA
NEVADA COMMISSION ON NUCLEAR PROJECTS
MEETING
MONDAY, NOVEMBER 17, 1986
LAS VEGAS CITY COUNCIL CHAMBERS
LAS VEGAS, NEVADA

- 1:30 p.m.
1. Welcome and opening remarks

Chairman Sawyer
 2. Approval of Minutes from September 12,
1986 Commission meeting

Chairman Sawyer
 3. Staff reports
Executive Director
 - Program update
 - Biennium budget
 - 1987 grant proposal

Robert Loux

Legal issues

Harry Swainston
 4. Discussion of plans for legislative
workshop

Robert Loux

5. Discussion of and adoption of Commission report to the Governor and the Nevada Legislature

Commissioners

6. Schedule next meeting

Chairman Sawyer and
Commissioners

Dinner break

7:00 p.m.

Reconvene

7. Presentation on:

- a. U.S. Department of Energy's activities regarding the alternatives to geologic disposal;
- b. Impact of recent congressional budget actions on the Nevada project;
- c. Report of Nevada quality assurance problems, stop-work orders corrective actions, and State involvement.

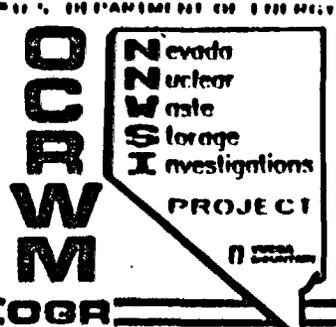
Dr. Donald Vieth, Director
Waste Management Office
U.S. Department of Energy
Nevada Operations Office

8. Public comment

9. Adjourn

Chairman Sawyer

gjb



**Nevada
Nuclear Waste
Storage Investigations Project**

**NEVADA COMMISSION ON NUCLEAR PROJECTS
MEETING**

**LAS VEGAS CITY COUNCIL CHAMBERS
Las Vegas, Nevada**

PRESENTED BY

DONALD L. VIETH

**November 17, 1986
Nevada Operations Office
UNITED STATES DEPARTMENT OF ENERGY**



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TOPICS TO BE COVERED

- **DOE ACTIVITIES REGARDING ALTERNATIVES TO GEOLOGIC DISPOSAL**
- **IMPACT OF RECENT CONGRESSIONAL BUDGET ACTION ON THE NNWSI PROJECT**
- **STATUS OF STOP WORK ORDERS, CORRECTIVE ACTIONS, AND STATE INVOLVEMENT**

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STATUS OF OTHER DISPOSAL ALTERNATIVES

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REFERENCES

- **NUCLEAR WASTE POLICY ACT: SECTION 222**

- **GENERIC ENVIRONMENT IMPACT STATEMENT ON:
"THE MANAGEMENT OF COMMERCIALY
GENERATED RADIOACTIVE WASTE",
(DOE/EIS-0046F, OCTOBER 1980)**

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STATUS OF OTHER DISPOSAL ALTERNATIVES

- DEEP HOLE DISPOSAL
- DEEP WELL INJECTION
- ROCK MELT DISPOSAL
- ISLAND GEOLOGIC DISPOSAL
- ICE SHEET DISPOSAL
- TRANSMUTATION
- SPACE DISPOSAL
- SURFACE STORAGE
- SUBSEABED DISPOSAL

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STATUS OF FY 1987 BUDGET

CONGRESSIONAL BUDGET SUBMISSION

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM (NUCLEAR WASTE FUND):

\$769.3 MILLION

- FOR FIRST REPOSITORY PROGRAM:

\$541.8 MILLION

- FOR THE NNWSI PROJECT:

\$176.5 MILLION

RECOMMENDATION OF HOUSE OF REPRESENTATIVES

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM (NUCLEAR WASTE FUND):

\$677.6 MILLION

- FOR FIRST REPOSITORY PROGRAM:

\$541.8 MILLION

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STATUS OF FY 1987 BUDGET

RECOMMENDATION OF SENATE

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM (NUCLEAR WASTE FUND):

\$380.0 MILLION

- FOR FIRST REPOSITORY PROGRAM: NO GUIDANCE
DISTRIBUTION BY OCRWM:
(* FOR FIRST REPOSITORY: \$265.0 MILLION)
(* FOR NNWSI PROJECT: \$ 97.6 MILLION)

CONTINUING RESOLUTION

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM:

\$420.0 MILLION + \$79.0 MILLION

- FOR FIRST REPOSITORY PROGRAM: NO GUIDANCE
DISTRIBUTION BY OCRWM:
(* FOR FIRST REPOSITORY: \$285.0 MILLION)
(* FOR NNWSI PROJECT: \$108.1 MILLION)

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NUCLEAR REGULATORY

STATUS OF FY 1987 BUDGET

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NNWSI BUDGET FOR FY 1987

- NEW BUDGET AUTHORITY (BA) FOR FY 1987
 - \$108.1 MILLION

- CARRY-OVER FROM PREVIOUS YEARS
 - \$ 39.7 MILLION

- TOTAL BUDGET FOR FY 1987
 - \$147.8

- FUNDS AVAILABLE FOR EXECUTION OF PROGRAM
 - PREFINANCING
 - PREVIOUS COMMITMENT
 - CAPITAL EQUIPMENT

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FUNDS AVAILABLE FOR EXECUTION OF PROGRAM

(DOLLARS IN MILLIONS)

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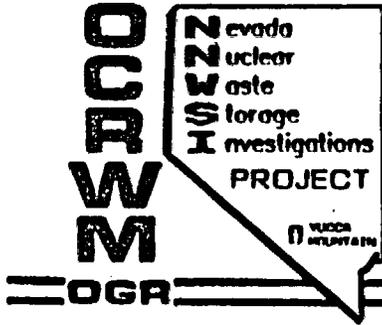
- 147.8 B/A (TOTAL AVAILABLE BUDGET AUTHORITY (B/A))
- 11.4 B/A (PREFINANCING)
- 10.5 B/A (CAPITAL EQUIPMENT)
- 4.0 B/A (T&MSS OVERLAP)
- 4.7 B/A (ENCUMBERED FUNDING)

117.2 B/O (BUDGET OVERLAY FOR OPERATING PROGRAM)

OPERATING PROGRAM ONLY

WBS ELEMENT	OCRWM JUNE 1986 MARK B/O	APPROVED DECEMBER 1986 PROGRAM B/O
1.2.1 SYSTEMS	8.2	7.8
1.2.2 WASTE PACKAGE	11.3	9.5
1.2.3 SITE	42.3	30.0
1.2.4 REPOSITORY	16.7	12.4
1.2.5 REG. & INST.	14.5	7.4
1.2.6 EXPLORATORY SHAFT	30.2	17.6
1.2.7 TEST FACILITIES	0.9	0.5
1.2.8 LAND ACQUISITION	0	0.2
1.2.9 PROGRAM MANAGEMENT	23.3	4.7
1.2.10 FIN. & TECH. ASSISTANCE	*	5.2
CORE LIBRARY	**	1.9
TOTAL OPERATING PROGRAM	147.4	117.2

*INCLUDED IN REGULATORY & INSTITUTIONAL (1.2.5)
**INCLUDED IN SITE (1.2.3)



REVIEW OF QUALITY ASSURANCE ACTIVITIES

STATUS OF STOP WORK ORDERS

- U.S. GEOLOGICAL SURVEY (USGS)
- SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC)
- LOS ALAMOS NATIONAL LABORATORIES (LANL)
- LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)
- SANDIA NATIONAL LABORATORY (SNL)
- REYNOLDS ELECTRIC AND ENGINEERING COMPANY (REECo)

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USGS STOP WORK ORDER STATUS

CONDITIONS TO RESUME WORK:

- PROPOSED CORRECTIVE ACTIONS AND SCHEDULES FOR COMPLETION OF AUDIT FINDINGS APPROVED BY WMPO
- QAPP REVISED AND APPROVED BY WMPO
- INDOCTRINATION AND TRAINING COMPLETE
- PLAN TO PROVIDE ADEQUATE QA COVERAGE
- ASSIGNMENT OF QA LEVELS COMPLETED AND APPROVED BY WMPO

STATUS:

- ALL OF THE AUDIT FINDING CORRECTIVE ACTIONS WERE SUBMITTED AND REVIEWED BY WMPO
 - SIXTEEN (16) OF THE TWENTY TWO (22) WERE ACCEPTABLE TO WMPO
- WMPO REVIEWED AND APPROVED THE USGS QAPP ON OCTOBER 27, 1986
- INDOCTRINATION AND TRAINING ON THE USGS QAPP IS SCHEDULED TO BEGIN IN THE SECOND HALF OF NOVEMBER 1986. LIMITED TRAINING ON HOW TO PREPARE SIPs WAS INITIATED
- QA RESOURCE PLAN REMAINS TO BE SUBMITTED TO WMPO
- WMPO HAS PROVIDED USGS WITH COMMENTS ON A DRAFT USGS SIP THAT WILL SERVE AS THE PROTOTYPE SIP. NO USGS SIP SUBMITTED FORMALLY. ESTIMATED NUMBER OF SIPs REQUIRING WMPO APPROVAL IS THIRTY EIGHT (38)

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SAIC/LOS ALAMOS/LLNL STOP WORK ORDER STATUS

CONDITION TO RESUME WORK:

- ASSIGNMENT OF QA LEVELS COMPLETE AND APPROVED BY WMPO

STATUS:

SAIC:

- QA LEVELS ASSOCIATED WITH NINE (9) TASKS HAVE BEEN APPROVED BY WMPO
- QA LEVELS ASSOCIATED WITH TEN (10) TASKS REMAIN TO BE RESUBMITTED. THREE (3) SIPs ARE REQUIRED WITH THESE TASKS

LOS ALAMOS:

- THIRTEEN (13) SIPs AND ASSOCIATED QALASs HAVE BEEN APPROVED BY WMPO ALLOWING WORK TO CONTINUE ON THESE ACTIVITIES. THIS COMPLETES THE RELEASE OF LOS ALAMOS WORK WHICH IS BUDGETED FOR THE CURRENT FISCAL YEAR
- WMPO HAS COMPLETED A REVIEW OF THE QA LEVELS ASSIGNED TO ITEMS IN ESF. A MEETING HAS BEEN REQUESTED WITH LOS ALAMOS ON NOVEMBER 13, 1986, TO DISCUSS COMMENTS
- ONE (1) SIP (GROUNDWATER CHEMISTRY) REMAINS TO BE SUBMITTED TO AND REVIEWED BY WMPO. HOWEVER, THIS TASK IS NOT BUDGETED FOR THE CURRENT FISCAL YEAR THEREFORE A SIP WILL NOT BE SUBMITTED AT THIS TIME

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SAIC/LOS ALAMOS/LLNL STOP WORK ORDER STATUS

(CONTINUED)

STATUS: (CONTINUED)

LLNL:

- **THREE (3) QALASs AND SIPs HAVE BEEN APPROVED BY WMPO**
- **THERE ARE SEVEN (7) SIPs REMAINING WHICH REQUIRE WMPO APPROVAL. LLNL IS PREPARING A SUBMITTAL SCHEDULE FOR THE BALANCE OF SIPs**



SNL STOP WORK ORDER STATUS

CONDITION TO RESUME WORK:

- WMPO APPROVAL OF THE SNL QAPP
- ASSIGNMENT OF QA LEVELS COMPLETE AND APPROVED BY WMPO

STATUS:

- WMPO HAS REVIEWED AND ACCEPTED ALL OF THE SNL QAPP EXCEPT FOR THE FOLLOWING:
 - SECTIONS 17 AND 18: COMMENTS AND PROPOSED RESOLUTIONS WERE AGREED TO INFORMALLY
 - SECTION 7 REMAINS TO BE SUBMITTED TO WMPO
- THIRTY NINE (39) QALASs AND SIPs HAVE BEEN APPROVED BY WMPO

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RECONSTRUCTION

REEC₀ STOP WORK ORDER STATUS

STATUS:

- WMPO APPROVAL OF PROPOSED AUDIT FINDING CORRECTIVE ACTIONS
- WMPO APPROVAL OF THE REEC₀ QAPP
- COMPLETION OF INDOCTRINATION AND TRAINING OF REEC₀ PERSONNEL

CONDITIONS TO RESUME WORK:

- ALL PROPOSED CORRECTIVE ACTIONS HAVE BEEN ACCEPTED BY WMPO
- THE REEC₀ QAPP WAS APPROVED BY WMPO ON OCTOBER 17, 1986
- INDOCTRINATION AND TRAINING ON THE REEC₀ QAPP HAS STARTED. THIS EFFORT WILL BE ONGOING
 - TRAINING OF TECHNICAL INSPECTORS COMPLETED AND VERIFIED BY A WMPO SURVEILLANCE
 - TRAINING OF PERSONNEL ON THE APPROVED REEC₀ QAPP SHOULD BE COMPLETED SOON

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ANTICIPATED REMOVAL OF STOP WORK ORDER

PROBLEM:

- SAME WMPO TECHNICAL REVIEWERS ARE NEEDED TO REVIEW SCP CHAPTERS AND QALAS DOCUMENTS

IMPACT: COMMENT/REVIEW MEETINGS ON QALAS DOCUMENTATION WITH THE PARTICIPANTS ARE BEING DELAYED

ASSUMPTION:

- PARTICIPANTS WILL HAVE THE NECESSARY IMPLEMENTING PROCEDURES IN PLACE TO PERFORM THE WORK

USGS: FEBRUARY/MARCH 1987 - AWAITING QALAS APPROVALS, COMPLETION OF TRAINING, QA RESOURCE PLAN, RESOLUTION OF SIX (6) AUDIT FINDING RESPONSES

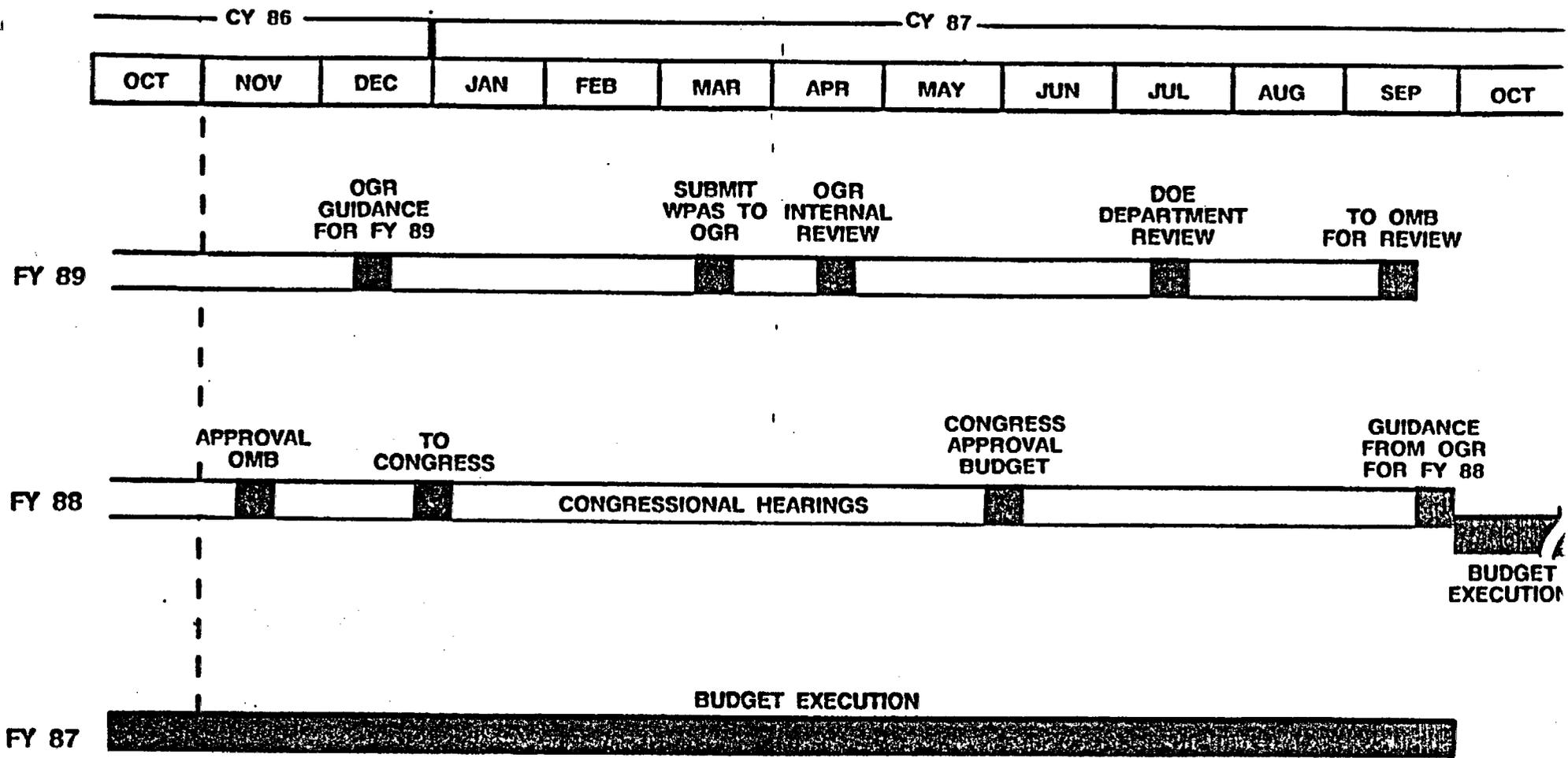
LOS ALAMOS: SWO ALREADY LIFTED

SAIC: DECEMBER 1986 - ALREADY LIFTED ON ACTIVITIES THAT HAVE APPROVED QALASs (NINE)

LLNL: NOVEMBER 1986 - ALREADY LIFTED ON ACTIVITIES THAT HAVE APPROVED QALASs (THREE)

SNL: NOVEMBER 1986 - AWAITING WMPO APPROVAL OF THE REMAINING SECTIONS OF THE QAPP

REECo: DECEMBER 1986 - AWAITING VERIFICATION FOR COMPLETION OF TRAINING



BUDGET FORMULATION CYCLE

INP-4-75

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Nevada Nuclear Waste Storage Investigations Project

PRESENTATION TO

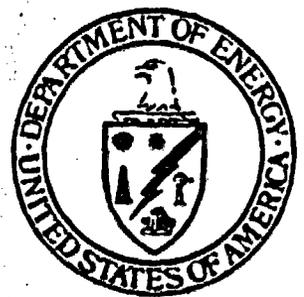
THE NEVADA LEGISLATIVE COMMITTEE ON HIGH-LEVEL RADIOACTIVE WASTE

PRESENTED BY

DR. DONALD L. VIETH

**NOVEMBER 24, 1986
Nevada Operations Office**

UNITED STATES DEPARTMENT OF ENERGY



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TOPICS TO BE COVERED

- **STATUS OF MAJOR ELEMENTS OF THE PROGRAM**
 - **ENVIRONMENTAL CONSIDERATION**
 - **SOCIOECONOMIC CONSIDERATIONS**
 - **TRANSPORTATION**
 - **COMMUNICATIONS**

- **STATUS OF DECISION TO DELAY THE SECOND REPOSITORY PROGRAM**

- **STATUS OF FY 1987 BUDGET**

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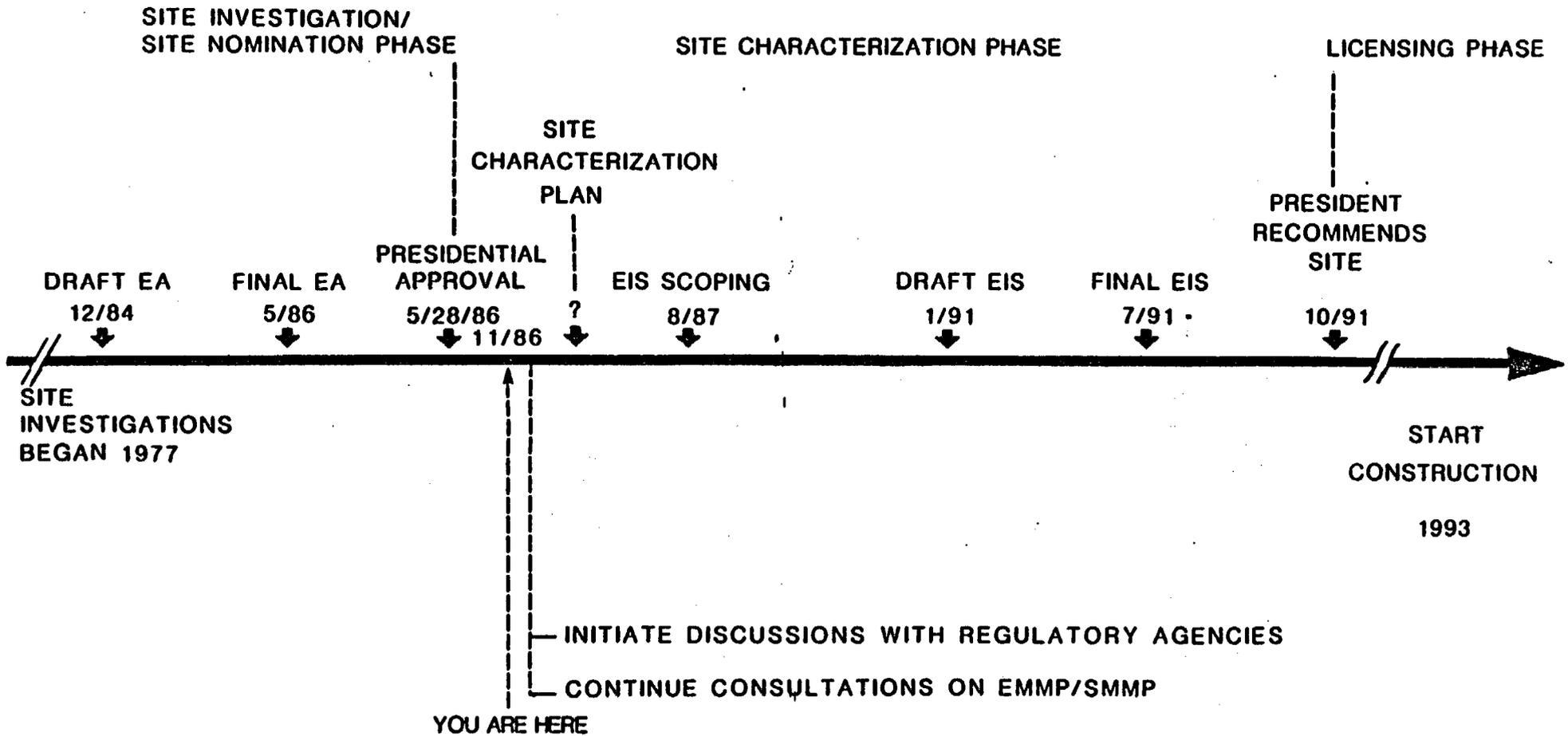
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PROGRAM SCHEDULE

(OCRWM PROJECT DECISION SCHEDULE, 1986)



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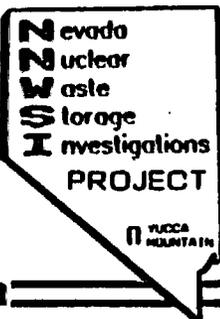
SITE CHARACTERIZATION PHASE ENVIRONMENTAL OVERVIEW

- ENVIRONMENTAL MONITORING AND MITIGATION
 - PLANNING EFFORT
 - EXECUTION EFFORT

- REGULATORY COMPLIANCE
 - ANALYSES
 - PERMITS

- ENVIRONMENTAL IMPACT STATEMENT
 - PLANNING EFFORT
 - SCOPING HEARINGS
 - EXECUTION OF RESEARCH
 - DOCUMENT PREPARATION

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SITE CHARACTERIZATION PHASE ENVIRONMENTAL MONITORING AND MITIGATION PLAN

- PRIMARY PURPOSE IS TO DOCUMENT COMPLIANCE WITH SECTION 113(a) OF THE NWPA: "CONDUCT SITE CHARACTERIZATION ACTIVITIES IN A MANNER THAT MINIMIZES ANY SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACT...."
- ENVIRONMENTAL ASSESSMENT IDENTIFIED NO SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACT RESULTING FROM SITE CHARACTERIZATION
- SCOPE IS LIMITED TO SITE CHARACTERIZATION ACTIVITIES THAT HAVE A POTENTIAL TO GENERATE SIGNIFICANT ADVERSE ENVIRONMENT IMPACTS
- PRIMARY MITIGATION STRATEGY IS MODIFICATION OF APPROACH TO SITE CHARACTERIZATION ACTIVITIES

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SITE CHARACTERIZATION PHASE ENVIRONMENTAL MONITORING AND MITIGATION PLAN

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- **WORKING DRAFT TO STATE (12/86)**
- **NNWSI PROJECT/STATE CONSULTATIONS (THRU 2/87)**
- **DOCUMENT ISSUED (4/87)**
- **PROGRESS REPORTS (6 MONTH INTERVALS)**

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SITE CHARACTERIZATION PHASE REGULATORY COMPLIANCE FEDERAL/STATE/LOCAL

- **CONSULTATIONS WITH FEDERAL AGENCIES**
- **CONSULTATIONS WITH STATE/LOCAL AGENCIES**
- **APPLY FOR PERMITS AS APPROPRIATE**

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SITE CHARACTERIZATION PHASE NATIONAL ENVIRONMENTAL POLICY ACT DOE POLICY

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**"IT IS THE POLICY OF THE DOE TO ENSURE THAT
CONSIDERATION IS GIVEN TO ENVIRONMENTAL VALUES
AND FACTORS....TO COMPLY FULLY WITH THE SPIRIT
AND LETTER OF THE NATIONAL ENVIRONMENTAL POLICY
ACT."**

**DOE ORDER 5440.IC
APRIL 1985**

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SITE CHARACTERIZATION PHASE ENVIRONMENTAL IMPACT STATEMENT (EIS)

- DRAFT EIS IMPLEMENTATION PLAN (7/87)
- SCOPING HEARINGS (8/87)
- FINAL EIS IMPLEMENTATION PLAN (10/87)
- EXECUTION OF ACTIVITIES SPECIFIED IN PLAN
- PREPARE DOCUMENT

SITE CHARACTERIZATION PHASE SOCIOECONOMIC OVERVIEW

- **SOCIOECONOMIC MONITORING AND MITIGATION**
 - **PLANNING EFFORT**
 - **EXECUTION EFFORT**

- **SOCIOECONOMIC REVIEW AND ANALYSIS**

- **ENVIRONMENTAL IMPACT STATEMENT**
 - **PLANNING EFFORT**
 - **SCOPING HEARINGS**
 - **EXECUTION OF RESEARCH**
 - **DOCUMENT PREPARATION**



SITE CHARACTERIZATION PHASE SOCIOECONOMIC MONITORING AND MITIGATION PLAN

- PRIMARY PURPOSE IS TO DOCUMENT COMPLIANCE WITH SECTION 113(a) OF THE NWPA: "CONDUCT SITE CHARACTERIZATION ACTIVITIES IN A MANNER THAT MINIMIZES ANY SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACT...."
- ENVIRONMENTAL ASSESSMENT IDENTIFIED NO SIGNIFICANT ADVERSE SOCIOECONOMIC IMPACT RESULTING FROM SITE CHARACTERIZATION
- SCOPE IS LIMITED TO SITE CHARACTERIZATION ACTIVITIES THAT HAVE A POTENTIAL TO GENERATE SIGNIFICANT ADVERSE SOCIOECONOMIC IMPACTS
- PRIMARY MITIGATION STRATEGY IS MODIFICATION OF APPROACH TO SITE CHARACTERIZATION ACTIVITIES

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SITE CHARACTERIZATION PHASE SOCIOECONOMIC REVIEW AND ANALYSIS

- **EVALUATING APPROACH TO SOCIAL IMPACT ASSESSMENT**

- **EVALUATING ALTERNATE METHODS OF ASSESSING ATTITUDES TOWARD A HIGH-LEVEL RADIOACTIVE WASTE REPOSITORY**

- **DEVELOPMENT OF COMMUNITY PROFILES**
 - **LITERATURE SEARCH AND REVIEW OF AVAILABLE DATA ON SOCIOCULTURAL BACKGROUND OF NYE, CLARK, AND LINCOLN COUNTIES: IDENTIFICATION OF DATA GAPS**

 - **COMMUNITY SERVICE INVENTORIES**

 - **REVIEW OF EXISTING COMPUTERIZED SOCIOECONOMIC IMPACT ANALYSIS MODELS**

 - **DEMOGRAPHICS**

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SITE CHARACTERIZATION PHASE SOCIOECONOMIC REVIEW AND ANALYSES

- **DATA GATHERING RELATED TO ISSUE**
 - **IMPACT ON TOURISM**
 - **IMPACT OF TRANSPORTATION**

- **SUPPORTING DEPARTMENT'S EFFORT TO ESTABLISH BASIS FOR GRANTS-EQUAL-TO-TAXES**

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TRANSPORTATION

- **ANALYSIS OF POTENTIAL IMPACT OF AIR FORCE OVERFLIGHTS ON TRANSPORTATION**
- **IDENTIFYING REQUIREMENTS AND DEVELOPING IMPLEMENTATION PLAN FOR CREATING RAILROAD SPUR TO PROPOSED REPOSITORY SITE**
- **EVALUATING ALTERNATIVE RAILROAD ROUTES TO PROPOSED REPOSITORY SITE**
- **IDENTIFYING PROBABLE HIGHWAY ROUTES TO PROPOSED REPOSITORY SITE**

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COMMUNICATIONS

- **CONTINUING TO RESPOND TO REQUEST FROM STATE AND LOCAL GOVERNMENT OFFICIALS AND THE PUBLIC FOR INFORMATION REGARDING PROGRAM AND PROJECT**

- **DEVELOPING THE FACILITY SPECIFIC OUTREACH AND PUBLIC PARTICIPATION PLAN AS SPECIFIED IN MISSION PLAN**
 - **PLAN TO BE DEVELOPED IN CONSULTATION WITH STATE AND LOCAL GOVERNMENT REPRESENTATIVES**
 - **DOCUMENT WILL DESCRIBE OUTREACH AND PUBLIC INFORMATION ACTIVITIES**
 - **DRAFT WILL BE CIRCULATED FOR COMMENT IN FIRST QUARTER OF 1987**
 - **TO BE UPDATED ON A YEARLY BASIS**

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STATUS OF DECISION TO DELAY SECOND REPOSITORY PROGRAM

DOE HAS INDEFINITELY POSTPONED SITE-SPECIFIC WORK FOR A SECOND REPOSITORY BECAUSE OF THE PROGRESS IN SITING THE FIRST REPOSITORY AND THE UNCERTAINTY OF WHEN THE SECOND REPOSITORY MIGHT BE NEEDED. AREAS PREVIOUSLY IDENTIFIED FOR POSSIBLE SECOND REPOSITORY ARE NO LONGER UNDER ACTIVE CONSIDERATION.

