JAN 17 1991 CENTRAL FILES P-137

DOE Q-LIST

MEMORANDUM FOR: John J. Linehan, Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level Waste Management, NMSS

FROM: Ronald L. Ballard, Chief
Geosciences and Systems Performance Branch
Division of High-Level Waste Management, NMSS

SUBJECT: DOE Q-LIST AND QUALITY ACTIVITIES LIST

Per your request of December 13, 1990, our branch has reviewed the following DOE documents:

Yucca Mountain Project "Q-List," YMP/90-55, Rev. 0, July 24, 1990.

Yucca Mountain Project "Quality Activities List (QAL)," YMP/90-56, Rev. 0, July 24, 1990.

Yucca Mountain Project "Project Requirements List (PRL)," YMP/90-57, Rev. 0, July 24, 1990.

This review was conducted by P. Brooks (Performance Assessment), J. Pohle (Hydrology/Geochemistry), and J. Trapp (Geology/Geophysics), and their comments are attached. The review did not identify any items or activities in geology, performance assessment or geochemistry which were considered to be omitted from the list, or any items or activities considered to be on the wrong list(s). In the area of hydrology, however, there may be a problem. Geohydrology, as presented in the activities list under WBS 1.2.3.3.1, does not cover all aspects of hydrology, and therefore, many activities related to hydrology apparently have been omitted. As Geohydrology should be a 4 digit number, not a 5 digit number, this may by a typographical error, and not an omission. However, the problem needs to be addressed. See the enclosed note by J. Pohle for more details.

The only other significant concern identified by the reviewers was the use of N/A in the lists following "SCP Reference", and "Related Q-List Item". We believe this term provides the wrong connotation for people reviewing and using these lists. The reviewers noted that in these cases there may be multiple possible entries, and believe a statement more definitive than "N/A" is appropriate.

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It is our opinion that the change from essentially no entries presented on the Q-List in the SCP to these relatively universal lists represent a proper action by the DOE. It is also our opinion that these lists must be viewed as preliminary, with the understanding that major changes will occur prior to any licensing submittal, as more information becomes available and the analyses become more complete.

/S/

Ronald L. Ballard, Chief
Geosciences and Systems Performance Branch
Division of High-Livel Waste Management, NMSS

Enclosure:
As stated

cc: K. Hooks

DISTIBUTION:

Central Files	HLGP r/f	NMSS r/f
RBrowning, HLWM	BJYoungblood, HLWM	JBunting, HLEN
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OFC : HLGP	:HLGP	:HLGP
NAME: JTrapp/ga	:PJustus	:RLBallard
Date: 1/17/90	: 1/17/90	: 1/17/90

ROUTING AND TRANSMITTAL SLIP

DATE: January 17, 1991

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	SIGN AND/OR CONCUR	DATE
1. John Trapp		1/18/91
2. Philip Justus	for	1/17/91
3. Ronald L. Ballard		1/17/91
4. David Brooks		1/17/91
5. Pauline Brooks	plb	1/17/91
6. Seth Coplan		1/17/91
7. Jeffrey Pohle		1/17/91
8.		/ /
9.		/ /

ACTION:	CIRCULATED:	FOR YOUR INFO:
APPROVAL:	COMMENT:	SEE ME:

MEMORANDUM/NOTE John J. Linehan

FROM: Ronald L. Ballard

SUBJECT: DOE Q-LIST AND QUALITY ACTIVITIES LIST

ORIGINATOR/SECRETARY: John Trapp
Gi

ROOM NO./BLDG.: 5-H16
PHONE NO.: 20509

JAN 11, 1991

NOTE TO: J. TRAPP

FROM: P. BROOKS P. Brooks

SUBJECT; REVIEW OF DOE QUALITY ACTIVITIES LIST RELATIVE TO PERFORMANCE ASSESSMENT

I have reviewed the sections of the above document which we discussed and it appears that the items of concern to the Systems Performance Section have been appropriately covered. Some of the details follow.

I have reviewed the activity labelled Performance Assessment (WBS 1.2.1.4) in DOE's Yucca Mountain Project "Quality Activities List (QAL)," YMP/90-57, Rev. 0, July 24, 1990, page 5. Inclusion of WBS 1.2.1.4 is in accord with the "Technical Position on Items and Activities in the High-Level Waste Geologic Repository Program Subject to Quality Assurance Requirements," NUREG-1318, April 1988. Specifically,"...activities related to natural barriers important to waste isolation should be identified and listed on a Quality Activities List. These activities include: performance assessments,..." (See the definition of activities on pages 3 and 18 of NUREG-1318).

