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# Final report: Nevada System of Higher Education Quality Assurance Program

Nevada System of Higher Education

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# FINAL REPORT

Project Activity Task ORD-FY04-002  
Nevada System of Higher Education Quality Assurance Program

Cooperative Agreement DE-FC28-04RW12232

PREPARED FOR

U.S. Department of Energy

March 2008

## **INTRODUCTION**

### **Statement of Work**

The principal purpose of the cooperative agreement was to develop and continue providing the public and the Office of Repository Development (ORD) of the U.S. Department of Energy's (DOE) Office of Civilian Radioactive Waste Management (OCRWM) with an independently derived, unbiased body of scientific and engineering data concerning the study of Yucca Mountain as a potential high-level radioactive waste repository. Under this agreement, the Nevada System of Higher Education (NSHE), formerly the University and Community College System of Nevada (UCCSN), performed scientific and engineering research, and maintained and fostered collaborative working relationships between government and academic researchers. In performing these activities, the NSHE developed and implemented a quality assurance (QA) program, which was accepted by the DOE Office of Quality Assurance, under the previous Cooperative Agreement Number DE-FC28-98NV12081. The following describes the objectives of Project Activity Task ORD-FY04-002 "Quality Assurance Program" under Cooperative Agreement DE-FC29-04RW12232.

The objective of this QA program was to assure that data produced under the cooperative agreement met the OCRWM QA Requirements and Description (QARD) requirements for quality-affecting (Q) data. The QA Program was written to address specific QARD requirements historically identified and incorporated in Q activities to the degree appropriate for the nature, scope, and complexity of the activity. Additional QARD requirements were integrated into the program when required to complete a specific activity.

NSHE QA staff developed a detailed matrix to address each QARD element, identifying the applicable requirements and specifying where each requirement is addressed in the QA program procedures, or identify requirements as "not applicable" to the QA program. Controlled documents were prepared in the form of QA procedures (QAPs) and implementing procedures (IPs). NSHE identified new QAPs and IPs when needed.

NSHE PIs implemented the QA program and completed individual research project activities. PIs were also responsible for developing implementing procedures, conducting technical training, assuring that the QA program training was acquired by all task personnel, and participating in monitoring the QA program control for each individual research project activity.

This project activity, which was an essential part of the program to enhance the collaborative ongoing research between the NSHE and ORD, was intended to support all quality-affecting activities funded during the five-year period of the cooperative agreement. However, the cooperative agreement was down-graded to non quality-affecting after 4 years.

### **History**

The cooperative agreement was the second of two cooperative agreements with the Office of Civilian Radioactive Waste Management. The current cooperative agreement began October 1,

2003 and was scheduled to end September 30, 2008. Until summer of 2006, the QA division NSHE QA was staffed by six quality professionals, including the Project Director, who administered the cooperative agreement with DOE. During the summer of 2006 a technical quality professional joined the staff. The combined staff experience totalled over 100 years of QA in nuclear power plant and weapons facilities, environmental research, technical data management, manufacturing, International Organization of Standards (ISO) 9000 programs, and supplier evaluation.

The cooperative agreement increased to a total of 23 research tasks, 19 of which were “quality-affecting” and therefore required to conduct work according to the NSHE QA program. In addition, NSHE QA was asked to implement the QA program for 3 additional research tasks for the University of Nevada-Las Vegas (UNLV) Research Foundation (award: DE-FC28-04RW12237). QA monitored research in the following areas: metal corrosion studies, water chemistry analyses, precipitation and groundwater level measurements, laser strainmeter research, seismic and geodetic monitoring and evaluations, modeling of ground water movement, climate modeling, actinide speciation and solubility transport modeling, actinide element behavior in the near field, precarious rock methodology, presence of bomb-pulse chlorine-36 at the YMP repository horizon, lithophysae geometry influence on the mechanical properties of tuff, characterization of microbial activity involved in actinide reduction and transport, and alteration phase analysis.

Research sites included Reno, NV at the University of Nevada-Reno (UNR) and Desert Research Institute (DRI); San Diego, CA at University of California, San Diego; as well as Las Vegas, NV at the University of Nevada-Las Vegas (UNLV), DRI, and Community College of Southern Nevada. NSHE QA staff worked with about 135-170 professors, post-docs, graduate and undergraduate students (at any one time), whose backgrounds included a wide variety of disciplines: astronomy, microbiology, chemistry, radiochemistry, seismology, geology, hydrology, geodesy, physics, geophysics, climatology; and several fields of engineers: mechanical and materials, civil, nuclear, and geophysical. More than 75% of these individuals were post-docs and students.

NSHE QA helped scientific and engineering researchers understand the NSHE QA Program and to implement the requirements to each unique study by providing training and assistance throughout the duration of each study. Compliance to the QA Program was assessed through surveillances and audits. NSHE QA also coordinated various intraprogram needs such as processing procurements, coordinating nonconformance reporting, controlling documents, and training. NSHE QA established and maintained a technical data archive and a software configuration management system, two functions not normally associated with QA.

NSHE QA had several opportunities to provide QA support through alternative funding sources. The staff worked with other studies at UNLV, providing educational assistance in the areas of QA and quality control. QA worked with DRI in Reno on an atmospheric mass loading study conducted in the Amargosa Valley, with UNLV engineering on a DOE air distribution performance index study, and with UNLV on a study to determine the redox properties of ground water for Lawrence Berkeley National Lab. Staff provided general QA training to a small group

of graduate-level mechanical engineering students, and presented a detailed scientific notebook-use class to 43 physics and biology research students. The NSHE QA program was also the subject of study by a student work group in a graduate-level public administration class (PUA 791) at UNLV. Results of the study are reported in “Harry Reid Center for Environmental Science: Quality Assurance Program Evaluation December 2006 to May 2007” and were presented to DOE.

Effective October 1, 2007, four project activities were removed from the cooperative agreement into a contract, and DOE recategorized the remaining tasks as non-quality-affecting. Project activity task ORD-FY04-002 was extended through December 28, 2007 to ensure records, reports, and other submittals were completed according to terms of the Cooperative Agreement for the tasks that were removed from the Cooperative Agreement.

NSHE QA’s budget throughout the cooperative agreement totalled \$2.94M equaling 14% of the total quality-affecting work budget of \$20.50M.

**Accomplishments:**

Audits

Audits were conducted to determine the level of compliance to the NSHE QA Program and to determine the effectiveness of the QA Program. The following audits were conducted by DOE, NSHE, and NSHE contractors:

**Table 1, Audits**

<b>Audit Number</b>	<b>Research Studies Audited</b>	<b>Auditing Organization</b>	<b>Deficiencies</b>
AUD-04-01	ORD-FY04-004 ORD-FY04-005 ORD-FY04-006 ORD-FY04-007 ORD-FY04-008	NSHE QA	--
AUD-04-02	ORD-FY04-002	Contractor: Richard Hand	--
OQA-AS-04-12	ORD-FY04-001 ORD-FY04-002 ORD-FY04-004 ORD-FY04-005 ORD-FY04-006 ORD-FY04-007 ORD-FY04-008 ORD-FY04-009 ORD-FY04-010 ORD-FY04-011 ORD-FY04-012 ORD-FY04-013	U.S. Dept. of Energy (DOE)	6 Condition Reports

Audit Number	Research Studies Audited	Auditing Organization	Deficiencies
AUD-04-03	ORD-FY04-010 ORD-FY04-011 ORD-FY04-012 ORD-FY04-013 ORD-FY04-014 ORD-FY04-015 ORD-FY04-016 ORD-FY04-017 ORD-FY04-018 ORD-FY04-019 ORD-FY04-020 ORD-FY04-021	NSHE QA	4 Nonconformance Reports (NCRs) (See Section “Nonconformances and Deficiencies” for an explanation of NCRs; also applicable to “Condition Reports”)
AUD-05-01	Cancelled	NSHE QA	—
AUD-05-02	ORD-FY04-004 ORD-FY04-005 ORD-FY04-006 ORD-FY04-007 ORD-FY04-008 ORD-FY04-018	NSHE QA	2 NCRs
AUD-05-03	ORD-FY04-002	Contractor: Richard Hand	—
AUD-05-04	ORD-RF-01 ORD-RF-02 ORD-RF-03	NSHE QA	—
AUD-05-05	ORD-FY04-014 ORD-FY04-015 ORD-FY04-017 ORD-FY04-018 ORD-FY04-019 ORD-FY04-020 ORD-FY04-021	NSHE QA	4 NCRs
AUD-05-06	DRI-FI-001	NSHE QA	—
AUD-05-07	ORD-FY04-010 ORD-FY04-012 ORD-FY04-013	NSHE QA	1 NCR
OQA-06-03	ORD-FY04-002 ORD-FY04-004 ORD-FY04-006 ORD-FY04-010 ORD-FY04-012 ORD-FY04-013 ORD-FY04-014 ORD-FY04-015 ORD-FY04-017 ORD-FY04-019 ORD-FY04-021 DRI-FI-01 ORD-RF-01 ORD-RF-03	DOE	5 Condition Reports

<b>Audit Number</b>	<b>Research Studies Audited</b>	<b>Auditing Organization</b>	<b>Deficiencies</b>
AUD-06-01	ORD-FY04-004 ORD-FY04-005 ORD-FY04-006 ORD-FY04-007 ORD-FY04-008 ORD-FY04-016 ORD-RF-01 ORD-RF-02 ORD-RF-03	NSHE QA	2 NCRs
AUD-06-02	ORD-FY04-002	Contractor: Richard Hand	—
AUD-06-03	ORD-FY04-014 ORD-FY04-015 ORD-FY04-017 ORD-FY04-018 ORD-FY04-019 ORD-FY04-020 LBL-ST-01	NSHE QA	—
AUD-06-04	ORD-FY04-010 ORD-FY04-012 ORD-FY04-013 ORD-FY06-022	NSHE QA	4 NCRs
AUD-06-05	ORD-RF-01 ORD-RF-02 ORD-RF-03	NSHE QA	2 NCRs
AUD-07-01	ORD-FY04-005 ORD-FY04-006 ORD-FY04-007 ORD-FY04-008 ORD-FY04-016	NSHE QA	3 NCRs
AUD-07-02	ORD-FY04-002	Contractor: Harvey Dove	—
OQA-AS-07-14	ORD-FY04-002 ORD-FY04-005 ORD-FY04-006 ORD-FY04-007 ORD-FY04-010 ORD-FY04-012 ORD-FY04-014 ORD-FY04-015 ORD-FY04-016 ORD-FY04-019 ORD-FY06-022 ORD-RF-01 LBL-ST-01	DOE	1 Condition Report
AUD-07-03	LBL-ST-01	NSHE QA	1 NCR

### Surveillances

Surveillances were conducted to determine compliance to the QA Program, but usually in a more limited scope than audits. Surveillances were often used by NSHE QA to educate research

personnel about QA requirements that apply specifically to their work. The following surveillances were conducted:

**Table 2, Surveillances Conducted by NSHE QA for Individual Project Activities**

Surveillance Number	Project Activity Task Number	Scope
SUR-03-005	ORD-FY04-007	QAP-3.1, -3.2
SUR-03-006	ORD-FY04-005	QAP-3.1, -3.2
SUR-04-001	ORD-FY04-011	QAP-1.0 through QAP-17.0
SUR-04-002	ORD-FY04-010	QAP-1.0 through QAP-17.0
SUR-04-003	ORD-FY04-013	QAP-1.0 through QAP-17.0
SUR-04-004	ORD-FY04-010	QAP-2.0 ¶4.3; followup to SUR-04-002
SUR-04-005	ORD-FY04-016	QAP-1.0 through QAP-17.0
SUR-04-006	ORD-FY04-014	QAP-1.0 through QAP-17.0
SUR-04-007	ORD-FY04-015	QAP-1.0 through QAP-17.0
SUR-04-008	ORD-FY04-017	QAP-1.0 through QAP-17.0
SUR-04-009	ORD-FY04-018	QAP-1.0 through QAP-17.0
SUR-04-010	ORD-FY04-019	QAP-1.0 through QAP-17.0
SUR-04-011	ORD-FY04-020	QAP-1.0 through QAP-17.0
SUR-04-012	ORD-FY04-021	QAP-1.0 through QAP-17.0
SUR-04-013	ORD-FY04-008	SIP-UNR-028; QAP-3.2
SUR-04-014	ORD-FY04-007	SIP-UNLV-030
SUR-04-015	ORD-FY04-005	SIP-UNLV-029
SUR-04-016	ORD-FY04-004	SIP-UNLV-026
SUR-04-017	ORD-FY04-006	SIP-UNR-027
SUR-04-018	ORD-RF-01	QAP-3.2, -7.0
SUR-05-001	ORD-RF-01	QAP-1.0 through QAP-17.0
SUR-05-002	ORD-RF-03	QAP-1.0 through QAP-17.0
SUR-05-003	ORD-RF-02	QAP-1.0 through QAP-17.0
SUR-05-004	ORD-FY04-014	SIP-UNR-036; IPR-018, -025
SUR-05-005	ORD-FY04-019	SIP-UNR-040; IPR-018, -019, -025
SUR-05-006	ORD-FY04-015	SIP-UNR-037
SUR-05-007	ORD-FY04-002	QAP-18.0
SUR-05-008	ORD-FY04-019	QAP-3.0 ¶4.4; QAP-7.0, -12.0
SUR-05-009	ORD-FY04-013	SIP-UNLV-033, compression testing
SUR-06-001	LBL-ST-01	IPLV-039, -081; followup to SUR-06-016
SUR-06-002	ORD-FY04-020	QAP-3.0 ¶4.4; IPR-009
SUR-06-003	ORD-FY04-019	QAP-3.0 ¶4.4; IPR-018, -020, -031; IPLV-003
SUR-06-004	ORD-FY04-014	QAP-3.0 ¶4.4; IPR-018
SUR-06-005	ORD-FY04-015	QAP-3.0 ¶4.4; IPR-033
SUR-06-006	ORD-FY04-017	QAP-3.0 ¶4.4; IPR-029, -030
SUR-06-007	ORD-FY04-018	QAP-3.0 ¶4.4; NCR # 06-002
SUR-06-008	ORD-FY06-022	SIP draft
SUR-06-009	ORD-FY04-010	IPLV-004, -008, -009
SUR-06-010	ORD-FY04-006	QAP-3.1, -17.0
SUR-06-011	ORD-FY04-013	IPLV-034
SUR-06-012	ORD-FY04-013	IPLV-057
SUR-06-013	ORD-FY04-008	IPR-028
SUR-06-014	ORD-FY04-007	IPLV-032
SUR-06-015	ORD-FY04-005	IPLV-037
SUR-06-016	LBL-ST-01	IPLV-039
SUR-06-017	ORD-FY06-022	QAP-2.1, -7.0



Surveillance Number	Project Activity Task Number	Scope
SUR-06-018	ORD-FY04-012	IPR-022, -023, SIP-DRI-031
SUR-06-019	ORD-FY04-002	all applicable QAPs
SUR-06-020	ORD-FY04-016	QAP-3.2, -3.3
SUR-07-001	LBL-ST-01	IPLV-039, -081; followup to SUR-06-016
SUR-07-002	ORD-FY04-014	QAP-12.0
SUR-07-003	ORD-FY04-015	QAP-12.0
SUR-07-004	ORD-FY04-019	QAP-12.0
SUR-07-005	ORD-FY04-016	QAP-3.3; Subtask 4 of SIP-DRI-038
SUR-07-006	ORD-RF-01 ORD-RF-02 ORD-FY04-010 ORD-FY04-011 ORD-FY04-013 ORD-FY04-016 ORD-FY04-020 LBL-ST-01	QAP-3.0 ¶4.4, record completeness
SUR-07-007	ORD-FY04-014 ORD-FY04-019	QAP-8.0, disposition for CR S&T(S)-07-D-036

### Nonconformances and Deficiencies

Nonconformance reports (NCRs) documented deviations from requirements. Nonconformance reporting corrected each deviation and any adverse effect resulting from it, as well as finding the cause to prevent recurrence. The NSHE NCR Coordinator evaluated each nonconformance for significant conditions adverse to quality and for cause that would require a stop work order. No stop work orders were issued. An annual trend report was issued that evaluated patterns in nonconformances that might have revealed the need for increased training or other action to reduce frequency. One of the most common causes of nonconformances was not following the required procedure.

The following nonconformance reports were issued and closed:

**Table 3, Nonconformance Reports**

NCR Number	Task Receiving NCR	Principal Investigator	Date Completed
UNR-04-001	ORD-FY04-006	J. Brune	7/7/2004
UNLV-04-002	ORD-FY04-002	A. Smiecinski	1/11/2005
UNLV-04-003	ORD-FY04-011	K. Stetzenbach	6/16/2004
UNLV-04-004	ORD-FY04-010	J. Daniels	10/25/2005
UNLV-04-005	ORD-FY04-010	K. Stetzenbach	6/16/2004
UNLV-04-006	ORD-FY04-011	J. Daniels	8/23/2005
UNLV-04-007	ORD-FY04-002	A. Smiecinski	7/27/2004
UNR-04-008	ORD-FY04-008	D. Agnew	5/25/2004
UNR-04-009	18(*)	J. Daemen	6/11/2004
UNR-04-010	ORD-FY04-006	J. Brune	4/28/2005
UNR-04-011	ORD-FY04-006	J. Brune	9/16/2004
UNLV-04-012	ORD-FY04-007	K. Stetzenbach	7/29/2004
UNLV-04-013	ORD-FY04-013	M. Karakouzian	10/19/2004

<b>NCR Number</b>	<b>Task Receiving NCR</b>	<b>Principal Investigator</b>	<b>Date Completed</b>
UNR-04-014	ORD-FY04-006	J. Brune	9/14/2004
UNLV-04-015	ORD-FY04-011	J. Daniels	2/11/2005
UNLV-04-016	ORD-FY04-011	J. Daniels	2/11/2005
UNLV-04-018	ORD-FY04-010	K. Stetzenbach	2/25/2005
UNLV-04-019	ORD-FY04-010	K. Stetzenbach	1/5/2005
UNR-04-020	ORD-FY04-014	S. Namjoshi	5/20/2005
UNLV-05-001	ORD-RF-02	A. Hechanova	2/25/2005
UNLV-05-002	ORD-FY04-010	K. Stetzenbach	2/3/2005
UNLV-05-003	ORD-FY04-010	J. Daniels	8/22/2005
UNLV-05-004	ORD-FY04-007	K. Stetzenbach	2/25/2005
UNLV-05-005	ORD-FY04-007	K. Stetzenbach	2/25/2005
UNLV-05-006	ORD-FY04-002	A. Smiecinski	4/14/2005
UNLV-05-007	ORD-FY04-010	J. Daniels	8/22/2005
UNLV-05-008	ORD-FY04-010	K. Stetzenbach	4/4/2005
UNLV-05-009	ORD-FY04-010	J. Daniels	8/22/2005
DRI-05-010	ORD-FY04-016	M. Ye	11/9/2005
UNLV-05-011	ORD-FY04-005	K. Stetzenbach	1/24/2006
UNR-05-012	ORD-FY04-006	J. Brune	4/25/2005
UNR-05-013	ORD-FY04-014	S. Namjoshi	9/26/2005
UNR-05-014	ORD-FY04-014	S. Namjoshi	12/1/2005
UNR-05-015	ORD-FY04-019	D. Chandra	3/28/2006
UNR-05-016	ORD-FY04-019	D. Chandra	2/14/2006
UNR-05-017	ORD-FY04-019	D. Chandra	8/19/2005
UNLV-05-018	ORD-FY04-010	J. Daniels	11/7/2005
UNLV-05-020	ORD-FY04-010	J. Daniels	10/26/2005
UNLV-05-021	ORD-FY04-010	J. Daniels	9/26/2005
UNLV-05-022	ORD-FY04-011	J. Daniels	9/26/2005
UNLV-05-023	ORD-FY04-010	J. Daniels	10/18/2005
UNLV-05-024	ORD-FY04-011	J. Daniels	10/18/2005
UNR-05-025	ORD-FY04-014	S. Namjoshi	9/26/2005
UNR-05-026	ORD-FY04-019	D. Chandra	9/26/2005
UNR-05-027	ORD-FY04-014	S. Namjoshi	9/26/2005
UNR-05-028	ORD-FY04-021	J. Daemen	11/8/2005
UNLV-05-029	ORD-FY04-010	K. Stetzenbach	3/30/2006
UNLV-05-030	ORD-FY04-010	K. Stetzenbach	11/8/2005
UNLV-05-031	ORD-FY04-002	A. Smiecinski	11/7/2005
UNLV-05-032	ORD-FY04-011	J. Daniels	11/7/2005
UNR-05-033	ORD-FY04-014	S. Namjoshi	9/28/2006
UNLV-05-034	ORD-FY04-011	J. Daniels	2/28/2006
UNLV-06-001	ORD-FY04-011	J. Daniels	2/28/2006
DRI-06-002	ORD-FY04-018	P. Oberlander	12/19/2007
UNLV-06-003	LBL-ST-01	J. Cizdziel	2/14/2006
UNR-06-004	ORD-FY04-019	D. Chandra	6/6/2006
DRI-06-005	ORD-FY04-017	J. Thomas	3/28/2006
UNR-06-006	ORD-FY04-014	G. McMillion	5/31/2006
DRI-06-007	ORD-FY04-018	P. Oberlander	12/19/2007
UNLV-06-008	ORD-FY04-004	J. Cizdziel	3/31/2006
UNLV-06-009	ORD-RF-03	J. Cizdziel	4/28/2006
UNR-06-010	ORD-FY06-022	J. Anderson	7/11/2006
UNLV-06-011	ORD-FY04-010	K. Stetzenbach	4/20/2006