DOE'S DECISION TO REASSESS THE TIMING OF ITS ACTIVITIES TOWARD IDENTIFICATION OF AREAS FOR STUDY AS A POTENTIAL CANDIDATE FOR A SECOND REPOSITORY FOR A NUMBER OF FACTORS. THEY INCLUDE:

U.S. DEPARTMENT OF ENERGY

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STATUS OF DECISION TO DELAY SECOND REPOSITORY PROGRAM

- THE CONTINUING PROGRESS IN SITING THE FIRST REPOSITORY
- THE EXPECTATION OF RECEIVING CONGRESSIONAL AUTHORIZATION TO PROCEED WITH THE DEVELOPMENT OF A MONITORED RETRIEVABLE STORAGE FACILITY
- PROJECTIONS OF SPENT FUEL GENERATION ARE UNCERTAIN AND HAVE BEEN DECLINING
- WHILE THERE EXISTS IN THE LAW THE LIMITATION FOR EMPLACING MORE THAN 70,000 METRIC TONS OF SPENT FUEL IN THE FIRST REPOSITORY BEFORE A SECOND REPOSITORY IS IN OPERATION, EMPLACEMENT OF THAT AMOUNT IS VERY FAR INTO THE FUTURE AND CONGRESS NEED NOT RECONSIDER SPECIFICALLY A SECOND REPOSITORY UNTIL AT LEAST THE MID-1990s OR MUCH LATER
- A DECISION THAT SPENDING HUNDREDS OF MILLIONS OF DOLLARS NOW ON SITING WOULD BE PREMATURE AND UNSOUND FISCAL MANAGEMENT

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STATUS OF FY 1987 BUDGET

CONGRESSIONAL BUDGET SUBMISSION

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM (NUCLEAR WASTE FUND):

\$769.3 MILLION

- FOR FIRST REPOSITORY PROGRAM:

\$541.8 MILLION

- FOR THE NNWSI PROJECT:

\$176.5 MILLION

RECOMMENDATION OF HOUSE OF REPRESENTATIVES

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM (NUCLEAR WASTE FUND):

\$677.6 MILLION

- FOR FIRST REPOSITORY PROGRAM:

\$541.8 MILLION

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STATUS OF FY 1987 BUDGET

RECOMMENDATION OF SENATE

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM (NUCLEAR WASTE FUND):
\$380.0 MILLION
- FOR FIRST REPOSITORY PROGRAM:
DISTRIBUTION BY OCRWM:
{ * FOR FIRST REPOSITORY: \$265.0 MILLION)
{ * FOR NNWSI PROJECT: \$ 97.6 MILLION) NO GUIDANCE

CONTINUING RESOLUTION

- FOR CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM:
\$420.0 MILLION + \$79.0 MILLION
- FOR FIRST REPOSITORY PROGRAM: NO GUIDANCE
DISTRIBUTION BY OCRWM:
{ * FOR FIRST REPOSITORY: \$285.0 MILLION)
{ * FOR NNWSI PROJECT: \$108.1 MILLION)

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STATUS OF FY 1987 BUDGET

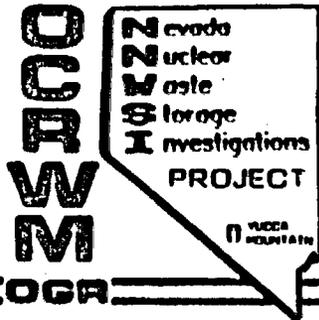
NNWSI BUDGET FOR FY 1987

- **NEW BUDGET AUTHORITY (BA) FOR FY 1987**
 - \$108.1 MILLION

- **CARRY-OVER FROM PREVIOUS YEARS**
 - \$ 39.7 MILLION

- **TOTAL BUDGET FOR FY 1987**
 - \$147.8

- **FUNDS AVAILABLE FOR EXECUTION OF PROGRAM**
 - PREFINANCING
 - PREVIOUS COMMITMENT
 - CAPITAL EQUIPMENT



FUNDS AVAILABLE FOR EXECUTION OF PROGRAM

(DOLLARS IN MILLIONS)

- 147.8 B/A (TOTAL AVAILABLE BUDGET AUTHORITY (B/A))
- 11.4 B/A (PREFINANCING)
- 10.5 B/A (CAPITAL EQUIPMENT)
- 4.0 B/A (T&MSS OVERLAP)
- 4.7 B/A (ENCUMBERED FUNDING)

117.2 B/O (BUDGET OVERLAY FOR OPERATING PROGRAM)

OPERATING PROGRAM ONLY

WBS ELEMENT	OCRWM JUNE 1986 MARK B/O	APPROVED DECEMBER 1986 PROGRAM B/O
1.2.1 SYSTEMS	8.2	7.8
1.2.2 WASTE PACKAGE	11.3	9.5
1.2.3 SITE	42.3	30.0
1.2.4 REPOSITORY	16.7	12.4
1.2.5 REG. & INST.	14.5	7.4
1.2.6 EXPLORATORY SHAFT	30.2	17.6
1.2.7 TEST FACILITIES	0.9	0.5
1.2.8 LAND ACQUISITION	0	0.2
1.2.9 PROGRAM MANAGEMENT	23.3	4.7
1.2.10 FIN. & TECH. ASSISTANCE	*	5.2
CORE LIBRARY	**	1.9
TOTAL OPERATING PROGRAM	147.4	117.2

*INCLUDED IN REGULATORY & INSTITUTIONAL (1.2.5)

**INCLUDED IN SITE (1.2.3)



Department of Energy

Nevada Operations Office

P. O. Box 14100

Las Vegas, NV 89114-4100

NOV 12 1986

Those on Attached List

NEVADA NUCLEAR WASTE STORAGE INVESTIGATIONS PROJECT FY 87 AUDIT SCHEDULE (WMPO ACTION #87-418)

Enclosed is the proposed Waste Management Project Office schedule of Quality Assurance audits for FY 1987 which is being provided to the Participating Organizations and Support Contractors as guidance. Although this schedule contains tentative dates, every effort should be made on the part of the Project participants to adhere to these dates as closely as possible.

Please review the enclosed schedule and provide the Project Quality Manager, James Blaylock (FTS 575-1125), with any corrections, additions, or comments which require resolution.

WMPO:JB-271

Enclosure:
As stated

cc w/encl:

M. P. Kunich, WMPO, DOE/NV
M. B. Blanchard, WMPO, DOE/NV
L. P. Skousen, WMPO, DOE/NV
W. R. Dixon, WMPO, DOE/NV

Maxwell Blanchard
Donald L. Vieth, Director
Waste Management Project Office

Enclosure 1

WMPO QA AUDIT SCHEDULE FOR FY 87

<u>Audit Number</u>	<u>Date*</u>	<u>Organization</u>	<u>Activities</u>	<u>Requirement</u>
87-1	March	Los Alamos	NNWSI Project	NVO-196-17, Rev. 4, and Los Alamos QAPP and Implementing QA Procedures
87-2	April	H&N	NNWSI Project	NVO-196-17, Rev. 5, H&N QAPP and Implementing QA Procedures, and Design Control Procedures for ESF
87-3	May	SAIC/T&MSS	NNWSI Project T&MSS-SAL	NVO-196-17, Rev. 5, and SAIC QAPP and Implementing QA Procedures
87-4	June	USGS/Denver	NNWSI Project	NVO-196-17, Rev. 5, and USGS QAPP and Implementing QA Procedures
87-5	June	USGS/Menlo Park	NNWSI Project	Same as above
87-6	July	F&S/Tulsa	NNWSI Project	NVO-196-17, Rev. 5, F&S QAPP, and Design Control Procedures for ESF
87-7	August	REECo	NNWSI Project	NVO-196-17, Rev. 5, and REECo QAPP and Implementing QA Procedures

*Firm dates will be coordinated and issued in audit notification letter 30 days prior to audit.

**RELATIONSHIP BETWEEN
SYSTEMS ENGINEERING
AND
CONFIGURATION MANAGEMENT**

NOVEMBER 6, 1986



CURRENT SCHEDULE FOR NNWSI SEMP

11/03/86 - 11/14/86:

INTERNAL SNL REVIEW OF DRAFT SEMP

11/17/86 - 12/15/86:

WMPO REVIEW OF DRAFT SEMP
(COPIES TO TPOs FOR INFORMAL REVIEW)

12/15/86 - 01/30/87:

FORMAL REVIEW OF DRAFT SEMP BY TPOs

01/30/87 - 02/13/87:

RESOLUTION AND INCORPORATION OF COMMENTS/
WMPO APPROVAL OF DRAFT SEMP

TBD:

WMPO SUBMITTAL OF SEMP TO OGR

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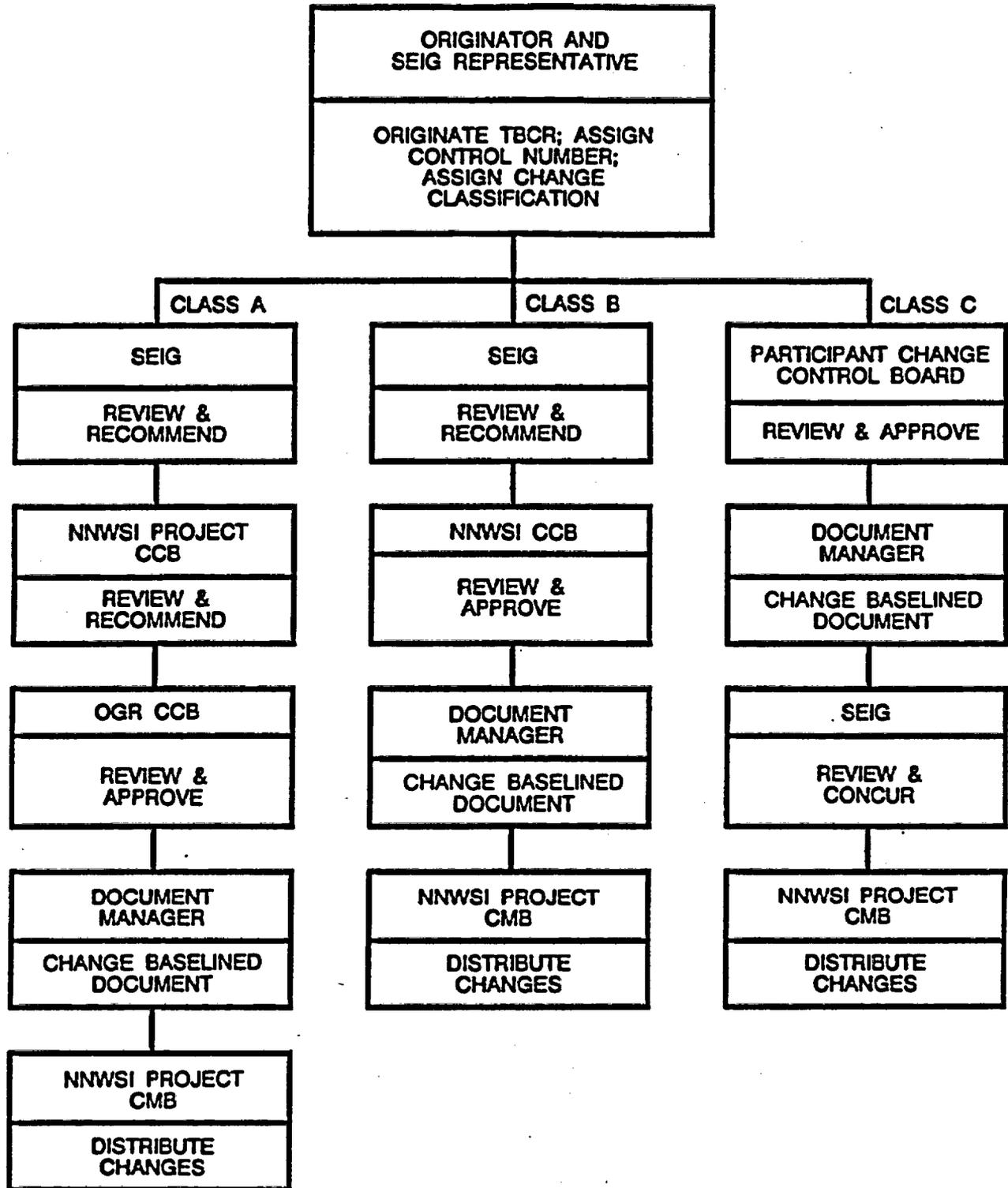
TECHNICAL BASELINE DEVELOPMENT, MANAGEMENT, AND MAINTENANCE

SEIG

- IDENTIFY AND MANAGE TECHNICAL BASELINE
- ENSURE THAT APPROPRIATE ANALYSES AND REVIEWS ARE PERFORMED
- SUPPORT NNWSI PROJECT CCB

CMB

- CONTROL (ADMINISTER) AND DISTRIBUTE DOCUMENTS
- ENSURE THAT APPROPRIATE CHANGE CONTROL PROCEDURES HAVE BEEN FOLLOWED
- SUPPORT NNWSI PROJECT CCB



TECHNICAL BASELINE CHANGE CONTROL PROCESS

HIGHLIGHTS OF BASELINE CHANGE CONTROL PROCESS

SEMP

- SYSTEMS ENGINEERING INTEGRATION GROUP (SEIG)
- THREE CHANGE CLASSES FOR PROJECT TECHNICAL BASELINE
- CHANGE CLASSES ASSIGNED TO CHANGES NOT TO ENTIRE DOCUMENT
- DIFFERENT APPROVAL LEVELS FOR EACH CHANGE CLASS
- SEIG RESPONSIBLE FOR DEFINITION AND MANAGEMENT OF TECHNICAL BASELINE

CMP

- BASELINE REVIEW BOARD (BRB)
- UP TO FOUR CHANGE CLASSES FOR PROJECT BASELINES
- CHANGE CLASSES ASSIGNED TO ENTIRE DOCUMENTS
- DIFFERENT APPROVAL LEVELS FOR EACH CHANGE CLASS
- ORGANIZATIONAL RESPONSIBILITY FOR DEFINITION AND MANAGEMENT OF TECHNICAL BASELINE NOT CLEAR

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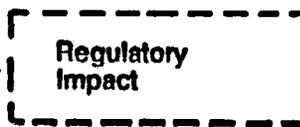
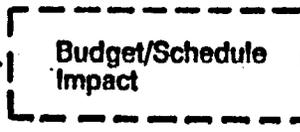
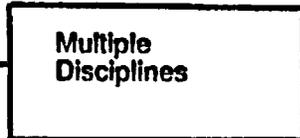
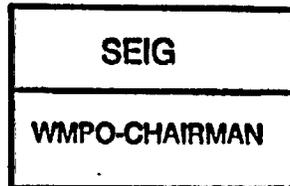
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HIGHLIGHTS OF BASELINE CHANGE CONTROL PROCESS

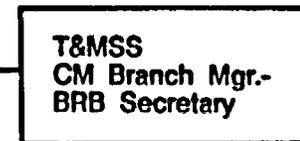
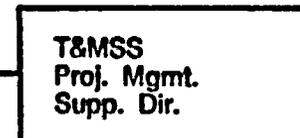
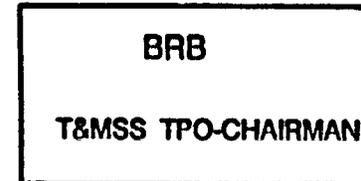
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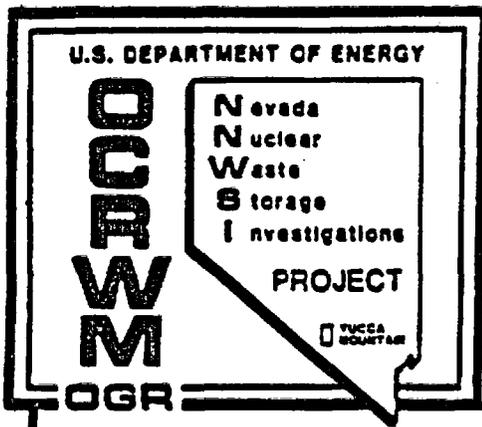
SEMP



Included
in
Analyses

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NNWSI PROJECT CONFIGURATION MANAGEMENT PLAN

**ANNEX 8
TO THE NNWSI PROJECT
MANAGEMENT PLAN**

**NVO-196-44 (A8)
REVISION 0**

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NEVADA OPERATIONS OFFICE
LAS VEGAS, NEVADA**

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NNWSI PROJECT

CONFIGURATION MANAGEMENT PLAN

CONFIGURATION MANAGEMENT PROCESS

- Identification of Baseline Elements
- Change Control
- Status Accounting and Reporting

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CONFIGURATION MANAGEMENT PLAN

DEFINITION

BASELINE: A set of critical observations or data used for comparison or control. (Webster's)

MANAGEMENT BASELINE

REGULATORY BASELINE

TECHNICAL BASELINE

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CONFIGURATION MANAGEMENT PLAN

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MANAGEMENT BASELINE

WORK BREAKDOWN STRUCTURE (WBS)

WBS DICTIONARY

MILESTONES

BUDGETS

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REGULATORY BASELINE

OGR LEVEL

Common Issues Hierarchy

Position Papers on Common Issues

NNWSI LEVEL

NNWSI Project Issues Hierarchy

NNWSI Project Issues Resolution Strategy

NNWSI Project Position Papers

Safety Analysis Report

NNWSI Project Study Plans

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NNWSI PROJECT

CONFIGURATION MANAGEMENT PLAN

NNWSI PROJECT TECHNICAL BASELINE

MGDS GENERIC REQUIREMENTS

YUCCA MOUNTAIN MGDS REQUIREMENTS

NNWSI PROJECT SYSTEM DESCRIPTION

SUBSYSTEM DESIGN REQUIREMENTS (REPOSITORY, ESF, WP)

REFERENCE INFORMATION BASE

SCIENTIFIC INVESTIGATION DOCUMENTS

MGDS DESIGN DOCUMENTS

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CONFIGURATION MANAGEMENT PLAN

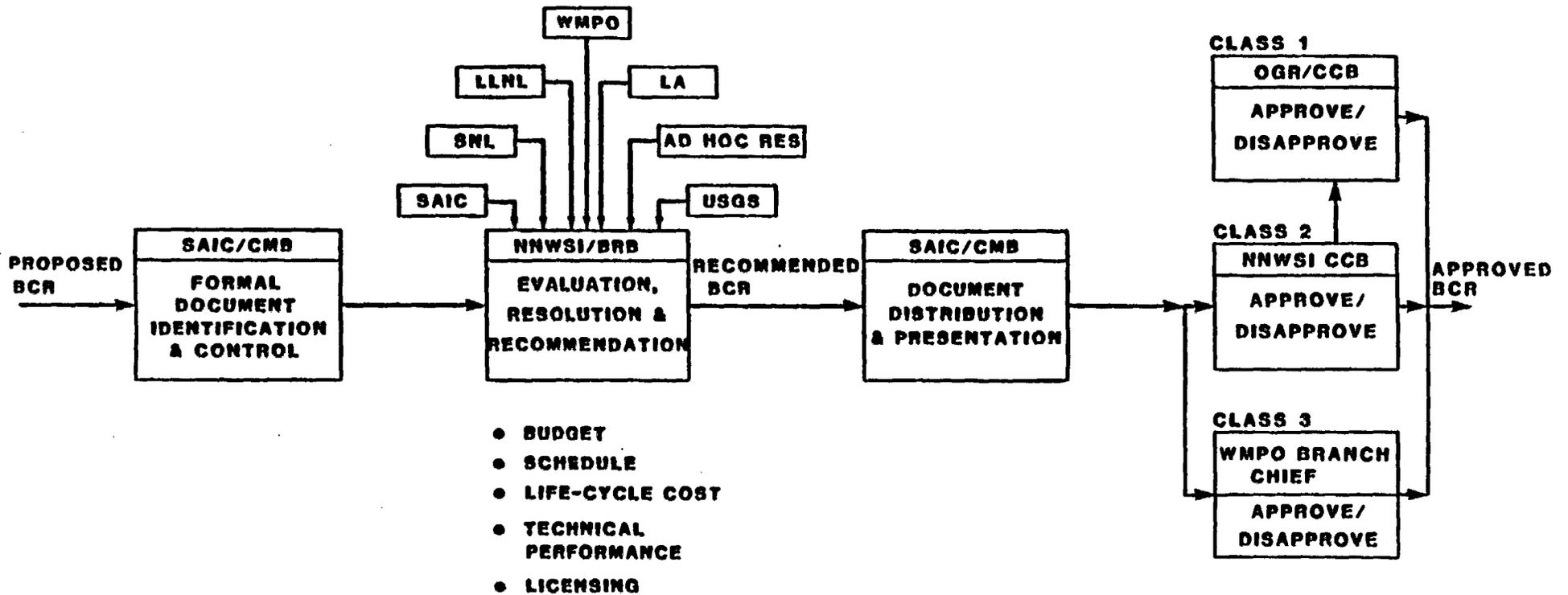
CHANGE CLASSIFICATION

- **KEY FEATURE**
- **ALLOWS CONTROL OF CHANGE AT LOWEST PRACTICAL ORGANIZATIONAL LEVEL**
- **PROJECT BASELINES ARE CATEGORIZED INTO FOUR CLASSES**
 - CLASS 1 - OGR-CCB APPROVAL**
 - CLASS 2 - NNWSI PROJECT CCB APPROVAL**
 - CLASS 3 - WMPO BRANCH CHIEF(S) APPROVAL**
 - CLASS 4 - TPO APPROVAL**

SUMMARY BASELINE MANAGEMENT

CHANGE CLASSIFICATION	CLASS 1	CLASS 2	CLASS 3	CLASS 4
	OGR-CCB	NNWSI PROJECT CCB	WMPO/NV BRANCH CHIEF	TPO
MANAGEMENT	<ul style="list-style-type: none"> ● LEVEL 1 MILESTONES (RESERVED PER OGR GUIDANCE) ● BUDGETS (>15% @ WBS LEVEL 3) ● WBS LEVELS 1-4 ● OGR WBS DICTIONARY 	<ul style="list-style-type: none"> ● LEVEL 1 MILESTONES (PER OGR GUIDANCE) ● LEVEL 2 MILESTONES ● BUDGET CHANGES >20K & 15% ● WBS & WBS DICTIONARY 	<ul style="list-style-type: none"> ● LEVEL 1 MILESTONES (MISC. HQ REQUEST) ● TIME-PHASED COST PLANS 	<ul style="list-style-type: none"> ● LEVEL 3+ MILESTONES ● TIME-PHASED BUDGETS
REGULATORY	<ul style="list-style-type: none"> ● ISSUE DOCUMENTATION - HIERARCHY - POSITIONS 	<ul style="list-style-type: none"> ● NNWSI PROJECT ISSUES ISSUES HIERARCHY ● NNWSI PROJECT POSITION PAPERS ● SAFETY ANALYSIS REPORT ● ISSUES RESOLUTION STRATEGY ● STUDY PLANS 		
TECHNICAL	<ul style="list-style-type: none"> ● GENERIC REQUIREMENTS FOR MGDS ● OGR SYSTEM STUDY REPORTS ● OGR REVIEW BOARD MEMOS 	<ul style="list-style-type: none"> ● YM MGDS REQUIREMENTS ● NNWSI PROJECT SYSTEM DESCRIPTION ● INTERFACES NOT RESOLVED @ CLASS 3 	<ul style="list-style-type: none"> ● SUBSYSTEM DESIGN REQUIREMENTS (ESF, WP, REPOSITORY) ● REFERENCE INFORMATION BASE (RIB) ● SCIENTIFIC INVESTIGATION DOCUMENTS <ul style="list-style-type: none"> - SCIENTIFIC INVESTIGATION PLANS - TEST PLANS - INTERFACE CONTROL DOCUMENTS - TEST CONFIGURATION DRAWINGS ● MGDS DESIGN MEDIA (INTERFACING) <ul style="list-style-type: none"> - INDIVIDUAL SYSTEMS DESCRIPTIONS - GENERAL ARRANGEMENT DRAWINGS - SYSTEMS DRAWINGS - CONSTRUCTION SPECS. - INTERFACE CONTROL DOCUMENTS 	<ul style="list-style-type: none"> ● NON-INTERFACING DESIGN <ul style="list-style-type: none"> - EQUIPMENT SPECS. - DETAIL DWGS. ● NON-INTERFACING SCIENTIFIC INVESTIGATION DOCUMENTS <ul style="list-style-type: none"> - TEST SPECIFICATIONS - TEST PROCEDURES - MONITORING PROC'S.

EVALUATION, RESOLUTION & APPROVAL



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CONFIGURATION MANAGEMENT PLAN

NNWSI PROJECT BASELINE REVIEW BOARD

- **CHAIRPERSON - T&MSS TPO**
- **TECHNICAL PROGRAMS DIVISION DIRECTOR**
- **PROJECT MANAGEMENT SUPPORT DIVISION DIRECTOR**
- **QUALITY ASSURANCE DIRECTOR**
- **PARTICIPANT REPRESENTATIVES (AS NEEDED)**
- **BRB SECRETARY (CONFIGURATION MANAGEMENT)**

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NNWSI PROJECT BASELINE REVIEW BOARD

ENSURE THAT:

- **THE CHANGE IS JUSTIFIED**
- **ALL FUNCTIONAL AND PHYSICAL INTERFACES ARE CONSIDERED AND DISCREPANCIES ARE RESOLVED**
- **ANY IMPACTS TO UPPER OR LOWER LEVEL INFORMATION AND REQUIREMENTS ARE CONCURRENTLY RESOLVED**
- **ANY IMPACTS ON REGULATORY OR LICENSING ISSUES ARE ADEQUATELY CONSIDERED**
- **ADEQUATE TECHNICAL ANALYSIS AND VERIFICATION HAS BEEN PERFORMED TO TECHNICALLY JUSTIFY THE CHANGE**

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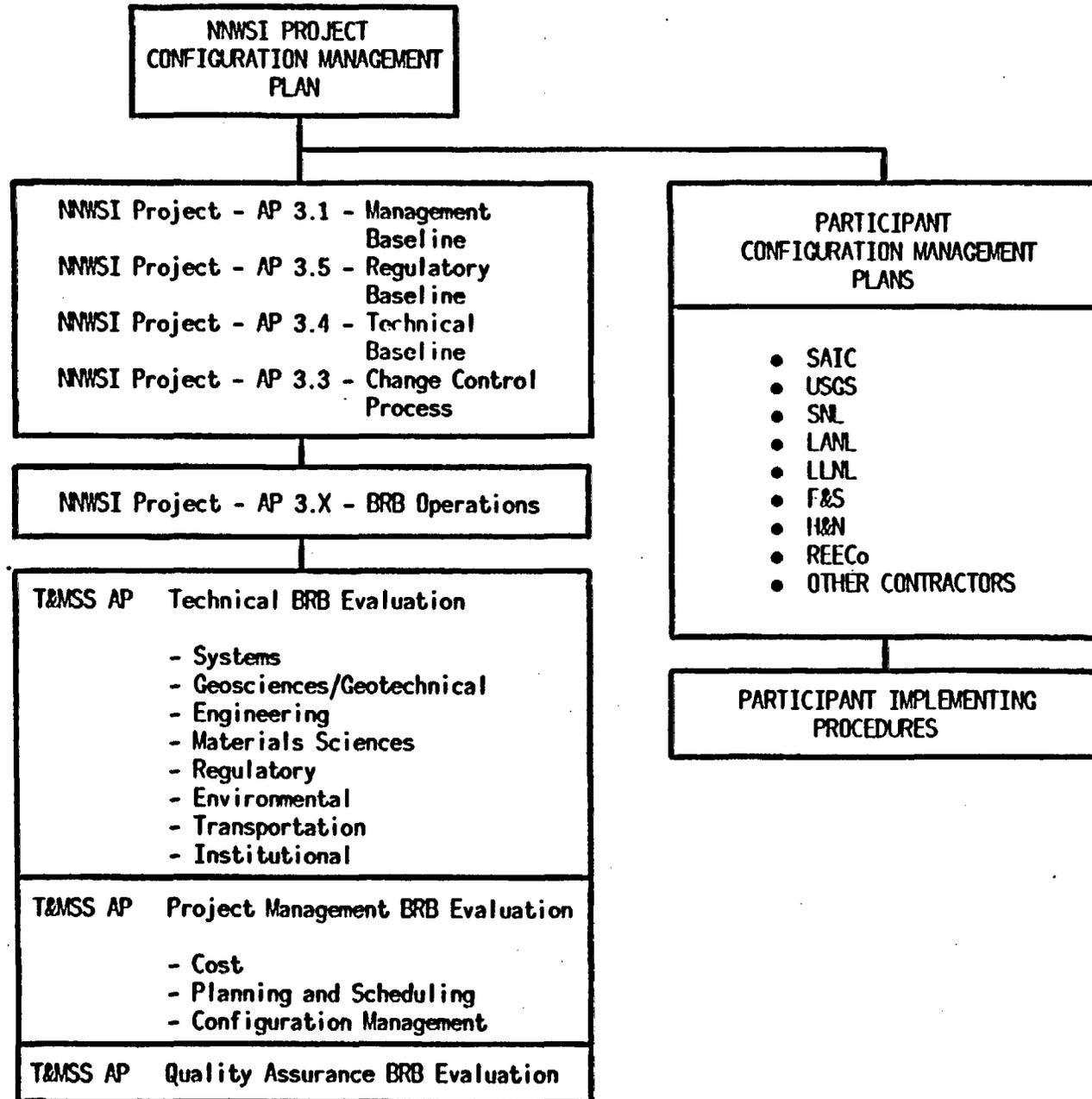
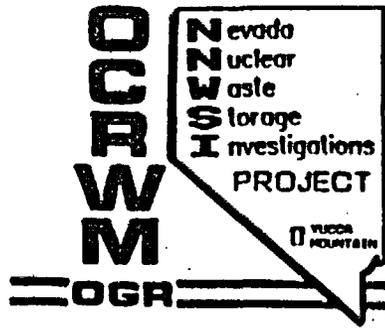
CONFIGURATION MANAGEMENT PLAN

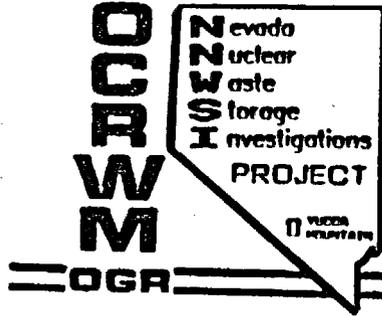
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NNWSI PROJECT BASELINE REVIEW BOARD (CONTINUED)

ENSURE THAT:

- **ASSUMPTIONS REQUIRING REVERIFICATION ARE IDENTIFIED**
- **THE CHANGE PROPOSAL IS CORRECTLY CLASSIFIED**
- **COST AND SCHEDULE IMPACT ANALYSES HAVE BEEN COMPLETED**
- **ALL NECESSARY BACKUP INFORMATION IS AVAILABLE FOR WMPO EVALUATION**
- **ALL AFFECTED BASELINE ELEMENTS ARE ADEQUATELY ADDRESSED**
- **OTHER EVALUATION AS DEEMED APPROPRIATE**





NNWSI PROJECT

CONFIGURATION MANAGEMENT PLAN

NNWSI PROJECT BASELINE REVIEW BOARD

- Control of the Baseline remains with the WMPO
Baseline management is fundamental to project management
- Dedicated Las Vegas staff to support WMPO decisions
Thorough independent evaluation of proposed changes
Continuous processing of changes will support schedules
Urgent changes can be expedited without loss in quality
- Multidiscipline evaluations
All aspects of changes are evaluated

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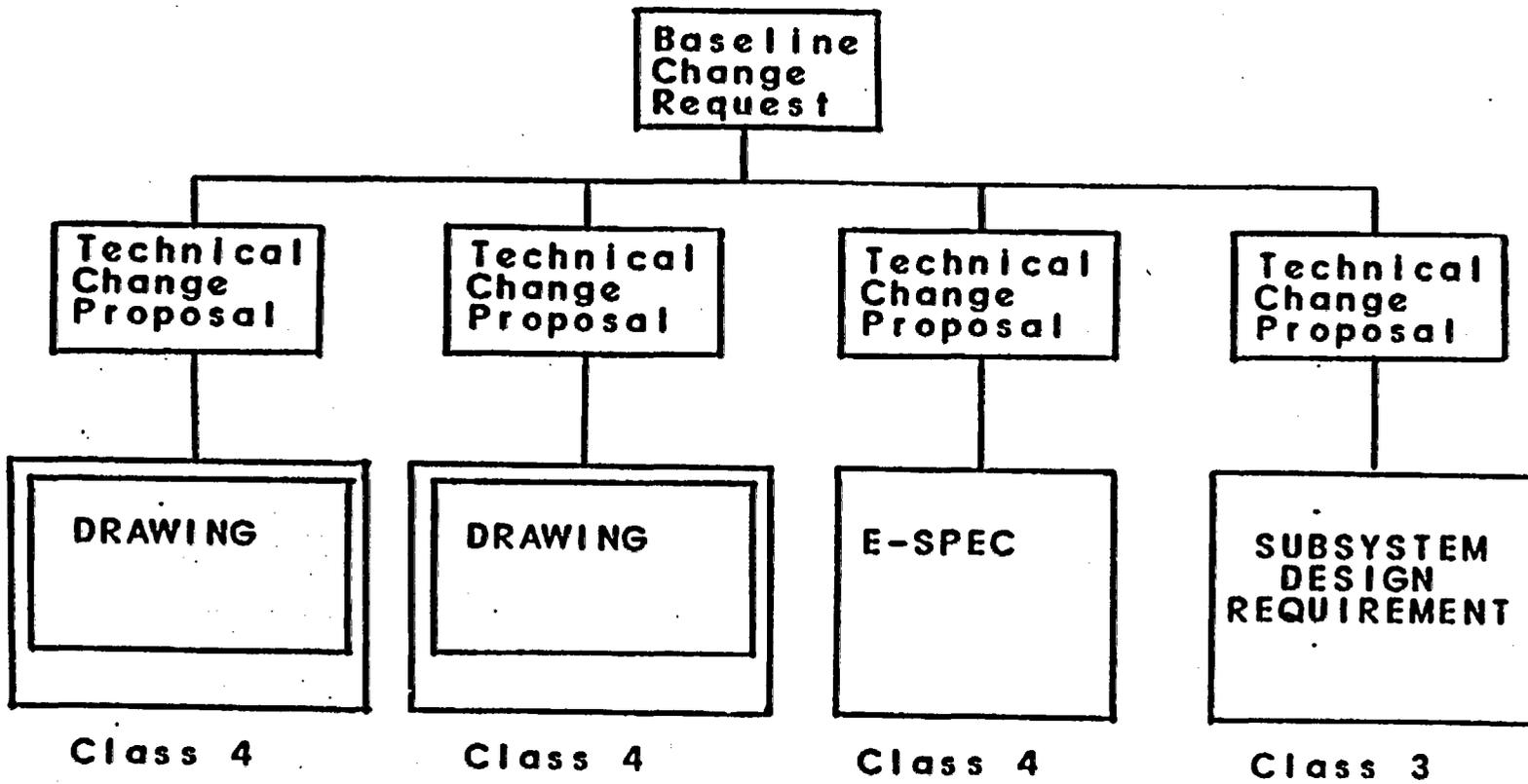
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CONFIGURATION MANAGEMENT PLAN

