



Department of Energy

Washington, DC 20585

QA: L

JUL 01 1997

R. W. Craig, Technical Project Officer
for Yucca Mountain Site
Characterization Project
U.S. Geological Survey
1261 Town Center Drive
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Las Vegas, NV 89134

EVALUATION OF INTERIM RESPONSE TO DEFICIENCY REPORT
(DR) USGS-97-D-006

The Office of Quality Assurance staff has evaluated the interim response to DR USGS-97-D-006. The response has been determined to be satisfactory. Verification of completion of the corrective action will be performed after receipt and acceptance of the final response and corrective action completion date(s) are reached.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Donna J. Sinks at (303) 236-0516.

R.W. Craig
For Donald G. Horton, Director
Office of Quality Assurance

OQA:JB-1828

Enclosure:
DR USGS-97-D-006

cc w/encl:
J. O. Thoma, NRC, Washington, DC
S. W. Zimmerman, NWPO, Carson City, NV
T. H. Chaney, USGS, Denver, CO
D. J. Sinks, OQA/USGS, Denver, CO
A. M. Whiteside, OQA/USGS, Denver, CO

cc w/o encl:
W. L. Belke, NRC, Las Vegas, NV
D. G. Sult, OQA/QATSS, Las Vegas, NV
R. W. Clark, DOE/OQA, Las Vegas, NV

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ORIGINAL

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

- Performance Report
- Deficiency Report

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PERFORMANCE/DEFICIENCY REPORT

¹ Controlling Document: YMP-USGS-QMP-3.04 ² Related Report No.: NA

³ Responsible Organization: YMP-USGS Reports Processing ⁴ Discussed With: Bruce Parks, Tim Brady and Donna Sinks

⁵ Requirement/Measurement Criteria: QMP-3.04, R7, paragraph 5.2.4 states, in part: "The Reports Specialist shall assemble and forward the following documents to the Team Chief... The Team Chief shall determine ... If so, the Team Chief shall sign the review/comment resolution forms and forward the manuscript through the Chief, ESIP, to the YMP-USGS QA Manager..."

QMP-3.04, R7, paragraph 5.2.4.1 states, in part: "The YMP-USGS QA Manager shall perform a documented QA review.... The YMP-USGS QA Manager shall coordinate the resolution of mandatory QA review comments with the author(s). The QA review shall be added to the manuscript package and forwarded by the QA Manager to the Reports Improvement Officer for review."

QMP-3.04, R7, paragraph 5.2.4.2 states, in part: "The Reports Improvement Officer shall perform a documented review...The Reports Improvement Officer's review shall be added to the manuscript package and forwarded to the Reports Specialist."

QMP-3.04, R7, paragraph 5.2.4.3 states, in part: "The Reports Improvement Officer shall forward copies of the manuscript and requested documents through the Chief, YMPB to the USGS Director's Office for approval."

QMP-3.04, R7, paragraph 5.3 states: "The Chief, YMPB shall forward a copy of the draft publication to the DOE for concurrence."

NOTE: QMP-3.04 is currently in R8; R9 has been approved and will become effective 6-2-97. Both revisions have essentially the same requirements, although the Reports Improvement Officer position has been eliminated (the procedure now refers to a review performed by the Chief, YMPB or delegate) and the Reports Specialist now has responsibility for routing of manuscripts.

⁶ Description of Condition: Contrary to the above requirements, on 4-1-96 the report "Death Valley Regional Ground-Water Flow Model Calibration Using Optimal Parameter Estimation Methods and Geostatistical Information Systems" by F.A. D'Agnesse and others was sent for Director's approval (sent as an abstract) and for DOE concurrence (sent as a report) without Team Chief's signature on the review forms, without QA review and without the Reports Improvement Officer's review (now referred to as the Chief, YMPB, or delegate's review). The report subsequently received both Director's approval and DOE concurrence and has been published. (Continued on page 2.)