<b>NCR Number</b>	<b>Task Receiving NCR</b>	<b>Principal Investigator</b>	<b>Date Completed</b>
UNLV-06-012	ORD-FY04-004	J. Cizdziel	7/31/2006
UNLV-06-013	ORD-FY04-004	J. Cizdziel	6/30/2006
UNLV-06-014	ORD-FY04-010	K. Stetzenbach	10/12/2006
UNLV-06-015	ORD-FY04-004	J. Cizdziel	7/31/2006
UNR-06-016	ORD-FY04-006	J. Anderson	8/25/2006
UNLV-06-017	ORD-FY04-007	K. Stetzenbach	8/18/2006
UNR-06-018	ORD-FY04-020	J. Brune	9/28/2006
UNR-06-019	ORD-FY04-020	J. Brune	9/28/2006
UNR-06-020	ORD-FY04-020	J. Brune	9/29/2006
UNLV-06-021	ORD-RF-03	J. Cizdziel	9/28/2006
UNLV-06-022	ORD-FY04-002	A. Smiecinski	10/31/2006
UNLV-06-023	ORD-RF-01	K. Stetzenbach	10/12/2006
UNLV-06-024	ORD-RF-03	K. Stetzenbach	10/2/2006
UNLV-06-025	ORD-FY04-019	D. Chandra	3/19/2007
UNLV-06-026	ORD-RF-02	K. Stetzenbach/A. Hechanova	1/5/2007
UNR-06-027	ORD-FY04-006	J. Anderson	9/13/2007
UNR-06-028	ORD-FY04-014	M. Misra	10/1/2007
UNLV-06-029	ORD-FY04-010	K. Stetzenbach	3/19/2007
UNLV-06-030	ORD-RF-01	K. Stetzenbach	11/17/2006
UNLV-06-031	ORD-FY04-010	K. Stetzenbach	12/8/2006
UNLV-06-033	ORD-FY04-010	K. Stetzenbach	12/15/2006
UNLV-06-034	ORD-FY04-010	K. Stetzenbach	8/7/2007
UNLV-06-036	ORD-RF-02	K. Stetzenbach/A. Hechanova	4/10/2007
UNLV-06-037	ORD-RF-02	K. Stetzenbach/A. Hechanova	4/2/2007
UNLV-06-038	ORD-RF-01	K. Stetzenbach	12/5/2006
UNLV-06-039	ORD-RF-02	K. Stetzenbach/A. Hechanova	8/15/2007
UNLV-06-040	ORD-RF-03	K. Stetzenbach	8/15/2007
UNR-06-041	ORD-FY04-006	J. Anderson	7/11/2007
UNR-06-042	ORD-FY04-014	M. Misra	10/1/2007
UNR-06-043	ORD-FY04-015	J. LaCombe	3/27/2007
UNLV-07-001	ORD-FY04-013	M. Karakouzian	6/22/2007
UNLV-07-002	ORD-RF-02	K. Stetzenbach/A. Hechanova	6/5/2007
UNLV-07-003	ORD-RF-03	K. Stetzenbach	6/5/2007
UNLV-07-004	ORD-FY04-002	A. Smiecinski	3/20/2007
UNR-07-005	ORD-FY04-014	M. Misra	10/1/2007
UNR-07-006	ORD-FY04-014	M. Misra	10/1/2007
UNLV-07-007	ORD-FY04-013	M. Karakouzian	6/18/2007
UNR-07-008	ORD-FY04-015	J. LaCombe	4/4/2007
UNR-07-009	ORD-FY04-019	D. Chandra	10/1/2007
UNR-07-010	ORD-FY04-006	J. Anderson	5/16/2007
UNLV-07-011	ORD-FY04-007	K. Stetzenbach	4/2/2007
UNLV-07-012	ORD-FY04-007	K. Stetzenbach	4/2/2007
DRI-07-014	ORD-FY04-016	J. Zhu	5/10/2007
DRI-07-015	ORD-FY04-016	J. Zhu	5/10/2007
DRI-07-016	ORD-FY04-016	J. Zhu	5/10/2007
UNLV-07-017	ORD-FY04-007	K. Stetzenbach	7/11/2007
UNLV-07-018	ORD-FY04-002	A. Smiecinski	7/12/2007
UNR-07-019	ORD-FY04-015	J. LaCombe	6/6/2007
UNR-07-020	ORD-FY04-006	J. Anderson	7/2/2007
UNLV-07-021	ORD-FY04-010	K. Stetzenbach	7/20/2007

NCR Number	Task Receiving NCR	Principal Investigator	Date Completed
UNLV-07-022	LBL-ST-01	J. Cizdziel	8/7/2007
UNLV-07-023	ORD-FY04-002	A. Smiecinski	9/4/2007
UNR-07-024	ORD-FY04-006	J. Anderson	8/29/2007
UNLV-07-025	ORD-FY04-001	R. Keeler	12/18/2007

\* Task 18 is from previous Cooperative Agreement DE-FC28-98NV12081.

### Documents Produced

A large part of a QA program is the establishment of plans and procedures to guide and control work. Many procedures that were used were originated during the previous cooperative agreement. The QA staff was responsible for maintaining QA Procedures (QAPs, the basis of the NSHE QA Program), while researchers were responsible for Scientific Investigation Plans (SIPs) and Implementing Procedures (IPs). Each project activity also produced at least one report, normally at the close of the project period. NSHE QA reviewed and approved each document, working closely with researchers and often traveling out of town to help complete documents. The following plans, procedures, and reports were prepared and updated by revision or Document Change Notice (DCN). Only those documents written or changed during Cooperative Agreement DE-FC28-04RW12232 are listed:

**Table 4, Documents**

Document Number	Revision Number	Document Change Notice	Task Number	Title
<b>Scientific Investigation Plans</b>				
SIP-UNR-027	0	—	ORD-FY04-006	Southern Great Basin Seismic Network Operations
SIP-UNR-028	0	—	ORD-FY04-008	A Long Baseline Laser Strainmeter for the Exploratory Studies Facility at Yucca Mountain
SIP-UNLV-029	0	—	ORD-FY04-005	Ground Water Level Measurements in Selected Boreholes Near the Site of the Proposed Repository
SIP-UNLV-030	0	—	ORD-FY04-007	Precipitation Monitoring at Yucca Mountain
SIP-DRI-031	0	1	ORD-FY04-012	Yucca Mountain Climate Technical Support Representative
SIP-UNLV-033	0	1	ORD-FY04-013	Influence of Lithophysae Geometry and Distribution on Mechanical Properties of Topopah Spring Tuff
SIP-UNLV-034	1	1	ORD-FY04-010	Chemical Analyses in Support of Yucca Mountain Studies
SIP-UNR-036	0	1	ORD-FY04-014	Environmental Effects on Corrosion Properties of Alloy 22
SIP-UNR-037	0	1	ORD-FY04-015	Phase Stability and Segregation in Alloy 22 Base Metal and Weldments

Document Number	Revision Number	Document Change Notice	Task Number	Title
SIP-DRI-038	1	—	ORD-FY04-016	Geostatistical and Stochastic Study of Radionuclide Transport in the Unsaturated Zone at Yucca Mountain
SIP-DRI-039	0	1	ORD-FY04-018	Groundwater Flow and Thermal Modeling to Support a Preferred Conceptual Model for the Large Hydraulic Gradient North of Yucca Mountain
SIP-UNR-040	0	2	ORD-FY04-019	Sub-surface Corrosion Research on Rock Bolt System, Perforated SS Sheets and Steel Sets for the Yucca Mountain Repository
SIP-UNLV-044	0	1	ORD-RF-03	Impact of Alteration Phase Formation and Microbial Activity on the Fate and Transport of the Actinides and Fission Products: Alteration Phase Analysis
SIP-UNLV-045	1	2	ORD-RF-02	Surface Complexation and Solid Phase Dissolution
SIP-DRI-047	0	1	DRI-FI-001	Mass Loading Measurements in Amargosa Valley
SIP-UNLV-048	1	—	LBL-ST-01	Determining the Redox Properties of Yucca Mountain-Related Groundwater Using Trace Element Speciation for Predicting the Mobility of Nuclear Waste
<b>Quality Assurance Procedures</b>				
QAP-B	1	1	N/A	Quality Assurance Policy Statement
QAP-1.0	6	1	N/A	Organization
QAP-2.0	10	—	N/A	Quality Assurance Program- Preparation, Approval, and Revision of Procedures
QAP-2.1	4	3	N/A	Qualification, Indoctrination and Training of Personnel
QAP-3.0	10	5	N/A	Scientific Investigation Control
QAP-3.1	4	1	N/A	Control of Electronic Data
QAP-3.2	8	2	N/A	Software Management
QAP-3.3	4	2	N/A	Models
QAP-3.4	5	5	N/A	Technical Reports
QAP-3.6	5	—	N/A	Submittal of Data
QAP-3.7	3	—	N/A	Qualification of Unqualified Data
QAP-3.9	0	—	N/A	Scientific Notebook Use
QAP-3.10	0	1	N/A	Data Collection When Use of a Scientific Notebook is Waived
QAP-6.0	4	2	N/A	Document Control
QAP-7.0	8	1	N/A	Control of Quality-Affecting Procurement and Receipt
QAP-8.0	6	—	N/A	Identification and Control of Items and Samples
QAP-8.1	4	—	N/A	Sample Collection includes PA-PRO-0804
QAP-8.2	6	—	N/A	Sample Transfer includes PA-PRO-0803
QAP-8.3	3	—	N/A	Borehole Security and Access includes PA-PRO-0204
QAP-9.0	0	—	N/A	Control of Special Processes
QAP-12.0	10	2	N/A	Control of Measuring and Test Equipment

Document Number	Revision Number	Document Change Notice	Task Number	Title
QAP-16.0	7	1	N/A	Nonconformance Reports and Trending
QAP-17.0	6	3	N/A	Quality Assurance Records
QAP-18.0	5	4	N/A	Quality Assurance Auditor Qualification and Conduct of Audits
QAP-18.1	5	4	N/A	Surveillance
<b>Implementing Procedures – Originated at Las Vegas campuses</b>				
IPLV-003	3	1	N/A	Analytical Top-Loading Balance Use
IPLV-004	2	3	N/A	High Performance Liquid Chromatograph Operation
IPLV-005	1	4	N/A	Batch Testing
IPLV-008	5	1	N/A	Measurement of Inorganic Anions in Water Samples by the Ion Chromatography System
IPLV-8.3	5	4	N/A	Groundwater Sample Collection and Control
IPLV-009	5	—	N/A	Measurement of Elements in Water Samples by Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)
IPLV-012	3	1	N/A	Measurement of Conductivity, Alkalinity, and pH in Water Samples
IPLV-015	2	—	N/A	Electron Microprobe Analysis on the JEOL-8900R
IPLV-017	3	—	N/A	Pipettor Use and Calibration
IPLV-019	1	—	N/A	Carbon Coating Thin Sections and Samples with Rough Surfaces for Electron Microprobe and Scanning Electron Microscope Analysis
IPLV-027	1	—	N/A	Receipt Verification of Standards for the Electron Microprobe
IPLV-032	4	1	N/A	Precipitation Monitoring Using Tipping Bucket Rain Gauges
IPLV-034	2	—	N/A	Making And Preparing Analog Rock Test Specimens
IPLV-035	2	—	N/A	Calibrating the Powered Electric Tape Using the Reference Steel Tape
IPLV-036	1	—	N/A	Ground Water Level Monitoring Using a Hand-Held Steel Tape
IPLV-037	4	—	N/A	Ground Water Level Monitoring Using a Powered Electric Tape
IPLV-038	3	—	N/A	Ground Water Level Monitoring Using a Digital Pressure Transducer
IPLV-039	3	—	N/A	IC-ICPMS Determination of Inorganic Oxidation State Species in Water
IPLV-060	2	—	N/A	Processing Data Submittals
IPLV-062	0	1	N/A	Scanning Electron Microscope Analysis on the JSM 5600
IPLV-063	0	—	N/A	Preparation of Samples for Chlorine-36 Analyses
IPLV-064	0	—	N/A	Sample Leaching to Extract Soluble Chloride and Bromide
IPLV-065	0	—	N/A	Preparation of Carrier Solution for Chlorine-36 Samples

Document Number	Revision Number	Document Change Notice	Task Number	Title
IPLV-066	0	1	N/A	Analysis of Cations in Water Samples by the Ion Chromatography System
IPLV-067	1	—	N/A	Cleaning Procedures for Laboratory Equipment
IPLV-068	0	—	N/A	Bacterial DNA Extraction and Purification
IPLV-069	0	—	N/A	Electronic Cell Enumeration
IPLV-070	1	2	N/A	DNA Amplification
IPLV-071	0	—	N/A	Measurement of Aqueous Constituent Concentrations by Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) or Inductively Coupled Plasma Mass Spectroscopy (ICP-MS)
IPLV-072	0	1	N/A	Measurement of Radionuclide Activity by Liquid Scintillation counting (LSC)
IPLV-076	0	—	N/A	Polished Thick Section Preparation for Use in the Electro Probe Microanalyzer
IPLV-077	0	—	N/A	Measurement of Tracer Samples by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)
IPLV-078	0	—	N/A	Use of Ultraviolet Visible Spectrometer
IPLV-079	0	—	N/A	Determination of Surface Area of Solid Samples
IPLV-080	0	—	N/A	Qualitative and Semi-Quantitative Elemental Determinations of Solids using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS)
IPLV-081	0	—	N/A	Acceptance of Unqualified Inorganic Oxidation State Calibration Standards for Redox Measurements
<b>Implementing Procedures-Originated at Reno Campuses</b>				
IPR-001	5	1	N/A	Operation of the Yucca Mountain Digital Seismic Network
IPR-002	4	1	N/A	Determining the Location of Earthquakes Recorded by the Yucca Mountain Seismic Network
IPR-003	4	1	N/A	Determining the Magnitude of Earthquakes Recorded by the Yucca Mountain Seismic Network
IPR-004	1	—	N/A	Operation of the Yucca Mountain Strong Motion Network
IPR-010	1	—	N/A	Splitting (Brazilian) Tensile Strength Test of Rock
IPR-011	1	—	N/A	Determining Uniaxial Compressive Strength of Rock
IPR-012	2	—	N/A	Preparation of Rock Core Specimens for the Determination of Mechanical Properties of Rock
IPR-013	0	—	N/A	Determining Triaxial Compressive Strength of Rock

Document Number	Revision Number	Document Change Notice	Task Number	Title
IPR-014	4	—	N/A	User Calibration Of Gamry Potentiostat PC3/CMS100
IPR-015	2	—	N/A	User Calibration of Gamry Potentiostat PC4/30mA/DC105 (Femtostat)
IPR-018	4	—	N/A	Electrochemical Corrosion Testing
IPR-020	2	—	N/A	User Calibration Of Gamry Potentiostats PC4/300mA/DC105 and PC4/750mA/DC105
IPR-021	4	—	N/A	Installation, Operation, and Maintenance of the Yucca Mountain Borehole Strong Motion Network
IPR-022	1	—	N/A	Creation of Data Files for Modern Climate Histories
IPR-023	0	—	N/A	Creation of GIS Data Sets for Climate Parameters and Report Graphics
IPR-024	1	—	N/A	Procedure for the Deployment of ‘Texan’ Seismic Microtremor Arrays
IPR-025	1	—	N/A	User Calibration and Use of the Cole-Parmer/Oakton pH/mV/oC Meter
IPR-026	0	—	N/A	Constant Load Creep/Environmentally Assisted Cracking Testing
IPR-027	0	—	N/A	Stress Corrosion Cracking Testing Using United Calibrations Testing Machine
IPR-028	0	—	N/A	Laser Strainmeter System Checks
IPR-029	0	3	N/A	Evaporating Dissolved Organic Carbon Samples
IPR-030	0	2	N/A	Combusting Dissolved Organic Carbon Samples
IPR-031	0	—	N/A	Immersion Corrosion Testing of Metals
IPR-032	0	—	N/A	Particulate Matter Measurements Using The Rupprecht & Patashnick Company, Inc. Dustscan Scout
IPR-033	0	—	N/A	Operation of Metallurgical Microscope PMG3 with DP70 Controller
IPR-034	0	—	N/A	Corrosion Cracking Test using Slow Strain Rate Testing Machine
IPR-035	0	—	N/A	User Calibration TA Instruments Q-500 Thermogravimetric Analyzer
IPR-036	0	—	N/A	Thermogravimetric Analyses Using TA Instruments Q-500
IPR-037	0	—	N/A	User Magnification Calibration of Optical Microscope Using Olympus DPController Software
IPR-038	0	—	N/A	User Calibration Check of Potentiostat/Galvanostat/Zero Resistance Ammeter (ZRA) Instruments
IPR-039	0	—	N/A	Operation of Metallurgical Microscope BX60 With DP 70 Controller
IPR-040	0	—	N/A	Heat Treatment of Metallurgical Samples



Document Number	Revision Number	Document Change Notice	Task Number	Title
IPR-041	0	1	N/A	Standard Test Procedure for Testing of Susceptibility Towards Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys
IPR-043	0	—	N/A	Seismic Network Operations
<b>Technical and Model Reports</b>				
TR-04-001	0	N/A	ORD-FY04-006	Initial Borehole Accelerometer Array Observations Near the North Portal of the ESF
TR-04-002	0	N/A	ORD-FY04-006	Seismicity in the Vicinity of Yucca mountain, Nevada, for the Period October 1, 2002 to September 30- 2003
TR-05-01	0	N/A	ORD-FY04-006	Seismicity in the Vicinity of Yucca mountain, Nevada, for the Period October 1, 2003 to September 30- 2004
TR-05-002	0	N/A	ORD-FY04-011	Results of Chemical Analyses for Alcove 8/Niche 3 Tracer Studies
MOD-06-001	0	N/A	ORD-RF-02	Geochemical Modeling of Solubility and Speciation of Uranium, Neptunium, and Plutonium
TR-06-002	0	N/A	ORD-FY04-004	Bomb-Pulse Chlorine-36 at the Proposed Yucca Mountain Repository Horizon: An Investigation of Previous Conflicting Results and Collection of New Data
TR-06-003	0	N/A	ORD-FY04-020	Precarious Rock Methodology for Seismic Hazard: Physical Testing, Numerical Modeling and Coherence Studies
TR-06-005	0	N/A	ORD-RF-03	Direct Analysis of Solid Corrosion Products by Laser Ablation ICP-MS: Method Development and the Interaction of Aqueous Uranium, Gadolinium and Neodymium with Iron Shot and Iron (III) Oxide
TR-06-006	0	N/A	ORD-RF-02	Groundwater Characterization at Yucca Mountain Task 2: Surface Complexation and Solid Phase Sorption
TR-06-007	0	N/A	ORD-RF-01	Characterization of Microbial Populations in the Subsurface
TR-07-001	0	N/A	ORD-FY04-013	Influence of Lithophysal Geometry on the Uniaxial Compression of Tuff-Like Rock
TR-07-002	0	N/A	ORD-FY04-006	Seismicity in the Vicinity of Yucca mountain, Nevada, for the Period October 1, 2004 to September 30- 2006
TR-07-003	0	N/A	ORD-FY04-016	Geostatistical and Stochastic Study of Flow and Tracer Transport in the Unsaturated Zone at Yucca Mountain
TR-07-005	0	N/A	ORD-FY04-005	Ground Water Level Measurements in Selected Boreholes Near the Site of the Proposed Repository

Document Number	Revision Number	Document Change Notice	Task Number	Title
TR-07-007	0	N/A	ORD-FY04-006	Measurement of the Parameter Kappa, and Reevaluation of Kappa for Small to Moderate Earthquakes at Seismic Stations in the Vicinity of Yucca Mountain, Nevada

### Scientific Notebooks Reviewed

Most project activities have a number of scientific notebooks that the researchers use with or without implementing procedures to document their work. The notebooks undergo technical and QA reviews when the notebooks are complete, when the research principal investigator desires, or when the study prepares to submit data to DOE. Because of this, many of the notebooks were reviewed more than once. In addition to the notebook volume, the raw and reduced data generated using the notebook and any other attachments are reviewed. The technical review is conducted by a technically qualified individual, other than the notebook user. The QA review is conducted by two or more NSHE QA staff members. The following scientific notebooks including data and attachments completed reviews.

