Data Qualification Status

Presented to:
DOE/NRC Quarterly QA Meeting

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June 13, 2001
Rockville, Maryland

**YUCCA
MOUNTAIN
PROJECT**

Qualification Goals and Objectives

- The original goal was to qualify at least 80% of the data used in the PMRs and their supporting AMRs at the time Rev 1 of the PMRs were submitted to DOE

- The 80% data qualification goal has been met for Rev 0 PMRs (and ICN updates) and supporting AMRs used in Total System Performance Assessment/Analysis (TSPA) Site Recommendation (SR) Rev 0, ICN 1

- Overall objective is to ensure and maintain confidence in the data verification and qualification processes, qualification status and continue to make process improvements

Data Qualification Status by PMR

PMR	03/31/01 Percent Data Qualified	03/31/01 Percent Data Verified	06/04/01 Percent Data Qualified	06/04/01 Percent Data Verified
Biosphere	94	100	97	100
Disruptive Events	91	100	91	100
EBS	87	100	90	100
ISM	83	100	85	100
Near Field	88	100	90	100
SZ F&T	81	91	82	90*
UZ F&T	88	94	91	96
Waste Form	93	95	95	100
Waste Package	91	100	91	100
Total	88	96	89	96

*Reduction in percent complete due to correction of Automated Technical Data Tracking system posting error

Note: Percent complete statistics reflect the multiple use of a DTN in different AMR/PMR products

Verification/Qualification Status as of 6/04/01

	Total*	Completed	To-Go	
VL1 DIRS (Verif. Checklists)	241	228	13	(Q-TBV) ("actual citations")
VL1 Sources (Verif. Checklists)	329	329	0	(Q-TBV) ("daughters")
VL2 (No Verification Checklists)	177	177	0	(Q-TBV)
Accepted Data (Fact)	105	105	0	(e.g., handbooks, textbooks)
Accepted Data approved by Assistant Manager, Office of Project Execution	23	13	10	(e.g., journal articles)
Qualified by procedures established after 6/30/99	23	23	0	
Unqualified DTNs	<u>310</u>	<u>254</u>	<u>56</u>	
Totals	1208	1129	79	
Percent of Total Data Citations		94%	6%	

*Above totals are based upon the unique number of DTNs for all AMRs/PMRs.

Note: Document Input Reference System VL1+VL2+AP-SIII.2Q+Accepted (879) + Source VL1 (329) = Total Data Citations (1208)

Data Verification Results as of 6/04/01

ORG	Completed Checklists	Verified Q	Verified UQ	Reject Rate**
USGS 282 (U. S. Geological Survey)		269	13	4.6%
LANL 105 (Los Alamos National Laboratory)		105	0	0%
LBNL 5 (Lawrence Berkeley National Laboratory)		4	1	20%
LLNL 33 (Lawrence Livermore National Laboratory)		33	0	0%
BSC* 53 (Bechtel SAIC Company, LLC)		51	2	3.8%
SNL 79 (Sandia National Laboratories)		78	1	1.3%
Total 557		540	17	3.1%

* Data generated by previous Yucca Mountain Site Characterization Project (YMP) organizations (i.e., Raytheon Services Nevada and Technical and Management Support Services) DTNs are now considered BSC data, and the results for these data are included in the BSC totals.

** Reject is defined as a determination that the data submitted under the associated DTN cannot be verified. There are two principal causes for rejection. Either the data acquisition/development process did not meet QARD requirements or data-/record-related issues discovered during checklist preparation could not be resolved.