STATUS REPORTING & ACCOUNTING

- **Automated Project System - Configuration Management Status System**
- **Current baseline status, including pending changes, available on-line**
- **Approved Baseline used for Work and Acceptance**
- **No Irreversible Work with Changes Pending**



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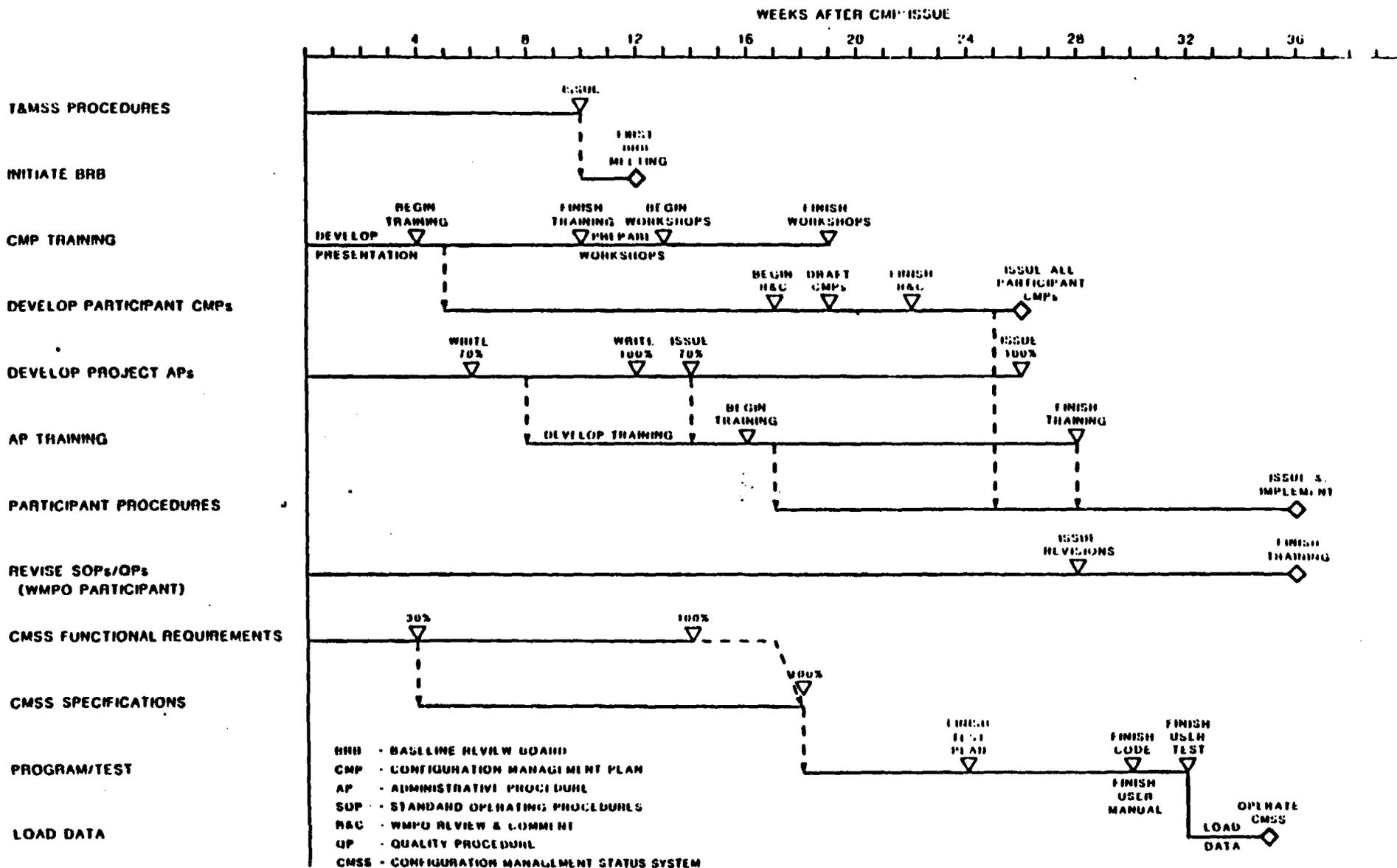
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CONFIGURATION MANAGEMENT PLAN

TRAINING PROGRAM

- **DEVELOP CONFIGURATION MANAGEMENT TRAINING SYLLABUS**
- **CONDUCT TRAINING AND WORKSHOPS**
- **PREPARE ON THE JOB TRAINING MANUAL (OJT)**
- **CONDUCT OJT**
- **REFRESHER COURSE**
- **PUBLICATIONS (NEW LITERATURE - TECHNIQUES)**

CONFIGURATION MANAGEMENT PLAN IMPLEMENTATION SCHEDULE



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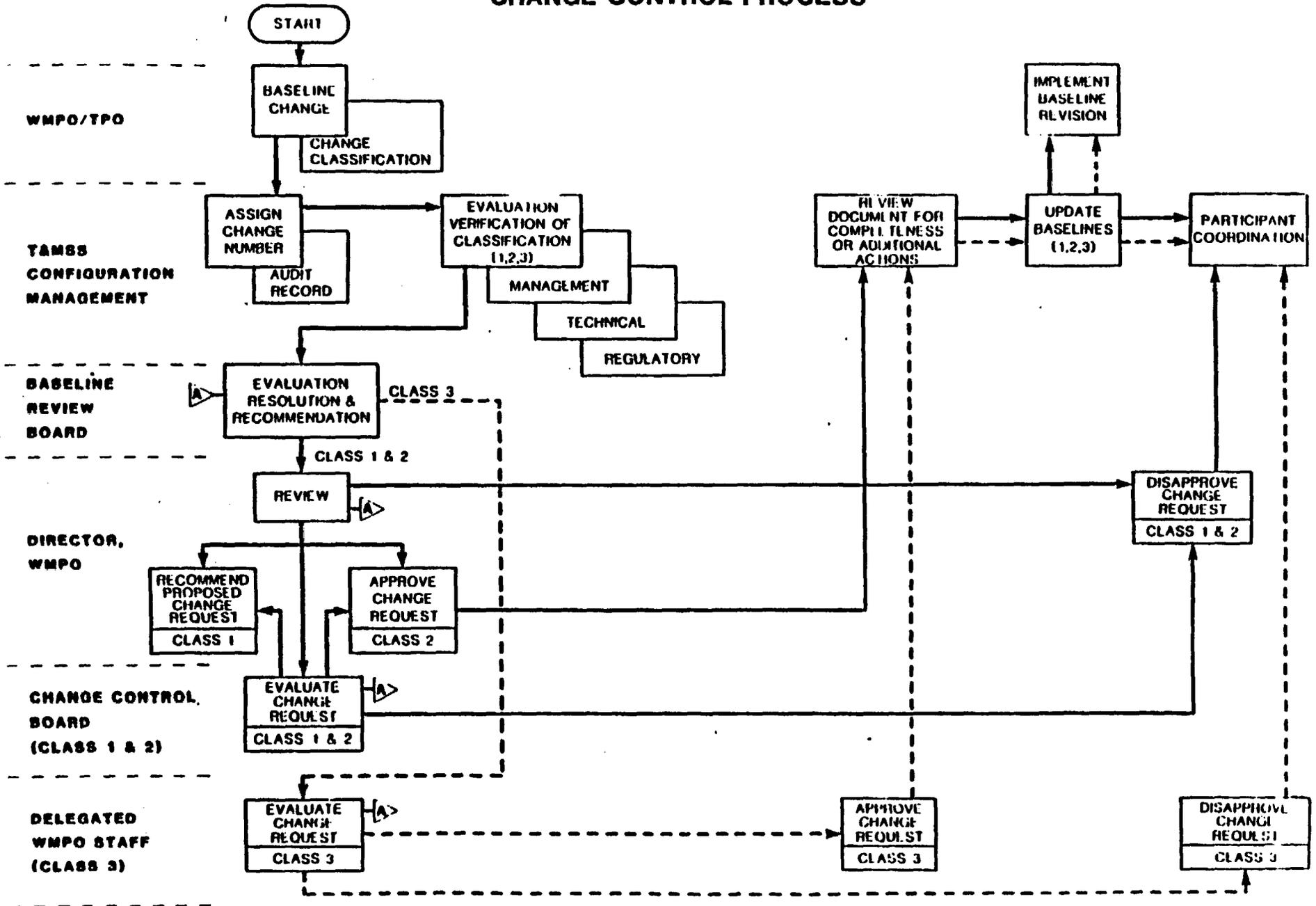
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- PROJECT EXECUTION AND CONTROL IS ESSENTIALLY THE MANAGEMENT OF BASELINES
- KEY ELEMENTS IN THE DEVELOPMENT OF THE PROJECT PLAN AND THE PROJECT MANAGEMENT PLAN ARE THE BASELINES --- TECHNICAL, COST AND SCHEDULE

NNWSI PROJECT CONFIGURATION MANAGEMENT CHANGE CONTROL PROCESS



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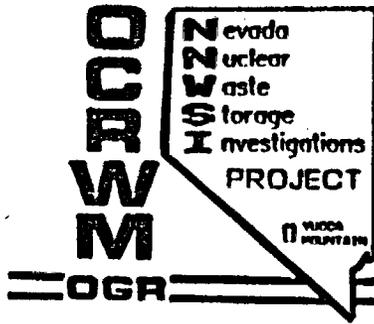
CONFIGURATION MANAGEMENT PLAN

OGR

CHANGE CLASSIFICATION

CLASS 1 - OGR-CCB

- o OGR ISSUES HIERARCHY
- o OGR POSITIONS ON COMMON ISSUES
- o GENERIC REQUIREMENTS FOR A MGDS
- o LEVEL 1 MILESTONES THAT REQUIRE DOE/HQ PRIOR APPROVAL FOR MODIFICATION
- o WORK BREAKDOWN STRUCTURE (WBS) CHANGES LEVELS 1 THROUGH 4 AND DOE/HQ WBS DICTIONARY
- o BUDGET CHANGES THAT EXCEED HQ GUIDANCE, E.G., EXCEEDING 15% AT WBS LEVEL 3
- o OTHERS AS MAY BE IDENTIFIED IN THE NNWSI PROJECT ADMINISTRATIVE PROCEDURES



NNWSI PROJECT

CONFIGURATION MANAGEMENT PLAN

CHANGE CLASSIFICATION

CLASS 2 - NNWSI PROJECT CCB

- o YUCCA MOUNTAIN MGDS SYSTEM REQUIREMENTS
- o NNWSI PROJECT MGDS SYSTEM DESCRIPTION
- o NNWSI PROJECT ISSUES HIERARCHY AND RESOLUTION STRATEGY
- o NNWSI PROJECT POSITION PAPERS (OUTLINES AND FINAL DOCUMENTS)
- o STUDY PLANS
- o SAFETY ANALYSIS REPORT
- o LEVEL 1 MILESTONES UNDER NNWSI PROJECT CONTROL
- o LEVEL 2 MILESTONES
- o BUDGET CHANGES GREATER THAN \$20K AND 15% IN FY AT THE P&S ACCOUNT LEVEL (NOTE: NOTE TIME PHASED)

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CHANGE CLASSIFICATION

CLASS 2 - NNWSI PROJECT CCB (CONTINUED)

- o **NNWSI PROJECT WBS AND WBS DICTIONARY**
- o **TECHNICAL INTERFACES NOT RESOLVED AT CLASS 3**
- o **OTHERS AS MAY BE IDENTIFIED IN THE NNWSI PROJECT ADMINISTRATIVE PROCEDURES**

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PROJECT

YUCCA MOUNTAIN

NNWSI PROJECT

CONFIGURATION MANAGEMENT PLAN

OGA

CHANGE CLASSIFICATION

CLASS 3 - DESIGNATED WMPO STAFF

- o **SUBSYSTEM DESIGN REQUIREMENTS DOCUMENTS (E.G., ESF, WP, REPOSITORY)**
- o **TECHNICAL INTERFACES THAT IMPACT MULTIPLE PARTICIPANT SCIENTIFIC INVESTIGATION OR DESIGN RESPONSIBILITIES**
- o **LEVEL 1 MILESTONES NOT PART OF HQ GUIDANCE**
- o **BUDGET CHANGES TO COST PLANS (TIME PHASED)**
- o **REFERENCE INFORMATION BASE (RIB)**
- o **ISSUED NNWSI SCIENTIFIC INVESTIGATION OR MGDS DESIGN INFORMATION, EXCEPT WHERE INTERFACES ARE WITHIN TECHNICAL RESPONSIBILITY OF A PARTICIPANT**
- o **OTHERS AS MAY BE IDENTIFIED IN THE NNWSI PROJECT ADMINISTRATIVE PROCEDURES**

**O
C
R
W
M**

Nevada
Nuclear
Waste
Storage
Investigations
PROJECT

NVSI
WMPAIN

NNWSI PROJECT

CONFIGURATION MANAGEMENT PLAN

OGR

CHANGE CLASSIFICATION

CLASS 4 - TECHNICAL PROJECT OFFICERS (TPO)

- o **MUST MEET ALL OF THESE CRITERIA**
- o **CHANGE DOES NOT RESULT IN DEVIATION FROM NNWSI PROJECT TECHNICAL REQUIREMENTS (E.G., CRITERIA, SPECIFICATIONS, DRAWINGS) AS SPECIFIED IN WMPO/NV GUIDANCE**
- o **ANY IMPACTS ON SCIENTIFIC INVESTIGATIONS OR DESIGN INTERFACES ARE COMPLETELY WITHIN THE RESPONSIBILITY OF THE PARTICIPANT**
- o **CHANGE DOES NOT IMPACT LEVEL 2 BASELINED MILESTONE**
- o **CHANGE DOES NOT MEET CRITERIA FOR CLASS 3 BUDGET CHANGE**

NNWSI PROJECT TECHNICAL BASELINE

FUNCTIONAL REQUIREMENTS BASELINE*

Issues Hierarchy, MGDS Generic Requirements

TECHNICAL REQUIREMENTS BASELINE*

Information Needs, Yucca Mountain MGDS Requirements

**SCIENTIFIC REQUIREMENTS
BASELINE**

Scientific Investigation
Plans

**FINAL SCIENTIFIC
INFORMATION BASELINE**

Reference Information

**PERFORMANCE CONFIRMATION
BASELINE**

Performance Confirmation

DESIGN REQUIREMENTS BASELINE*

Subsystem Design
Requirements

FINAL (DESIGN) BASELINE*

Detailed Design

AS-BUILT BASELINE*

As-built Configuration

*denotes DOE 4700 terminology

NNWSI QA UPDATE

NOVEMBER 5-6, 1986 (TPO MEETING)

- o STATUS OF STOP WORK ORDER
- o PQAC MEETING HIGHLIGHTS
- o QASC ANNUAL REPORT HIGHLIGHTS

USGS STOP WORK ORDER STATUS

CONDITIONS TO RESUME WORK:

- o PROPOSED CORRECTIVE ACTIONS AND SCHEDULES FOR COMPLETION OF AUDIT FINDINGS APPROVED BY WMPO.
- o QAPP REVISED AND APPROVED BY WMPO.
- o INDOCTRINATION AND TRAINING COMPLETE.
- o PLAN TO PROVIDE ADEQUATE QA COVERAGE.
- o ASSIGNMENT OF QA LEVELS COMPLETED AND APPROVED BY WMPO.