**Table 5, Scientific Notebook QA Reviews Completed**

Scientific Notebook No.	Volume	Task Number	Reviews Completed
UCCSN-UNLV-003	2	ORD-FY04-010	1
UCCSN-UNR-049	1	ORD-FY04-006	1
UCCSN-UNLV-050	1	ORD-FY04-010	2
UCCSN-UNLV-050	2	ORD-FY04-010	4
UCCSN-UNR-053	1	ORD-FY04-006	5
UCCSN-UNR-053	2	ORD-FY04-006	3
UCCSN-UNR-056	1	ORD-FY04-006	3
UCCSN-UNR-057	1	ORD-FY04-006	1
UCCSN-UNLV-059	1	ORD-FY04-004	1
UCCSN-UNLV-060	1	ORD-FY04-010	1
UCCSN-UNR-061	1	ORD-FY04-008	4
UCCSN-UNR-061	2	ORD-FY04-008	2
UCCSN-UNR-061	3	ORD-FY04-008	1
UCCSN-UNLV-062	1	ORD-FY04-011	1
UCCSN-UNLV-062	2	ORD-FY04-011	1
UCCSN-UNLV-062	3	ORD-FY04-011	1
UCCSN-UNLV-062	4	ORD-FY04-011	1
UCCSN-UNR-064	1	ORD-FY04-006	1
UCCSN-UNR-064	2	ORD-FY04-006	1
UCCSN-UNLV-065	1	ORD-FY04-004	1
UCCSN-UNLV-065	2	ORD-FY04-004	3
UCCSN-UNLV-065	3	ORD-FY04-004	4
UCCSN-UNLV-065	4	ORD-FY04-004	1
UCCSN-UNLV-066	1	ORD-FY04-011	1

<b>Scientific Notebook No.</b>	<b>Volume</b>	<b>Task Number</b>	<b>Reviews Completed</b>
UCCSN-UNLV-066	2	ORD-FY04-011	2
UCCSN-UNLV-067	1	ORD-FY04-010	1
UCCSN-UNLV-067	2	ORD-FY04-010	1
UCCSN-UNLV-067	3	ORD-FY04-010	1
UCCSN-UNLV-067	4	ORD-FY04-010	2
UCCSN-UNLV-067	5	ORD-FY04-010	2
UCCSN-UNLV-067	6	ORD-FY04-010	2
UCCSN-UNLV-067	7	ORD-FY04-010	2
UCCSN-UNLV-068	1	ORD-FY04-004	1
UCCSN-DRI-070	1	ORD-FY04-012	1
UCCSN-DRI-070	2	ORD-FY04-012	1
UCCSN-DRI-071	1	ORD-FY04-016	1
UCCSN-DRI-071	2	ORD-FY04-016	1
UCCSN-UNR-072	3	ORD-FY04-019	1
UCCSN-UNLV-073	1	ORD-FY04-013	1
UCCSN-UNLV-073	2	ORD-FY04-013	3
UCCSN-UNR-074	1	ORD-FY04-014	1
UCCSN-UNR-074	2	ORD-FY04-014	1
UCCSN-UNLV-078	3	ORD-FY04-015	1
UCCSN-UNR-078	4	ORD-FY04-015	2
UCCSN-UNLV-079	1	ORD-FY04-010	1
UCCSN-UNLV-079	2	ORD-FY04-010	1
UCCSN-UNLV-079	3	ORD-FY04-010	1
UCCSN-UNLV-079	4	ORD-FY04-010	1
UCCSN-UNLV-082	1	ORD-FY04-010	1
UCCSN-UNLV-086	1	ORD-RF-03	4
UCCSN-UNLV-087	1	ORD-RF-02	1
UCCSN-UNLV-087	2	ORD-RF-02	1
UCCSN-UNLV-087	3	ORD-RF-02	1
UCCSN-UNLV-088	1	ORD-FY04-010	1
UCCSN-UNLV-089	1	ORD-RF-01	1
UCCSN-UNLV-089	2	ORD-RF-01	1
UCCSN-UNLV-089	3	ORD-RF-01	1
UCCSN-UNLV-091	1	ORD-FY04-010	1
UCCSN-UNLV-093	1	ORD-FY04-010	1
UCCSN-UNLV-094	1	ORD-FY04-010	1
UCCSN-UNLV-094	2	ORD-FY04-010	2
UCCSN-UNR-095	1	ORD-FY04-019	1
UCCSN-UNR-095	2	ORD-FY04-019	1
UCCSN-UNR-095	3	ORD-FY04-019	1
UCCSN-UNR-095	4	ORD-FY04-019	1
UCCSN-UNR-095	5	ORD-FY04-019	1
UCCSN-UNR-095	6	ORD-FY04-019	1
UCCSN-UNR-095	7	ORD-FY04-019	1
UCCSN-UNLV-096	1	ORD-RF-02	2
UCCSN-UNR-097	1	ORD-FY04-006	1
UCCSN-UNR-099	1	ORD-FY04-015	1
UCCSN-UNR-099	2	ORD-FY04-015	1
NSHE-UNLV-102	1	ORD-FY04-010	1
NSHE-UNLV-103	1	ORD-FY04-010	2
NSHE-UNLV-104	1	LBL-ST-01	1

Scientific Notebook No.	Volume	Task Number	Reviews Completed
NSHE-UNLV-104	2	LBL-ST-01	1
NSHE-UNLV-104	3	LBL-ST-01	3
NSHE-UNLV-105	1	ORD-FY04-010	1
NSHE-UNLV-106	1	ORD-FY04-010	1
NSHE-UNLV-107	1	ORD-FY04-010	1
NSHE-UNR-109	1	ORD-FY04-006	1
NSHE-UNLV-111	1	ORD-FY04-010	1
NSHE-UNLV-112	1	ORD-FY04-016	1

### Data Sets Generated without Use of a Scientific Notebook - Reviewed

For studies in which the work was conducted without the use of trial-and-error methods, a waiver from the requirement to use scientific notebooks was requested and approved by the QA Manager. Work instruction was therefore documented according to implementing procedures used by the study. As described previously for scientific notebook reviews, data generated without the use of scientific notebooks were reviewed according to technical and QA requirements. The following data sets completed reviews:

**Table 6, Data Produced Using Procedures and not Scientific Notebooks**

Title	Data Sets	Task Number
4 <sup>th</sup> Qtr 2003 Depth to Water Measurements	Electronic data and field forms for Boreholes:c2x3,WT16x2, H6Lowerx3,WT16, H6Upper, WT7, WT10, H3Lowerx3, H3Upper, H5Upperx3, SD6ST1, WT1, WT17, WT3, UE29UZN91, UE291, UE29a2, UEWT15; Sept-G2tube2, WT4 , H1tube4, H1tube2, WT6, WT14, J13, J12, WT12, J11, WT2, VH1x3; Oct-WT13, P1, Nov-UE29a1, UE29a2, UE29UZN91, WT15, WT12, J11, J12, J13, WT17, WT1, WT3, c2, WT2, H4lower, G2tube2, WT4, H1tube 2, H1tube4, Dec-H3lower, H3upper, SD6ST1, H5upper, H5lower, WT2, P1, H4lower, WT14, WT6, WT16, H6upper, H6lower, WT10, WT7, VH1	ORD-FY04-005
1 <sup>st</sup> Qtr 2004 Depth to Water Measurements	Electronic data and field forms for Boreholes: WT16, p1, WT13, H6 Upper, WT10, H6 Lower, WT7, VH-1, WT6, c2, WT14, UE29 a1, UE29 a2, UE29 UZN91, WT15, WT2, H-4 Lower, J12, WT12, J13, WT3, G2 Tube 2, WT4, H1 Tube 2, H1 Tube 4, H5 Upper, H5 Lower, WT1, WT17, J11, H3 Upper, SD6 ST1	ORD-FY04-005
2 <sup>nd</sup> Qtr 2004 Depth to Water Measurements	Electronic data and field forms for Boreholes: WT16, p1, WT13, H6 Upper, WT10, H6 Lower, WT7, VH-1, WT6, c2, WT14, UE29 a1, UE29 a2, UE29 UZN91, WT15, WT2, H-4 Lower, J12, WT12, J13, WT3, G2 Tube 2, WT4, H1 Tube 2, H1 Tube 4, H5 Upper, H5 Lower, WT1, WT17, J11, H3 Upper, SD6 ST1	ORD-FY04-005

Title	Data Sets	Task Number
3 <sup>rd</sup> Qtr 2004 Depth to Water Measurements	Electronic data and field forms for Boreholes: UE29 a1, a2, UZN91; c2, G2, H1 Tube 2,4; H3, H4, H5, H6; J11, J12, J13; p1, SD6 ST1, VH1, WT1, WT2; WT3, WT4, WT6; WT7, WT10; WT12, WT13, WT14, WT15, WT16, & WT17	ORD-FY04-005
4 <sup>th</sup> Qtr 2004 Depth to Water Measurements	Electronic data and field forms for Boreholes: WT16, p1, WT13, H6 Upper, WT10, H6 Lower, WT7, VH-1, WT6, c2, WT14, UE29 a1, UE29 a2, UE29 UZN91, WT15, WT2, H-4 Lower, J12, WT12, J13, WT3, G2 Tube 2, WT4, H1 Tube 2, H1 Tube 4, H5 Upper, H5 Lower, WT1, WT17, J11, H3 Upper, SD6 ST1	ORD-FY04-005
1 <sup>st</sup> Qtr 2005 Depth to Water Measurements	Electronic data and field forms for Boreholes: WT16, p1, WT13, H6 Upper, WT10, H6 Lower, WT7, VH-1, WT6, c2, WT14, UE29 a1, UE29 a2, UE29 UZN91, WT15, WT2, H-4 Lower, J12, WT12, J13, WT3, G2 Tube 2, WT4, H1 Tube 2, H1 Tube 4, H5 Upper, H5 Lower, WT1, WT17, J11, H3 Upper, SD6 ST1	ORD-FY04-005
2 <sup>nd</sup> Qtr 2005 Depth to Water Measurements	Electronic data and field forms for Boreholes: H4 Lower, WT13, UE29 a1, UE29 a2, UE29 UZN91, G2 Tube 2, WT4, H1 Tube 2, H1 Tube 4, WT12, J12, J13, J11, H6 Upper, WT10, SD6 ST1, H5 Upper, H5 Lower, WT1, WT14, WT6, c2, WT17, WT3, WT2, WT15, WT16, p1, WT7	ORD-FY04-005
3 <sup>rd</sup> Qtr 2005 Depth to Water Measurements	Electronic data and field forms for Boreholes: UE29 a1, UE29 a2, UE29 UZN91, H6 Upper, WT7, WT10, WT4, H1 Tube 4, H1 Tube 2, c2, p1, WT14, WT6, WT16, WT15, WT2, H4 Lower, WT13, J12, WT12, J13, WT3, G2 Tube 2, , J11, SD6 ST1, H5 Upper, WT1, WT17, & H-5 Lower	ORD-FY04-005
4 <sup>th</sup> Qtr 2005 Depth to Water Measurements	Electronic data and field forms for Boreholes: J11, J12, J13, WT12, UE29 a1, UE29 a2, UE 29 UZN 91, WT15, H1 Tube 2, H1 Tube 4, WT4, G2 Tube 2, WT1, WT17, WT3, WT13, H3 Upper, SD6 ST1, H5 Lower, H5 Upper, c2, p1, WT14, WT6, WT16, WT2, H4 Lower, VH1, H6 Lower, H6 Upper, WT7, WT10, H6 Upper	ORD-FY04-005
1 <sup>st</sup> Qtr 2006 Depth to Water Measurements	Electronic data and field forms for Boreholes: H6 Lower, H6 Upper, WT10, H1 Tube 2, H1 Tube 4, WT2, H4 Lower Interval, UE29 a1, UE29 a2, UE29 UZN 91, WT16, WT6, WT14, WT13, c2, p1, H5 Lower Interval, H5 Upper Interval, SD6 ST1, H3 Upper Interval, WT1, WT17, G2 Tube 2, , WT4, WT15, WT3, J13, J12, WT12, J11, VH1, WT7	ORD-FY04-005
2 <sup>nd</sup> Qtr 2006 Depth to Water Measurements	Electronic data and field forms for Boreholes: H 05 Lower-, H 05 Upper, H 06 Lower, H 06 Upper-, J 11, J 12, J 13, P 01, SD6 ST1-, VH 01, WT 01, WT 02, WT 03, WT 04, WT 06, WT 07, WT 10, WT 12, WT 13, WT 14, WT 16, WT 17, 29 a 01, 29 a 02, 29 UZN 91, C 02, G 02 Tube 2, H 01 Tube 2, H 01 Tube 4, H 03 Upper, H 04 Lower	ORD-FY04-005

Title	Data Sets	Task Number
3 <sup>rd</sup> Qtr 2006 Depth to Water Measurements	Electronic data and field forms for Boreholes:WT 17, 29 a 01,29 a 02,29 UZN 91,C 02,G 02 , H 01 Tube 2, H 01 Tube 4,H 03 Uppe, H 04 Lower, H 05 Lower, H 05 Upper, H 06 Lower, H 06 Upper, J 11, J 12, J 13, P 01, SD6 ST1, VH 01, WT 01, WT 02, WT 03, WT 04, WT 06, WT 07, WT 10, WT 12, WT 13, WT 14, WT 15, WT 16	ORD-FY04-005
4 <sup>th</sup> Qtr 2006 Depth to Water Measurements	Electronic data and field forms for Boreholes:H 03 Upper, H 04 Lower, H 05 Lower, H 05 Upper, H 06 Lower, H 06 Upper, J 11, J 12, J 13, P 01, SD6 ST1, VH 01, WT 01, WT 02, WT 03, WT 04, WT 06, WT 07, WT 10, WT 12, WT 13, WT 14, 29 a 01, WT 15, WT 16, WT 17, 29 a 02, 29 UZN 91, C 02, G 02 Tube 2, H 01 Tube 2, H 01 Tube 4	ORD-FY04-005
1 <sup>st</sup> Qtr 2007 Depth to Water Measurements	Electronic data and field forms for Boreholes:USW H6 Lower, USW H6 Upper, USW WT10, USW H1 Tube 2, USW H1 Tube 4, USW WT2, USW H4 Lower Interval, UE29 a1, UE29 a2, UE29 UZN 91, UE25 WT16, UE25 WT6, UE25 WT14, UE25 WT13, UE25 c2, UE25 p1, USW H5 Lower Interval, USW H5 Upper Interval, USW SD6 ST1, USW H3 Upper Interval, USW WT1, UE25 WT17, USW G2 Tube 2, UE25, WT4, UE25 WT15, UE25 WT3, UE25 J13, UE25 J12, UE25 WT12, UE25 J11, USW VH1, USW WT7	ORD-FY04-005
2 <sup>nd</sup> Qtr 2007 Depth to Water Measurements	Electronic data and field forms for Boreholes: H 04 Lower, H 05 Lower, H 05 Upper, J 11, J 12, J 13, P 01, SD6 ST1, WT 06, WT 07, WT 12, WT 13, WT 14, 29 a 01, WT 15, WT 16, WT 17, 29 a 02, WT 10, 29 UZN 91, C 02, H 01 Tube 4, H 01 Tube 2	ORD-FY04-005
3 <sup>rd</sup> Qtr 2007 Depth to Water Measurements	Electronic data and field forms for Boreholes: H 04 Lower, H 06 Lower, H 06 Upper, H 05 Lower, H 05 Upper, J 11, J 12, J 13, P 01, SD6 ST1, WT 06, WT 07, WT 01, WT 02, WT 12, WT 13, WT 14, 29 a 01, WT 03, WT 04, WT 15, WT 16, WT 17, 29 a 02, WT 10, VH 01, 29 UZN 91, C 02, H 03 Upper, H 01 Tube 2, H 01 Tube 4, G 02 Tube 2	ORD-FY04-005
4 <sup>th</sup> Qtr 2003 Precipitation Gauge Data	Table of Contents, Data Summary, Equipment Location; Rain Gauge Operational Checks; Maintenance Records; Data logger Programs; Rain Gauge Worksheets (Operational Checks)	ORD-FY04-007
2004 Precipitation Gauge Data	Electronic Data and Worksheets for Rain Gauge Stations 401-407, 409-415, and 417-419	ORD-FY04-007
2005 Precipitation Gauge Data	Supporting Information for Data Submittal for dataset and Tipping Bucket Rain Gauge Worksheets Stations: 401-407, 409-415, 417-419, & 421	ORD-FY04-007
2006 Precipitation Gauge Data	Supporting information including data summary, equipment history, maintenance records and program history	ORD-FY04-007
2007 Precipitation Gauge Data	Supporting Information for Data Submittal for dataset and Tipping Bucket Rain Gauge Worksheets Stations: 401-407, 409-415, 417-419, & 421	ORD-FY04-007

Title	Data Sets	Task Number
2004 Conductivity, Alkalinity, and pH Data	Nye County Borehole water samples 19PB Deep, 19PB Shallow, Washburn 1X, and 4PA	ORD-FY04-010
2005 Conductivity, Alkalinity, and pH Data	Field Data NCEWDP September 2005 Samples.xls and data form sets - 9/19, 21-23, 27 & 28	ORD-FY04-010
2006 Conductivity, Alkalinity, and pH Data	Field Data NCEWDP September 2006 Samples.xls and data form sets - 9/18, 19,20,21,22, 25,26 & 27/2006	ORD-FY04-010
Amargosa Valley Mass Loading Data	(ACTIV01 thru ACTIV09) and e- Particulate Matter Measurements file: DRI-FI-001-Data-Dec05.xls	DRI-FI-001

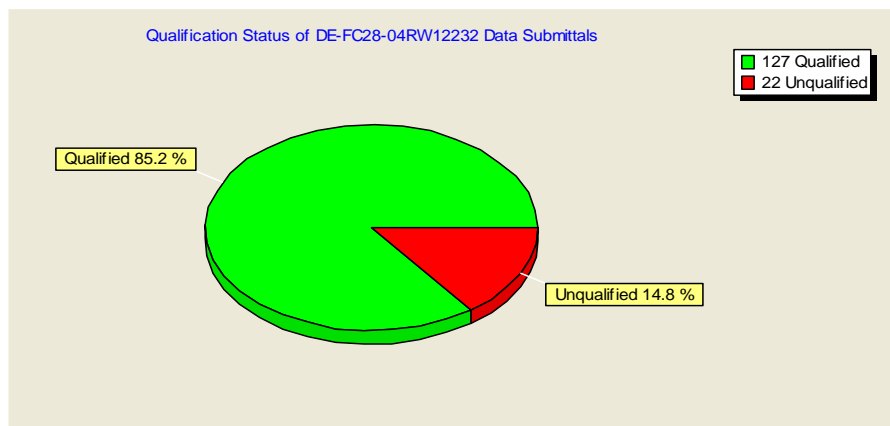
## Technical Data Submittals

The Harry Reid Center (HRC) maintained the Nevada System of Higher Education’s Technical Data Archive (TDA). This archive constituted an external component of the Yucca Mountain Technical Data Management System (TDMS). Although maintained by NSHE personnel, the TDA was linked to, and fully indexed in, the YMP Automated Technical Data Tracking (ATDT) database. The TDA housed all scientific and engineering data acquired or developed in accordance with the Nevada System of Higher Education’s Quality Assurance Program. All technical data in the archive were stored in their native format and were publicly available via the HRC web-site’s Quality Assurance pages. This archive was the Project’s sole controlled source for Co-op data submitted since March 28, 2002.