Overview of Results to Date

- There have been 17 rejects out of 557 DTNs containing approximately 950,000 records with 17,000,000 data cells

- Individual rejects were either qualified per AP-SIII.2Q, Qualification of Unqualified Data and the Documentation of Rationale for Accepted Data, or replaced, having the authors rely on an alternative qualified data set(s)

- The 17 rejects were subsequently subjected to the qualification process which reduced the rejection rate to 1.4%

- Replacement of unqualified data with qualified data was used to address the remaining rejects

- To date, no AMR technical conclusions have been invalidated due to data rejections

Challenges

- **Verification and Qualification production continues to be dependent on early identification of new or additional unqualified data requiring qualification**

- **There continues to be significant complexity in the remaining unqualified DTNs resulting in greater than average processing time**

- **Despite the challenges, there is commitment by BSC, Labs and U. S. Geological Survey (USGS) to improve integration of activities and timeliness of products to support data and qualification schedules**
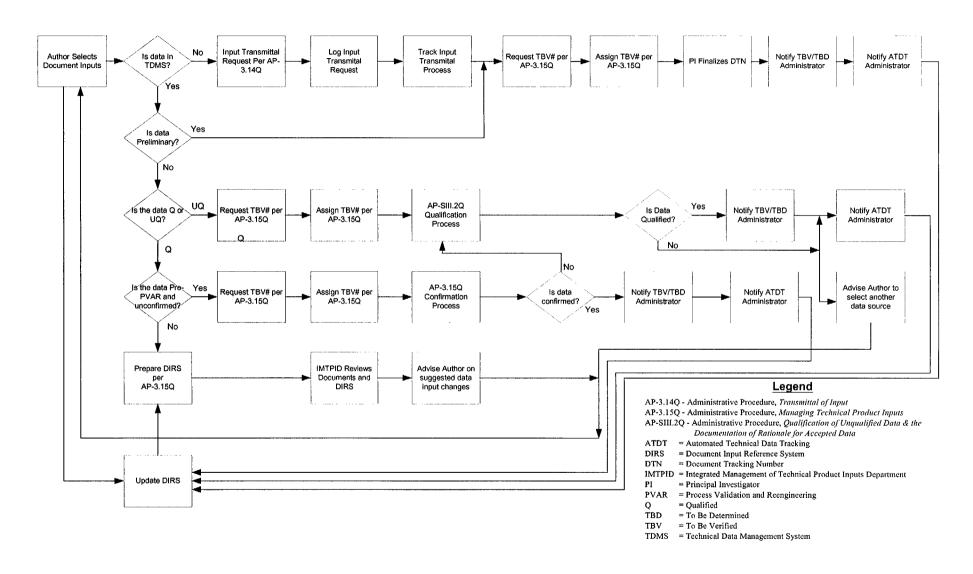
Summary

- **The goal to qualify 80% of the data in the Rev 0 PMRs and supporting AMRs (and ICNs) used in TSPA Rev 0, ICN 1 has been met**

- **Based on the current set of TSPA-SR Rev 0, ICN 1 AMRs, the status is:**

  includes results of TSPA-SR?

  - **96% of data verified**

  - **89% of data qualified**

Backup

Lawrence Berkeley National Laboratory (LBNL) Challenge

- **LBNL DTNs are typically large and tend to be more complex by nature**

- **Traceability Evaluation thoroughly traces data from raw records to the TDMS**

- **Approximately 60% of LBNL DTNs have over 5,000 rows of data**

- **DTN LB960500834244.001 (Hydrological Data, Permeability in ESF Area)**
  - **49 data tables**
  - **10,929 rows of data**
  - **more than 45 pieces of Measuring and Test Equipment (M&TE)**
  - **2 intermediate processing steps from raw records to final data**
  - **7 scientific notebooks**

Technical Product Input Process

Legend

AP-3.14Q - Administrative Procedure, *Transmittal of Input*
AP-3.15Q - Administrative Procedure, *Managing Technical Product Inputs*
AP-SIII.2Q - Administrative Procedure, *Qualification of Unqualified Data & the Documentation of Rationale for Accepted Data*

ATDT	= Automated Technical Data Tracking
DIRS	= Document Input Reference System
DTN	= Document Tracking Number
IMTPID	= Integrated Management of Technical Product Inputs Department
PI	= Principal Investigator
PVAR	= Process Validation and Reengineering
Q	= Qualified
TBD	= To Be Determined
TBV	= To Be Verified
TDMS	= Technical Data Management System