STATUS:

- o ALL OF THE AUDIT FINDING CORRECTIVE ACTIONS WERE SUBMITTED AND REVIEWED BY WMPO.
 - SIXTEEN (16) OF THE TWENTY TWO (22) WERE ACCEPTABLE TO WMPO.
- o WMPO REVIEWED AND APPROVED THE USGS QAPP AS OF OCTOBER 27, 1986.
- o INDOCTRINATION AND TRAINING ON THE USGS QAPP IS SCHEDULED TO BEGIN IN THE SECOND HALF OF NOVEMBER 1986. LIMITED TRAINING ON HOW TO PREPARE SIPs WAS INITIATED.
- o NO QA RESOURCE PLAN SUBMITTED TO WMPO, AS REQUESTED.
- o WMPO HAS PROVIDED COMMENTS TO A DRAFT USGS SIP THAT WILL SERVE AS THE PROTOTYPE SIP. NO USGS SIP SUBMITTED FORMALLY. ESTIMATED NUMBER OF SIPs REQUIRING WMPO APPROVAL IS FORTY FIVE (45).
- o WMPO IS MEETING WITH USGS ON NOVEMBER 6-7, 1986, TO DISCUSS OPEN ITEMS.

SAIC/LANL/LLNL STOP WORK ORDER STATUS

CONDITION TO RESUME WORK:

- o ASSIGNMENT OF QA LEVELS COMPLETE AND APPROVED BY WMPO.

STATUS:

SAIC:

- o QA LEVELS ASSOCIATED WITH NINE (9) TASKS HAS BEEN APPROVED BY WMPO.
- o QA LEVELS ASSOCIATED WITH TEN (10) TASKS REMAIN TO BE RESUBMITTED. THREE (3) SIPs ARE ASSOCIATED WITH THESE TASKS.

LOS ALAMOS:

- o THIRTEEN (13) SIPs AND ASSOCIATED QALASs HAVE BEEN APPROVED BY WMPO ALLOWING WORK TO CONTINUE ON THESE ACTIVITIES. THIS COMPLETES THE RELEASE OF LOS ALAMOS WORK WHICH IS BUDGETED FOR THE CURRENT FISCAL YEAR.
- o WMPO HAS COMPLETED A REVIEW OF THE QA LEVELS ASSIGNED TO ITEMS IN ESF. A MEETING HAS BEEN REQUESTED WITH LOS ALAMOS ON NOVEMBER 13, 1986, TO DISCUSS COMMENTS.
- o ONE (1) SIP (GROUNDWATER CHEMISTRY) REMAINS TO BE SUBMITTED TO AND REVIEWED BY WMPO. HOWEVER, THIS TASK IS NOT BUDGETED FOR THE CURRENT FISCAL YEAR THEREFORE A SIP WILL NOT BE SUBMITTED AT THIS TIME.

LLNL:

- o THREE (3) SIPs HAVE BEEN APPROVED BY WMPO.
- o THERE ARE SEVEN (7) SIPs REMAINING WHICH REQUIRE WMPO APPROVAL. LLNL IS PREPARING A SUBMITTAL SCHEDULE FOR THE BALANCE OF SIPs.

SNL STOP WORK ORDER STATUS

CONDITIONS TO RESUME WORK:

- o WMPO APPROVAL OF THE SNL QAPP
- o ASSIGNMENT OF QA LEVELS COMPLETE AND APPROVED BY WMPO

STATUS:

- o WMPO HAS REVIEWED AND ACCEPTED ALL OF THE SNL QAPP EXCEPT FOR THE FOLLOWING.
 - SECTIONS 17 AND 18: COMMENTS AND PROPOSED RESOLUTIONS WERE AGREED TO INFORMALLY.
 - SECTION 7 REMAINS TO BE SUBMITTED TO WMPO.
- o ASSIGNMENT OF QA LEVELS IS COMPLETE.

REECO STOP WORK ORDER STATUS

STATUS:

- o WMPO APPROVAL OF PROPOSED AUDIT FINDING CORRECTIVE ACTIONS
- o WMPO APPROVAL OF THE REECO QAPP
- o COMPLETION OF INDOCTRINATION AND TRAINING OF REECO PERSONNEL

CONDITIONS TO RESUME WORK:

- o ALL PROPOSED CORRECTIVE ACTIONS HAVE BEEN SUBMITTED AND ALL HAVE BEEN ACCEPTED BY WMPO.
- o THE REECO QAPP WAS APPROVED BY WMPO ON OCTOBER 17, 1986.
- o INDOCTRINATION AND TRAINING ON THE REECO QAPP HAS STARTED. THIS EFFORT WILL BE ONGOING.
 - TRAINING OF TECHNICAL INSPECTORS COMPLETED AND VERIFIED BY A WMPO SURVEILLANCE.
 - TRAINING OF PERSONNEL ON THE APPROVED REECO QAPP SHOULD BE COMPLETED SOON.

ANTICIPATED REMOVAL OF STOP WORK ORDER

PROBLEM:

- o CONFLICT WITH WMPO TECHNICAL REVIEWERS DUE TO INVOLVEMENT ON SCP PIRCS.

IMPACT: COMMENT/REVIEW MEETINGS WITH THE PARTICIPANTS ARE BEING DELAYED.

ASSUMPTION:

- o PARTICIPANTS WILL HAVE THE NECESSARY IMPLEMENTING PROCEDURES IN PLACE TO PERFORM THE WORK.

USGS: FEBRUARY/MARCH 1987 - AWAITING QALAS APPROVALS, COMPLETION OF TRAINING, QA RESOURCE PLAN, RESOLUTION OF SIX (6) AUDIT FINDING RESPONSES.

LOS ALAMOS: WORKING ON ALL CURRENT TASKS.

SAIC: DECEMBER 1986 - ALREADY LIFTED ON ACTIVITIES THAT HAVE APPROVED QALASs (NINE)

LLNL: NOVEMBER 1986 - ALREADY LIFTED ON ACTIVITIES THAT HAVE APPROVED QALASs (THREE)

SNL: NOVEMBER 1986 - AWAITING WMPO APPROVAL OF THE REMAINING SECTIONS OF THE QAPP

REECco: DECEMBER 1986 - AWAITING VERIFICATION FOR COMPLETION OF TRAINING.

POAC MEETING HIGHLIGHTS
OCTOBER 28-29, 1986

- o REVIEWED PROBLEMS ASSOCIATED WITH THE USE OF SNL/PSL FOR NNWSI CALIBRATION (IMPACTS REECO, EG&G ON CALIBRATION OF MASTER STANDARDS AND SNL ON CALIBRATION ON INTERNAL INSTRUMENTS).
 - PSL SET UP AS A WEAPONS CALIBRATION FACILITY MEETING WEAPONS REQUIREMENTS
 - NECESSITY OF PSL ADHERENCE TO NNWSI REQUIREMENTS
 - PSL RELUCTANCE TO PROVIDE DOCUMENTS INDICATING TRACEABILITY TO NBS
 - WMPO INABILITY TO AUDIT PSL
- o RECOMMENDATION TO WMPO
 - ALLOW REECO AND EG&G TO USE COMMERCIAL SOURCES TO CALIBRATE MASTER STANDARDS AND HAVE SNL SEEK OUTSIDE SOURCES OR EG&G AND REECO TO CALIBRATE INSTRUMENTS.
 - THROUGH EXISTING ORGANIZATIONAL HIERARCHIES AT NVO AND ALO, REACH AGREEMENT WITH PSL TO ACCOMMODATE NNWSI REQUIREMENTS
- o REQUESTED COMMENTS ON OGR SUPPLEMENT NO. 8, "APPLICATION OF GRADED QUALITY ASSURANCE," REVISION AND DRAFT SCP.
- o DISCUSSED THE FORMAT OF PARTICIPANTS QAPPs AND IMPLEMENTING PROCEDURES

QASC ANNUAL REPORT HIGHLIGHTS

- o INEFFECTIVE TRAINING
- o QA RESOURCE AND EXPERIENCE LEVELS
- o STATUS OF WMPO QMPs AND NNWSI APs
- o PROJECT WIDE CONTROLS WHICH NEED TO BE DEVELOPED

**NNWSI Administrative Procedures Required to Implement
QA Requirements on a Project Wide Basis**

<u>No.</u>	<u>Title</u>	<u>Status</u>
NNWSI-SOP-02-01	QAPP Requirements for Participating Organizations and NTS Support Contractors	Will be incorporated into the NNWSI Project OAP in Revision 5 (SAIC/QASC).
NNWSI-SOP-02-02	Assignment of QA Levels to NNWSI Activities and Items	Will be converted to NNWSI AP by 1/16/87 (SAIC/QASC).
NNWSI-SOP-03-01	Engineering, Construction, and Support Services at NTS	Will be deleted (SAIC/QASC) and replaced by two APs, Design Interface Control for ESF and Performance of Site Investigations of Yucca Mountain using NTS support.
NNWSI-SOP-03-02	Software Quality Assurance	Will be converted to an NNWSI AP (SAIC/QASC) by 1/16/87.
NNWSI-SOP-03-03	Acceptance of Data or Data Interpretation not Developed under the NNWSI QA Plan	Will be converted to an NNWSI AP (SAIC/QASC) by 1/16/87.
NNWSI-SOP-15-01	NNWSI Nonconformance Control System	Will be deleted (SAIC/QASC).
NNWSI-SOP-17-01	NNWSI Records Management	Will be converted to an NNWSI AP (SAIC/T&MSS) by 1/16/87.
NNWSI-AP-1.1	Administrative Procedure Preparation	In process of revision (SAIC/PSB).
NNWSI-AP-3.1*	Planning and Scheduling Baselines	In process of revision (SAIC/CMB).
NNWSI-AP-3.3*	Change Control	In process of revision (SAIC/CMB).
NNWSI-AP-1.5*	Document Control	In process of preparation (T&MSS/CMB).

<u>No.</u>	<u>Title</u>	<u>Status</u>
NNWSI-AP- *	Baseline Review Board	In process of preparation (T&MSS/CMB).
NNWSI-AP- *	Technical Baseline Documents	In process of preparation (T&MSS/CMB).
NNWSI-AP- *	Regulatory Baseline Documents	In process of preparation (T&MSS/CMB).
NNWSI-AP- *	Revisions to Baseline Documents	In process of preparation (T&MSS/CMB).
NNWSI-AP-	TBD, Name and Number Addressing Samples	Procedures need to be developed to control the processing of samples through the NNWSI Project sample facility from collection to distribution and return. A plan identifying the needed procedures was given to WMPO. As yet no decision has been made.
NNWSI-AP-	Four procedures have been identified to the NNWSI Project Database Procedures (Tuff, RIB, Graphics)	Four procedures need to be developed to control entry and distribution of data and information into the various NNWSI Project databases. Drafts are presently being developed (SAIC/Licensing).
NNWSI-AP-	TBD, Name and Number Addressing the NNWSI Project Systems Engineering Process	The SEMP Plan (SNL) is in draft. Once approved, QA perceives the procedures will be identified. Procedure development responsibility is unknown.
NNWSI-AP-	Design Interface Control for ESF	This is an interim procedure being written by T&MSS Engineering. It will be in effect until the SEMP is in place.
NNWSI-AP-	Performance of Site Investigations of Yucca Mountain using NTS support.	This procedure is being written by the T&MSS Site Integration.
NNWSI-AP-	Calibration of M&TE Utilizing NTS Support	In process of preparation (SAIC/QASC).

*These APs will provide the controls to implement the CM Plan. The CM Plan has not been approved by WMPO to date.

WMPO QMPs

<u>No.</u>	<u>Title</u>	<u>Status</u>	<u>Target Date to OGR for Review</u>
QMP-01-01	Organization	IR	11/21/86
QMP-01-02	Stop Work	IP	12/26/86
QMP-02-01	Indoctrination and Training	IR	1/30/87
QMP-02-02	Qualification and Certification of Auditors	IR	11/28/86
QMP-02-03	Management Assessment	IP	1/30/87
QMP-02-04	Readiness Reviews	IP	1/30/87
QMP-02-05	OA Commitment to Outside Agencies	IP	11/28/86
QMP-02-06	Documents Requiring OGR Approval	IP	11/21/86
QMP-03-01	Peer Review	IR	12/12/86
QMP-04-01	Procurement	IP	1/8/87
QMP-06-01	QMP Format	IR	11/21/86
QMP-06-02	Document Control	IR	11/14/86
QMP-06-03	Document Review/Approval	IR	12/12/86
QMP-07-01	Surveillance	IR	11/14/86
QMP-07-02	Effectiveness of Participant OA Programs	IP	1/30/87
QMP-15-01	NCR	IR	11/14/86
QMP-15-02	UOR	IP	1/30/87
QMP-16-01	Corrective Action	NC	NC
QMP-16-02	Trend Analysis	IP	12/30/86
QMP-16-03	Deficiency Reporting	IP	11/7/86

<u>No.</u>	<u>Title</u>	<u>Status</u>	<u>Target Date to OGR for Review</u>
OMP-17-01	OA Records	IP	12/1/86
OMP-18-01	Audits	IR	11/28/86

Status Codes: IR - In process of revision
IP - In process of preparation
NC - No change

Project-Wide Controls Which Need to be Developed to Meet QA Requirements

o Systems engineering management process and NNWSI Project Administrative Procedure (AP) to control:

- Design interface
- Site investigation interface

o Configuration management process and NNWSI Project APs to implement:

- Dissemination of Project-wide documents, information and positions

o Project data base and NNWSI Project APs to implement (Tuff, RIR, Graphics):

- Input of data
- Dissemination of data
- Interface with QARMS/IMS if any

o Sample facility process and APs to control:

- Handling of samples
- Shipping of samples
- Storage of samples
- Identification of samples

o Readiness review system

o NNWSI Project/OGR interface procedure to control:

- OGR review of Project technical documents
- OGR review of QA documents

Seismic - Tectonic W. G.

11/6/86

PM/TPO Mtg

Recent Activities

- NRC Symposium on 10 CFR 100 App A (10/7-8-9/86)
- Pre dry-run for NRC Workshop (10/15-16/86
(attended by Knight + Jelacic)
- Field Trip to Yucca Mt and to new trenches
on scarp of 1932 M7.25 Cedar Mt. Earthquake

NOTE: Attendance limited to

Levick, WMPO } plus USGS, NRC &
Grant, SAIC } State reps

NRC Workshop Preparation

- Workshop scheduled on 11/17-19 to review and revise presentation package will be used to finish SCP text
 - will reschedule workshop to prepare NRC package for HQ review
- Dress Rehearsal scheduled at HQ on 12/16/86 will be postponed ~ 1 month

Items of Interest

- Earthquake Catalog Subgroup: D. Perkins, USGS
- meets 11/7/86 to review problems with catalog and recommend proper use
- R. Fox / T. Grant — developing baseline fault maps
- Topical report on Strain Hazards (Hardin, SAIC)
out for review — informal Weston comments
- Topical report on Fault Hazards — re-review to finalise for NRC release

MINUTES OF THE MEETING OF THE
NEVADA LEGISLATURE'S COMMITTEE ON
HIGH-LEVEL RADIOACTIVE WASTE
Legislative Building
Carson City, Nevada
June 24, 1986

The fifth meeting of the Nevada Legislature's Committee on High-Level Radioactive Waste (Nevada Revised Statutes 459.0085), created pursuant to Senate Bill 55, chapter 211, Statutes of Nevada, 1985, was held on June 24, 1986, commencing at 9 a.m., in Room 234 of the Legislative Building in Carson City, Nevada.

COMMITTEE MEMBERS PRESENT:

Senator Thomas J. Hickey, Chairman
Assemblyman James W. Schofield, Vice Chairman
Senator Kenneth K. Redelsperger
Assemblyman Jane F. Ham
Assemblyman John E. Jeffrey
Assemblyman Gaylyn J. Spriggs

LEGISLATIVE COUNSEL BUREAU STAFF PRESENT:

Donald M. Bayer, Senior Research Analyst, High-Level
Radioactive Waste
Colleen McMullen, Deputy Legislative Counsel
Marilyn K. White, Research Secretary

Chairman Hickey called the meeting to order. He introduced the committee members and read from his prepared introductory comments (attached as Exhibit A) which outlined the schedule for the meeting. The meeting agenda is attached as Exhibit B.

Chairman Hickey called for approval of the minutes of the committee's fourth meeting.

ASSEMBLYMAN SCHOFIELD MOVED FOR APPROVAL OF THE MINUTES OF THE COMMITTEE'S MAY 28, 1986, MEETING. MOTION SECONDED BY ASSEMBLYMAN JEFFREY AND CARRIED UNANIMOUSLY.

