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MEMORANDUM FOR: Robert E. Browning, Director
Division of Waste Management

FROM: F. Robert Cook, Senior On-Site Licensing Representative, Basalt Waste Isolation Project (BWIP)

SUBJECT: REPORT OF ACTIVITIES, OBSERVATIONS AND COMMENTS FOR THE PERIOD NOVEMBER 1 TO DECEMBER 15, 1984

1. On November 8 I attended the NRC Staff presentation pertaining to the role of quality assurance in the potential future licensing of DOE to possess source, special nuclear, and byproduct material at a geologic repository operations area. The presentation was made to DOE and their contractors at Richland. An item which the Staff highlighted during the presentation, but does not appear actively being considered or implemented by DOE and their contractors now, is the application and effective implementation of quality assurance requirements to design activities for the engineered barrier system and the geologic setting, during the period prior to issuance of a site characterization plan described in NWPA or a site characterization report required by 10CFR60.11. Per discussions with RHD management following the meeting at Richland RHD does not consider the Staff's QA review plan indicates QA program implementation is inticated in this pre-SCP/SCR period.

This is a part of the item indentified as OBJECTION #1 of the Commission's comments of July 31, 1984 on the DOE Mission Plan. (This was the objection that dealt with quality assurance and early NRC involvement.)

This same item surfaced in the recent QA workshops with DOE BWIP, NNWSI and the Salt, (see the respective meeting reports, for example, items 2 and 9 of the NRC comments at the BWIP meeting and DOE comment #1 and the record note to the summary meeting notes for the NNWSI meeting.)

I consider this item should be raised again to top level DOE management.

In any such correspondence I consider we need to further emphasize the extent of the activities covered under the term "design activities" as I have used it above. For example, the technical work which is being applied to the development of the various

plans identified in BWIP's Hierarchy of Project Activities and Documentation, Attachment A, should be subject to QA requirements including QA overchecks. The engineering and scientific logic being used in developing these plans is of utmost importance to assure appropriate data and analyses are collected and accomplished, respectively.

It is also important to emphasize to DOE that QA is applicable to design activities associated with systems, components and structures "important to safety"; systems, components and structures of the "engineered barrier system" important to "containment" and important to "isolation", as well as, the natural barriers of the "geologic setting" and other barriers, for example seals, important to "isolation". In addition design activities associated with: 1) planning, 2) actual research and development and/or 3) exploration, pertinent to determining environmental conditions (including conditions resulting from synergistic interactions of the natural and engineered components of the "geologic repository" and the engineered barriers potentially not part of the "geologic repository") should be identified as being subject to QA requirements.

2. I emphasize the areas in 1. above because there appears to be an understanding within DOE that issues associated with containment by waste packages and isolation by the engineered system and the geologic setting are related to meeting EPA's general environmental standard for radioactivity and, hence, are not subject to QA requirements associated with public health and safety issues typically addressed in licensing proceedings.

Per discussion with Wolf (ELD) in November consideration of the geologic repository and the waste packages performance relative to the EPA radiological standard is an issue concerning the health and safety of the public. (I note this seems to contradict ELD's comments in his letter to Mr. Davis of July 24, 1984 concerning application of Parts 19 and 21 to the DOE HLW program--see page 3, paragraph 2.) However, the application of QA to DOE activities assessing (or collecting data pertinent to the assessment of) environmental values (I assume other non-radiological general environmental standards) referred to in 10CFR60.31(c) "Environmental" is apparently not required. This differentiation between QA applicable to addressing radiological and non-radiological general environmental standards may be the source of confusion in the DOE. It would appear warranted to review the applicability of QA to activities to gather information used to support each of the categories of findings identified in 10CFR60.31, i.e., (a) Safety, (b) Common defense and security and (c) Environmental, and to advise DOE of the appropriate application in each case.