⁷ Initiator: *Martha H. Mustard*
Martha H. Mustard Date *5-28-97* ⁸ Is condition an isolated occurrence?
 Yes No Unknown; Must be Yes if PR

¹⁰ Recommended Action (not required for PR): See page 2.

¹¹ QA Review: *Martha H. Mustard*
Martha H. Mustard Date *5-28-97* ¹² Response Due Date:
QAR June 25, 1997

¹³ Affected Organization QA Manager Issuance Approval (QAR for PR)
Printed Name: *Thomas H. Chaney* Signature: *Martha H. Mustard* Date *5-28-97*

²² Corrective Action Verified: ²³ Closure Approved by (N/A for PR):
QAR Date AOQAM Date

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9 Description of Condition (cont.):

Contrary to the above requirements the following three reports were published without USGS approval (required only for USGS publications and for USGS authors) and/OR without evidence of DOE concurrence (may have been provided to the first author's organization instead of the USGS):

- o "Three-D Reconstruction of Objects Using Stereo Imaging" by J. Cardenas-Garcia, H.G. Yao, and S. Zheng
- o "Fracture-Matrix Interaction in Topopah-Spring Tuff: Experiment and Numerical Analysis" by R.J. Glass, V.C. Tidwell, A.L. Flint, W. Peplinski, and Y. Castro
- o "An Improved Method for Measuring Imbibition Rates on Rock Core Samples" by M.D. Humphrey, J.D. Istok, L.E. Flint, and A.L. Flint

10 Recommended Action (not required for PR):

1. Route the manuscripts through their comment resolution process, QA review, Chief, YMPB review, Director's approval, and DOE concurrence, as necessary. (Alternatively, for DOE concurrence, investigate whether DOE concurrence has been provided to the lead author's organization, if other than USGS.)
2. Determine if there are any changes to the manuscript as a result of these reviews/comment resolution.
3. Reference this DR on the records package for the report.
4. Determine the extent of deficiency (if other manuscripts have the same or similar problem). Provide remedial actions for those manuscripts also.
5. Provide root cause determination and actions to prevent recurrence.

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PERFORMANCE/DEFICIENCY REPORT RESPONSE

¹⁴Remedial Actions:

See page 4

¹⁵Extent of Condition (not required for PR):

See page 4

¹⁶Root Cause Determination (not required for PR):

Required Yes No

Martha Mustard, Engineering Assurance Group, is my designee for performing the Root Cause Determination. An initial interview has indicated that the following considerations need to be investigated as possible factors in the root cause:

- 1) Manuscripts not provided to the YMPB Reports Specialist for login and tracking,
- 2) Manuscripts with USGS co-authors published (and therefore primarily handled) by other affected organizations,
- 3) Primary authorship by USGS contractors or augmented staff who didn't have sufficient knowledge of requirements,
- 4) USGS authors releasing reports directly to the publishers.

Additional investigation and interviews are necessary to finalize the determination. It is expected that ^{not 4/23/97} the Root Cause Determination will be completed by July 31, 1997.

¹⁷Action to Preclude Recurrence (not required for PR):

Required Yes No

Action(s) to preclude Recurrence will be submitted with the Root Cause Determination.

¹⁸Corrective Action Completion Due Date:

Remedial actions: DUE July 31, 1997
Root Cause Determination and submittal of Actions to Preclude Recurrence: DUE July 31, 1997

¹⁹ Response by:

Tim Brady
(Tim Brady, Reports Team Project Chief)

Date: 6/23/97 Phone: (303) 236-5050, ext. 249

²⁰Response Accepted:

(Donna Sinks)
QAR *Donna Sinks* Date 6/23/97

²¹ Response Accepted (N/A for PR):

DOQA *R.W. Clap* Date 6/30/97
for

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¹⁴Remedial Actions:

1. "Death Valley Regional Ground-Water Flow Model Calibration Using Optimal Parameter Estimation Methods and Geostatistical Information Systems" by F.A. D'Agnesse and others has now received QA review. Upon resolution of the QA review comments (which addressed the Team Chief's signature and which is now called an Engineering Assurance review), the report will be sent for review by the Chief, YMPB, delegate. The package will be annotated with reference to this Deficiency Report.
2. "Three-D Reconstruction of Objects Using Stereo Imaging" by J. Cardenas-Garcia, H.G. Yao, and S. Zheng was published in Optics and Lasers in Engineering 22 (1995). It received technical review in 11-92 and 12-92. Responses are available only to the 11-92 review. It also should have received QA review; Chief, YMPB, review, and DOE concurrence. It did not require USGS Director's approval because it was neither published by USGS nor had USGS authorship (this requirement does not extend to USGS contractors). Since this report was missing so many elements that cannot be retrofitted adequately at this time, this report will be sent to the records system with an annotation to this Deficiency Report indicating that technical review was not completed, QA review was not performed, Chief, YMPB, delegate's review was not performed, and DOE concurrence was not requested nor obtained.
3. "Fracture-Matrix Interaction in Topopah-Spring Tuff: Experiment and Numerical Analysis" by R.J. Glass, V.C. Tidwell, A.L. Flint, W. Peplinski, and Y. Castro was a Sandia Report. Sandia received DOE concurrence prior to publication and has submitted a record package for this report to the records system (MOL.19940909.0026). The report was published by another affected organization and was processed through their organization instead of through USGS. This report is not considered to be within the scope of QMP-3.04. No remedial actions are necessary.
4. "An Improved Method for Measuring Imbibition Rates on Rock Core Samples" by M.D. Humphrey, J.D. Istok, L.E. Flint, and A.L. Flint was published in the Soil Science Society of America Journal in Jan-Feb 1996. The report did not have a complete technical review (no response to comments) and did not receive either QA review or review by the Chief, YMPB, delegate. There is no evidence that it received either DOE concurrence or USGS Director's approval. Technical reviews were performed October 1993 and January 1994; the first review contained no comments, and the second review contained eight comments. Since this report was missing so many elements that cannot be retrofitted adequately at this time, this report will be sent to the records system with an annotation to this Deficiency Report indicating that technical review was not completed, QA review was not performed, Chief, YMPB, delegate's review was not performed, DOE concurrence was not requested, and USGS Director's approval was not obtained.
5. "Scenarios Constructed for the Effects of the Tectonic Processes on the Potential Nuclear Waste Repository at Yucca Mountain" by G.E. Barr, D.J. Borns, and C. Fridrich was published by Sandia National Laboratories without USGS Director's approval (third author is a USGS employee). The report was published by another affected organization and was processed through their organization instead of through USGS. This report is not considered to be within the scope of QMP-3.04. No remedial actions are necessary.
6. The abstract "Automated Calibration of Tipping Bucket Rain gages" by M.D. Humphrey, J.D. Istok, J.Y. Lee, A.L. Flint, and L.E. Flint was printed without evidence of technical review and without USGS Director's approval. Since this report was missing so many elements that cannot be retrofitted adequately at this time, this abstract will be sent to the records system with an annotation to this Deficiency Report indicating that technical review was not completed and USGS Director's approval was not obtained.

¹⁵Extent of Condition (not required for PR):

The following report and publication are the only additional ones currently known to fall within the scope of this deficiency. Due to the considerations presented in the Root Cause Determination section, it is possible that other reports may later be identified.

REPORT: "Scenarios Constructed for the Effects of the Tectonic Processes on the Potential Nuclear Waste Repository at Yucca Mountain" by G.E. Barr, D.J. Borns, and C. Fridrich was published by Sandia National Laboratories without USGS Director's approval (third author is a USGS employee).

ABSTRACT: "Automated Calibration of Tipping Bucket Rain gages" by M.D. Humphrey, J.D. Istok, J.Y. Lee, A.L. Flint, and L.E. Flint was printed without evidence of technical review and without USGS Director's approval.