Department of Energy
Washington, DC 20585

JUL 0 2 2002

QA: QA

T. W. Doering
Bechtel SAIC Company, LLC
1180 Town Center Drive, M/S 423
Las Vegas, NV 89144

VERIFICATION OF CORRECTIVE ACTIONS AND CLOSURE OF DEFICIENCY REPORT (DR) BSC-02-D-070

The Office of Quality Assurance staff has evaluated the corrective actions of DR BSC-02-D-070 and determined the results to be satisfactory. As a result, the DR is considered closed.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Samuel E. Archuleta at (702) 794-1476.

James Blaylock for
Ram B. Murthy, Acting Director
Office of Quality Assurance

OQA:JB-1381

Enclosure:
DR BSC-02-D-070

NMSS07
WM-11

cc w/encl:
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Robert Latta, NRC, Las Vegas, NV
S. W. Lynch, State of Nevada, Carson City, NV
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R. N. Wells, DOE/YMSCO (RW-60), Las Vegas, NV

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

8. ☒ DEFICIENCY REPORT
☐ CORRECTIVE ACTION REPORT

NO. **BSC-02-D-070**

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DEFICIENCY/CORRECTIVE ACTION REPORT

1. Controlling Document:	2. Related Report No.:
AP-SI.1Q, Rev 2/ICN 4, Software Management; AP-17.1Q, Rev 1/ICN 2, Record Source Responsibilities for Inclusionary Records	OCRWM Concern 01-206
3. Responsible Organization: Bechtel SAIC Co., LLC	4. Discussed With: Jean Younker, Tom Doering, Mike Jaeger

5. Requirement:

1. AP-SI.1Q, Subsection 5.8.3.2a) states in part: "Users shall control and document the use of software so that comparable results can be obtained with any differences explained, through independent replication of the activity or process **within the defined boundaries to which the software was originally qualified."** (Emphasis added).
2. Section 5.7.3a) of AP-SI.1Q contains review criteria for the Independent Technical Reviewer (ITR). Section 5.7.3.a)6) specifically states that the ITR is to verify the software documentation for the following: "The VTR is complete, accurate, and consistent with the approved ITP and approved VTP and Step 5.6.1.4 of this procedure."
3. Section 5.4 of AP-17.1Q specifies the controls for changing or correcting a record. Specifically, Section 5.4a)1) states: "Draw a single line through the incorrect information, and insert the correct information in close proximity. Date and initial, stamp, or sign the correction."

6. Description of Condition:

1. Contrary to requirement 1, above, NUFT V3.0s was baselined for Operating System Solaris 5.5.1, however AMR-ANL-EBS-MD-000026, Rev 0/ICN 2 states in Section 3, that Sun OS 5.6 was used.
2. Contrary to requirement 2, above, reviews of the software qualification documents failed to detect discrepancies. Among the problems noted in the Validation Test Plan (VTP) and the Validation Test Report (VTR) are:
   - The inability to verify that codes developed for TIP NUFT-01 are on the CM Baseline
   - Inconsistencies between actual test dates and documented test dates and approval dates in the VTR
   - Disparity in the number of test cases run for validation (27 vs. 30)
   - Inconsistencies in documenting use of Version 2.0s vs. 2.0.1s
   - The use of the codes in ICN 00, ICN 01, and ICN 02 is not clear

   These discrepancies/inconsistencies are noted in the attached draft report of Concern Related Findings

   Contrary to requirement 3, above, the dates on the VTR have been written over without having applied the controls for the correction of records (i.e., single line mark through, initials, stamp, or signature and date).

7. Initiator: Noel Simpson	Date: 01/29/2002	9. Does a stop work condition exist? (Not required for a DR) ☐ Yes ☒ No If Yes, Check One: ☐ A ☐ B ☐ C ☐ D

10. Recommended Actions:

SEE CONTINUATION PAGE

11. QA Review: QAR Sam E. Archuleta	Date: 2-6-02	12. Response Due Date: 10 Working Days From Issuance

13. DOQA Issuance Approval:

Printed Name: Ram Murthy Signature: James Blaylock for Date: 2/7/02

22. Corrective Actions Verified: QAR Sam Archuleta	Date: 6-13-02	23. Closure Approved by: DOQA James Blaylock for	Date: 7/2/02

Exhibit AP-16.1Q.1 Rev. 12/20/1999

ENCLOSURE 1 of 53

DEFICIENCY/CORRECTIVE ACTION REPORT/STOP WORK ORDER CONTINUATION PAGE

The following recommendations are submitted for consideration as elements of corrective actions for identified deficiencies:

1. Take immediate action to re-verify the code qualification documents package to determine impact of documentation deficiencies. If impact is deemed to be significant, re-qualification of the code may be required. Ensure that only appropriately qualified individuals conduct the re-verification and impact analysis. Further, strongly recommend that assistance from BSC/CIO Information Compliance be employed in the re-verification.