On December 06 and 12, 2007, electronic copies of all data submittals incorporated into the TDA since March 28, 2002, were transmitted to Bechtel SAIC Corporation and to Lead Laboratory personnel for transferal to Project-maintained servers. Extensive verification and documentation of the transfer process was performed in order to ensure that the integrity of the transferred data was maintained. Since this transfer, the TDA has continued to operate in accordance with strict NSHE QA controls. However, the TDA no longer constitutes an external component of the YMP TDMS.

In addition, in preparation for the close of the quality assurance task, new data management software was engineered and deployed. This software was engineered to ensure the continued integrity of the TDA after the termination of quality affecting activities. The software performs multiple redundant verifications, on a nightly basis, of all data housed in the TDA. It automatically produces a detailed audit trail and will restrict access to data and metadata if any irregularities are detected.

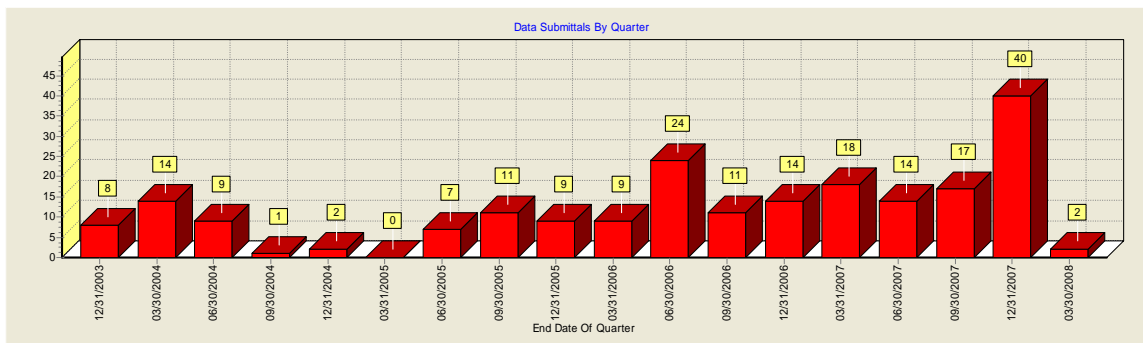
Because YMP and NSHE scientists may not rely on unqualified data to make conclusions, one of the NSHE QA Program goals was to assure that university researchers generated as much qualified data as possible. In accordance with the requirements of the NSHE QA Program, data were categorized as either qualified or unqualified. Data were not assigned to intermediate or “follow-up action” categories. Over 85% of the data submittals generated under Cooperative Agreement DE-FC28-04RW12232 were qualified (Figure 1). In terms of volume, the qualified data amounted to 88.3 gigabytes (98%) of the total data volume in the NSHE Technical Data Archive.



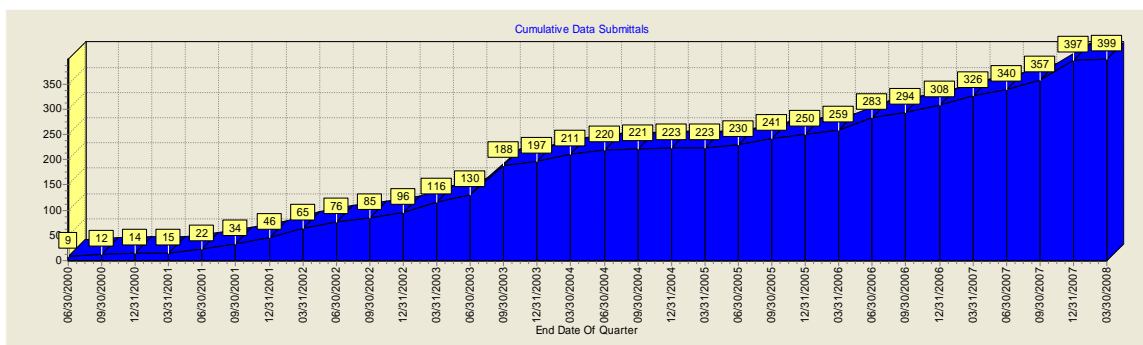
**Figure 1 - Qualification status of technical data submittals through November 30, 2007.**



Nearly 200 datasets with over one-half million files and directories were added to the TDA during the Cooperative Agreement (Figures 2a and 2b). This includes data from non-Cooperative Agreement, DOE funded awards working to the NSHE Quality Assurance Program. The total volume of data in the archive is currently over 88.3 gigabytes, compressed—eight times the amount of data at the close of the previous cooperative agreement. The total number of data files in the TDA is now approaching one million.



**Figure 2a- Quarterly Technical Data Archive submittals for quality affecting awards DE-FC28-04RW12232, DE-AC52-00NV13609, DE-FC28-04RW12237, and LBL # 6720500**



**Figure 2b - Cumulative Technical Data Archive submittals (all awards)**

**Table 7, Technical data submittals through 11/30/2007**

DID	DTN	Title	Qualification Status
F01JS.001 Rev. 1	MO0603UCCF01JS.001	Total Suspended Particulate Matter (TSP) concentrations in milligrams per cubic meter (mg/m3) measured during soil disturbing activities from 12/15/06 to 12/16/06 in Amargosa Valley.	Q
004JB.001 Rev. 1	MO0603UCC004JB.001	Concentrations of Chloride, Sulfate and Bromide in Leachate Samples Collected for CI-36 Studies from April 2005 through February 2006.	Q
004JB.002 Rev. 0	MO0607UCC004JB.002	Concentrations of Chloride, Bromide and Sulfate in Leachate Samples Collected for CI-36 Studies from April 2005 through February 2006.	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
004JC.002 Rev. 0	MO0605UCC004JC.002	Chlorine-36 Bomb-Pulse Study of Chlorine-36/Chlorine and Chlorine-35/Chlorine-37 Isotope Ratios Measured in Leachates from Rock Collected From the Yucca Mountain Exploratory Studies Facility.	UQ
004JC.003 Rev. 2	MO0605UCC004JC.003	Chlorine-36 Bomb-Pulse Study of Chlorine-36/Chlorine and Chlorine-35/Chlorine-37 Isotope Ratios Measured in Leachates from Rock Collected From the Yucca Mountain Exploratory Studies Facility.	Q
004JC.004 Rev. 1	MO0605UCC004JC.004	Chlorine-36 Bomb Pulse Study of Chlorine-36/Chlorine and Chlorine-35/Chlorine-37 Isotope Ratios Measured in Leachates from Rock Collected from the Yucca Mountain Exploratory Studies Facility.	UQ
004JC.005 Rev. 2	MO0606UCC004JC.005	Concentrations of Chloride, Sulfate and Bromide in Leachate Samples Collected for Cl-36 Studies from April 2005 through February 2006.	Q
004JC.006 Rev. 0	MO0606UCC004JC.006	Chlorine-36 Bomb-Pulse Study of Chlorine-36/Chlorine and Chlorine-35/Chlorine-37 Isotope Ratios Measured in Leachates of Rock Collected From the Yucca Mountain Exploratory Studies Facility.	Q
004JC.007 Rev. 1	MO0607UCC004JC.007	Chlorine-36, Bomb Pulse-Study of Chlorine-36/Chlorine and Chlorine-35/Chlorine-37 Isotope Ratios Measured in Leachates of Rock Collected from the Yucca Mountain Exploratory Studies Facility.	Q
004JC.008 Rev. 1	MO0607UCC004JC.008	Concentrations of Chloride, Sulfate and Bromide in Leachate Samples Collected for Cl-36 Studies from April 2005 - February 2006.	Q
004JC.009 Rev. 0	MO0608UCC004JC.009	Sample Information for Soil Profiles Collected From the Surface Above the North and South Ramps of the Yucca Mountain Exploratory Studies Facility.	Q
004JC.010 Rev. 0	MO0608UCC004JC.010	Chlorine-36 Bomb-Pulse Study of Chlorine-36/Chlorine and Chlorine-35/Chlorine-37 Isotope Ratios Measured in Leachates of Rock Collected From the Yucca Mountain Exploratory Studies Facility.	Q
004KL.001 Rev. 0	MO0506UCC004KL.001	Concentration Of Trace Elements In Passive Leachates By Time For Select Yucca Mountain Exploratory Studies Facility samples.	UQ
004XG.001 Rev. 0	MO0602UCC004XG.001	Rare Earth Elements (REEs) concentrations in Passive Leachates of Fractured Rock and Fault Gauge analyzed by a Time-Series Experiment.	Q
004XG.002 Rev. 0	MO0602UCC004XG.002	Method Detection Limit (MDL) and Concentrations of Technetium (Tc-99) in buckets using Inductively Coupled Plasma Mass Spectroscopy (ICP-MS).	UQ
004XG.003 Rev. 0	MO0604UCC004XG.003	Rare Earth Element concentrations in rainwater collected in Las Vegas during precipitation events on October 17th and 18th, 2005.	Q
004XG.004 Rev. 0	MO0605UCC004XG.004	Technetium-99 (Tc-99) Concentrations From Leachates Of Rock Collected From The Exploratory Studies Facility (ESF) at Yucca Mountain and Soil From The Las Vegas Valley.	Q
004XG.005	MO0604UCC004XG.005	Rare Earth Element concentrations for seep collected in	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 2			
005SP.001 Rev. 0	MO0405UCC005SP.001	Ground Water Level Measurements from Selected Boreholes Near the Site of the Proposed Repository: 3rd and 4th Quarters 2003	Q
005SP.002 Rev. 0	MO0506UCC005SP.002	Ground Water Level Measurements from Boreholes Near the Site of the Proposed Repository: 1st, 2nd, 3rd, and 4th Quarters 2004	Q
005SP.003 Rev. 0	MO0605UCC005SP.003	Ground Water Level Measurements from Boreholes Near the Site of the Proposed Repository: 1st, 2nd, 3rd, 4th Quarters 2005.	Q
005SP.004 Rev. 0	MO0705UCC005SP.004	Ground Water Level Measurements from Boreholes Near the Site of the Proposed Repository: 1st, 2nd, 3rd, and 4th Quarters 2006.	Q
005SP.005 Rev. 0	MO0711UCC005SP.005	Ground Water Level Measurements from Boreholes Near the Site of the Proposed Repository: 1st, 2nd, and 3rd Quarters CY 2007.	Q
006DV.001 Rev. 2	MO0402UCC006DV.001	Earthquake catalog for the vicinity of Yucca Mountain, Nevada, for the period 10/01/2002 through 09/30/2003	Q
006DV.002 Rev. 2	MO0404UCC006DV.002	Focal mechanisms for earthquakes in the vicinity of Yucca Mountain, 10/01/2002 - 09/30/2003	Q
006DV.003 Rev. 3	MO0404UCC006DV.003	Accelerogram recordings in 2003 at three boreholes of the pad of the north portal of the ESF.	Q
006DV.004 Rev. 1	MO0404UCC006DV.004	Combined seismicity catalog for FY1996-2002 in the vicinity of Yucca Mountain.	Q
006DV.005 Rev. 1	MO0410UCC006DV.005	Independent Strong-Motion Site Locations	Q
006DV.007 Rev. 1	MO0505UCC006DV.007	Peak Ground Acceleration and Velocity for Selected 2003 Earthquakes at the ESF Pad Boreholes	Q
006DV.008 Rev. 0	MO0507UCC006DV.008	Hypocentral parameters for eight earthquakes used in the analysis of borehole accelerometer recordings on the pad of the north portal of the ESF.	UQ
006DV.009 Rev. 0	MO0507UCC006DV.009	Presumed blasts located within and near the Southern Great Basin Digital Seismic Network in the period 10/1/2003 to 9/30/2004.	UQ
006DV.010 Rev. 1	MO0508UCC006DV.010	Southern Great Basin Seismicity FY2004.	UQ
006DV.011 Rev. 2	MO0508UCC006DV.011	Hypocenters and magnitudes for earthquakes in the vicinity of Yucca Mountain, 10/1/2003 - 09/30/2004.	Q
006DV.012 Rev. 2	MO0508UCC006DV.012	Focal Mechanisms for Earthquakes in the vicinity of Yucca Mountain, 10/1/2003 - 9/30/2004.	Q
006DV.013 Rev. 2	MO0510UCC006DV.013	Southern Great Basin Digital Seismic Network (SGBDSN) waveform data for local earthquakes, 2000-2003.	Q
006GB.001 Rev. 0	MO0511UCC006GB.001	Yucca Mountain Free-Field Strong Motion Earthquake Recordings.	Q
006GB.002	MO0601UCC006GB.002	AL5 Ratio Data: Seismic recordings of 13 magnitude 2	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
006GB.003 Rev. 0	Pending	Seismic Attenuation Parameter Kappa and Seismic Spectral Fitting Results for Seismic Stations in the Vicinity of Yucca Mountain	Q
006JL.001 Rev. 1	MO0506UCC006JL.001	Preliminary Results for Refraction Microtremor Site Characterizations collected by UNR at Yucca Mountain Seismic Stations.	UQ
006KS.001 Rev. 0	MO0509UCC006KS.001	Vibrator Data Collected on the Pad at the Borehole UE-25 UZ #16.	UQ
006KS.002 Rev. 0	MO0711UCC006KS.002	Earthquake locations and magnitudes in the vicinity of Yucca Mountain, 10/1/2004 - 09/30/2006	Q
006KS.003 Rev. 0	MO0711UCC006KS.003	Presumed blasts located within 65 km of Yucca Mountain recorded on the Southern Great Basin Seismic Network, 10/1/2004 - 09/30/2006	UQ
006KS.004 Rev. 0	MO0711UCC006KS.004	Presumed blasts recorded on the Southern Great Basin Seismic Network, 10/1/2002 - 09/30/2003	UQ
007AB.001 Rev. 0	MO0408UCC007AB.001	Precipitation Data for Yucca Mountain, 07/01/03-12/31/03	Q
007AB.002 Rev. 1	MO0504UCC007AB.002	Precipitation Monitoring for Yucca Mountain, 01/01/04 - 12/31/04	Q
007AB.003 Rev. 0	MO0604UCC007AB.003	Yucca Mountain Precipitation Data collected from 01/01/2005 through 12/31/2005.	Q
007AB.004 Rev. 0	MO0708UCC007AB.004	Yucca Mountain Precipitation Data, 01/01/2006 - 12/31/2006	Q
007AB.005 Rev. 0	MO0711UCC007AB.005	Yucca Mountain Precipitation Data, 01/01/2007 - 08/31/2007	Q
008DA.001 Rev. 0	MO0504UCC008DA.001	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility: Metadata to Accompany Raw Data Collected Between 2004:001 and 2004:199.	Q
008DA.002 Rev. 0	MO0508UCC008DA.002	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility: Metadata to Accompany Raw Data Collected Between 2004:200 and 2005:099.	Q
008DA.003 Rev. 0	MO0604UCC008DA.003	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility: Metadata to Accompany Raw Data Collected Between 2005:100 and 2005:299.	Q
008FW.001 Rev. 0	MO0404UCC008FW.001	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility collected between 2003:100 and 2003:365	Q
008FW.002 Rev. 0	MO0606UCC008FW.002	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility Collected between 2005:300 and 2006:099.	Q
008FW.003 Rev. 0	MO0610UCC008FW.003	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility Collected Between 2006:100 and 2006:199.	Q
008FW.004	MO0610UCC008FW.004	LSM.04_05.Edited.Data:Longbase Laser Strainmeter	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
008FW.005 Rev. 0	MO0610UCC008FW.005	LSM.03_04.Edited.Data:Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility Collected Between 2003:234 and 2004:237.	Q
008FW.006 Rev. 0	MO0701UCC008FW.006	LSM.05_06.Edited.Data: Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility Collected Between 2005:242 and 2006:199.	Q
008FW.007 Rev. 0	MO0703UCC008FW.007	UCSD.LSM.2006.2.Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility Collected Between 2006:200 and 2006:299.	Q
008FW.008 Rev. 0	MO0707UCC008FW.008	LSM.06A.Edited.Data: Longbase Laser Strainmeter Data Collected Between 2006:200 and 2006:299 from the South Ramp of the Yucca Mountain Exploratory Studies Facility (ESF).	Q
008FW.009 Rev. 0	MO0707UCC008FW.009	UCSD.LSM.2006.3: Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility. Data Collected Between 2006:300 and 2006:365.	Q
008FW.010 Rev. 0	MO0707UCC008FW.010	UCSD.LSM.2007.0: Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Facility: Unprocessed Data Collected Between 2007:001 and 2007:057.	Q
008FW.011 Rev. 0	MO0709UCC008FW.011	LSM.06B.Edited.Data: Longbase Laser Strainmeter Data Collected Between 2006:300 and 2006:365 from the South Ramp of the Yucca Mountain Exploratory Studies Facility (ESF).	Q
008FW.012 Rev. 0	MO0709UCC008FW.012	LSM.07A.Edited.Data: Longbase Laser Strainmeter Data Collected Between 2007:001 and 2007:057 from the South Ramp of the Yucca Mountain Exploratory Studies Facility (ESF).	Q
008FW.013 Rev. 0	MO0710UCC008FW.013	LSM.02_03.Edited.Data: Longbase Laser Strainmeter Data Collected Between 2002:233 and 2003:233 from the South Ramp of the Yucca Mountain Exploratory Studies Facility (ESF).	Q
010CG.001 Rev. 0	MO0708UCC010CG.001	Chemical Analyses of Rare Earth Elements in Ground Water in Support of Yucca Mountain Studies	Q
010CG.002 Rev. 0	MO0708UCC010CG.002	Chemical Analyses of Cations in Ground Water in Support of Yucca Mountain Studies	Q
010CG.003 Rev. 0	MO0708UCC010CG.003	Chemical Analyses of Anions in Ground Water in Support of Yucca Mountain Studies	Q
010JB.001 Rev. 0	MO0501UCC010JB.001	Fall 2003 pH, Conductivity, and Alkalinity Measurements from Groundwater Samples Collected from the wells in the Nye County Early Warning Drilling Program.	Q
010JB.002 Rev. 0	MO0508UCC010JB.002	Alkalinity, pH, and Conductivity Measurements for Nye County Early Warning Drilling Program Wells Sampled in 2004.	Q
010JB.003 Rev. 0	MO0510UCC010JB.003	Anion Concentrations in Nye County Groundwater Wells Part of the Nye County Early Warning Drilling Program (NCEWDP) Sampled in 2004.	Q
010JB.004	MO0510UCC010JB.004	Anion Concentration for Samples Collected from the	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
010JB.005 Rev. 0	MO0510UCC010JB.005	Cation Concentrations in Samples Collected at the Exploratory Studies Facility (ESF) in 2005.	Q
010JB.006 Rev. 0	MO0603UCC010JB.006	Concentrations of Fluoride, Chloride, Nitrite, Sulfate, Bromide, Nitrate, Phosphate. Sodium, Potassium, Magnesium and Calcium in Travertine #1 Well, Sampled in May 2005.	Q
010JB.007 Rev. 0	MO0604UCC010JB.007	Concentrations of Sodium, Potassium, Magnesium and Calcium in Nye County Early Warning Drilling Program (NCEWDP) Wells Collected in 2005.	Q
010JB.008 Rev. 0	MO0604UCC010JB.008	Concentrations of Fluoride, Chloride, Nitrite, Sulfate, Bromide, Nitrate and Phosphate in Nye County Wells, Part of the Nye County Early Warning Drilling Program (NCEWDP) Sampled in 2005.	Q
010JB.009 Rev. 0	MO0604UCC010JB.009	Concentrations of Rhenium and Iodide in the Nye County Crosshole #2 Tracer Test Samples Collected in August-October 2005.	Q
010JB.010 Rev. 0	MO0608UCC010JB.010	Concentrations of Pentafluorobenzoic Acid (PFBA) and Iodide in the Nye County Single Well #1 Tracer Test Samples Collected in December 2004.	Q
010JB.011 Rev. 0	MO0608UCC010JB.011	Concentrations of 2,3,4,5 Tetrafluorobenzoic Acid (2,3,4,5 TFBA) and Iodide in the Nye County Single Well #2 Tracer Test Samples Collected in January 2005.	Q
010JB.012 Rev. 0	MO0608UCC010JB.012	Concentrations of Lithium, Bromide, 2,6 Difluorobenzoic Acid (DFBA), 2,5 Difluorobenzoic Acid (DFBA) and 2,4,5 Trifluorobenzoic Acid (TFBA) Collected from January 2005 - October 2005.	Q
010KL.001 Rev. 0	MO0608UCC010KL.001	Chemical Analyses of Trace Metal Element Concentrations in Groundwater in Support of Yucca Mountain Studies.	Q
010KL.002 Rev. 2	MO0608UCC010KL.002	Chemical Analyses of Trace Metal Element Concentrations in Groundwater samples in Support of Yucca Mountain Studies.	Q
010KL.003 Rev. 1	MO0608UCC010KL.003	Chemical Analyses of Trace Metal Element Concentrations in Groundwater in Support of Yucca Mountain Studies.	Q
010KL.004 Rev. 0	Pending	Chemical Analyses of Trace Metal Element Concentrations in Groundwater in Support of Yucca Mountain Studies: Travertine, 2005.	Q
010KL.005 Rev. 0	Pending	Chemical Analyses of Trace Metal Element Concentrations in Groundwater in Support of Yucca Mountain Studies: Nye County, 2005.	Q
010KL.006 Rev. 0	Pending	Chemical Analyses of Trace Metal Element Concentrations in Groundwater in Support of Yucca Mountain Studies: Nye County, 2006	Q
010NM.001 Rev. 0	MO0711UCC010NM.001	Concentrations of Pentafluorobenzoic Acid and Bromide in the Natural Gradient Tracer Test.	Q
010NM.002 Rev. 0	MO0711UCC010NM.002	Concentrations of Bromide and Pentafluorobenzoic Acid in the Natural Gradient Batch Test Study.	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
010NM.003 Rev. 0	MO0711UCC010NM.003	Concentrations of 2,6 Difluorobenzoic Acid, 2,5 Difluorobenzoic Acid, 2,4,5 Trifluorobenzoic Acid, and 2,3,4,5 Tetrafluorobenzoic Acid in the Natural Gradient Batch Test 2 Study.	Q
010TJ.001 Rev. 2	MO0506UCC010TJ.001	Major Cation and Major Anion Concentrations in Groundwater.	UQ
010TJ.002 Rev. 0	MO0511UCC010TJ.002	Major Cation and Anion Concentrations in Groundwater collected from the August 2003 through December 2004 wells of Nye County Early Warning Drilling Program (NC-EWPD).	Q
010TJ.003 Rev. 1	MO0603UCC010TJ.003	Alkalinity, pH, and Conductivity Measurements for Nye County Early Warning Drilling Program wells sampled in 2005.	Q
010TJ.004 Rev. 0	MO0612UCC010TJ.004	Alkalinity, pH and Conductivity Measurements for Nye County Early Warning Drilling Program Wells Sampled in September 2006.	Q
010XG.001 Rev. 2	MO0602UCC010XG.001	Chemical Analyses of Rare Earth Elements (REEs) Concentrations in Groundwater collected from Aug. - Nov., 2003 and May and Nov., 2004 in support of Yucca Mountain Studies.	Q
010XG.002 Rev. 0	MO0604UCC010XG.002	Chemical Analyses in Support of Yucca Mountain Studies.	Q
010XG.003 Rev. 1	MO0605UCC010XG.003	Chemical Analyses in Support of Yucca Mountain Studies.	Q
010XG.004 Rev. 0	MO0605UCC010XG.004	Chemical Analyses in Support of Yucca Mountain Studies.	Q
011JB.001 Rev. 0	MO0511UCC011JB.001	Fluoride, Chloride, Sulfate, Bromide, Nitrate, Potassium, Magnesium and Calcium Concentration Data for Samples Collected from Alcove 8/Niche 3 from 5/2004 through 10/2004.	Q
011JB.002 Rev. 0	MO0511UCC011JB.002	Fluoride, Bromide, Iodide, 2,6, Difluorobenzoic Acid (2,6 DFBA), 2,5, Difluorobenzoic Acid (2,5 DFBA), and 2,4,5 Trifluorobenzoic Acid (2,4,5 TFBA) Concentration Data for the Alcove 8/Niche 3 Tracer Test for Samples Collected 10/2003 through 12/2004.	Q
011TJ.001 Rev. 2	MO0506UCC011TJ.001	Concentration data set for Calcium, Magnesium, Sodium and Potassium in samples collected at Alcove 8 / Niche 3 in the ESF.	UQ
011TJ.002 Rev. 0	MO0511UCC011TJ.002	Alcove8 Niche3, Tracer Studies.	Q
013DR.001 Rev. 1	MO0703UCC013DR.001	Uniaxial Compression Properties of Analog Lithophysal Rock.	Q
013DR.002 Rev. 0	MO0705UCC013DR.002	Uniaxial Compression Properties of Analog Lithophysal Rock and Plots	Q
015GL.001 Rev. 0	MO0705UCC015GL.001	Microstructural Characterization of Alloy 22 in the Mill-Annealed, Sensitized and Solutionized State.	Q
015GL.002 Rev. 0	MO0705UCC015GL.002	Microstructural Characterization of Alloy 22 in the Mill-Annealed, Sensitized and Solutionized State.	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
015GL.003 Rev.0	MO0705UCC015GL.003	Microstructural Characterization of Alloy 22 in the Mill-Annealed, Sensitized and Solutionized State.	Q
015GL.004 Rev.0	MO0711UCC015GL.004	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 9	Q
015GL.005 Rev.0	MO0707UCC015GL.005	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 6	UQ
015GL.006 Rev.0	MO0707UCC015GL.006	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 7	UQ
015GL.007 Rev.0	MO0707UCC015GL.007	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 8	UQ
015GL.008 Rev.0	MO0707UCC015GL.008	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 4	Q
015GL.009 Rev.0	MO0707UCC015GL.009	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 5	Q
015GL.010 Rev.0	MO0711UCC015GL.010	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 10	Q
015GL.011 Rev.0	MO0711UCC015GL.011	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 11	Q
015GL.012 Rev.0	MO0711UCC015GL.012	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 12	Q
015GL.013 Rev.0	MO0711UCC015GL.013	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 13	Q
015GL.014 Rev.0	MO0711UCC015GL.014	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 14	Q
015GL.015 Rev.0	MO0711UCC015GL.015	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 15	Q
015GL.016 Rev.0	MO0711UCC015GL.016	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 16	Q
015GL.017 Rev.0	MO0711UCC015GL.017	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 17	Q
015GL.018 Rev.0	MO0711UCC015GL.018	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 18	Q
015GL.019 Rev.0	MO0711UCC015GL.019	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 19	Q
015GL.020	MO0711UCC015GL.020	Microstructural Characterization of Alloy 22 in the	Q



<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
015GL.021 Rev. 0	MO0711UCC015GL.021	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 21	Q
015GL.022 Rev. 0	MO0711UCC015GL.022	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 22	Q
015GL.023 Rev. 0	MO0711UCC015GL.023	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 23	Q
015GL.024 Rev. 0	MO0711UCC015GL.024	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 24	Q
015GL.025 Rev. 0	MO0711UCC015GL.025	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 25	Q
015GL.026 Rev. 0	MO0711UCC015GL.026	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 26	Q
015GL.027 Rev. 0	MO0711UCC015GL.027	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 27	Q
015GL.028 Rev. 0	MO0711UCC015GL.028	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 28	Q
015GL.029 Rev. 0	MO0711UCC015GL.029	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 29	Q
015GL.030 Rev. 0	MO0711UCC015GL.030	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 30	Q
015GL.031 Rev. 0	MO0711UCC015GL.031	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 31	Q
015GL.032 Rev. 0	MO0711UCC015GL.032	Microstructural Characterization of Alloy 22 in the mill-annealed, sensitized, and solutionized state, Volume 32	Q
016FP.001 Rev. 0	MO0707UCC016FP.001	Statistics of measurements for hydraulic conductivity, porosity, & sorption coefficient of neptunium; Rank correlation between hydraulic conductivity & porosity; Distribution determination for hydraulic conductivity, porosity, & sorption coefficient.	Q
016FP.002 Rev. 0	MO0707UCC016FP.002	Flow simulation results. Comparison of measured and simulated water saturation in borehole USW SD-12, USW UZ-14, and USW SD-7 and water potential in borehole USW SD-12 for homogeneous and heterogeneous cases.	Q
016FP.003	MO0707UCC016FP.003	Homogeneous random field generation of permeability,	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
016FP.004	MO0707UCC016FP.004	Radionuclide transport simulation results; The simulated breakthrough curves of cumulative mass of conservative (technetium) and reactive tracer (Neptunium) for homogeneous and heterogeneous cases.	Q
Rev. 0			
016JZ.001	MO0707UCC016JZ.001	Results of unsaturated flow moment equations based on Karhunen-Loeve decomposition.	UQ
Rev. 0			
017JT.001	MO0705UCC017JT.001	Dissolved organic carbon (DOC) carbon isotope data for groundwater samples in the Yucca Mountain area. Sampled 2004-2005.	UQ
Rev. 1			
019MM.001	MO0606UCC019MM.001	Potentiodynamic and Impedance Spectroscopy scans for 4340 Steel in simulated Yucca Mountain groundwaters.	Q
Rev. 1			
019MM.002	MO0606UCC019MM.002	Potentiodynamic and Impedance Spectroscopy Scans of 4340 Steel in Simulated Yucca Mountain Groundwaters.	Q
Rev. 1			
019MM.003	MO0607UCC019MM.003	Potentiodynamic and Impedance Spectroscopy Scans of 4340 Steel in Simulated Yucca Mountain Groundwaters.	Q
Rev. 1			
019MM.004	MO0609UCC019MM.004	Potentiodynamic and Impedance Spectroscopy Scans of 4340 Steel in Simulated Yucca Mountain Groundwaters.	Q
Rev. 0			
019MM.005	MO0702UCC019MM.005	Potentiodynamic and Impedance Spectroscopy Graphs of 4340 Steel and other Corrosion Rate Calculations in Simulated Yucca Mountain Groundwaters.	Q
Rev. 0			
020RA.001	MO0609UCC020RA.001	Field-Test and Shake-Table Experiment Data of Toppling Rigid Objects including quasi-static toppling accelerations and rocking-motion responses.	Q
Rev. 0			
020RA.002	MO0609UCC020RA.002	Graphical results for seismic events including cross correlation and coherence recorded in the seismic coherence study	UQ
Rev. 0			
020RA.003	MO0609UCC020RA.003	Numerical data of rocking responses of rigid blocks, I-beams and granite boulders.	Q
Rev. 0			
020RA.004	MO0609UCC020RA.004	Probabilistic seismic hazard analyses at precarious rock locations in the vicinity of Yucca Mountain	UQ
Rev. 1			
023JA.001	MO0708UCC023JA.001	Air oxidation data of A588 steel.	UQ
Rev. 1			
R01PC.001	MO0612UCCR01PC.001	Polymerase Chain Reaction (PCR) results for certified microorganisms amplified with universal bacterial primers and probe.	Q
Rev. 1			
R01PC.002	MO0612UCCR01PC.002	Polymerase Chain Reaction (PCR) results for certified microorganisms amplified with group-specific bacterial primers and probe.	Q
Rev. 1			
R01PC.003	MO0612UCCR01PC.003	Polymerase Chain Reaction (PCR) results for certified microorganisms amplified with Phylum-specific bacterial primers and probe.	Q
Rev. 1			
R01PC.004	MO0612UCCR01PC.004	Polymerase Chain Reaction (PCR) results for Yucca Mountain core samples amplified with universal bacterial primers and probe.	Q
Rev. 1			

