



QA: QA

Larry J. Trautner  
Repository Design Project  
Bechtel SAIC Company, LLC  
1180 Town Center Drive  
Las Vegas, NV 89144

**BECHTEL SAIC COMPANY, LLC (BSC) QUALITY ASSURANCE (QA) SURVEILLANCE  
REPORT BSCQA-02-S-06 OF DESIGN CALCULATIONS AND ANALYSES**

Enclosed is the Surveillance Report BSCQA-02-S-06, conducted by the BSC QA Organization on April 16-19, 2002, at the BSC facilities in Las Vegas, Nevada.

The purpose of the surveillance was to determine the adequacy and effectiveness of the work processes in the development of design calculations performed in accordance with Administrative Procedure AP-3.12Q, Revision 1, ICN 1, *Design Calculations and Analyses*.

The surveillance identified one condition adverse to quality relative to identification of change history for AP-3.12Q. The condition is documented in Quality Observation BSC(B)-02-O-016.

This surveillance is considered complete and closed as of the date of this letter. A response to this surveillance record is not required.

If you have any questions, please contact either Stephen F. Schuermann at (702) 295-0440 or Robert P. Keele at (702) 295-2808.

A handwritten signature in cursive script that reads 'D. T. Krishna'.

Donald T. Krishna, Manager  
Quality Assurance

5/6/02  
Date Signed

RFH:bw-0502022501

Enclosure:  
Supplier Surveillance Report BSCQA-02-S-06

A handwritten signature in cursive script, possibly reading 'W. H. S. 07'.

May 6, 2002

Page 2

cc w/encl:

L. H. Barrett, DOE/HQ (RW-2) FORS  
G. K. Beall, BSC, Las Vegas, NV  
James Blaylock, BSC, Las Vegas, NV  
L. W. Bradshaw, Nye County, Pahrump, NV  
Margaret Chu, DOE/HQ (RW-1) FORS  
J. R. Dyer, DOE/YMSCO, Las Vegas, NV  
Leonard Fiorenzi, Eureka County, Eureka, NV  
Birdie Hamilton-Ray, DOE/YMSCO, Las Vegas, NV  
R. F. Hartstern, BSC, Las Vegas, NV  
K. G. Hess, BSC Las Vegas, NV  
Geneva Hollis, Nye County, Tonopah, NV  
D. G. Horton, DOE/YMSCO, Las Vegas, NV  
Alan Kalt, Churchill County, Fallon, NV  
D. T. Krisha, BSC, Las Vegas, NV  
Josie Larson, White Pine County, Ely, NV  
Robert Latta, NRC, Las Vegas, NV  
R. R. Loux, State of Nevada, Carson City, NV  
S. W. Lynch, State of Nevada, Carson City, NV  
George McCorkell, Esmeralda County, Goldfield, NV  
S. P. Mellington, DOE/YMSCO, Las Vegas, NV  
Mifflin and Associates, Las Vegas, NV  
Ram Murthy, DOE/OQA, Las Vegas, NV  
Irene Navis, Clark County, Las Vegas, NV  
Andrew Remus, County of Inyo, Independence, CA  
Judy Shankle, Mineral County, Hawthorne, NV  
N. K. Stablein, NRC, Rockville, MD  
Lola Stark, Lincoln County, Caliente, NV  
N. H. Williams, BSC, Las Vegas, NV  
B. L. Wilson, BSC, Las Vegas, NV  
Mickey Yarbrow, Lander County, Battle Mountain, NV

cc w/encl:

L. G. Abernathy, BSC, Las Vegas, NV  
R. W. Andrews, BSC, Las Vegas, NV  
T. W. Doering, BSC, Las Vegas, NV  
R. P. Keele, BSC, Las Vegas, NV  
S. F. Schuermann, BSC, Las Vegas, NV  
J. S. Voigt, OQA/NQS, Las Vegas, NV

**OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT  
QUALITY ASSURANCE SURVEILLANCE REPORT**

QA: QA

Page 1 of 2

QA Surveillance Number:  
BSCQA-02-S-06

ORIGINAL  
red

*Complete only applicable items.*

1. Organization/Location BSC Repository Design and <small>(See Addendum 1)</small>	2. Subject AP-3.12Q, "Design Calculations and Analyses"	3. Date(s) Performed 04/16-19/2002
4. Surveillance Scope To verify implementation and effectiveness of AP-3.12Q Revision 1/ICN 1 (calculations reviewed are delineated in Block 7 below)		
5. Requirement(s) (Procedure, Specification, Drawing, etc.)  AP-3.12Q, "Design Calculations and Analyses", and references therein		6. Originator <u>Stephen F. Schuermann</u>  Team Members <u>Larry G. Abernathy</u> <u>James Voigt, OOA/NOS Observer</u>

**SURVEILLANCE RESULTS**

7. Description/Details

BSC QA conducted a surveillance of the development of design calculations in accordance with OCRWM Procedure AP-3.12Q Revision 1/ICN 1. The calculations selected for review are delineated below and represent calculations at various stages of development by BSC Repository Design and Performance Assessment personnel:

- CAL-EBS-ME-000012, Revision A, "Waste Package Axial Thermal Expansion Calculations"
- CAL-EDC-MD-000020, Revision A, "EQ6 Calculation for Chemical Degradation of 21 PWR CSNF Waste Packages"
- CAL-EDC-00008, Revision A, "Benchmark and Critical Limit Calculation for DOE SNF"
- CAL-EBS-ME-000019, Revision 00A, "Comparison of the Traditional Strength of Materials Approach to Design with the Fracture Mechanics Approach"
- CAL-EDC-MD-000013, Revision A, "EQ6 Calculation for Chemical Degradation of TRIGA Co-disposal Waste Packages: Effects of Updated Design and Rates"
- CAL-EBS-MD-000029, Revision 00A, "Assessment of Drift Diameter Variation on Rock Fall Development"

The surveillance methodology included documentation review and personnel interviews. Specifically, the surveillance examined the following major elements of AP-3.12Q (as documented on the Quality Engineering Review Checklist):

(See Addendum 2)

8. Persons (and their organizations) Contacted Zekai Ceylan, Repository Design (BSC) David Rhodes, Special Projects (BSC) Martin Lewis, Repository Design (BSC) Dan Tunney, Quality Assurance (BSC) Daylena Holmes, Records Services (BSC)  <small>(See Addendum 3)</small>	9. CAQ/NCR/TE Issued <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  Recommendation Issued <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CAQ/NCR/TE Number(s): <u>BSC (B)-02-O-016</u>  CIRS Number(s): _____
--	---	--

10. Surveillance Conclusions       SAT     UNSAT

Overall, the calculations reviewed were found to be developed in accordance with AP-3.12Q. Personnel interviewed were courteous and knowledgeable of procedure requirements, documents were available, and management of Repository Design and Performance Assessment exhibited a noticeable appreciation for efforts to improve reviewed processes. One Quality Observation (QO) emanated from the surveillance (see Block 9. above). This involved a violation of AP-5.1Q, Revision 3/ICN 0, Attachment 6, that requires changes to procedures be identified in the Change History. Contrary to this requirement, the Change History to AP-3.12Q Revision 1/ICN 1 did not identify the changes to the Cover Sheet, Attachment 2.

11. Completed By (Originator) (Print Name) Stephen F. Schuermann	Signature 	Date 5/1/02
12. Reviewed By (Appropriate QA Manager) (Print Name) Robert P. Keele	Signature 	Date 5/1/02
13. Approved By (QVM) (Print Name) Robert F. Hartstern	Signature 	Date 5/2/02

**Addendum 1**

QUALITY ASSURANCE SURVEILLANCE REPORT ADDENDUM  
QA Surveillance Number: BSCQA-02-S-06 04/16-19/2002

QA:QA  
Page 2 of 2

BLOCK 1 Continued:

Performance Assessment, Las Vegas, NV



**Addendum 2**

BLOCK 7 Continued:

- \* Technical Product Review Summaries and Cover Sheets (paragraph 5.2.3 c, 5.3.1 a, and Attachment 2)
- \* Revision processing (paragraph 5.5)
- \* Contents (paragraph 5.2.3)
- \* Software use (paragraph 5.2.3 h)
- \* References/DIRS (paragraph 5.4.1)
- \* Approvals (paragraph 5.4)
- \* Records (paragraph 6.0)

**Addendum 3**

BLOCK 8 Continued:

Tom Ryan, Methods and Procedures (BSC/DESI)