2. Revise qualification documents, as required, to assure defensibility of the code.

3. Perform an impact analysis on the AMR. If a revision of the operating system is necessary, (i.e., if only OS 5.6 will do the job) the code will have to be re-qualified with the new operating environment. If revision of the OS is not necessary, editorial revision of the AMR, at the very least, will be necessary.

4. Perform a thorough analysis of the qualification documents to determine, if possible, why and by whom document dates were altered, why disparities in the technical elements of the documents exist, and how they were allowed to pass through reviews. (For example: disparity in test dates, disparity in numbers of test cases, disparities in version control, and disparities in documented operating systems). Determine if a systemic failure is indicated.

5. Because of the potential impact on TSPA-SR, an immediate, workable corrective action plan should be developed, specifically to remediate the effects on the TSPA-SR, if any.

6. Ensure that the Extent of Condition Investigation includes a sample of other code qualification documents, and other technical products developed, reviewed, and/or approved by the individuals identified in the attached Concerns Related Findings Report. The sample population should also include samples of qualification packages and technical products from the same location, but by different individuals, again to ascertain if systemic problems exist..

Sam E. Archuleta
QA Representative

2-6-02
Date

Jean Younker
on 12/18/01

DRAFT 12-18-01
Concern No. 01-206
Concern Related Findings
Concerns Program Analyst (CPA): Gary W. Smith

During the investigation of Concern No. 01-206, the CPA reviewed the NUFT version 3.0s Validation Test Plan (VTP) and Validation Test Report (VTR). This review resulted in the identification of several inconsistencies and discrepancies between the documentation in the NUFT 3.0s VTP/VTR and the test cases documented on a CD-ROM attached to the VTP. The following is a description of the findings from the review of NUFT VTP/VTR and inconsistencies or discrepancies identified:

NUFT Baseline Information (12-7-01)

Baseline Code	STN	Operating System	Baseline Date
NUFT v2.0s	10095 2.0s 00	Solaris 5.5.1	8-27-99
NUFT v2.0.1s	10017 2.0.1s 00	Solaris	10-22-99
NUFT v3.0s	10088 3.0s 00	Solaris 5.5.1	8-9-00

AMRANL-EBS-MD-000026 Rev 0 ICN 2 (MOL.20010406.0012), In-Drift Thermal-Hydrological-Chemical Model (E0065)

NUFT V3.0s software was used in analysis for AMRANL-EBS-MD-000026 Rev 0 ICN 2 (MOL.20010406.0012), In-Drift Thermal-Hydrological-Chemical Model (E0065), effective date 3-23-01. Section 3, Computer Software and Model Usage states:

"The analysis is performed using the multiphase flow module usnt (fully coupled unsaturated multiple phases, multiple component model with isothermal and non-isothermal options) of NUFT, developed at Lawerence Livermore National Laboratory (LLNL, 1999a and LLNL, 1999b). The NUFT V3.0s (NUFT) software is classified as qualified software program, as per AP-SI.1Q, Software Management, and was obtained from Configuration Management (CM) (STN: 10088-3.0s-00). NUFT was run on a Sun Ultra 10 Workstation with SunOS 5.6 operating system, was appropriate for the application, and was used only within the range of validation as per AP-SI.1Q. Version 3.0s has been installed on a Sun workstation with CPU Property Tag Number 6524874."

Finding: NUFT v3.0s is baselined for Operating System Solaris 5.5.1. However, the AMR (E0065) Section 3 states that SunOS 5.6 was used.