WBS 1.2.1.4.7, Supporting Calculations for Postclosure Performance Analyses (Scoping Studies), was a subordinate activity which was excluded from the QAL. (See Yucca Mountain Project "Project Requirements List (PRL)," YMP/90-57, Rev. 0, July 24, 1990, Section 2, page 6.) Exclusion of Scoping Studies from the QAL appears to be in accord with the concept expressed on page 13 of NUREG-1318: "There may be cases, however, where it is known that data are not needed for performance assessments, or will be duplicated under Subpart G and therefore would not have to be covered under Subpart G. For example, scoping tests or tests to examine the feasibility and appropriateness of a data collection technique may not need to be performed under Subpart G."

WBS 1.2.1.3, Technical Data Base Management is a related activity that is properly placed on the QAL. Its subordinate activity, Administrative Tasks, is properly exempted in the PRL.

The usage of N/A as an entry for SCP Reference for Performance Assessment is not clear. The usual interpretation, "Not Applicable," is not correct. I suggest that when there are too many references to a topic such as performance assessment for it to be practicable to list them, that another symbol should be used to describe the SCP references or a footnote (*) as to the desired interpretation of N/A in a particular instance should be added.

cc. Seth Coplan

JAN 16 1991

NOTE TO: J. Trapp

THROUGH: D. Brooks

FROM: J. Pohle JP

SUBJECT: HT SECTION REVIEW OF DOE'S "Q-LIST", "QUALITY ACTIVITIES LIST" AND "PROJECT REQUIREMENTS LIST"

We have reviewed the subject documents and generally find that subjects which are of concern to the Hydrologic Transport Section have been covered. Comments regarding the three documents are as follows:

Q-LIST

Sections 1 and 2 of the Q-LIST identify engineered items important to safety and waste isolation. We have no comments on these sections.

Our review of the Q-LIST focused on Appendix A (Natural barriers important to waste isolation). The identification of natural barriers important to waste isolation is "based upon information in the site characterization plan (SCP)" (see Table 3-22 on page 3-139 of the SCP as referenced in the Q-LIST) and the "choice of hydrogeologic units for describing the natural barriers at the site parallels the usage in the SCP discussion of groundwater travel time and total system performance" (page 2 of the Q-LIST). This approach appears to cover all of the hydrologic system of the natural system related directly to waste isolation (e.g., natural barriers). Therefore, we have no comments on Appendix A of the Q-LIST.

QUALITY ACTIVITIES LIST

Geoscience activities are assigned to the Quality Activities List (QAL) on the basis of their association with a natural barrier important to waste isolation (presumably as identified in the Q-LIST). The Introduction to the QAL provides more detailed criteria for placing activities on the list (see page 3 of the QAL).

It appears that those studies/activities that are the concern of the HT Section are included in the QAL. The basis for this conclusion is as follows:

1. Geohydrology (SCP Chapter 8.3.1.2; WBS 1.2.3.3.1; page 7 of QAL) This includes all subordinate activities except those specifically identified in the Project Requirements List Section 2 - Activities not quality related and PRL Appendix A - Exempt items and activities

2. Preclosure Hydrology (SCP Chapter 8.3.1.16; WBS 1.2.3.3.2; page 8 of QAL) This includes subordinate activities except SCP 8.3.1.16.2; WBS 1.2.3.3.2.2, Location of adequate water supplies.

3. Location of Adequate Water Supplies (SCP Chapter 8.3.1.16.2; WBS 1.2.3.3.2.2; page 8 of QAL) This includes site activities dealing with identification of water supplies.

4. Geochemistry (SCP Chapter listed as N/A; WBS 1.2.3.4; page 8 of QAL)

This includes all subordinate activities.

5. Environmental Meteorological Studies (SCP Chapter 8.3.1.12; WBS 1.2.3.6.1; page 9 of QAL) Includes all subordinate activities.

6. Climatology (SCP Chapter 8.3.1.4; WBS 1.2.3.6.2; page 9 of QAL). Includes all subordinate activities.

7. Air Quality/Meteorology (SCP Chapter 8.3.1.12.2; WBS 1.2.5.4.2; page 12 of QAL) This includes all subordinate activities.

Included in the QAL are activities that appear relevant, but are not readily relatable and are not referenced to the SCP. These include Radiological Studies (Radiological monitoring plan- airborne radionuclide, surface water and groundwater monitoring; WBS 1.2.5.4.5) and Water Resources (field surveys and monitoring; WBS 1.2.5.4.8).

Comments on the QAL

1. The categories of activities appear to be based primarily on DOE's Work Breakdown Structure Dictionary (WBS). This makes review difficult as NRC staff are generally not familiar with the WBS. Further, the WBS is structured differently from the SCP making some SCP references in the QAL seemingly redundant (see items 5 and 7 above).