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
R01PC.005 Rev. 1	MO0612UCCR01PC.005	Polymerase Chain Reaction (PCR) results for Yucca Mountain Core Samples Amplified with Gram positive bacterial primers and probe.	Q
R01PC.006 Rev. 1	MO0612UCCR01PC.006	Polymerase Chain Reaction (PCR) results for Yucca Mountain core samples amplified with Actinobacteria primers and probe.	Q
R02JD.001 Rev. 0	MO0701UCCR02JD.001	Iron, Silica and Uranium Concentration Data from Aqueous Samples made in pH 6.0 Deionized Water Analyzed by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES).	Q
R02JD.002 Rev. 1	MO0701UCCR02JD.002	Iron, Silica and Uranium Concentration Data from Aqueous Samples Made in pH 7.5 Deionized Water Analyzed by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES).	Q
R02JD.003 Rev. 0	MO0701UCCR02JD.003	Iron, Uranium and Silica Concentration Data from Aqueous Samples Made in pH 9.0 Deionized Water Analyzed By Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES).	Q
R02JD.004 Rev. 0	MO0701UCCR02JD.004	Method Detection Limits (MDLs) for Iron, Silica and Uranium in Aqueous Samples using Inductively Coupled Plasma Atomic Emissions Spectrometry (ICP-AES).	Q
R02JD.005 Rev. 0	MO0701UCCR02JD.005	pH Measurements from Aqueous Samples Containing Iron, Silica and Uranium in pH 6.0 Deionized Water for Precipitation Experiments.	Q
R02JD.006 Rev. 0	MO0701UCCR02JD.006	pH Measurements from Aqueous Samples Containing Iron, Silica and Uranium in pH 7.5 Deionized Water for Precipitation Experiments.	Q
R02JD.007 Rev. 0	MO0701UCCR02JD.007	pH Measurements from Aqueous Samples Containing Iron, Silica and Uranium in pH 9.0 Deionized Water for Precipitation Experiments.	Q
R02JD.008 Rev. 0	MO0702UCCR02JD.008	Results from Fe(II) Samples Made in pH 6 Deionized Water Analyzed by Ultra Violet-Visible Spectrometry.	Q
R02JD.009 Rev. 0	MO0702UCCR02JD.009	Results from Fe(II) Samples Made in pH 7.5 Deionized Water Analyzed by Ultra Violet-Visible Spectrometry.	Q
R02JD.010 Rev. 0	MO0702UCCR02JD.010	Results from Fe (II) Samples Made in pH 9 Deionized Water Analyzed by Ultra Violet-Visible Spectrometry.	Q
R02JD.011 Rev. 0	MO0702UCCR02JD.011	Dissolution Sampling Times for Liquid Scintillation Counting from Dissolution Studies Experiments Conducted from June through September 2006.	Q
R02JD.012 Rev. 0	MO0702UCCR02JD.012	Dissolution pH Measurements from Dissolution Studies Experiments Conducted from June through September 2006.	Q
R02JD.013 Rev. 0	MO0702UCCR02JD.013	Measurements of Activity Results from Liquid Scintillation Counting from Dissolution Studies Experiments conducted from June through September 2006.	Q
R02TS.001 Rev. 0	MO0707UCCR02TS.001	Equilibrium (K) Evaluation of Analyte Solid/Analyte Solution for Iron, Silicon, and Uranium in Aqueous Samples	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
R02TS.002 Rev.0	MO0707UCCR02TS.002	Analyte Concentration of Np-237 and Pu-239 from Dissolution Studies Conducted from June to September 2006.	Q
R02YL.001 Rev.1	MO0611UCCR02YL.001	Geochemical Modeling of Solubility and Speciation of Uranium, Neptunium and Plutonium Collected From May 2005 through September 2006.	Q
R02YL.002 Rev.0	MO0703UCCR02YL.002	Geochemical Modeling of Solubility and Speciation of Uranium, Neptunium and Plutonium Collected From May 2005 through September 2006.	Q
R03JC.001 Rev.0	MO0707UCCR03JC.001	pH Evolution of Solutions Containing Uranium, Gadolinium and Neodymium after Interaction with Fe-Shot and Fe(III) Oxide.	Q
R03JC.002 Rev.0	MO0707UCCR03JC.002	Concentrations of Neodymium, Gadolinium and Uranium (ppb) in Solution After Interaction with Fe-Shot and Fe (III) Oxide.	Q
R03JC.003 Rev.0	MO0707UCCR03JC.003	Concentrations of Uranium on the Surface of Fe-Shot and Fe (III) Oxide after Interaction with a Solution containing Uranium.	Q
001GB.001 Rev.0	MO0310UCC001GB.001	Daily geodetic solutions for X,Y,Z coordinates for 28 GPS stations in Yucca Mountain region (05/01/1999 - 04/30/2003).	UQ
004JC.001 Rev.0	UN0203SPA004JC.001	THERMOCHRONOLOGICAL EVOLUTION OF CALCITE FORMATION AT YUCCA MOUNTAIN	Q
006RA.001 Rev.0	UN0202MWD006RA.001	PRECARIOUS ROCK, SEISMIC HAZARD MODELING DATA.	Q
007DA.001 Rev.0	MO0310UCC007DA.001	Longbase Laser Strainmeter Data from the South Ramp of the Yucca Mountain Exploratory Studies Facility collected from day 233 of calendar year 2002 through day 99 of calendar year 2003	Q
008IF.001 Rev.0	MO0205UCC008IF.001	CONCENTRATION DATA SET FOR 2,4-DIFLUOROBENZOIC ACID (2,4-DFBA) TRACER USED FOR THE FEB / MAR 2002 SINGLE WELL TRACER TEST AT THE ALLUVIAL TRACER COMPLEX	Q
008IF.002 Rev.0	MO0310UCC008IF.002	Major ion concentrations, pH, alkalinity, and conductivity for samples collected from Death Valley Springs (Warm Spring, Last Chance Spring, Monarch Spring), SF-1, SF-2, and Travertine #2 during the period 02/6/03 - 05/23/03.	Q
008IF.003 Rev.0	MO0310UCC008IF.003	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATER COLLECTED FROM THE OCTOBER 2000 SAMPLING OF PHASE II AND III WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (NC-EWDP).	Q
008IF.004 Rev.0	MO0310UCC008IF.004	pH, conductivity, and alkalinity field data for CY-2002 samples of the Nye County Early Warning Drilling Program.	Q
008IF.006	UN0109SPA008IF.006	CONCENTRATION DATASET FOR TRACERS	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
008IF.007 Rev. 0	MO0311UCC008IF.007	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATERS COLLECTED DURING THE MAY 2000 SAMPLING OF THE PHASE I AND II WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (NC-EWDP)	Q
008IW.001 Rev. 0	MO0210UCC008IW.001	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATERS COLLECTED DURING THE NOVEMBER 1999 SAMPLING OF THE PHASE I WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (NC-EWDP)	Q
008IW.002 Rev. 0	MO0210UCC008IW.002	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATERS COLLECTED DURING THE MAY 2000 SAMPLING OF THE PHASE I AND II WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (NC-EWDP)	Q
008IW.003 Rev. 1	MO0301UCC008IW.003	Major cation, major anion, and trace element concentrations in groundwater samples collected in November 2001 of well 19 IM 1 ( Zones 1-4) and January 2002 of well 19 D (Zone 4) of the Nye County Early Warning Drilling Program (NCEWDP).	Q
008IW.004 Rev. 0	MO0306UCC008IW.004	Major cation, major anion, and trace element concentrations in groundwater samples collected in November 2001 of well 19 IM 1 ( Zones 1-4) and January 2002 of well 19 D (Zone 4) of the Nye County Early Warning Drilling Program (NCEWDP).	Q
008IW.005 Rev. 1	MO0310UCC008IW.005	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATER COLLECTED FROM THE AUGUST-OCTOBER 2002 SAMPLING OF PHASE II AND III WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (NC-EWDP).	Q
008JB.001 Rev. 0	MO0205UCC008JB.001	Arsenic (III), Arsenic (V), Antimony (III), and Antimony (V) Concentrations in Groundwaters Collected During the May 2000 and October 2000 Sampling of the Nye County Early Warning Drilling Program (EWDP).	Q
008KS.001 Rev. 0	UN0010SPA008KS.001	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATERS COLLECTED FROM BOND GOLD WELL, SD-6ST1, AND THE MAY 99 SAMPLING OF THE PHASE I WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (EWDP)	Q
008KS.002	UN0010SPA008KS.002	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
008KS.003	UN0102SPA008KS.003	CONCENTRATION DATASET FOR TRACERS (2,6-DIFLUOROBENZOIC ACID AND IODIDE) USED FOR 48 HOUR SHUT IN TRACER TEST AT THE ALLUVIAL TRACER COMPLEX IN NYE COUNTY	Q
Rev. 0			
008KS.004	UN0106SPA008KS.004	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATERS COLLECTED FROM THE MAY 2000 SAMPLING OF PHASE I WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM	UQ
Rev. 0			
008KS.005	UN0109SPA008KS.005	CONCENTRATION DATA SET FOR TRACERS (2,6-DIFLUOROBENZOIC ACID AND IODIDE) USED FOR THE 48 HOUR SHUT IN TEST AT THE ALLUVIAL TRACER COMPLEX IN NYE COUNTY, NEVADA IN SAMPLES COLLECTED DURING THE PERIOD 02/27/01 THROUGH 04/25/01.	Q
Rev. 0			
008KS.007	UN0109SPA008KS.007	CONCENTRATION DATASET FOR TRACER (PENTAFLUOROBENZOIC ACID) USED FOR THE 30DAY-SHUT IN TRACER TEST AT THE ALLUVIAL TRACER COMPLEX IN NYE COUNTY NEVADA	Q
Rev. 1			
008KS.008	UN0109SPA008KS.008	CONCENTRATION DATASET FOR TRACER (BROMIDE) USED FOR THE 30 DAY-SHUT IN TRACER TEST AT THE ALLUVIAL TRACER COMPLEX IN NYE COUNTY NEVADA	Q
Rev. 0			
008KS.009	UN0202SPA008KS.009	MAJOR CATION, MAJOR ANION, AND TRACE ELEMENT CONCENTRATIONS IN GROUNDWATER COLLECTED FROM THE OCTOBER 2000 SAMPLING OF PHASE I AND II WELLS OF THE NYE COUNTY EARLY WARNING DRILLING PROGRAM (NCEWDP).	Q
Rev. 0			
009IF.001	MO0205UCC009IF.001	CONCENTRATION DATA SET FOR PENTAFLUOROBENZOIC ACID (PFBA) TRACER USED FOR THE ALCOVE 8 / NICHE 3 SEEPAGE STUDIES	Q
Rev. 0			
009IF.002	MO0205UCC009IF.002	CONCENTRATION DATA SET FOR BROMIDE TRACER USED FOR THE ALCOVE 8 / NICHE 3 SEEPAGE STUDIES	Q
Rev. 0			
012DV.001	UN0006SPA012DV.001	PERMANENT SEISMIC STATION LOCATIONS	Q
Rev. 0			
012DV.002	UN0007SPA012DV.002	EARTHQUAKE CATALOG FOR OCTOBER 1, 1997, TO SEPTEMBER 30, 1999, IN THE VICINITY OF YUCCA MOUNTAIN	Q
Rev. 0			
012DV.003	UN0009SPA012DV.003	SEISMICITY OF THE SOUTHERN GREAT BASIN OF CALIFORNIA AND NEVADA FOR OCTOBER 1, 1992, TO DECEMBER 31, 1992	UQ
Rev. 1			
012DV.004	UN0009SPA012DV.004	SEISMICITY IN THE SOUTHERN GREAT BASIN	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 1			
012DV.005	UN0009SPA012DV.005	FOCAL MECHANISMS OF EARTHQUAKES IN THE VICINITY OF YUCCA MOUNTAIN FOR THE PERIOD OCTOBER 1, 1997, TO SEPTEMBER 30, 1999	UQ
Rev. 0			
012DV.006	UN0108SPA012DV.006	FOCAL MECHANISMS OF EARTHQUAKES IN THE VICINITY OF YUCCA MOUNTAIN FOR THE PERIOD OCTOBER 1, 1999, TO SEPTEMBER 30, 2000.	UQ
Rev. 0			
012DV.008	MO0205UCC012DV.008	Seismic catalog for FY01 in the vicinity of Yucca Mountain	Q
Rev. 0			
012DV.009	MO0205UCC012DV.009	Focal Mechanisms in the Vicinity of Yucca Mountain for the Period 10/01/2000 to 09/30/2001	Q
Rev. 3			
012DV.010	MO0207UCC012DV.010	Locations of stations in the Southern Great Basin Digital Seismic Network	Q
Rev. 0			
012DV.011	MO0208UCC012DV.011	Seismicity of the southern Great Basin of California and Nevada for October 1, 1992, to December 31, 1992	Q
Rev. 0			
012DV.012	MO0208UCC012DV.012	Seismicity in the southern Great Basin of California and Nevada for January 1, 1995, to September 30, 1995	Q
Rev. 0			
012DV.013	MO0302UCC012DV.013	Southern Great Basin Digital Seismic Network (SGBDSN) waveform data for local earthquakes, 1995-1999	Q
Rev. 0			
012DV.014	MO0305UCC012DV.014	Catalog of earthquakes in the vicinity of Yucca Mountain, Nevada for 10/01/2001 to 09/30/2002	Q
Rev. 3			
012DV.015	MO0305UCC012DV.015	Focal mechanisms of earthquakes in the vicinity of Yucca Mountain, Nevada for 10/01/2001 to 09/30/2002	UQ
Rev. 2			
012DV.016	MO0305UCC012DV.016	Accelerometer recordings at the Waste Handling Building boreholes, 04/30/2003, from a Death Valley earthquake	UQ
Rev. 1			
012DV.017	MO0307UCC012DV.017	Location, origin time, and magnitude data for presumed blasts located within and near the Southern Great Basin Digital Seismic Network in the year FY2002.	UQ
Rev. 0			
012DV.018	MO0307UCC012DV.018	Earthquake catalog for Death Valley region for FY2002.	UQ
Rev. 1			
012DV.019	MO0307UCC012DV.019	Earthquake catalog for the southern Great Basin, 1978 to 1992.	UQ
Rev. 1			
012JB.001	UN0106SPA012JB.001	EARTHQUAKE CATALOG FOR OCTOBER 1, 1999, TO SEPTEMBER 30, 2000, IN THE VICINITY OF YUCCA MOUNTAIN	Q
Rev. 0			
013GD.001	UN0006SPA013GD.001	DST REKA PROBE ACQUIRED DATA FOR THERMAL CONDUCTIVITY AND DIFFUSIVITY FOR THE PERIOD 12/04/1997 TO 11/28/1999 (HEATED MEASUREMENTS FOR BOREHOLES 151, 152, AND 153.)	Q
Rev. 0			
013GD.002	UN0006SPA013GD.002	DST REKA PROBE DEVELOPED DATA FOR	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
013GD.003	UN0106SPA013GD.003	DRIFT SCALE THERMAL TEST (DST) REKA PROBE ACQUIRED DATA FOR THERMAL CONDUCTIVITY AND DIFFUSIVITY FOR THE PERIOD 05/01/1998 TO 04/30/2001 (HEATED MEASUREMENTS FOR BOREHOLES 151, 152, AND 153.)	Q
Rev. 0			
013GD.004	UN0106SPA013GD.004	DRIFT SCALE THERMAL TEST (DST) REKA PROBE DEVELOPED DATA FOR THERMAL CONDUCTIVITY AND DIFFUSIVITY FOR THE PERIOD 05/01/1998 TO 04/30/2001 (HEATED MEASUREMENTS FOR BOREHOLES 151, 152, AND 153.)	Q
Rev. 0			
013GD.005	UN0109SPA013GD.005	DRIFT SCALE TEST (DST) RAPID EVALUATION OF K AND ALPHA (REKA) PROBE ACQUIRED DATA FOR THERMAL CONDUCTIVITY AND DIFFUSIVITY FOR THE PERIOD 05/01/2001 TO 08/31/2001 (HEATED MEASUREMENTS FOR BOREHOLES 151, 152, AND 153.)	Q
Rev. 0			
013GD.006	UN0112SPA013GD.006	DST REKA PROBE ACQUIRED DATA FOR THERMAL CONDUCTIVITY AND DIFFUSIVITY FOR THE PERIOD 09/01/2001 TO 12/31/2001 (HEATED MEASUREMENTS FOR BOREHOLES 151, 152, AND 153.)	Q
Rev. 0			
013GD.007	UN0201SPA013GD.007	DST REKA PROBE DEVELOPED DATA FOR THERMAL CONDUCTIVITY AND DIFFUSIVITY FOR THE PERIOD 05/01/2001 TO 12/31/2001 (HEATED MEASUREMENTS FOR BOREHOLES 151, AND 152.)	Q
Rev. 0			
013GD.008	MO0205UCC013GD.008	DST REKA probe acquired data for thermal conductivity and diffusivity for the period 01/01/2001 to 03/31/2002 (heated measurements for boreholes 151, 152, and 153.)	Q
Rev. 0			
013GD.009	MO0208UCC013GD.009	DST REKA probe acquired data for thermal conductivity and diffusivity for the period 04/01/2002 to 06/30/2002 (heated measurements for boreholes 151, 152, and 153.)	Q
Rev. 0			
013GD.010	MO0208UCC013GD.010	DST REKA probe developed data for thermal conductivity and diffusivity for the period 03/01/2001 to 6/30/2002 (heated measurements for borehole 153).	Q
Rev. 0			
013GD.011	MO0208UCC013GD.011	DST REKA probe developed data for thermal conductivity and diffusivity for the period 01/01/2002 to 06/30/2002 (heated measurements for boreholes 151, 152)	Q
Rev. 0			
013GD.012	MO0211UCC013GD.012	DST REKA probe acquired data for thermal conductivity and diffusivity for the period 07/01/2001 to 09/30/2002 (heated measurements for boreholes 151, 152, and 153.)	Q
Rev. 0			
013GD.013	MO0211UCC013GD.013	DST REKA probe developed data for thermal conductivity and diffusivity for the period 07/01/02 to 09/30/02 (heated measurements for borehole 153)	Q
Rev. 0			



<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
013GD.014 Rev. 0	MO0211UCC013GD.014	DST REKA probe developed data for thermal conductivity and diffusivity for the period 07/01/02 to 09/30/02 (heated measurements for boreholes 151, 152)	Q
013GD.015 Rev. 0	MO0302UCC013GC.015	DST REKA probe acquired data for thermal conductivity and diffusivity for the period 10/01/2002 to 12/31/2002 (heated measurements for boreholes 151, 152, and 153.)	Q
013GD.016 Rev. 0	MO0302UCC013GD.016	DST REKA probe developed data for thermal conductivity and diffusivity for the period 10/01/02 to 12/31/02 (heated measurements for boreholes 151, 152, and 153)	Q
013GD.017 Rev. 0	MO0305UCC013GD.017	DST REKA probe acquired data for thermal conductivity and diffusivity for the period 01/01/2003 to 03/31/2003 (heated measurements for boreholes 151, 152, and 153.)	Q
013GD.018 Rev. 0	MO0305UCC013GD.018	DST REKA probe developed data for thermal conductivity and diffusivity for the period 01/01/03 to 03/31/03 (heated measurements for boreholes 151, 152, and 153)	Q
013GD.019 Rev. 0	MO0307UCC013GD.019	DST REKA probe acquired data for thermal conductivity and diffusivity for the period 04/01/2003 to 06/30/2003 (heated measurements for boreholes 151, 152, and 153.)	Q
013GD.020 Rev. 0	MO0307UCC013GD.020	DST REKA probe developed data for thermal conductivity and diffusivity for the period 04/01/03 to 06/30/03 (heated measurements for boreholes 151, 152, and 153).	Q
014KR.001 Rev. 0	MO0310UCC014KR.001	Results of Electrochemical Potentiokinetic Reactivation (EPR) Studies on Intergranular Corrosion of qualified Wrought Alloy 22 specimens	Q
014KR.002 Rev. 0	MO0310UCC014KR.002	Results of Electrochemical Potentiokinetic Reactivation (EPR) Studies on Intergranular Corrosion of unqualified Wrought Alloy 22 specimens	UQ
014KR.003 Rev. 0	MO0310UCC014KR.003	Micrographs related to Electrochemical Potentiokinetic Reactivation (EPR) tests on Intergranular Corrosion of Wrought and Weld Alloy 22	Q
014KR.004 Rev. 0	MO0401UCC014KR.004	Electrochemical Potentiokinetic Reactivation (EPR) test results for Alloy 22 in 1 M sulfuric acid + 0.5 M sodium chloride or 2 M hydrochloric acid solutions with 0.01M KSCN addition.	Q
014KR.005 Rev. 0	MO0401UCC014KR.005	Electrochemical Potentiokinetic Reactivation (EPR) test results for Alloy 22 in 1 M sulfuric acid + 0.5 M sodium chloride or 2 M hydrochloric acid solutions with 0.01M KSCN addition.	UQ
014LM.001 Rev. 0	MO0310UCC014LM.001	Electrochemical test results (graphical and tabular) of alloy 22 passive film in 4M NaCl solutions during experimental apparatus development	Q
014LM.002 Rev. 0	MO0401UCC014LM.002	Electrochemical test results for Alloy 22 in 4M NaCl at pH 6 & 1, and 30, 60, 80 degrees C	Q
014LM.003	MO0401UCC014LM.003	SEM images & line scans of Alloy 22 crevice pit	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
015PA.006 Rev. 0	UN0101SPA015PA.006	HETEROTROPHIC PLATE COUNTS	Q
015PA.008 Rev. 0	UN0112SPA015PA.008	HETEROTROPHIC PLATE COUNTS	Q
015PA.009 Rev. 0	UN0201SPA015PA.009	HETEROTROPHIC PLATE COUNTS, WITH SUPPORTING CONFOCAL AND SCANNING ELECTRON MICROSCOPE (SEM) IMAGES	Q
017FS.001 Rev. 0	MO0401UCC017FS.001	Current Transients During Straining Electrodes for stress corrosion cracking studies (SCC)	Q
017FS.002 Rev. 0	MO0401UCC017FS.002	Current Transients During Straining Electrodes for Stress Corrosion Cracking (SCC) studies on unqualified specimens of Alloy 22 and Stainless Steel 304	UQ
017KR.001 Rev. 0	MO0310UCC017KR.001	Alloy 22 creep data	Q
017KR.002 Rev. 0	MO0310UCC017KR.002	Creep experiment results of stainless steel 304	UQ
017KR.003 Rev. 0	MO0310UCC017KR.003	Creep experiment results of alloy 22	Q
017KR.004 Rev. 0	MO0310UCC017KR.004	Current Transient Data During Potentiostatic Passivation of Alloy 22 and 304SS in 1N Sulphuric Acid	UQ
017KR.005 Rev. 0	MO0310UCC017KR.005	Current Transient data during straining electrodes of Alloy 22 and 304SS in 4M NaCl	UQ
017KR.006 Rev. 0	MO0310UCC017KR.006	Load Elongation data during straining electrodes of Alloy 22 and 304SS in 4M NaCl	UQ
017KR.007 Rev. 0	MO0310UCC017KR.007	Reduced Data (tabular and graphical) from Current Transient During Straining Electrodes of Alloy 22 and 304SS in 4M NaCl	UQ
017KR.008 Rev. 0	MO0402UCC017KR.008	Reduced Data from Current Transient During Low Temperature Creep of Alloy 22 in 3.9M NaCl + 0.1M HCl at 80°C	Q
017KR.009 Rev. 0	MO0402UCC017KR.009	Reduced Data of 304SS from Current Transient During Straining Electrodes in 4M NaCl at 60C <b>and</b> Constant-load Creep tests in 3.9M NaCl + 0.1N HCl at 80C and 5N H2SO4 + 0.5N NaCl at RT and 0.5N Na2S2O3 at RT	UQ
017SN.001 Rev. 0	MO0310UCC017SN.001	Seismic Predictions of significant activity for 10,000 years	UQ
018AY.001 Rev. 0	MO0308UCC018AY.001	General corrosion behavior of I-beams and rockbolts	Q
018AY.002 Rev. 0	MO0308UCC018AY.002	Potentiodynamic polarization of rock bolts and steel sets - electrochemical test results.	Q
018AY.003 Rev. 0	MO0308UCC018AY.003	Results of environmental cracking susceptibility tests on low carbon steel I-beams	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
018AY.004 Rev.0	MO0402UCC018AY.004	Ductility Measurements of Low Carbon Steels	Q
018AY.005 Rev.0	MO0404UCC018AY.005	Time to failure for steel set specimens under varying strain rates.	Q
018AY.006 Rev.0	MO0404UCC018AY.006	Load-Elongation of Steel Sets at 85 Degrees C and open circuit potential	Q
018DN.001 Rev.2	MO0311UCC018DN.001	Long Term Drift Stability of Rock - Uniaxial Joint Compression and Direct Shear Tests to Determine the Rock Joint Stiffnesses	Q
018HK.001 Rev.0	MO0405UCC018HK.001	Numerical Simulations on Creep Behavior of Jointed Rock Specimen to Predict Time-dependent Long Term Stability of Rock Using FLAC 3D	UQ
018JL.001 Rev.0	MO0307UCC018JL.001	Electrochemical test results (hydrogen permeation) from rock bolts and steel sets	Q
018JL.002 Rev.0	MO0307UCC018JL.002	I-Beam (Low Carbon Steel) Electrochemical Corrosion Test Results	Q
018JL.003 Rev.0	MO0307UCC018JL.003	Rock Bolt (Medium Carbon Steel) Electrochemical Corrosion Test Results	Q
018LM.001 Rev.0	MO0311UCC018LM.001	Uniaxial Compression Tests results	Q
018LM.002 Rev.0	MO0311UCC018LM.002	Brazilian Tensile Strength Rock Tests Analysis results	Q
018LM.003 Rev.0	MO0311UCC018LM.003	Results from Creep Tests on rock specimens	Q
018LM.004 Rev.1	MO0406UCC018LM.004	Long Term Drift Stability of Rock - Uniaxial Joint Compression and Direct Shear Tests to Determine the Rock Joint Stiffnesses	Q
018VA.001 Rev.0	MO0402UCC018VA.001	Results of Cyclic Humidity Tests on Rock Bolt and I beam Steel	Q
018VD.001 Rev.0	MO0310UCC018VD.001	Impedance Spectra of Medium Carbon Steel	Q
018VD.002 Rev.0	MO0310UCC018VD.002	Electrochemical Corrosion (Hydrogen Permeation) of Yucca Mountain Rock Bolts and Steel Sets in Varying Conditions	Q
018VD.003 Rev.0	MO0310UCC018VD.003	Electrochemical Studies (Polarization) of Rock Bolts and Steel Sets	Q
018VD.004 Rev.0	MO0310UCC018VD.004	Scanning Electron Microscope (SEM) and Energy Dispersive X-Ray Spectroscopy (EDX) Data of Rock Bolts and Steel Sets	Q
018VD.005 Rev.0	MO0310UCC018VD.005	X-Ray Photoelectron Spectroscopy of Corroded Yucca Mountain Rock Bolts and Steel Sets	Q
018VD.006 Rev.0	MO0402UCC018VD.006	Hydrogen Diffusion Effects on Impedance	Q
018VD.007 Rev.0	MO0402UCC018VD.007	Rock bolt and steel sets X-Ray Photoelectron Spectroscopy scans	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
018VD.008 Rev.0	MO0403UCC018VD.008	X-Ray Photoelectron Spectroscopy Data for rock bolts and steel sets	Q
018VD.009 Rev.0	MO0403UCC018VD.009	Baseline corrosion information on rock bolt and steel sets in simulated Yucca Mountain Environments	Q
018VD.010 Rev.0	MO0404UCC018VD.010	Effect of complex ions on the corrosion properties of carbon steels	Q
018YW.001 Rev.3	MO0310UCC018YW.001	Rock strength point load test results	Q
018YW.002 Rev.0	MO0405UCC018YW.002	Long Term Drift Stability of Rock - Point Load Strength Testing of Irregular Rock Fragments of Welded Tuff.	Q
019RA.001 Rev.0	MO0310UCC019RA.001	Heat transfer modeling results for the pre-closure and post-closure periods using STAR-CD and CFDHT.	UQ
021SS.001 Rev.1	UN0104SPA021SS.001	VOSTOK ICE CORE DEUTERIUM VALUES	UQ
021SS.002 Rev.1	UN0104SPA021SS.002	WESTERN REGIONAL CLIMATE SUMMARIES	UQ
021SS.004 Rev.1	UN0112SPA021SS.004	WESTERN REGIONAL CLIMATE SUMMARIES THROUGH DECEMBER 31, 2000.	Q
021SS.005 Rev.0	UN0112SPA021SS.005	MEAN ANNUAL TEMPERATURE AND PRECIPITATION FOR SELECT WESTERN REGIONAL CLIMATE LOCATIONS.	Q
021SS.006 Rev.1	UN0112SPA021SS.006	PREDICTED SEQUENCE AND DURATIONS OF CLIMATE STATES FOR THE NEXT 1 MILLION YEARS FOR THE YUCCA MOUNTAIN REGION	UQ
021SS.007 Rev.0	UN0201SPA021SS.007	MEAN ANNUAL TEMPERATURE AND PRECIPITATION FOR SELECT WESTERN REGIONAL CLIMATE LOCATIONS.	Q
021SS.008 Rev.1	UN0202SPA021SS.008	CORRELATION BETWEEN CLIMATE STATES, REPRESENTATIVE OSTRACODES, AND OXYGEN ISOTOPE STAGES FOR THE OWENS LAKE CORE FOR THE LAST 400,000 YEARS	UQ
021SS.009 Rev.1	MO0302UCC021SS.009	Upper Air Statistics for Desert Rock, NV, for May 1978 through December 1997.	Q
021SS.010 Rev.2	MO0302UCC021SS.010	Duration of Past Interglacials According to the Owens Lake Chronology	UQ
021SS.011 Rev.2	MO0302UCC021SS.011	Durations of Glacial and interglacial Oxygen Isotope Stages in thousands of Years, for past and future climate based on the precession methodology	UQ
021SS.012 Rev.2	MO0302UCC021SS.012	Past and future climate state durations based on the precession methodology and Owens Lake ostracode record.	UQ
021SS.013 Rev.2	MO0302UCC021SS.013	Correlation Between Climate States, Representative Ostracodes, and Oxygen Isotope Stages for the Owens Lake Core for the Last 400,000 Years	UQ
021SS.014 Rev.1	MO0303UCC021SS.014	Time bias corrected divisional temperature-precipitation-drought index data	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
022DT.001 Rev.1	MO0307UCC022DT.001	Calcite Rock; Bacterial Growth and pH data	UQ
022PA.007 Rev.1	UN0111SPA022PA.007	CALCITE ROCK AND BACTERIAL GROWTH DATA	UQ
022PA.010 Rev.2	UN0203SPA022PA.010	CALCITE ROCK AND BACTERIAL GROWTH DATA	UQ
023DV.001 Rev.0	MO0210UCC023DV.001	Locations of seismic stations of the Southern Great Basin Seismic Network	Q
024BO.001 Rev.2	SeeChangeHistory	Results of tensile testing of Alloy C22 and Steel316L under varying strain rates in MTS environmental chamber	UQ
024BO.002 Rev.1	MO0307UCC024BO.002	Results of tensile testing of Alloy C22 and Steel316L under various strain rates in MTS environmental chamber	UQ
024HW.001 Rev.0	MO0306UCC024HW.001	MTS tensile test results for C22 alloy specimens under tensile loading in the MTS environmental chamber at room temperature and elevated temperature (175 °F).	Q
024HW.002 Rev.0	MO0306UCC024HW.002	MTS tensile test results for stainless steel 316L specimens under tensile loading in the MTS environmental chamber at elevated temperature (175 °F and 350 °F).	Q
024HW.003 Rev.0	MO0310UCC024HW.003	MTS test results for C22 alloy specimens under tensile loading in the MTS environmental chamber at room temperature and elevated temperature (350 F).	Q
024HW.004 Rev.0	MO0310UCC024HW.004	Results of tensile testing of Alloy 22 under impact loading at room and elevated temperatures. (175 F and 350 F)	Q
024KZ.019 Rev.1	MO0205UCC024KZ.019	Results of tensile testing of Alloy C22 under various strain rates.	UQ
024KZ.020 Rev.1	MO0205UCC024KZ.020	Results of tensile testing of Stainless Steel 316L under various strain rates.	UQ
024KZ.021 Rev.1	MO0205UCC024KZ.021	Results of tensile testing of Titanium Alloy Grade 7 under various strain rates	UQ
024MT.001 Rev.0	UN0109SPA024MT.001	BATCH #1 MTS TEST RESULTS FOR TITANIUM GRADE 7 UNDER LOW STRAIN RATE TENSILE TESTING	Q
024MT.002 Rev.0	UN0109SPA024MT.002	BATCH #2 MTS TEST RESULTS FOR TITANIUM GRADE 7 UNDER LOW STRAIN RATE TENSILE TESTING.	Q
024MT.003 Rev.0	UN0109SPA024MT.003	BATCH #3 MTS TEST RESULTS FOR TITANIUM GRADE 7 UNDER LOW STRAIN RATE TENSILE TESTING	Q
024MT.004 Rev.0	UN0109SPA024MT.004	BATCH #4 INSTRON DYNATUP TENSILE TEST RESULTS FOR TITANIUM GRADE 7 UNDER IMPACT LOADING	Q
024MT.005 Rev.0	UN0109SPA024MT.005	BATCH #5 INSTRON DYNATUP TENSILE TEST RESULTS FOR TITANIUM GRADE 7 UNDER IMPACT LOADING	Q
024MT.006	UN0110SPA024MT.006	MTS TEST RESULTS FOR STEEL 316L UNDER	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
024MT.007 Rev. 0	UN0110SPA024MT.007	MTS TEST RESULTS FOR ALLOY C22 UNDER HIGH STRAIN RATE LOADING (BATCH #2)	Q
024MT.008 Rev. 0	UN0110SPA024MT.008	MTS TENSILE TEST RESULTS OF STEEL 316L UNDER HIGH STRAIN RATE LOADING (BATCH #3)	Q
024MT.009 Rev. 0	UN0110SPA024MT.009	MTS TENSILE TEST RESULTS OF ALLOY C22 UNDER LOW STRAIN RATE LOADING (BATCH #1)	Q
024MT.010 Rev. 0	UN0110SPA024MT.010	MTS TENSILE TEST RESULTS OF STEEL 316L UNDER HIGH STRAIN RATE LOADING (BATCH #2)	Q
024MT.011 Rev. 0	UN0110SPA024MT.011	MTS TENSILE TEST RESULTS OF ALLOY C22 UNDER HIGH STRAIN RATE LOADING (BATCH #3)	Q
024MT.012 Rev. 0	UN0201SPA024MT.012	INSTRON TENSILE TEST RESULTS FOR ALLOY C22 UNDER MODERATE STRAIN RATE (BATCH #4)	Q
024MT.013 Rev. 0	UN0201SPA024MT.013	INSTRON TENSILE TEST RESULTS FOR ALLOY C22 UNDER MODERATE STRAIN RATE (BATCH #5)	Q
024MT.014 Rev. 0	UN0201SPA024MT.014	INSTRON TENSILE TEST RESULTS FOR STAINLESS STEEL 316L UNDER MODERATE STRAIN RATE, SPECIMEN 10S	Q
024MT.015 Rev. 0	UN0201SPA024MT.015	INSTRON TENSILE TEST RESULTS FOR STAINLESS STEEL 316L UNDER MODERATE STRAIN RATE, SPECIMEN 12S	Q
024MT.016 Rev. 0	UN0201SPA024MT.016	INSTRON TENSILE TEST RESULTS FOR STAINLESS STEEL 316L UNDER MODERATE STRAIN RATE, SPECIMEN 15S.	Q
024MT.017 Rev. 0	UN0201SPA024MT.017	INSTRON TENSILE TEST RESULTS FOR STAINLESS STEEL 316L UNDER MODERATE STRAIN RATE, SPECIMEN 20S.	Q
024MT.018 Rev. 0	UN0201SPA024MT.018	MTS TENSILE TEST RESULTS FOR ALLOY C22 UNDER LOW STRAIN RATE (BATCH #6)	Q
024SD.001 Rev. 0	MO0302UCC024SD.001	Instron Dynatup test results for Titanium Grade 7 under impact loading in the machine environmental chamber under room and elevated temperature.	Q
024SD.002 Rev. 0	MO0306UCC024SD.002	Instron Dynatup tensile test results for alloy C22 specimens under impact loading in the machine environmental chamber under room and elevated temperatures (175 F and 350 F).	Q
024SD.003 Rev. 0	MO0306UCC024SD.003	Instron Dynatup tensile test results for stainless steel 316L specimens under impact loading in the machine environmental chamber under room and elevated temperatures (175 °F and 350 °F).	Q
024SD.004 Rev. 1	MO0308UCC024SD.004	Tensile testing data for Titanium Grade 7, Stainless Steel 316L and Alloy 22 under impact loading in Instron Environmental Chamber at room and elevated temperatures.	UQ

