



Department of Energy

Washington, DC 20585

QA: QA

MAR 27 2002

K. G. Hess
President and General Manager
Bechtel SAIC Company, LLC
1180 Town Center Drive, M/S 423
Las Vegas, NV 89144

**ISSUANCE OF DEFICIENCY IDENTIFICATION AND REFERRAL (DIR) FORM 02-7 FOR
CORRECTIVE ACTION REPORT BSC-01-C-001**

The enclosed DIR has been made part of the subject deficiency. Please consider this information in evaluating the extent of the condition.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or William J. Glasser at (702) 794-5014.

OQA:JB-0868

Enclosure:
DIR 02-7

James Blaylock
Ram Murthy, Acting Director
Office of Quality Assurance

*Wms507
WM-11*



MAR 27 2002

cc w/encl:

Margaret Chu, DOE/HQ (RW-1), FORS
N. K. Stablein, NRC, Rockville, MD
Robert Latta, NRC, Las Vegas, NV
S. W. Lynch, State of Nevada, Carson City, NV
Engelbrecht von Tiesenhausen, Clark County, Las Vegas, NV
R. W. Andrews, BSC, Las Vegas, NV
G. K. Beall, BSC, Las Vegas, NV
Leon Fossum, BSC, Las Vegas, NV
R. E. Fray, BSC, Las Vegas, NV
J. E. Gebhart, BSC, Las Vegas, NV
S. H. Horton, BSC, Las Vegas, NV
M. A. Jaeger, BSC, Las Vegas, NV
R. P. Keele, BSC, Las Vegas, NV, M/S 280
D. T. Krishna, BSC, Las Vegas, NV
D. M. Kunihiro, BSC, Las Vegas, NV
M. M. Maxfield, BSC, Las Vegas, NV
W. W. Watson, BSC, Las Vegas, NV
W. H. Wells, BSC, Las Vegas, NV
N. H. Williams, BSC, Las Vegas, NV
J. L. Younker, BSC, Las Vegas, NV
W. J. Glasser, NQS, Las Vegas, NV
F. H. Dove, NQS, Las Vegas, NV
D. J. Harris, NQS, Las Vegas, NV
R. P. Hasson, NQS, Las Vegas, NV
D. G. Opielowski, NQS, Las Vegas, NV
J. R. Dyer, DOE/YMSCO, Las Vegas, NV
C. E. Hampton, DOE/YMSCO, Las Vegas, NV
D. G. Horton, DOE/YMSCO, Las Vegas, NV
S. P. Mellington, DOE/YMSCO, Las Vegas, NV
J. M. Replogle, DOE/YMSCO, Las Vegas, NV
B. M. Terrell, DOE/YMSCO, Las Vegas, NV
J. D. Ziegler, DOE/YMSCO, Las Vegas, NV

OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U. S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

1. DIR Number:
DIR-02-7

2. Open DR/CAR:
BSC-01-C-001

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DEFICIENCY IDENTIFICATION AND REFERRAL

3. Requirements:

AP-3.10Q, Revision 2, ICN 5 Section 5.3, *Model Validation*

b) Existing engineering-type models shall be validated using accepted engineering practices. For all other models, model validation shall consist of comparing analysis results against data acquired from the laboratory, field experiments, natural and man-made analog studies, or other relevant observations. The criteria used to evaluate the appropriateness and adequacy of the model for its intended use may be qualitative or quantitative but must be justified in the model documentation.

c) If data from sources such as those identified in Paragraph 5.3b) are not available to support validation of the model, utilize and document an alternative approach. Alternative approaches shall include one or more of the following activities:

- 1) Peer Review (see AP-2.12Q, *Peer Review*) or review by international collaborations
- 2) Technical review through publication in the open literature
- 3) Review of model calibration parameters for reasonableness, or consistency in explanation of all relevant data
- 4) Comparison of analysis results with the results from alternative conceptual models including supporting information to establish basis for confidence in selected model
- 5) Calibration and corroboration within experimental data sets
- 6) Comparison of analysis results with data attained during Performance Confirmation studies.

4. Description of Condition:

Contrary to AP-3.10Q, Revision 5, ICN 4, Section 5.3 c), there is no objective evidence documented in MDL-NBS-HS-000012, Revision 00 that the modeling of the "Focusing and Discrete Flow Paths in the TSw" has undergone one of the approved approaches for the validation of the model. The validation of the model is discussed section 6.4.2.4 "Validation and Alternate Models". While this section does conclude that the model is valid for its intended use because it meets the validation criterion, the validation method discussed relies solely on obtaining the modeling approach from a published journal, which implies that the approach has been technically reviewed and accepted via its publication in the open literature. While this method of validation is similar to 5.3 c) 2), it does not meet the requirements for model validation because the modeling that was done in MDL-NBS-HS-000012 Revision 01 was never submitted for technical review through publication in the open literature. Therefore, the model validation documented in section 6.4.2.4 is not valid regardless of the model's intended use.

Has work been stopped? Yes No

5. How Identified:

This condition adverse to quality was identified during the annual compliance based audit of LBNL (see audit LBNL-ARC-02-06).

6. Open DR/CAR QAR's Concurrence: (open DR/CAR identified in block 2 above)

Robert P. Hasson *Robert P. Hasson* 3/25/02
Printed Name signature Date:

7. Initiator:

Christian M. Palay *Chris Palay* 3-22-02
Printed Name signature Date: