

# **CNWRA** A center of excellence in earth sciences and engineering™

Geosciences and Engineering Division  
6220 Culebra Road • San Antonio, Texas, U.S.A. 78238-5166  
(210) 522-5160 • Fax (210) 522-5155

March 29, 2006  
Contract No. NRC-02-02-012  
Account No. 20.06002.01.262

U.S. Nuclear Regulatory Commission  
ATTN: Mrs. Deborah A. DeMarco  
Division of High-Level Waste Repository Safety  
Office of Nuclear Material Safety and Safeguards  
Mail Stop 7 F3  
Washington, DC 20555

Subject: Programmatic Review of Presentation for the International High-Level Radioactive Waste Management Conference (AI 20.06002.01.262.604)

Dear Mrs. DeMarco:

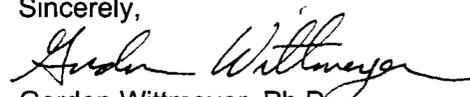
This material will be presented at the at the 2006 International High Level Radioactive Waste Management Conference to be held April 30–May 4, 2006, in Las Vegas, Nevada. The title of the presentation is

“Thermohydrological Model Uncertainty Reduction Using Physical Analog Models”  
by R.T. Green and S.L. Painter

This presentation summarizes analyses of laboratory-scale and field-scale heater experiments to help reduce uncertainty in thermohydrological conceptual and numerical models. Measurements of temperature and saturation from the two tests provide an opportunity to evaluate the capability of a multiphase simulator, MULTIFLO®, to replicate the thermohydrological processes observed during the tests. These analyses and the associated reduction in uncertainty are important because MULTIFLO is used to evaluate the performance of a geologic repository located in fractured porous media.

Please advise me of the results of your programmatic review. Your cooperation in this matter is appreciated.

Sincerely,



Gordon Wittmeyer, Ph.D.  
Assistant Director, Earth Sciences

/ph

Enclosures: Presentation  
NRC Form 390A

|     |             |             |               |                    |                     |
|-----|-------------|-------------|---------------|--------------------|---------------------|
| cc: | E. Whitt    | J. Guttman  | J. Rubenstone | W. Patrick         | <u>Letter only:</u> |
|     | V. Whipple  | F. Brown    | R. Codell     | B. Sagar           | CNWRA Directors     |
|     | W. Reamer   | T. McCartin | B. Leslie     | Record Copy B, IQS | CNWRA Managers      |
|     | L. Kokajko  | A. Csontos  | J. Pohle      |                    | L. Gutierrez        |
|     | E. Collins  | D. Brooks   | J. Gwo        |                    |                     |
|     | M. Bailey   | T. Ahn      | R. Fedors     |                    |                     |
|     | K. Stablein | E. Peters   |               |                    |                     |
|     | A. Campbell |             |               |                    |                     |



Washington Office • Twinbrook Metro Plaza #210  
12300 Twinbrook Parkway • Rockville, Maryland 20852-1606

**RELEASE TO PUBLISH UNCLASSIFIED NRC CONTRACTOR  
SPEECHES, PAPERS, AND JOURNAL ARTICLES**

(Please type or print)

1. TITLE (State in full as it appears on the speech, paper, or journal article)  
**Thermohydrological Model Uncertainty Reduction Using Physical Analog Models**

2. AUTHOR(s)  
**R. Green and S. Painter**

3. NAME OF CONFERENCE, LOCATION, AND DATE(s)  
**International High Level Radioactive Waste Management Conference Las Vegas, NV April 30 - May 4, 2006**

4. NAME OF PUBLICATION  
**Proceedings**

|   |   |
|---|---|
| 5. NAME AND ADDRESS OF THE PUBLISHER<br>American Nuclear Society<br>Scientific Publication Office<br>555 North Kensington Ave.<br>LaGrange Park, IL 60526 | TELEPHONE NUMBER OF THE PUBLISHER<br>(708) 579-8253 |
|---|---|

|  |  |
|--|--|
| 6. CONTRACTOR NAME AND COMPLETE MAILING ADDRESS (Include ZIP code)<br>Center for Nuclear Waste Regulatory Analysis<br>Southwest Research Institute<br>6220 Culebra Road<br>San Antonio, TX 78228 | TELEPHONE NUMBER OF THE CONTRACTOR<br>210-522-5305 |
|--|--|

| YES | NO | 7. CERTIFICATION<br>(ANSWER ALL QUESTIONS) |  |
|-----|----|--|--|
|     | X  | A. COPYRIGHTED MATERIAL                    | - Does this speech, paper, or journal article contain copyrighted material? If yes, attach a letter of release from the source that holds the copyright.   |
|     | X  | B. PATENT CLEARANCE                        | - Does this speech, paper, or journal article require patent clearance? If yes, the NRC Patent Counsel must signify clearance by signing below.  |
|     |    | NRC PATENT COUNSEL (Type or Print Name)    | SIGNATURE DATE   |
| X   |    | C. REFERENCE AVAILABILITY                  | - Is all material referenced in this speech, paper, or journal article available to the public either through a public library, the Government Printing Office, the National Technical Information Service, or the NRC Public Document Room? If no, list below the specific availability of each referenced document.                          |
|     |    | SPECIFIC AVAILABILITY                      |  |
| X   |    | D. METRIC UNIT CONVERSION                  | - Does this speech, paper, or journal article contain measurement and weight values? If yes, all must be converted to the International System of Units, followed by the English units in brackets, pursuant to the NRC Policy Statement implementing the Omnibus Trade and Competitiveness Act of 1988, Executive Order 12770, July 25, 1991. |

**8. AUTHORIZATION**  
The signatures of the NRC project manager and the contractor official certify that the NRC contractor speech, paper, or journal article is authorized by NRC, that it has undergone appropriate peer review for technical content and for material that might compromise commercial proprietary rights, and that it does not contain classified, sensitive unclassified, or nonpublic information. (NRC MD 3.9, Part II(A)(1)(d))

|   |   |                   |
|---|---|-------------------|
| A. CONTRACTOR AUTHORIZING OFFICIAL (Type or print name)<br>Gordon Wittmeyer, Assistant Director | SIGNATURE<br> | DATE<br>3/28/2006 |
| B. NRC RESPONSIBLE PROJECT MANAGER (Type or print name)   | OFFICE/DIVISION   | MAIL STOP         |

|                  |             |  |
|------------------|-------------|--|
| TELEPHONE NUMBER | E-MAIL I.D. | Did you place the speech, paper, or journal article in ADAMS? YES <input type="checkbox"/> NO <input type="checkbox"/><br>If so, provide the ADAMS Accession No. (Use Template OCIO 099) |
|------------------|-------------|--|

|           |      |
|-----------|------|
| SIGNATURE | DATE |
|-----------|------|