2. The WBS references do not appear to be accurate or complete. For example, the geohydrology activites in the QAL reference SCP Chapter 8.3.1.2 which is the complete geohydrology program. The WBS reference is 1.2.3.3.1 which relates only to streamflow studies in the WBS dictionary which does not include groundwater flow analyses (WBS 1.2.3.3.2, 1.2.3.3.2.B, 1.2.3.3.2.G), saturated zone hydrology (WBS 1.2.3.3.3.G) or unsaturated zone hydrology (WBS 1.2.3.3.4.B, 1.2.3.3.4.G). We see no need to track down more examples at this time.

3. Some SCP references are missing. For example, under geochemistry the SCP reference is listed as N/A. It would appear to be applicable to us (should be 8.3.1.3).

4. It is stated in the Q-LIST that "items that are recommended by the AT Group as IITWI shall be limited to the engineered and natural barrier components of the postclosure repository system". Items consisting of natural barriers that are important to waste isolation are identified in Appendix A of the Q-LIST. While the discussion of the QAL in the introduction section of the QAL (page 2) notes that there "is no specific correlation between Q-LIST items and WBS entries" it "is necessary to relate activities to items". However, for those activites in the QAL reviewed by the HT section, noted above, the related Q-LIST item is listed as N/A.

PROJECT REQUIREMENTS LIST

The Project Requirements List (PRL) is broken down into two sections and an

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appendix. Section 1 are those items not selected as items important to safety (IITS) or as items important to waste isolation (IITWI). Section 2 are all activities not selected as quality activities for the QAL (may contain activities associated with IITS or IITWI). Appendix A contains exempt items and activities.

Section 1

Section 1 has not been completed by the DOE at this time.

Section 2

Section 2 does not appear to contain any excluded activites within the HT Section area of responsibility.

Appendix A

Appendix A does not appear to contain any exempt items or activites within the HT Section area of responsibility.

To do this review we borrowed R. Johnson's copy of DOE's Work Breakdown Structure Dictionary. It is noted that some WBS references in the various lists are not contained in that copy. It is possible that the WBS is changed periodically and we may not have all updates.

cc: R. Ballard
P. Justus

NOTE TO: P. JUSTUS

FROM: J. TRAPP 15 Jan 1991

SUBJECT: Review of DOE Q-List and Quality Activities List

Per your verbal request, I have reviewed the above document. While it is impossible to provide a detailed review without reviewing the WBS Dictionary and various DOE procedures, review of the documents themselves appears to indicate - with the possible exception of drilling support - that those things which are of concern to the Geology/Geophysics section have been covered. The basis for this statement is as follows:

1. Geology (WBS 1.2.3.2), except part of WBS element 1.2.3.2.2.2.1, 1.2.3.2.6, and 1.2.3.2.8, is included on the activities list. This includes all subordinate activities except those specifically identified in PRL Section 2 and PRL Appendix A.

2. WBS 1.2.3.2.6 and 1.2.3.2.8 have not been excluded, but rather have been specifically included separately on the activities list.

3. WBS 1.2.3.2.2.2.1 are scoping and planning studies prior to performing the systematic drilling program, therefore are probably not required. Prior to performing these studies DOE must submit a study plan, and if something appears to be missing the staff can question the reasoning at that time.

4. Examination of PRL section 2 does not reveal any items listed under WBS 1.2.3.2. except 1.2.3.2.2.2.1

5. Examination of PRL Appendix A does not reveal any items or activities listed under 1.2.3.2

6. Resource potential (which would be included under the geology/geophysics section responsibilities) and climatology (which may include some activities under the sections responsibilities) includes all subordinate activities.

7. Drilling (WBS 1.2.3.5), which may include activities under the sections responsibilities, excepting activities 1.2.3.5.4, 1.2.3.5.3.20, and 1.2.3.5.2.1, includes everything except those excluded in PRL Section 2 and Appendix A.

8. WBS 1.2.3.5.3.20 is included separately under the Q-List.

9. WBS 1.2.3.5.4 is prototype air coring, therefore does not appear to need to be covered.

10. WBS 1.2.3.5.2.1 is drilling support, therefore probably does not need to be covered, however as I don't really know what this entails I can not be sure at this time.

11. Much of the geologic information goes into design basis, and design basis is included in the list.

12. Much of the geologic data will be used in performance assessment, and performance assessment is included on the list.

I have questions in areas outside of the direct geology/geophysics area, but have not listed due to the time commitment. I assume these will be covered by the people directly responsible.