Joseph Strolin, chief of planning, agency for nuclear projects, introduced Eric Anderson, chief executive officer, Mountain West Research - Southwest, Inc., Tempe, Arizona, and James Flynn, research director, of the same firm. Mountain West is the consulting company which has been hired as the primary contractor for the socioeconomic study being conducted by the agency for nuclear projects. Mr. Strolin provided a handout of the work plan for the "grants equal to taxes" (GETT) portion of the socioeconomic impact assessment study (attached as Exhibit C). He briefly reviewed the section of the Nuclear Waste Policy Act of 1982 (NWPA) which addresses the GETT program and discussed additional background information.

Mr. Strolin said that Mr. Anderson would be speaking about a summary of study activities to date. However, he cautioned that the analysis is not yet at a stage where formal recommendations can be made. The study has proven to be more complicated than first anticipated. The next step will be to review the work which has been done, apply some quantitative scenario analysis and determine the areas in which the state will benefit the most.

Because GETT provisions of the NWPA apply to site characterization activities, as well as construction and operation activities, theoretically, the state and affected local communities are already eligible to receive GETT payments since Nevada has been formally in site characterization since May 28, 1986. It is hoped that the study will be completed and recommendations for any needed changes in the state tax statutes made by the end of August 1986. Mr. Strolin then requested Mr. Anderson to discuss the study activities to date.

Mr. Anderson stated that GETT is now being referred to as "payments equal to taxes" (PETT) by the United States Department of Energy (DOE). The program is designed to compensate the state and local governments because neither can tax federal activities. A unique provision of the GETT section of the NWPA is the wording--grants or payments "equal to" taxes. Previous federal programs have implemented payments "in lieu of" taxes. The implication is that there is a dollar-for-dollar equalization between what the activity would pay if it was a private development. Payments in lieu of taxes are typically structured in such a way that there is no such equalization mandated by the provision. He noted that this is an important distinction which may cause some complicating issues to arise with DOE in the future.

Mr. Anderson stated that the study has been divided into four parts:

1. A thorough review of the NWPA, particularly the characteristics of the high-level nuclear waste repository;
2. A review of other federal programs as well as programs in tax structures implemented by other states--in terms of nuclear waste repository activities, transportation of hazardous waste materials and other types of federal programs such as U.S. Bureau of Land Management (BLM) property, U.S. Forest Service lands or water reclamation programs;
3. A review of existing and potential state tax programs within Nevada; and
4. Development of a set of findings and recommendations for the GETT study.

The analysis is not complete as yet, Mr. Anderson stated, but he wished to provide some preliminary findings. The project description (what is a nuclear waste repository and what are all the aspects of it) has been difficult for Mountain West to "get a handle on." There is a lack of information such as what the different components of the project might cost. Also, there is a great deal of uncertainty regarding employment levels associated with the project. Timing seems to be one area that is more definite than some of the other facets. In analyzing a tax program, fundamental knowledge of the scope of a project is necessary.

Mr. Anderson commented that it is important to understand that the GETT provisions of the NWPA are not intended to compensate the state and local governments for the impacts of the project. Impact mitigation funds are separate from GETT revenues.

There is a question regarding whether or not school districts will be considered units of general local government. The language in the NWPA is unclear. Mountain West is researching legislative intent on the language of that provision. Currently, it is Mountain West's opinion that the language of the GETT provision of the NWPA is based on revenue sharing programs in the mid-1960's. The NWPA defines the GETT provisions as applying only to general purpose units of government.

Mr. Anderson said that Mountain West has tried to separate (1) the potential for revenues flowing from GETT during site characterization activities and (2) the actual operation of a repository. Many issues discovered relate more to the operation of a repository and transportation of hazardous waste through the state. Since that will not occur for 10-plus years, there is time to do further analysis and research.

In terms of the operation of a repository, Mountain West has looked into the potential of gross receipts tax on operators of nuclear waste repositories. It is important to note, that it not only includes the repository proposed by DOE but any other nuclear waste repository that may be considered for the state. The firm is looking into industry-wide taxes not project-specific taxes.

Mr. Anderson said it is likely that Mountain West may propose or recommend that the state consider a tax on the transportation or storage of nuclear radioactive materials. It is unclear, at the present time, how such a tax might work or how much revenue would be generated.

In terms of site characterization, Mountain West anticipates two major forms of revenue flowing from the site characterization activities:

1. Sales and use tax: Analysis indicates that the tax will not be part of GETT revenues because it will be paid directly by DOE contractors. It is assumed that most, if not all, the site characterization work will be carried out by DOE contractors; and
2. Ad valorem property tax: The major issue related to the property tax is valuation--what is the site and how is it valued. Analysis clearly shows that once the site entered the site characterization phase, there was a change in use. Consequently, there should be a basis for a change in value of the property. There is some question on how one would define the site--the NWPA is vague on that subject and defines it as a geologic or hydrologic system identified for site characterization activities.

On the issue of valuation, Mr. Anderson said, Mountain West anticipates several changes in use as the site may be developed in the future.

1. The first change in use occurred on May 28, 1986, when Yucca Mountain, Nevada, was selected for site characterization;
2. When and if the site is selected for a repository;
3. When a repository is in operation; and
4. When a repository is decommissioned.

Mr. Anderson indicated that while it is unclear how the valuation process happens, it is clear that Yucca Mountain has been selected as one of three potential sites for the repository. If the Nevada site is chosen, it will be the only one in the country. He questioned how a value could be placed on that, in terms of assessed valuation.

Responding to Mr. Schofield, Mr. Anderson said it is clear from his reading of the GETT provision of the NWPA that the repository will be taxed as if it were a private activity. There is no mention of impact mitigation and no "earmarking" of GETT to mitigate the impacts of the project. In fact, another section of the NWPA deals with impact mitigation funds and is identified separately from GETT provisions.

Mr. Strolin observed that even the DOE, in its guidelines on the GETT program, has acknowledged that GETT is not--in any way--a mitigation strategy.

Mr. Anderson, again responding to Mr. Schofield, commented that the way the draft DOE guidelines are presently written indicates the state and units of general local government make a proposal to DOE outlining the basis for the tax. In the case of property tax, it would show assessed valuation of the property (both real and personal property) and the applicable tax rates. By multiplying the two together, one has the indicated property tax revenues which would be available if it were a private entity. What occurs at that point is unknown. If there is a dispute, neither the NWSA nor the DOE guidelines state how such disputes would be mediated. Mountain West's legal counsel has advised that the NWSA does not waive federal tax immunity--such disputes do not fall under any state and local government appeals process.

Mr. Schofield inquired as to the source of funds to establish grants. Mr. Anderson stated that the money originates from the Nuclear Waste Fund for the payments for construction operations, GETT and impact mitigation. Mr. Strolin concurred.

Responding to Senator Redelsperger, Mr. Anderson said that Mountain West is making the assumption that most of the site characterization work will be accomplished by DOE subcontractors. As private contractors who are benefiting from the contracts, they are subject to a sales and use tax. He understands that Nye County, Nevada, currently levies sales and use tax as applicable to the Nevada Test Site. If the subcontractors are agents of the DOE, they would not be required to pay the tax. Mountain West's legal counsel is of the opinion that the subcontractors could not be considered agents of the U.S. Government.

Mr. Jeffrey mentioned that a large number of workers at the Nevada Test Site live in Clark County, Nevada. He inquired if data is available regarding mitigation in counties surrounding the Yucca Mountain area. Mr. Anderson responded that impact assessment work is presently underway on the broader issue of site characterization and that information is not yet available. However, he did note that GETT provisions may or may not apply to jurisdictions within Clark County depending on how the site is defined. Independent of the GETT provisions, it is the opinion of Mountain West that impact mitigation funds would be available to jurisdictions in Clark County.

Further responding to Mr. Jeffrey, Mr. Anderson said the number of construction workers and operations personnel has been "one of the more elusive numbers." The final Environmental Assessment (EA) indicated that site characterization activities for the Nevada site should peak at 273 workers. Site characterization work is estimated to require 109 additional workers. Peak employment during construction is estimated between 1,600 and 1,900 workers, depending on whether horizontal or vertical placement is implemented. That figure is 40 percent lower in the final EA than the one in the draft EA. The rationale for the lower number is unknown at the present time. Operations employment is expected to average 1,400 to 1,750 workers. In terms of peak employment, that figure is 24 percent lower than the figure contained in the draft EA. The caretaker phase of the project is expected to employ 300 workers. The decommissioning activities are anticipated to employ 450. Mr. Anderson remarked that there are major differences between the draft EA and the final EA. He noted that Mountain West has not had an opportunity to discuss these differences.

Responding to Mr. Schofield, Mr. Anderson said that, in terms of the GETT provisions of the NWPA, there is nothing which outlines a mediation or dispute resolution process--nor is there anything in the draft DOE guidelines which addresses the issue.

Mr. Strolin noted that the DOE has waived on the terminology--grants versus payments--and it has to do with the administrative setup to disburse the money to the states and local jurisdictions. The term "grants" can carry with it certain requirements for application, reporting and followup on the money. In Mr. Strolin's opinion, the DOE appears to be leaning toward simplifying the process; i.e., once the payments are made, there is no obligation for the state or local jurisdictions to report on the funds.

Senator Redelsperger requested further clarification on the fluctuation in employment figures with regard to socioeconomic impacts. Mr. Anderson said that while he is not certain, he assumes that the technology being proposed for the facility may be causing the changes. It has been his experience that the employment figures provided in the beginning of a study, typically, are very different from the actual employment figures onsite. He briefly discussed methods of development and reasons for variations in initial employment estimates. The next phase of Mountain West's study will address the project description. Discussions also will be held with the people who developed the employment figures.

Mr. Strolin said that attempts have been made, as early as 1984 when the draft EA's were provided, to determine the basis of the employment figures. He noted that the DOE has kept the information "very close to the vest" and attempts to obtain that kind of information have been unsuccessful.

Responding to Chairman Hickey, Mr. Strolin discussed a precedent set in the State of Wyoming for inclusion of conflict resolution proceedings in a Consultation and Cooperation (C&C) Agreement.

Mr. Anderson, in response to Chairman Hickey's questions, said there are two potential taxes which may be applied if the waste material is removed from storage. One is a storage tax based upon toxicity and another would be severance tax (or sales and use tax). There would be a problem determining the value of the waste material when it is put into the ground.

Responding to Mrs. Ham, Mr. Anderson said that Mountain West is just entering the impact assessment phase of the study and issues such as housing and county-provided services have not been addressed.

Mr. Strolin stated that the issue of county-provided services is very unclear. Even in the final EA, the subject has not been addressed with regard to exactly where the impacts will occur. The DOE is assuming that the settlement patterns during construction will be similar to the current settlement patterns of workers at the Nevada Test Site. Whether that is a realistic assumption is unknown and is a matter which will be explored.

Mr. Jeffrey noted that it has been a past practice of the DOE and various agencies in the Nevada Test Site area to provide housing. Depending on the remoteness of the area, many workers travel to and from Clark County on a daily basis.

Harry W. Swainston, deputy attorney general, office of the attorney general, stated he will provide updated information on one pending lawsuit and several recent lawsuits filed against the DOE and the Secretary of Energy.

The previous lawsuit is referred to as the "guidelines suit" and is a challenge relative to the sufficiency of the DOE's guidelines for the selection of repositories. The case has been pending and is now consolidated with eight other cases before the U.S. Ninth Circuit Court of Appeals (Case No. 85-7308). The lawsuit challenges the lack of objectivity of the guidelines--the guidelines fail to address transportation issues as required by the NWA and arbitrarily establish a regional geohydraulic basin screening process which unlawfully affects the reduction of candidate sites from nine to five. The lawsuit contends that the guidelines also fail to set forth an objective methodology for ranking potential sites. He noted that has been cured, to a certain extent, by the recent selection of a methodology which has met the approval of the National Academy of Sciences. Additionally, the guidelines fail to establish an objective basis for weighing postclosure considerations and criteria more heavily than preclosure considerations and criteria.

Mr. Swainston remarked that a prehearing telephone conference call is scheduled for July 2, 1986, in which all cases will be discussed and procedures for resolving issues will be set forth for the conference attorney of the Ninth Circuit Court of Appeals.

Responding to Senator Hickey, Mr. Swainston confirmed that all of the cases are in the Ninth Circuit Court of Appeals. The circuit is established by the NWA and is determined by the location of the site as the court which has original jurisdiction. There is one other court--the Court of Appeals in Washington, D.C.--which also has a concurrent jurisdiction. He noted that the NWA provides for judicial review of agency actions. All of the actions are brought in that context--seeking review of the Secretary of Energy's decisions or failure to decide an issue.

Regarding the status of the pending lawsuit, Mr. Swainston said no briefs have been filed and the administrative record is so voluminous, it is not yet before the court. He said the progress of the siting program is not affected by the lawsuits unless an injunction or temporary restraining order is sought and relief is granted by the court.

Another lawsuit, referred to as the "funding suit," was filed in 1984. The Ninth Circuit Court of Appeals ruled in favor of the state and required the DOE to promulgate new guidelines for the granting of funds from the Nuclear Waste Fund for the purposes of the state's participation in the program. Mr. Swainston noted that was considered a major victory. Since that time, there has been a certain amount of "foot dragging" on the part of the DOE in terms of funding seven technical studies, he said

Recently, the DOE has agreed to fund three studies and it appears the DOE is agreeable, with additional information, to funding the remaining studies. Mr. Swainston anticipates that particular case will be resolved through negotiation.

On May 28, 1986, a series of cases was filed within hours of the announcement that Yucca Mountain, Nevada, had been selected for site characterization. The cases were discussed by Mr. Swainston and are as follows:

1. Case No. 86-7307 is referred to as the "timing lawsuit." It challenges the timing of the site nomination and approval and the issuance of the final EA's as being inconsistent with the NWA as it has never given the State of Nevada an opportunity to comment on the final EA before the nominations and recommendations were made.

2. Case No. 86-7308 has to do with the jurisdictional prerequisites as to the land involved in the repository area. An NRS regulation requires that the DOE assert jurisdiction and control over the site it proposes to use for a repository. It is thought that is equivalent to an exclusive legislative authority as defined by the U.S. Constitution, which requires that the Federal Government or any of its agencies obtain consent of the state's legislature. This was called to the attention of the DOE in comments on the draft EA. There was no response, in that regard, from DOE in the final EA.
3. Case No. 86-7309 challenges the sufficiency of the EA. It is thought that the assessments are deficient in many respects, particularly, reliance on the guidelines which are thought to be equally deficient. This case is anticipated to be a complicated and protracted piece of litigation due to the volume of material contained in the administrative record.
4. Case No. 86-7310 involves the preliminary determination of site suitability. The Secretary of Energy interpreted the NWPA as permitting him to make a preliminary determination of site suitability for repositories at the time recommendations are made to the President of the United States. It is the state's position that the determination should be made after or near the conclusion of the site characterization process. At the end of characterization, three sites should emerge for comparison and selection of the best of the three sites.
5. Case No. 86-7311 has to do with the question of funding for judicial review. Complaints have been made to the DOE regarding its guideline that the state may not use any grant funds for the purpose of seeking judicial review of decisions or inaction by the Secretary of Energy. It is the state's position that it is false and illegal for DOE to impose that condition. Participation by Nevada in the repository program requires that it can seek judicial review of agency action that is inconsistent with the NWPA.

Senator Hickey commented that the committee has learned that the "best" site would not necessarily be selected, but one that is "adequate." Responding to Senator Hickey, Mr. Swainston said that idea has never been challenged as it is a question of statutory interpretation as to whether Congress ever intended that the "best" site be selected. Senator Hickey noted that issue seems to be one that should be addressed in the site selection process.

Mr. Swainston commented regarding the shelving by the DOE of the second repository sites and the DOE's position that it will select a "suitable" site, not necessarily the "best" site. While that determination has not yet been challenged, it has not been forgotten.

Senator Redelsperger inquired about the cost to the State of Nevada for the five lawsuits. Mr. Swainston said his salary is paid out of grant funds and two contract attorneys are paid on a hourly basis. The last litigation figures he reviewed were in the \$10,000 to \$20,000 area. At least that amount, possibly more, could be anticipated per year. He does not expect to approach the Nevada legislature's interim finance committee for funding. The DOE did fund the state's request; however, the DOE may later seek a refund of some funds which, in its opinion, were improperly expended. If that situation occurs, Nevada will not voluntarily accede to that request.

