



Department of Energy

Washington, DC 20585

QA: QA

JAN 14 2003

L. J. Trautner
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ISSUANCE OF DEFICIENCY REPORTS (DR) BSC(O)-03-D-059 AND BSC(O)-03-D-060 REFERRING TO DRAWING REFERENCE INPUTS INADEQUACIES

Enclosed are DRs BSC(O)-03-D-059 and BSC(O)-03-D-060 generated as a result of
OQA Surveillances OQA-SI-03-006 and OQA-SI-03-008.

Please provide responses to these deficiencies that meet the applicable requirements of
Administrative Procedure (AP) 16.1Q, *Management of Conditions Adverse to Quality*.
Send the original of your responses to Deborah G. Opielowski, Navarro Quality Services,
P.O. Box 364629, Mail Stop 455, North Las Vegas, Nevada 89036-8629. Initial
responses to the DRs are due ten working days from the date of this letter. Any
extensions to the due dates must be requested in accordance with AP-16.1Q.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or
James V. Voigt at (702) 794-1487.


R. Dennis Brown, Director
Office of Quality Assurance

OQA:JB-0507

Enclosures:

1. DR BSC(O)-03-D-059
2. BSC(O)-03-D-060



L. J. Trautner

-2-

JAN 14 2003

cc w/encls:

N. K. Stablein, NRC, Rockville, MD

Robert Latta, NRC, Las Vegas, NV (2 cys)

S. W. Lynch, State of Nevada, Carson City, NV

L. W. Bradshaw, Nye County, Pahrump, NV

G. K. Beall, BSC, Las Vegas, NV

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N. H. Williams, BSC, Las Vegas, NV

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D. G. Opielowski, NQS, Las Vegas, NV

J. V. Voigt, NQS, Las Vegas, NV

W. J. Arthur, III, DOE/ORD (RW-2W), Las Vegas, NV

B. M. Terrell, DOE/ORD (RW-40W), Las Vegas, NV

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8. DEFICIENCY REPORT

CORRECTIVE ACTION
REPORT

NO. BSC(O)-03-D-059

PAGE 1 OF

QA: QA

DEFICIENCY REPORT/CORRECTIVE ACTION REPORT

1. Controlling Document. (Document ID and Revision or Date)

AP-3.15Q, Revision 3, ICN 0, *Managing Technical Product Input*

2. Related Report No.:

Surveillance Reports
OOA-SI-03-006 and OOA-SI-03-008

3. Responsible Organization:

Bechtel SAIC Company, L.L.C. (BSC) Projects

4. Discussed With:

L. Abernathy, E. Thomas, C. Hastings, B. Stanley,
M. Nash, Michael Jaeger, Bill Watson, Tom Doering

5. Requirement:

Paragraph 5.3.1 a) states: "During technical product development, determine the technical product input status and whether the technical product input needs a TBV number by using Attachment 4, Input Status Decision Checklist"

To select "N/A-Corroborative Information," AP-3 15, Revision 3, ICN 0, Attachment 4, states that input conforms to following criteria:

"Input used to corroborate data, validate models, or serve as the basis for assumptions (for example, a conservative, bounding, or industry accepted assumption) or other technical information, including equations or formulas. Corroborative information is not used as a direct input into the results or conclusion and does not require further confirmation."

(Continue on page 2)

6. Description of Condition:

The following documents have inputs that are contrary to the above requirement regarding an input status of "N/A-Corroborative Information":

- 1. CAL-WIS-PA-000009, Revision 0, "Performance Assessment of a Potential Post-Closure Prophoric Event Involving Uranium Metal Spent Fuel." Input is DOE/SNF/REF-047, Revision 1.

Paragraph 5.2.1, Table 5.2-1 states in part: "... The National Spent Nuclear Fuel Program (DOE, 2001, Attached electronic file) provided information for each group of DSNF. This information consisted of the amount of spent fuel, the radionuclide inventory, packaging and physical properties for each category of DSNF. The total amount of DSNF in the 11 groups is approximately 2,496 metric tons heavy metal (MTHM) (Table 5.2-1). ..."