NUFT V3.0s Validation Test Plan (VTP) MOL.20000920.0090
The Prediction of Thermohydrologic Behavior – NUFT 3.0s
Document Number : 10088-VTP-3.0s-00, May 2000
Prepared by: Ronald Shaffer Date: 5-11-00
Approved by: Responsible Manager, Barbara Campbell Date: 6-5-00
Reviewed by: Independent Reviewer, Gary L. Johnson Date: 5-12-00

ITSMA Review, Dianne P. Spence Date: 6-19-00

Section 1.1. OVERVIEW

"This test plan for NUFT Version 3.0s is for operation on SUN SPARC Workstations running the SUNOS 5.5.1 operating system."

""According to the plan, a set of baseline test cases will be used during an automated integrated build/test/release process, which is detailed in TIP NUFT-01, a Build and Test Management System hereafter referred to as the "BTMS Developer Manual." (MOL.20010315.0314) This automated build/test/release process constructs an installable NUFT 3.0s package if the quantitative criteria during testing (Table 1) is met."

Finding: The CPA was unable to verify that the codes developed for TIP NUFT-01 are on the CM software baseline.

Appendix: Integration Test Case Suite with Completion Tables, Kenrick Lee states:

" The code is tested by benchmarking against NUFT 2.0.1s or by comparison with analytical solutions.

NUFT v3.0s Validation Test Report (MOL.20000920.0091)

The Prediction of Thermohydrologic Behavior – NUFT 3.0s
Document Number : 10088-VTR-3.0s-00, June 2000

Prepared by: Ronald Shaffer	Date: 6-23-00
Approved by: Responsible Manager, Barbara Campbell	Date: 7-7-00
Reviewed by: Independent Reviewer, Charles Carrigan	Date: 6-23-00
ITSMA Review, Dianne P. Spence	Date: 7-26-00

Section 1.1 Report Overview

> " The ITP was executed on June 6, 2000 and a through testing of NUFT 3.0s, which meets or exceeds all the requirements of the VTP, was executed on June 23, 2000."

Validation Test Plan execution Signature sign off Sheet

Ronald Shafer / Test Executor	Date: 6-26-00
Barbara A. Campbell / Responsible Manager	Date: 7-7-00
John J. Nitao / Code Developer / Witness	Date 6-27-00

Page 4-5, Qualitative Test Procedure

All cases are signed off by Ronald Shaffer Date 6-23-00

Appendix. Integration Test Case Suite With Completion Tables. Kenrich Lee

" The Integration Test Case Suite consists of twenty-seven test cases."

"The code is tested by benchmarking against NUFT 2.0.1s or by comparison with analytical solution."

Test Cases Page 2-31 (30 test cases)

All test cases are signed off by Ronald Shaffer Date: 6-23-00

CD Attached to NUFT v 3.0s VTR

All NUFT v3.0s files examined were run on 6-26-00

All NUFT v2.0s files observed were run between 8-21-98 and 8-23-98

NUFT version 2.0.1s-cvs-9-21-98c files observed were run on 5-9-00

The following files were examined:

VSAM_30S.OUT	Run Date: 6-26-00 15:22:47 Date last modified: 6-26-00 2:35 PM Sun OS S139.es.lini.gov 5.5.1 Sun Sparc sunw ultra-2
VSAM.th	Run Date: 8-23-98 01:51:33 Date last modified: 6-26-00 1:15 PM NUFT V2.0s (Sun/Solaris)
BMRK001_3.0s	Run Date: 6-26-00 14:17:53
BMRK001.th	Run Date: 8-21-98 11:35:47 NUFT v2.0s
BMRK001_3.0s.ex BMRK001.in	Run Date: 6-26-00 1.2 1/27/98 NUFT input.file
BMRK001.th	Run Date: 8-21-98 11:51:51 NUFT version 2.0s (Sun /Solaris)
BMRK005.th	Run Date: 8-21-98 NUFT version 2.0s (Sun / Solaris)
BMRK005_3.0s.ex	Run Date: 6-26-00 14:19:28

	NUFT v3.0s (SUN/SOLARIS)
MMRK003.th	Run Date: 8-21-98 NUFT version 2.0s (Sun /Solaris)
VERIF01.th	Run Date: 8-22-98 NUFT version 2.0s (Sun /Solaris)
VERIF06_1m.th	Run Date: 5-9-00 NUFT version 2.0.1s-cvs-9-21-98c (SUN/SOLARIS)
VERIF06_0f.th	Run Date: 5-9-00 NUFT version 2.0.1s-cvs-9-21-98c (SUN/SOLARIS)
VERIF03.th	Run Date 10-29-98 NUFT version 7-29-97 (SUN SOLARIS)
VSAM2.th	Run Date: 8-22-98 15:51:36 NUFT version 2.0s (SUN/SOLARIS)
VSAM3.th	Run Date: 8-22-98 15:59:31 NUFT version 2.0s (SUN/SOLARIS)
VSAM6.th	Run Date: 8-23-98 01:51:33 NUFT version 2.0s (SUN/SOLARIS)