Responding to Mrs. Spriggs' question regarding injunctive action in the five lawsuits, Mr. Swainston said the state would be seeking an injunction in the land status case to enjoin any site characterization activities until the DOE seeks the requisite

jurisdiction and control that is necessary to proceed with site characterization. The state is seeking injunctive relief in the petition which challenges the timing of the recommendation, nomination and approval process. Whether or not the state would proceed through motions attempting to get the court to enjoin the process is a question of litigation strategy which is presently unanswered.

William E. Isaeff, chief deputy attorney general, office of the attorney general, stated that Attorney General Brian McKay has taken a close personal interest in the litigation. Mr. Isaeff discussed the success in efforts regarding funding of independent scientific studies. The office of the attorney general is attempting to "stay on top of every development" with respect to the possible siting of the repository at Yucca Mountain.

Senator Hickey expressed concern about any payment of litigation fees by the State of Nevada. Mr. Swainston noted that even if that issue is lost, the state would have the right to request impact assistance funds from the DOE for any litigation costs incurred.

Responding to Mr. Schofield, Mr. Swainston discussed the rate at which the judicial process moves. Mr. Isaeff noted that, as part of the judicial process, the prehearing telephone conference call will address that issue. He noted that it was his opinion that the scientific studies case moved along well and took just under 1 year from filing to decision. Motions trying to expedite a case can be filed; however, it is within the discretion of the court whether to grant them. Mr. Isaeff assured the committee members that the office of the attorney general would make every effort to ensure that the proceedings move in an expeditious manner.

Mr. Schofield requested clarification on the status of the "funding suit" previously discussed. Mr. Swainston said that as a result of new DOE guidelines, the state received the bulk of its funding except for \$998,000 which was "earmarked" for special studies. The DOE has agreed to payment of one-half of that amount and the other one-half is under negotiation with fairly favorable prospects.

Senator Hickey commented that perhaps some structure could be developed to avoid court cases. He expressed concern about (1) expenditure of citizen money relative to court cases; and (2) a mechanism for conflict resolution.

Mr. Isaeff said litigation is the "last resort" since it is costly and time-consuming. He said, "Our office certainly does not relish the prospect of having to engage in a lot more litigation. We would rather these matters be settled through negotiation or through consultation. In appropriate cases, we may even need to think in terms of, perhaps, additional legislative efforts in the Congress."

Responding to Mr. Schofield, Mr. Swainston said that in the case of the "timing suit," all efforts requesting a delay between the period that the recommendation was made and the EA's were published were treated with "a benign neglect or total disregard." He was unsure whether there was a denial by DOE of the requests.

Continuing, Mr. Swainston noted that the question regarding the land status was brought to DOE's attention in comments on the draft EA. He said that DOE was putting the jurisdictional control problem off until such time as it may seek the license for a repository. Mr. Swainston remarked, "Which is altogether

too late because then you're going to need an Act of Congress and it is, basically, a 'fait accompli' at that point." He noted that whether the state's legislature would be involved through the consent process is a question.

Mr. Swainston, further responding to Mr. Schofield, said that at least three of the five lawsuits can be determined within a 1-year time frame. He anticipates that the lawsuit regarding the EA will take longer than 1 year and may possibly be consolidated with the "guidelines" cases.

Bob Fulkerson, director of Citizen Alert, Reno, Nevada, read from his prepared statement (attached as Exhibit D) which outlines the purpose of his organization and calls for the committee to pass a resolution formally opposing the siting of a high-level nuclear waste dump in Nevada.

Senator Hickey and Mr. Jeffrey clarified the committee's role as an oversight committee and its relationship to the legislative commission and the Nevada legislature.

Continuing his presentation, Mr. Fulkerson provided copies of a "Statement of Principles for Sound Radioactive Waste Management" and a petition signed by approximately 1,600 Nevadans (both documents are attached as Exhibit D). The petition calls for termination of site characterization and further site investigation pending independent proof that the transportation and disposal of the waste pose no health and safety danger to Nevadans.

Mr. Fulkerson called the committee's attention to an enlarged facsimile of a mailgram which 600 Nevadans sent to U.S. Representative Harry Reid and the DOE. He concluded his remarks by recalling the opposition expressed in the past relating to the MX Missile Project and the resulting decision to cancel it.

Charles S. Watson, Jr., director of the Nevada Outdoor Recreation Association in Carson City, Nevada, said that the organization's long-time concerns have been the protection of wilderness and natural areas and sound multiple use management of the BLM public lands in Nevada. It is Mr. Watson's opinion that Nevada is being treated as if it is a wasteland and growing numbers of Nevadans are adamantly "fed up with it."

Mr. Watson stated that he is a geologist with a degree from the Mackay School of Mines at the University of Nevada-Reno in Reno, Nevada. He discussed seismic activity in the "Great Basin" area and noted that if sudden events were to occur in the vicinity of the proposed repository site, aquifers could be contaminated in cities such as Las Vegas, Nevada. The site is geologically unsuitable, he stated.

In addition, endangered species (pupfish) habitat is located in the Amargosa River near Yucca Mountain. Mr. Watson said, "We have the clear application of the Endangered Species Act in this regard."

Mr. Watson noted that in the beginning, the repository site was to be less than 500 acres. He stated that approximately 4 years ago, he was provided a map by the BLM which suggested that the DOE wanted 4,900 acres of land for the repository. Recently, he learned from a DOE representative during a tour of the Nevada Test Site, that the size of the repository was now 50,000 acres. No explanation was given for the massive amount of additional acreage of federal lands required for the repository, he noted.

Mr. Schofield inquired if this information has been provided to the Nevada agency for nuclear projects. Mr. Watson responded that he provided his inventory of materials accumulated since 1964 to the agency.

Kachinas Kutenai stated that she is a medicine woman, registered nurse and teacher who has lived in Nevada for 8 years and resides in Sparks. In her opinion, Nevada is on the list as a potential site because it previously accepted the testing of the atomic bomb. Therefore, the fight against a repository is harder. She commented that the questions asked by the committee members today do not seem to address the threat to life. Discussions have taken place regarding money and the cost to Nevada, but she is of the opinion that if the repository is to come to Nevada, demands should be made for DOE to construct its own roads and advance protection should be afforded Nevada for its air, animals, people and water.

Chairman Hickey said the members of the committee are concerned and previous meetings have addressed some of the issues mentioned. He also stated that the agency for nuclear projects is involved in research on such matters.

Ms. Kutenai discussed the effects of plutonium on the human body and questioned if something can be done to neutralize--and make nonlethal--all toxic waste. She is unaware of that type of work being accomplished and wondered whether it is within the capability of the human mind.

Mr. Jeffrey said there has been work done in the past regarding recycling atomic waste for useful purposes. To the best of his knowledge, there is not a great deal of work continuing in that area. The assemblyman stated that he is in agreement with Ms. Kutenai that the work should be continuing but it is a matter of cost. It is thought to be cheaper to dispose of the waste material than to recycle it. This is a national issue and not one the committee is in a position to address, he commented.

There was a brief discussion between Ms. Kutenai and members of the committee regarding the dangers of plutonium, recycling of nuclear waste, storage capacity of nuclear waste at power plants and experimental tests being conducted in the State of Idaho.

William Rosse, Sr., representative of the Western Shoshone National Council and tribal representative of the Yomba Shoshone Tribe requested that courtesies be extended to representatives from the Shoshone Nation should they attend a future hearing. Senator Hickey requested prior notification of that possibility and stated that such courtesies would be extended.

Mr. Rosse read from his prepared remarks for the record (attached as Exhibit E). The statement reads that the proposed repository would be located within Western Shoshone homelands and that it shall not be tolerated on Western Shoshone Land. In addition, transportation of nuclear waste shipments would take involve Western Shoshone Land and noted environmental risks. Nuclear waste disposal has not been proven safe and release of radioactivity is possible, he said.

Concluding his statement, Mr. Rosse said that (1) it is the position of the Western Shoshone Nation to adamantly oppose high-level nuclear waste being dumped in its homelands and (2) the Western Shoshone National Council must be consulted before any implementation of the repository project can take place.

Katharine Hale, a 26-year resident of Reno, Nevada, and a cofounder of Citizen Alert in 1975, stated that she is speaking as a private citizen. She discussed changes occurring over the past few years in the half-life figures and storage estimates of transuranic wastes and suggested that the time reduction was an attempt to reduce overall cost estimates. She cautioned the members of the committee to be on the alert for that type of "playing with figures."

Mrs. Hale noted that in a recent issue of Newsweek, the State of Nevada is being portrayed as a "fools' state" and ready and willing to accept anything as long as it is paid. She discussed water resources and said that the ground water mapping in Nevada is not complete and judgments are being based on insufficient information. Mrs. Hale remarked that the geology on the east coast of the U.S. is far more stable than that on the west coast.

More road time is required on the west coast and, therefore, endangers more people--not only in Nevada, but in the states along transportation routes. As a result of her years of studying this subject, Mrs. Hale is of the opinion that it is likely to be more expensive to transport the wastes across the country. She thinks Nevada has been chosen because of its low population.

Mrs. Hale urged the committee members to continue to ask questions as there are too many "unknowns." It is her opinion that once the high-level wastes are in Nevada, the state may be "on line" for more than just nuclear wastes. Any lesser chemical wastes from around the Nation may very well be placed in Nevada because it already has the "top of the line."

There was a brief discussion relative to potential problems in the area of transportation even if Nevada is not chosen as the repository site.

Mark Prichard, a resident of Silver Springs, Nevada, stated that in his opinion, Nevada has taken an unfair share of the U.S. role in nuclear waste disposal. He spoke against the state becoming the prime site for that type of storage. Mr. Prichard briefly discussed a recent problem in dealing with a proposed polychlorinated biphenyls (PCB) dump in the area in which he resides. He urged that specific legislative action be taken to deal with not only the nuclear waste issue but the toxic waste issue as well.

Joe H. Robertson, a 40-year resident of Nevada presently residing in Reno, said that he is a retired professor (in the field of range management and range ecology) from the University of Nevada. He stated that he has been reassured to learn of the many things that state officials and legislators are doing with regard to the subject of radioactive waste. He said that he is most concerned about the transportation phase. He suggested that if the materials are too dangerous to be retained at their present locations, perhaps they are too dangerous to be transported across the country. Mr. Robertson stated that he would support any effort to keep the waste at its present locations pending such a time as the waste material could be recycled. Efforts to recycle the material should be accelerated, he noted.

Mr. Robertson wondered whether EA's should be required for transportation routes and "worst case scenarios" considered. In concluding his testimony, he discussed nuclear fallout research which was done on herds of cattle over a period 14 years during the time of atmospheric testing.

Jack Van Valkenburgh, a resident of Washoe Valley in Nevada, stated that he wished to reiterate the statement made by Mr. Fulkerson which suggested that the committee urge the passage of a resolution opposing the siting of a nuclear waste repository in Nevada. It is his opinion that it is important--at every level of state government--that there be a solid showing of concern about the proposal to bring nuclear waste into or through the state. There was brief discussion between Mr. Van Valkenburgh and members of the committee regarding the subject of resolutions.

Mr. Van Valkenburgh expressed (1) his opinion on the credibility of the DOE with regard to the repository program and (2) his concern about the rapid pace at which the DOE is moving forward with the highly technical repository program. In concluding his testimony, Mr. Van Valkenburgh discussed the suitability of Nevada as a site and the lack of a nationwide site screening for suitable hydrogeologic strata. He suggested that politics played a role in the selection of Nevada as a site for the repository.

Winifred Wright, a 12-year Reno resident, said she was speaking as a private citizen. She remarked that a referendum would be an excellent way to convey the feelings of the people of Nevada regarding the siting of a repository in the state. She discussed alternative energy methods and use of the earth's resources.

LaVonne Frost, second vice president, Nevada State Parent Teacher Association (PTA), provided a copy of a letter from the Nevada PTA to Nevada's congressional delegation and state legislators, dated May 15, 1985, in addition to a "Resolution on Nuclear Waste Dump Site" approved by the Nevada State PTA (both attached as Exhibit F). Mrs. Frost read from the resolution for the benefit of the committee members. The resolution stated that the Nevada State PTA adamantly opposes the establishment of a high-level nuclear waste repository within the State of Nevada and encourages its congressional delegation and state legislators to do everything within their powers to defeat any federal action to establish a high-level dump site in Nevada.

Grace Bukowski stated that she was speaking on behalf of the Citizen Alert and Western Solidarity organizations in the State of Nevada. She provided a copy of her written remarks (attached as Exhibit G) which discusses DOE's record in dealing with radioactive waste at its weapons facilities in the Nation. She also spoke of 50,000 linear feet of core samples taken since 1979 at the Yucca Mountain site. She said the core samples, taken by the U.S. Geological Survey (USGS), may be found inadmissible because the USGS has been operating without an approved quality assurance program. She concluded her remarks by suggesting that, "radioactive waste management be removed from DOE and assigned to an organization of representatives from state, national and academic institutions and out of the hands of the DOE." There was also a brief discussion between Ms. Bukowski and members of the committee regarding the appearances in Nevada of Ben C. Rusche, Director, Office of Civilian Radioactive Waste Management, DOE.

Prior to the close of public testimony, Mr. Bayer informed committee members that telephone calls had been received from 20 citizens opposing the location of a high-level radioactive waste repository in the State of Nevada.

Chairman Hickey opened the committee work session portion of the meeting. Mr. Bayer reviewed the work session document (attached as Exhibit H) with members of the committee. There was a review and discussion regarding specific legislation passed by the

1985 legislature. This discussion included: Senate Bill 55, chapter 211; S.B. 56, chapter 680; S.B. 67, chapter 561; Assembly Joint Resolution No. 4 (File No. 141); and A.J.R. No. 5 (File No. 140). Additionally, the committee reviewed Assembly Bill 128 of the 1985 legislative session (this bill died in the senate committee on human resources and facilities).

During the course of the work session, the committee was provided with a copy of a letter to John S. Herrington, Secretary of Energy, DOE, from the U.S. Senate Committee on Energy and Natural Resources, dated June 11, 1986, and signed by numerous committee members (copy attached as Exhibit I).

Chairman Hickey suggested the committee consider the resolution presented by Citizen Alert at the next meeting of the committee. It was also decided to review a redraft of the previously-discussed A.B. 128 at the next meeting.

The committee heard brief reports from the subcommittees on communications, socioeconomics and transportation. There were no recommendations for bill draft requests from those subcommittees at this meeting. It is possible that some recommendations could be forthcoming at the next meeting of the committee.

Upon completion of the work session discussion, Chairman Hickey called for motions.

ASSEMBLYMAN SCHOFIELD MOVED THAT NRS 459.0085, "CREATION; MEMBERSHIP; DUTIES; SALARY AND EXPENSES OF MEMBERS," BE MODIFIED TO REFLECT UNIFORMITY IN THE RATE WHICH IS PAID TO MEMBERS OF STATUTORY COMMITTEES. MOTION SECONDED BY ASSEMBLYMAN SPRIGGS AND CARRIED UNANIMOUSLY.

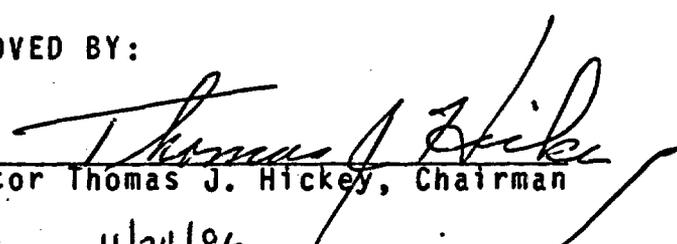
ASSEMBLYMAN SCHOFIELD MOVED THAT A.J.R. 4 AND A.J.R. 5 BE REDRAFTED. MOTION SECONDED BY ASSEMBLYMAN JEFFREY AND CARRIED UNANIMOUSLY.

The attendance roster for the meeting is attached as Exhibit J.

There being no further business to come before the committee, the meeting was adjourned.

Marilyn K. White
Research Secretary

APPROVED BY:



Senator Thomas J. Hickey, Chairman

Date: 11/24/86

BECAUSE OF THEIR SIZE, ~~THE EXHIBITS ARE NOT ATTACHED TO THESE~~
MINUTES BUT, UPON REQUEST, MAY BE REVIEWED IN THE RESEARCH
DIVISION LIBRARY OF THE LEGISLATIVE COUNSEL BUREAU, CARSON CITY,
NEVADA.