Paragraph 5.2.3, Table 5.2-3 states in part: "... Table 5.2-3 shows the waste package configuration for the Group 7 DSNF total inventory. There are no High Integrity Cans, Pressurized Water Reactor (PWR) of Boiling Water Reactor (BWR) packages included in the group (DOE, 2001, attached electronic file) For calculation of the amount of N Reactor spent fuel, the 199 co-disposal packages that contain two MCOs and two canisters of HLW will be used (Table 5.2-3). ..."

Has work been stopped? Yes No

7. Initiators:

James V. Voigt

James V. Voigt

1-7-2003

John R. Doyle

John R. Doyle

1/7/2003

Printed Name

Signature

Date

9. Does a stop work condition exist?

Yes No N/A

If Yes, Check One:

A

B

C

D

10. Recommended Actions:

None.

11. QA Review:

James V. Voigt

James V. Voigt

1-8-2003

Printed Name

Signature

Date

12. Response Due Date:

10 Working Days after Issuance

13. QAM Issuance Approval:

Printed Name

R. Dennis Brown

Signature

R. Dennis Brown

Date 1/10/03

14. Corrective Actions Verified/Closure:

QAR Printed Name

Signature

Date

15. QAM Closure Approval:

Printed Name

Signature

Date

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 SWO

NO. BSC(O)-03-D-059

PAGE OF

QA: QA

CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Block 5. Requirement: (continued)

To select "N/A-Corroborative Information", AP-3.15, Revision 3, ICN 0, Attachment 4, states that input conforms to following criteria:

Input used to corroborate data, validate models, or serve as the basis for assumptions (for example, a conservative, bounding, or industry accepted assumption) or other technical information, including equations or formulas. Corroborative information is not used as a direct input into the results or conclusion and does not require further confirmation.

To select "N/A-Reference Only," AP-3.15, Revision 3, ICN 0, Attachment 4, states that input conforms to following criteria:

The input does not fit in any of the above (the rest from attachment 4) categories and has no impact to the results or the conclusions of the document.

To select "N/A-Accepted Data (Fact)" AP-3.15, Revision 3, ICN 0, Attachment 4, states that input conforms to following criteria:

Accepted data considered established fact (e.g, engineering handbooks, density tables, gravitational laws, or other physical constants, etc.) The cited data will be used without a TBV.

Block 6. Description of Condition: (continued)

2. CAL-WIS-PA-000002, Revision 0, "Performance Assessment of U.S. Department of Energy Spent Fuels in Support of Site Recommendations." Input is DOE/SNF/REP-047, Revision 0.

Paragraph 5.2.5.1, "Wet oxid conditions are assumed when the temperature in the emplacement drifts is below 10° C and humid oxid conditions are assumed at all other times. The parameter values for metallic spent fuel analysis are (DOE 1999, Section 6.7):

- A - $9.4 \times 10^3 \text{ kg/m}^2\text{s}$ for wet oxid conditions
- A = $1.35 \times 10^2 \text{ kg}\cdot\text{m}^2 \cdot \text{s}$ for humid oxid conditions
- B = 7970 K for wet oxid conditions
- B = 7240 K for humid oxid conditions
- C = 1 for wet and humid oxid conditions (linear corrosion conditions)
- D = 1 which is assumed to be conservative
- E = 0.2, the oxygen concentration term has been approximated by X_{air} which is the mass fraction of air within the gas phase..."

3. ANL-EDC-NU-000001, Revision 0, "Generic Degraded Configuration Probability Analysis of DOE Codisposal Waste Package." Input is DOE/SNF/REP-035, Revision 0.

This AMR identifies the entire EM report, DOE/SNF/REP-035, as "corroborative information" for the AMR's Table 2. However, Table 2 contains very specific DOE SNF canister thickness as input that is not used as corroborative information.

The following documents have inputs that are contrary to the above requirement regarding an input status of "N/A-Reference Only":

1. ANL-WIS-MD-000009, Revision 0, ICN 1, "Miscellaneous Waste-Form FEPS." Input is DOE/SNF/REP-008, Revision 0.

This AMR cites DOE/SNF/REP-008 as "N/A-Reference Only." However, it is the only input that the AMR uses to reach the conclusion regarding that the pyrophoricity of DSNF can be excluded from the Features Events Processing (FEP) screening arguments presented within the AMR. This usage is contrary to the requirements of identifying input as "N/A-Reference Only."