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
025CS.001 Rev.0	MO0302UCC025CS.001	Yucca Mountain hydrogeologic framework for stochastic radionuclide transport studies	UQ
025CS.002 Rev.0	MO0302UCC025CS.002	Monte Carlo modeling results of radionuclied transport within the Yucca Mountain saturated zone.	UQ
025XH.001 Rev.0	MO0302UCC025XH.001	Numerical modeling results of radionuclied transport within the Yucca Mountain saturated zone using NMM3D.	UQ
027BA.001 Rev.0	MO0301UCC027BA.001	Stress and Strain Data from Compression Tests on Urethane Specimens	Q
027BA.002 Rev.0	MO0207UCC027BA.002	Plaster and tuff ultrasonic velocity data	Q
027BA.003 Rev.0	MO0301UCC027BA.003	Stress and Strain Data from Compression Tests on Tuff Specimens	Q
027BA.004 Rev.0	MO0301UCC027BA.004	Stress and Strain Data from Compression Tests on Plaster of Paris Specimens	Q
027BA.005 Rev.0	MO0302UCC027BA.005	Urethane Deformation Properties vs. Porosity	Q
027BA.006 Rev.0	MO0302UCC027BA.006	Stress and Modulus for Plaster and Tuff	Q
027MK.001 Rev.0	UN0110MWD027MK.001	LITHOPHYSAL POROSITY STRESS/STRAIN MODEL	Q
028SP.001 Rev.0	UN0202SPA028SP.001	DEPTH TO WATER MEASUREMENTS FROM MANUAL MEASUREMENTS TAKEN AT VARIOUS WELL LOCATIONS NEAR YUCCA MOUNTAIN, 3RD AND 4TH QUARTERS CY 2001	Q
028SP.002 Rev.0	UN0202SPA028SP.002	WATER LEVEL ALTITUDES FROM MANUAL MEASUREMENTS TAKEN AT VARIOUS WELL LOCATIONS NEAR YUCCA MOUNTAIN, 3RD AND 4TH QUARTERS CY 2001	Q
028SP.003 Rev.0	MO0302UCC028SP.003	Water Level Measurements For Locations Near Yucca Mountain, 1st, 2nd, 3rd, and 4th Quarters, 2002	Q
028SP.004 Rev.0	MO0310UCC028SP.004	Water Level Measurements Derived From Manual and Electronic Techniques Taken At Various Boreholes Near Yucca Mountain, 1st and 2nd Quarters, 2003.	Q
030AB.001 Rev.0	UN0202SPA030AB.001	YUCCA MOUNTAIN PRECIPITATION DATA FROM 12/12/2000 THROUGH 12/31/2001	Q
030AB.002 Rev.0	MO0205UCC030AB.002	Yucca Mountain Precipitation Data for stations 405, 410, 411 and 415, 6/21/01 - 09/27/01	UQ
030AB.003 Rev.0	MO0302UCC030AB.003	Yucca Mountain Precipitation Data from 01/01/2002 through 12/31/2002	Q
030AB.004 Rev.0	MO0308UCC030AB.004	Yucca Mountain Precipitation Data from 01/01/2003 through 06/30/2003	Q
032HA.001 Rev.0	Not incorporated into TDMS	Baseline Stress Strain Data/Constant load stress corrosion cracking data for Zircaloy-2 and Zircaloy-4	Q
032HA.002	MO0310UCC032HA.002	Baseline Stress Strain Data/Constant load stress	Q

<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
Rev. 0			
032SP.001 Rev. 0	MO0310UCC032SP.001	Slow-Strain-Rate Zircaloy-2 and Zircaloy-4 stress/strain tabular and graphical data	Q
032SP.002 Rev. 0	MO0310UCC032SP.002	Graphical and Tabular Cyclic Potentiodynamic Polarization Data	Q
033JB.001 Rev. 0	MO0310UCC033JB.001	Concentration Dataset for Oxidation States for Arsenic, and Chromium for Unfiltered Samples Collected from Nye and Inyo County during 08/26/2002-02/26/2003.	Q
033JB.002 Rev. 0	MO0310UCC033JB.002	Method Detection Limits for the Oxidation States for Antimony, Arsenic, Chromium, Copper, Manganese, Molybdenum, Selenium, Tungsten, Vanadium, and Uranium	Q
033JB.003 Rev. 0	MO0310UCC033JB.003	Concentration Dataset for Oxidation States for Arsenic and Chromium for Unacidified Filtered Samples Collected from Nye and Inyo County during 08/26/2002-05/23/2003.	Q
033JB.004 Rev. 0	MO0310UCC033JB.004	Concentration Dataset for Oxidation States of Arsenic and Chromium for Unacidified Unfiltered Samples Preserved in Dry Ice from Nye and Inyo County Samples Collected from 8/26/2002-10/03/2002	Q
033JB.005 Rev. 0	MO0310UCC033JB.005	Concentration Dataset for Oxidation States of Arsenic and Chromium for Unacidified Filtered Samples Preserved in Dry Ice from Nye and Inyo County Samples Collected from 8/26/2002-10/03/2002	Q
033JB.006 Rev. 0	MO0310UCC033JB.006	Concentration Dataset for Oxidation States for Antimony, Copper, Manganese, Molybdenum, Selenium, Tungsten, Vanadium, and Uranium for Unacidified Filtered Samples Collected from Nye and Inyo County during 08/26/2002-05/23/2003	UQ
033JB.007 Rev. 0	MO0310UCC033JB.007	Calculated Eh Values for Wells in the Nye County Early Warning Drilling Program from Measured As(V) and As(III) Values.	Q
033JB.008 Rev. 0	MO0310UCC033JB.008	Concentration Dataset for Oxidation States for Molybdenum and Tungsten for Unfiltered Samples Collected from Nye and Inyo County during 08/26/2002-02/26/2003.	UQ
034JC.001 Rev. 0	MO0212UCC034JC.001	Changes of pH, Conductivity, and Dissolved Oxygen in effluent solution during Miniature Waste Package Corrosion.	Q
034JC.002 Rev. 0	MO0212UCC034JC.002	Mass Transport of solids in effluent solution during Miniature Waste Package Corrosion.	Q
034JC.003 Rev. 0	MO0302UCC034JC.003	Graphical X-Ray Diffractometer Data and Mineral Analysis of Filtered Solids from effluent solution during Miniature Waste Package Corrosion.	Q
034JC.004 Rev. 0	MO0305UCC034JC.004	Mass Transport of solids in effluent solution during Miniature Waste Package Corrosion: Second Experimental Run.	Q
034JC.005 Rev. 0	MO0305UCC034JC.005	Changes of pH, Conductivity, and Dissolved Oxygen in effluent solution during Miniature Waste Package Corrosion: Second Experimental Run.	Q



<b>DID</b>	<b>DTN</b>	<b>Title</b>	<b>Qualification Status</b>
034JC.006 Rev.0	MO0308UCC034JC.006	Concentration of dissolved iron in effluent solution from Miniature Waste Package Corrosion Study by ICPMS	Q
034JC.007 Rev.0	MO0310UCC034JC.007	ICPMS Weight Data for iron concentration calculations	Q
034JC.008 Rev.0	MO0312UCC034JC.008	Mass Transport of solids in effluent solution during Miniature Waste Package Corrosion.	Q
035IF.001 Rev.0	MO0210UCC035IF.001	CONCENTRATION DATA SET FOR BROMIDE AND PENTAFLUOROBENZOIC ACID TRACERS IN ALCOVE 8 / NICHE 3 SEEPAGE SAMPLES COLLECTED 4/08/02 - 6/10/02.	Q
035IF.002 Rev.0	MO0307UCC035IF.002	Concentration data set for tracers (FD&C dyes, PFBA, and bromide) and also fluoride, chloride, nitrate, and sulfate in samples collected at Alcove 8 / Niche 3 during the period 06/20/02 - 02/24/03.	Q
035IF.003 Rev.0	MO0310UCC035IF.003	Precision data set for Tracers (FD&C dyes and PFBA in samples collected at Alcove 8 / Niche 3 during the period 06/20/02 - 02/24/03.	Q
035TJ.001 Rev.0	MO0307UCC035TJ.001	Concentration data set for Calcium, Magnesium, Sodium, and Potassium in samples collected at Alcove 8 / Niche 3 during the period 09/24/02 - 02/11/03.	Q
S01JC.001 Rev.0	MO0710UCCS01JC.001	Measurements of As(III), As(V) and Eh in Nye County Groundwater and Ash Meadows Springwater	UQ
S01JC.002 Rev.1	MO0711UCCS01JC.002	Measurements of pH and Conductivity for Springwater from Ash Meadows National Wildlife Refuge	UQ
S01JC.003 Rev.0	MO0711UCCS01JC.003	Concentration of Arsenic Oxidation State Species and Chloride in Springwater Collected from Ash Meadows National Wildlife Refuge.	UQ
S01JC.004 Rev.0	MO0711UCCS01JC.004	Concentration of Arsenic and Chromium Oxidation State Species for Groundwater Collected from the Nye County Early Warning Drilling Program (Fall 2006).	UQ
S01JC.005 Rev.0	MO0711UCCS01JC.005	Concentration of elements or element oxidation states in groundwater collected from well J-12 on the Nevada Test Site.	UQ
S01KL.001 Rev.1	MO0707UCCS01KL.001	Determining the Redox Properties of Yucca Mountain Related Groundwater Using Trace Element Speciation for Predicting the Mobility of Nuclear Waste.	UQ
000DV.007 Rev.1	UN0109SPA000DV.007	SPECTRA OF THE LITTLE SKULL MOUNTIAN (LSM) EARTHQUAKE AFTERSHOCKS RECORDED IN THE MIDWAY VALLEY AREA	UQ
000KS.001 Rev.1	MO0507UCC000KS.001	Subset of 1996-1997 UE-25 UZ #16 Borehole Seismic Recordings.	UQ
000PA.001 Rev.0	UN0006TIC000PA.001	HETEROGENEITY OF DEEP SUBSURFACE MICROORGANISMS AND CORRELATIONS TO HYDROGEOLOGICAL AND GEOCHEMICAL PARAMETERS	UQ
000PA.002 Rev.0	UN0006TIC000PA.002	FACTORS LIMITING MICROBIAL GROWTH AND ACTIVITY AT A [POTENTIAL] HIGH-LEVEL NUCLEAR REPOSITORY, YUCCA MOUNTAIN, NEVADA	UQ

DID	DTN	Title	Qualification Status
000PA.003 Rev.0	UN0006TIC000PA.003	GRAPHICAL AND TABULAR RESULTS OF BACTERIAL TRANSPORT STUDIES AT RAINIER MESA.	UQ
000PA.004 Rev.0	UN0006TIC000PA.004	EFFECTS OF GAMMA RADIATION ON ENDOLITHIC MICROORGANISMS	UQ
000PA.005 Rev.0	UN0006TIC000PA.005	RESUSCITATION OF MICROORGANISMS AFTER GAMMA IRRADIATION	UQ
000TE.001 Rev.0	MO0307UCC000TE.001	Calcite rock bacterial growth data from ESF rock samples.	UQ