In addition it appears warranted to clarify whether or not findings will be made at construction authorization concerning the performance objectives of Subpart E for CONTAINMENT by the waste package and for ISOLATION to be achieved by the engineered

barrier system as well as the overall repository system performance to achieve ISOLATION. If so, it should be identified in which category of 60.31 the findings fall. This will allow determination of the need for application of QA to activities and information pertinent to each of the findings, assuming there is a different need.

In connection with this issue, as currently written it appears item 60.31(a)(2) may not include consideration of the performance objectives noted in the paragraph above considering the specified meaning of "Site" and the "Geologic repository operations area" design referred to therein.

3. Rockwell recently performed a safety inspection of the NSTF and found a safety problem associated with the concrete lining on the ceiling and walls of the facility's drifts. They deduced by a rod test during which they tap the lining and listen for a "hollow" sound indicative of a lack of bond or a cavity between the concrete and the underlying basalt that usage of the facility was inconsistent with personnel safety. I was restricted from entering the facility to observe the problem. In addition I was prohibited from viewing approximately 80 feet of core samples which were obtained during over-coring operations just prior to the safety inspection and were stored in the facility.

Plans are not yet made to correct the problem and allow continuing BWIP operations.

4. I reviewed the NRC Review Plan: Quality Assurance Programs for Site Characterization of High Level Nuclear Waste Repositories, dated June 1984. My comments are contained in Attachment B.

F. Robert Cook

F. Robert Cook
Senior On-Site
Licensing
Representative
BWIP

~~cf: Attachment A is not included in distribution copies.~~

JOBunting
HJMiller
MRKnapp
JMHoffman
TRVerma
FTPrestholt
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LHBarrett
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ATTACHMENTS A AND B
AS STATED

ATTACHMENT B

COMMENTS ON DOE'S QA PLAN OF 9/84 AND NRC'S QA REVIEW PLAN
OF 6/84

1. Section 3.1 for the Staff's Review Plan for QA contains various definitions of terms and reference to definitions of terms. The statement at the end of the first paragraph appears in error and/or somewhat misleading. Specifically the definition of DESIGN only appears in the Atomic Energy Act of 1954 in Section 11(i). It states, "The term 'design' means (1) specifications, plans, drawings, blueprints, and other items of like nature; (2) the information contained therein; or (3) the research and development data pertinent to the information contained therein." The discussion specifically leaves out note that RESEARCH AND DEVELOPMENT is part of DESIGN. The terms "DESIGN INFORMATION" and "DESIGN ACTIVITIES" are not defined anywhere as far as I know in Part 60 nor the Act. The specific definitions and/or usage of these terms in Part 60 or the act is unknown to me, however the context seems to suggest that they are parallel to the term "RESEARCH AND DEVELOPMENT".

I recommend that the definition of the terms "DESIGN" and "RESEARCH AND DEVELOPMENT" from the Atomic Energy Act be reiterated in the QA plan and that their usage be incorporated into the review plan consistent with the definitions.

2. In Section 3.1 the words "conceptual design" and "final design" are used. These terms should be defined, particularly the term "conceptual design" since it is inconsistently comprehended by various people involved in the projects. I note that the conceptual designs that DOE plans to prepare are an accumulation of extensive trade studies and other design documents in DOE project applications and represent extensive development information. I consider it is inconsistent with including development and exploration activities under DESIGN to suggest that it, DESIGN, starts with "conceptual design" and ends with "final design". This inference should be eliminated from Section 3.1 since it seems inconsistent with the definition of "DESIGN" in the Atomic Energy Act.

3. A significant ambiguity which is not clearly resolved by the review plan is whether or not the QA required by Part 60, sections 60.150, Scope, and 60.151, Applicability, include sub-systems structures and components of the engineered barrier system important to meeting the "CONTAINMENT" performance objective of 60.113(ii)(A) and whether fabrication of the barriers important to "isolation" and important to "containment", including fabrication of the waste packages, is included. This ambiguity should be resolved in revising the review plan.

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