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SWO

NO. BSC(O)-03-D-059

PAGE OF

QA: QA

CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Block 6. Description of Condition: (continued)

2. CAL-EDC-NU-000005, Revision 0, "Canister Transfer Facility Criticality Calculations." Input is DOE/SNF/REP-035, Revision 0.

This calculation cites page 10 of DOE/SNF/REP-035 as "N/A-Reference Only." However, the input cited (DOE SNF specifications) are used directly to conduct the calculation. This usage is contrary to the requirements of identifying input as "N/A-Reference Only."

3. CAL-EDC-NU-000005, Revision 0. Input is DOE/SNF/REP-035, Revision 0.

This calculation cites Figure 3.1-2 of DOE/SNF/REP-035 as "Accepted Data (Fact)." However, the input cited (Fermi fuel pin details) are from a DOE EM report and do not represent any handbooks, tables, laws, or constants. This usage is contrary to the requirements of identifying input as "Accepted Data (Fact)."

4. CAL-EDC-NU-000005, Revision 0. Input is DOE/SNF/REP-048, Revision 0.

This calculation cites pages 19 and 27 of DOE/SNF/REP-048 as "N/A-Reference Only." However, the input cited (TRIGA fuel characteristics) are used directly to conduct the calculation for criticality. This usage is contrary to the requirements of identifying input as "N/A-Reference Only."

5. CAL-EDC-MD-0000015, Revision 0. EQ6 Calculation for Chemical Degradation of Enrico Fermi Codisposal Waste Packages: Effects of Updated Designed Rates." Input is DOE/SNF/REP-035, Revision 0.

This calculation cites Section 3.1 of DOE/SNF/REP-035 as "N/A-Reference Only." However, the input 25.69 percent U-235 enrichment are used directly to conduct the calculation. This usage is contrary to the requirements of identifying input as "N/A-Reference Only."

6. Drawing 800-IED-MGR0-00100-000-00A. "Repository/PA IED Overall Site Plan" Input is DTN MO0012MWGFM02.002.

This input is used directly to provide lithostratigraphic thickness details for the drawing. This usage is contrary to the requirements of identifying input as "N/A-Reference Only."

7. Drawing 800-IED-MGR0-00100-000-00A. Input is DTN SN0206T0503102.005.

This input is used directly to provide dry bulk density and porosity values outside the repository horizon for the drawing. This usage is contrary to the requirements of identifying input as "N/A-Reference Only."

8. Drawing 800-IED-MGR0-00100-000-00A. Input is MOL.19980429.0512 (after much searching, the DTN for this report was determined to be GS960908312231.004)

This input is used directly to provide particle density for the lithostratigraphic layers for the drawing. This usage is contrary to the requirements of identifying input as "N/A Reference Only."

9. Drawing 100-IED-WTS0-00100-000-00A, "Repository/PA IED Overall Site Plan." Input is TDR-WHS-MD-000001.

This input is a rendition of the repository site plan. This usage is contrary to the requirements of identifying input as "N/A Reference Only."

10. Drawing 100-IED-WTS0-00100-000-00A. Input is NNA.19900112.0341. (Note: This is an obsolete reference. The current document identifier is MOL.19980407.0902.)

This input is used directly to provide volcanic ash fall amounts. This usage is contrary to the requirements of identifying input as "N/A Reference Only."

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8. DEFICIENCY REPORT
 CORRECTIVE ACTION REPORT
NO BSC(O)-03-D-060
PAGE 1 OF
QA: QA

DEFICIENCY REPORT/CORRECTIVE ACTION REPORT

1. Controlling Document: (Document ID and Revision or Date)
AP3.24Q/R0/15 - "Drawings"

2. Related Report No.:
Surveillance Number OQA-SI-03-008

3. Responsible Organization:
BSC Repository Design Project

4. Discussed With:
L. Abernathy, E. Thomas, C. Hastings, B. Stanley

5. Requirement:
AP3.24Q/R0/15 Paragraph 5.2.3 f)
" ... As appropriate to the drawing, the following items shall be addressed. ... Correct selection, incorporation in to the design, and appropriate use of design inputs. ... Adequate identification requirements for control of items and materials are specified."
5.2.3 j) "Clearly identify any portion of a drawing issued for procurement, fabrication, or construction that must not be implemented due to lack of information (e.g., awaiting vendor information, pending design verification, etc.) by placing a HOLD on that portion of the drawing."

Continued on Page 2

6. Description of Condition:
Contrary to the above requirements, the following nonconforming issues were identified:
Drawing 800-IED-MGR0-00100-000-00A -"Repository/PA IED Geotechnical and Thermal Parameters"
Reference 2 is for report MDL-NBS-GS-000005 that provides dry bulk density and porosity for the repository horizon. The DIRS (Item 3) lists this report, however, reference DTNs for these parameters could not readily be determined and the DIRS column 6 row 3 does not identify dry bulk density and porosity as inputs. Thermal conductivity is already listed. Difficulty is that data is no longer identified in a manner that facilitates traceability to associated documentation such as DTNs provide. The same condition exists for 'Thermal Conductivity For Repository Layers' where MDL-NBS-GS-000005 is identified as the data source and DTN SN0208T0503102.007 should be referenced.

Continued on Page 2

Has work been stopped? Yes No

7. Initiator:
James V. Voigt *James V. Voigt* 12-16-2002
Printed Name Signature Date

9. Does a stop work condition exist?
 Yes No N/A
If Yes, Check One: A B C D

10. Recommended Actions:
No recommended actions.

11. QA Review:
James V. Voigt *James V. Voigt* 1-2-3
Printed Name Signature Date

12. Response Due Date:
10 Working Days after Issuance

13. QAM Issuance Approval:
Printed Name R. Dennis Brown Signature *James Blaylock for* Date 1/10/03

14. Corrective Actions Verified/Closure
QAR Printed Name Signature Date

15. QAM Closure Approval:
Printed Name Signature Date

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NO BSC(O)-03-D-060
PAGE 2 OF
QA QA

CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

5. Requirement continued

5.3.4 a) "For drawings subject to QARD requirements, perform a quality review of the drawing for compliance to procedural requirements, for assignment of the correct QL, and for incorporation of appropriate QA requirements."

6. Description of Condition: continued

Drawing 800-IED-MGR0-00100-000-00A - continued

The GEOTECH block for 'Thermal Properties' references DTN SN0206T0503102.005 that provides dry bulk density and porosity values for non-repository layers. The DIRS, Item 7, lists this scientific data as Reference Only, this is incorrect, per the ATDT this DIRS entry should be TBV as the technical data is unqualified and preliminary. In addition, reference to this data is not defined at the point of use on the drawing as 'Preliminary' or HOLD which may create a potential for the use of unqualified scientific data.

Drawing 100-IED-WRP0-00100-000-00A - "Repository/PA IED Surface Facility"

The drawing published the quality level for the Waste Treatment Building as QL-1; this is incorrect, the quality level is QL-2 per the Q-List. The initial drawing issued for BSC review had the correct designated level; subsequent changes and reviews did not identify the change and subsequent error. Also the Quality Level box names a building, the Waste Treatment Building which does not align with the surface facility described in the drawing, the "Idealized Waste Transfer Building." No entry from the Q-List could be found for a Waste Transfer Building. In addition the DIRS for this drawing row 2, column 6, incorrectly references QL-1.

100-IED-WTS0-00100-000-00A - "Repository/PA IED Overall Site Plan"

This drawing provides a general site plan with a grid defining the EW/NS coordinates. It could not be determined from the DIRS listings the origins for defining the grid system. It is not clear how the grid layout was verified by the checker during the review.

The "ACC:" notation used in the DIRS (NNA.19900112.0341) is an obsolete reference; the Data/Source pointer listed on the drawing box as "Science and Testing" entitled Volcano Ash Fall Amount references TWS-EES-13-LV-07-91-16, this also is an obsolete reference. The document identifier should be the DTN developed in response to results of MOL.19980407.0902, the current Document Identifier.