### Software Configuration Management

Software subject to QA Program requirements was qualified and included in the baseline of qualified software prior to use in quality-affecting activities. All non-exempt developed or acquired software was documented and validated in a manner that provided for consistent installation and operation of the media on any computer that met the requirements of the target platform(s) specified within the software documents. All source code developed or acquired for use solely with Cooperative Agreement funds will ultimately be submitted to DOE. The following table lists the software that was successfully qualified during Cooperative Agreement DE-FC28-04RW12232:

**Table 8, NSHE Software Baseline Report**

Software Name	Version	Software Description	Software Tracking Number	CPU Operating	Date Baselined
Antelope	4.8	Antelope is a product of Boulder Real-Time Technologies (BRTT), Inc., of Boulder, CO ( <a href="http://www.brtt.com">http://www.brtt.com</a> ). ARTS real-time seismic data collection and processing system includes applications for recording seismic data, examining waveforms, marking and measuring phase arrival times and amplitudes, and processing those measurements into earthquake locations and magnitudes.	NSHE-4.8-024	Solaris 8, 9, 10	7/27/2007
Antelope	4.9	Antelope version 4.9 is an upgrade of v4.8. It is a proprietary program produced by BRTT, Inc. The Antelope system cannot be installed without purchasing a runtime license from BRTT.	NSHE-4.9-024	Solaris 8, 9, 10	9/12/2007
ARC2DB	2.0	This software is a small program which converts data from HYPOINVERSE phase data files to the Antelope database. The software is written in C.	UCCSN-04-018	Solaris 5.8	1/26/2005

Software Name	Version	Software Description	Software Tracking Number	CPU Operating	Date Baselined
ArcView	3.3	ArcView is a Commercial Off the Shelf program used to integrate climatic spatial data in a Geographic Information System (GIS) framework with the intent of creating graphics and figures depicting climatic phenomenon such as temperature and precipitation. This qualification effort is limited to producing graphical representations of data sets; ensuring that existing ascii files of meteorological site data as well as existing shapefiles can be successfully imported and integrated.	UCCSN-005	Windows 2000	7/8/2004
CALIB	2.0	CALIB computes the parameters of system check pulses in seismometer-recorder systems used for quality-affecting work under seismic monitoring of the Yucca Mountain vicinity. CALIB is written in C code and must be linked with Antelope 4.6 libraries to run at the NSL. This program was previously qualified under the OCRWM SCM and is on the OCRWM software Baseline Report with STN 10073-1.1-00.	UCCSN-04-012	Solaris 5.8	11/9/2004
CALIB <sup>[2]</sup>	3.0	The major modifications for CALIB v3.0 are to utilize SAC rather than SEG Y formatted files as input and to allow the program to run in a mode which does not interact with a database	NSHE-3.0-012-1	Solaris 8	4/24/2006
CALIB	3.1	This revision to CALIB v3.0 corrected a software error that caused the program to be unable to handle calibration pulses from sensors whose natural frequency is greater than 2.0 Hz. This anomaly is documented in Software Problem Report SPR_06_01	NSHE-3.0-012-1	Solaris 8	9/27/2006
DB2HYPO.pl	1.0	This Perl script converts data from the Antelope database to HYPOINVERSE phase data files, it requires licensed software applications from the Datascope library (BRTT, Inc.). The script will function the same as DB2PHS (STN# UCCSN_04_017) but will be more efficient to maintain	NSHE-1.0-021	Solaris 8	11/29/2006
DB2PHS	2.0	This software is a small program which converts data from the Antelope database to HYPOINVERSE phase data files. The software is written in C.	UCCSN-04-017	Solaris 5.8	1/7/2005

Software Name	Version	Software Description	Software Tracking Number	CPU Operating	Date Baselined
DBLOC2	4.6	DBLOC2 is a module of the Antelope software system from BRTT, Inc. DBLOC2 is an interactive graphics module to determine the location of seismic events. DBLOC2 is a combination of UNIX shell scripts, PERL scripts, and TCL interfaces. This program was previously qualified under the OCRWM SCM and is on the OCRWM software Baseline Report with STN 10638-4.3-00. This activity is to qualify the software for Antelope version 4.6.	UCCSN-04-010	Solaris 5.8	9/21/2004
DBPICK	4.6	DBPICK is a vendor-provided module of the Antelope software system from BRTT, Inc. DBPICK is an interactive graphics module to enable the analyst to pick times, amplitudes, and polarities of seismic arrivals. DBPICK is a combination of PERL scripts and TCL interfaces. This program was previously qualified under the OCRWM SCM and is on the OCRWM software Baseline Report with STN 10639-4.3-00. This activity is to qualify the software for Antelope version 4.6.	UCCSN-04-009	Solaris 5.8	9/21/2004
EQ2ORB	1.0	EQ2ORB receives streaming time_series data from a PC_104 data acquisition system and writes it, without modification, to an Antelope data management system. The program is written in C and requires licensed software applications through BRTT (Antelope data management system) and for embedded PC-104 applications.	NSHE-1.0-022	Solaris 8	11/29/2006
kappaAH	1.0	Program kappaAH is a suite of high_level Matlab macros written to run in a Solaris operating systems environment. KappaAH estimates the spectral content of seismic body waves and solves for parameters that best fit a Brune spectral shape. Routines are also included to make secondary measurements such as signal_to_noise level, corner frequency under the constraint of a fixed stress drop, and a single parameter slope estimate of kappa, and to plot the results in various ways.	UCCSN-003	Solaris 2.8	11/30/2006
LSMDP	1.0	LSMDP is used for processing data from the long-base strainmeter installed in Yucca Mountain.	UCCSN-04-011	OS X 10.3	5/4/2005

Software Name	Version	Software Description	Software Tracking Number	CPU Operating	Date Baselined
LSMDP	1.1	LSMDP v1.1 is an upgrade from v1.0 used for processing data from the long_base strainmeter. The changes in Version 1.1 are as follows: "edtonoi" and "edotoasc" replaces "edbasc". New programs "nscale", "enjoin" and "extend" have been added. These changes allow easier handling of the data.	UCCSN-04-011-1	OS X 10.3	6/28/2006
LHS	2.51	LHS is Used to sample distributions of input parameters using either normal Monte Carlo sampling or efficient Latin Hypercube and Monte Carlo Sampling. This program is an acquired program; it was previously qualified under the OCRWM Software Configuration Management procedure and is on the OCRWM software Baseline Report with STN 10205_2.51_00 where it was qualified on a DEC ALPHA machine with OPEN VMS AXP operating system which was not available at DRI. This software qualification effort recompiled the software to run on a PC with Windows XP operating system.	NSHE-2.51-023	Windows XP	10/2/2006
MLCALC	3.0	MLCALC computes the magnitudes of seismic events in the vicinity of Yucca Mountain, Nevada, using a standard formula for local magnitude due to Richter.	UCCSN-04-014	Solaris 2.8	8/15/2005
Q3302ORB	4.5	Q3302ORB is an acquired program that collects data from Kinometrics Q330 seismic data loggers in real time and transfers the data to UNIX files. The software is a module of the BRTT Antelope real-time computing system.	UCCSN-004	Solaris 2.8	10/21/2003
Q3302ORB	4.7	Q3302ORB v4.7 is an upgrade to v4.5. This is an upgrade connected with Antelope 4.7.	UCCSN-4.7-004-1	Solaris 2.8	8/31/2005
REF2ORB	1.6	REF2ORB is a vendor-provided module developed to run with the Antelope software system from BRTT, Inc. REF2ORB receives seismic data packets from RefTek (Refraction Technology, Inc.) 72-08A data loggers and inserts them into the Antelope real-time memory stack, eventually to be recorded in disk files. REF2ORB is a C program. This program was previously qualified under the OCRWM SCM and is on the OCRWM software Baseline Report with STN 10640-1.6-00. This activity is to qualify REF2ORB for Antelope version 4.6.	UCCSN-04-008	Solaris 5.8	9/21/2004
RTP2ORB	4.7	This program collects data from RefTek RT-130 seismic data loggers in real-time and transfers the data to UNIX files.	UCCSN-05-020	Solaris 5.8	12/5/2005

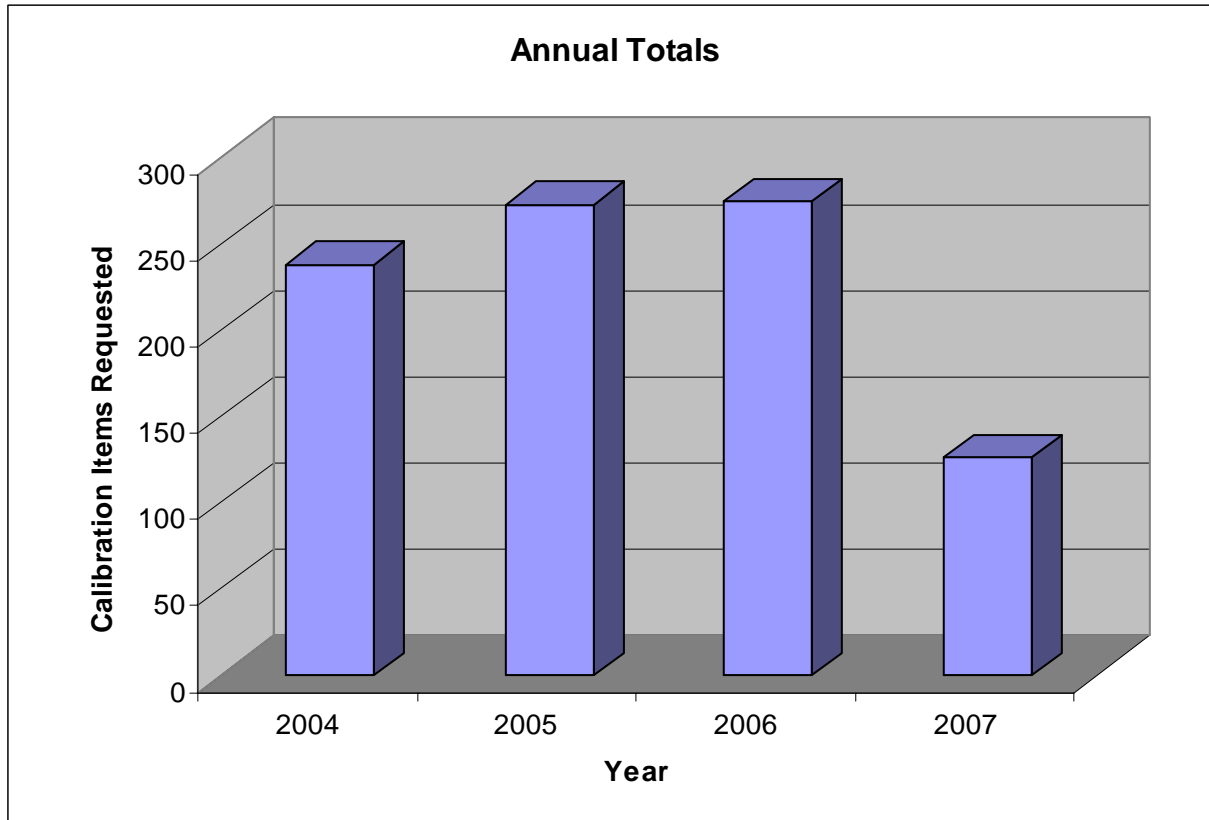
Software Name	Version	Software Description	Software Tracking Number	CPU Operating	Date Baselined
SeisOpt ReMi	2.0	This is an acquired program that enables the user to process, interpret, and model refraction microtremor data. The SeisOpt® line of velocity optimization software is designed specifically for deriving velocity models from seismic data acquired in areas characterized by strong lateral velocity gradients and extreme variations in topography.	UCCSN-007	Windows 2000	11/21/2006
TOUGH2	1.6	TOUGH2 is used as an integral finite difference numerical simulator program for nonisothermal flows of multi-component, multiphase fluids in porous and fractured media. TOUGH 2 was recompiled by NSHE using Intel Fortran Compiler, Version 8 to run on an Intel based PC running MS Windows XP.	NSHE-1.6-025	Windows XP	3/20/07
T2R3D	1.4	T2R3D is an acquired program based upon TOUGH2 and is used for efficient simulation of radionuclide transport in porous media. It was developed to handle transport of sorbing and non-sorbing tracers in fractured media. T2R3D was recompiled by NSHE using Intel Fortran Compiler, Version 8 to run on an Intel based PC running MS Windows XP.	NSHE-1.4-026	Windows XP	3/20/07
WCDS <sup>(1)</sup>	9.04	WCDS compiles interval climate data (hourly, 15-min, 10-min, etc.) to create daily and monthly summaries. The summaries contain daily averages-extremes and totals and monthly averages-extremes and totals. This software uses appropriate statistical and analytical techniques for the different parameters that are summarized.	UCCSN-006	Windows 98SE, Solaris 2.8	11/9/04
<sup>1</sup> Suspended from the baseline see Software Problem Report SPR-05-01					
<sup>2</sup> Calib v3.0 qualified for limited use (seismometer natural frequencies <2.0 Hz): reference Software Problem Report SPR-06-01					

## Procurements

NSHE QA worked with study personnel to assure that quality-affecting items and services were purchased from vendors on a “qualified suppliers list.” In addition to requesting qualification of vendors by DOE, staff worked with study personnel on individual purchases to assure that adequate requirements were submitted to the vendors. There were six categories of procurement services that QA provided for the research studies:

**Table 9, Procurements Processed**

	FY 2004	FY 2005	FY 2006	FY+CY 2007	Totals
Supplier Qualifications requested	2	5	4	0	11
Standards purchased	6	9	14	8	37
Test materials purchased or certified	0	2	0	2	4
Calibration service requests (Figures 3a & 3b)	46	66	55	42	209
Items calibrated (Figure 4)	238	273	275	126	912
Subcontracts & Sample Analyses	1	8	12	1	22



**Figure 3a – Total calibration service requests processed**

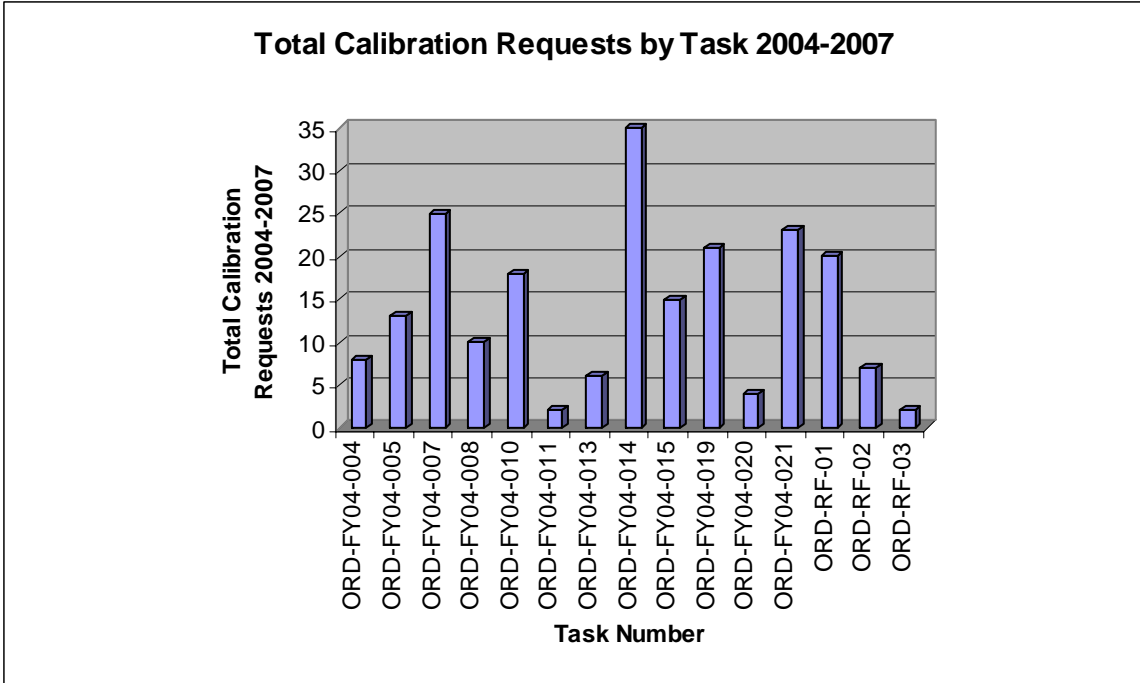


Figure 3b – Total calibration service requests by task

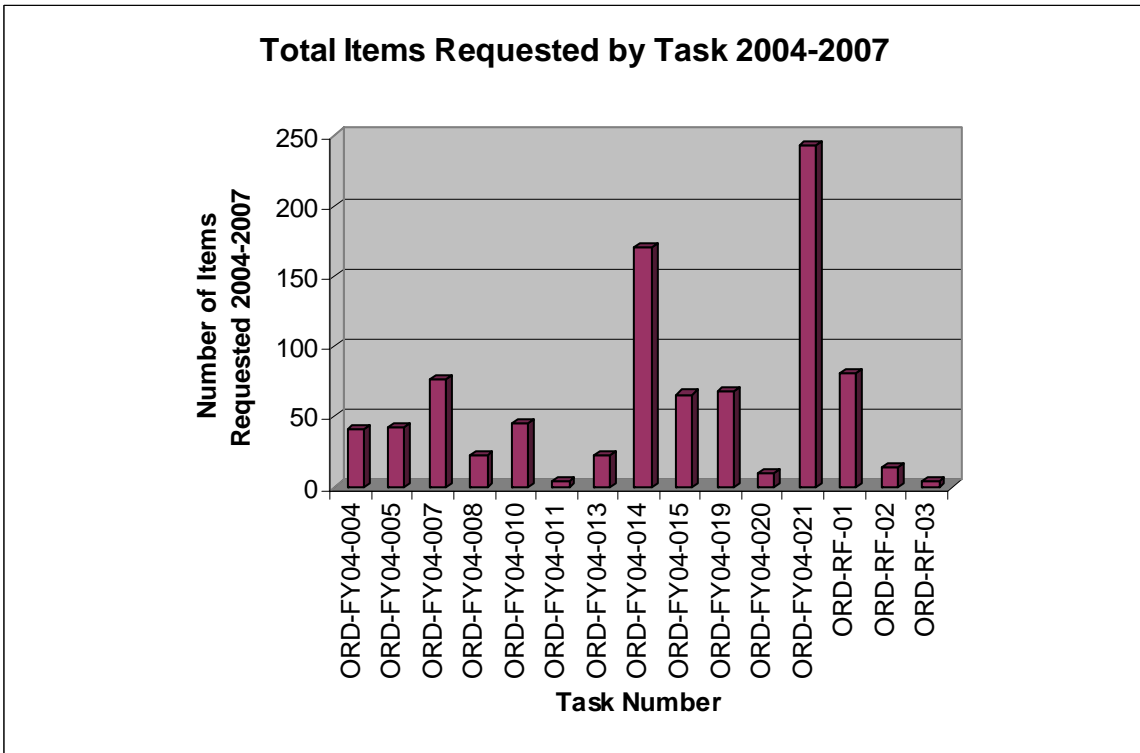


Figure 4 – Total number of items for which calibration services were requested



## Personnel Trained

Training was required by the NSHE QA Program, including general QA, Scientific Notebook training, Data Submittal training, as well as training to the Implementing Procedures used by each research study. During the cooperative agreement, four training videos were developed and used to accomplish training goals more efficiently.

**Table 10, Personnel Trained by Classroom Training**

	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY+CY 2007</b>	<b>Totals</b>
Number of Sessions	21	42	35	4	102
Number of Personnel	89	112	107	42	350

## Records Transmitted to the U.S. Department of Energy

DOE has specific requirements for quality (i.e., legibility, etc.), retention, storage, and format of records that are transmitted to the agency's Records Processing Center (RPC). Each research study's records had to meet these requirements. NSHE QA Records Coordinator examined every page of each record before it was sent to the RPC and worked with research personnel to assure requirements were met. QA prepared transmittals and sent the records to the RPC:

**Table 11, Records Processed and Transmitted to the Record Processing Center**

	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY+CY 2007</b>	<b>Total</b>
Number of Records	248	315	386	346	1295