Finding: The test cases for the VTR NUFT 3.0s runs on the NUFT 3.0s CD were dated 6-26-00 and the thirty (30) VTR test cases were signed off and dated on 6-23-00. The sign off date is not consistent with the run date for the NUFT 3.0s test cases.

Finding: Contrary to the VTR statement that 27 cases were run, 30 cases were documented.

Finding: Many Validation cases on the CD are annotated as NUFT v2.0s not NUFT v 2.0.1s as documented in the VTP and VTR.

Finding: The NUFT v2.0s cases on the CD were run (8-21-98) prior to NUFT v2.0s being baselined on 8-27-99.

Finding: Some cases were observed to use NUFT v 2.0.1s run date of 5-9-00. However, the case annotation: NUFT version 2.0.1s-cvs-9-21-98c (SUN/SOLARIS). NUFT v 2.0.1s was based lined on 10-22-99. The CPA concludes that it is indeterminate if a baselined version of NUFT v2.0.1s was used to generate the test cases in the VTR.

AML-EBS-MS-000026, Rev. 0, ICN 02 - NUFT 3.0s was used on a platform running SUNOS 5.6. The code was not qualified for this OS. This item requires corrective action. Possible actions include revising the AMR and rerunning the code in a SUNOS 5.5.1; writing a 5.10 SAP and qualifying NUFT 3.0s in a SUNOS 5.6 environment.

The AMR (Rev 0, ICN 02) was signed in September 2000. From the documentation on-hand, it is not clear if the code was run for this revision of the AMR - after an SUR was used to obtain the code in August 2000, or if the code was run when earlier versions of the AMR (ICN 01 effective date July 2000, or the earlier ICN 00 version) were issued. This discrepancy should be further investigated.

The VTP (Page 5, Section 5.2) refers to SUNOS 5.5 rather than 5.5.1 or 5.6. This could be a typo, but verification is required.

Benchmark testing using version 2.0s vs 2.0.1s. This too could be a typo but verification is required.

Generally, the dates of review and approval do not work with the dates testing was performed (See concerns document).

There is confusion about the number of test cases involved in validation. Text says 27 tests, file counts say 30 tests.

The dates on the VTR cover sheet appear altered.

TYPE RESPONSE:

- [x] Initial
- [ ] Complete
- [ ] Amended

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WASHINGTON, D.C.

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DEFICIENCY/CORRECTIVE ACTION REPORT (RESPONSE)

14a. Immediate Actions:
A) Check the significance of SW OS to SR. This has been completed. ITP test cases on Solaris 5.6 (the AMR OS) and 5.7 passed; therefore, the AMR results will not change after SW re-qualification is complete.
B) Assess significance of NUFT documentation errors (ITP, VTP, and VTR). This has been completed. The errors were cosmetic. ICNs can correct them. The SW does not need to be removed from the baseline, and no SDN is required.
C) The QE organization has been requested to confirm that documents being processed through compliance checking used SW under the OS version for which the SW was qualified.

Compliance Date: 2/21/02

14. Remedial Actions:
A) Qualify NUFT 3.0s on Solaris 5.6.
B) Develop ICNs to NUFT 3.0s qual docs that correct the errors listed in this DR, and any others found during the DR investigation.

15. Extent of Condition:
A) Determine the users for five major SW codes (ANSYS, NUFT, TOUGH2, TOUGHREACT, and FEHM). Determine the OS used currently on workstations and whether it is compatible with the SW baseline.
B) Review at least 50% of the AMRs approved in the last year (since 2/21/01) to determine if the OS cited is compatible with the current SW baseline.

16. Cause: (Attach results of root cause detemination prepared in accordance with AP-16.4Q for a significant deficiency.)
Will be addressed when Extent of Condition Investigation is completed.

17. Action to Preclude Recurrence:
A) Develop an ICN to the procedure, providing a simple process for users to test qualified software when the OS is upgraded, without recourse to the developer. A DAR with draft text has been developed.
B) SW users will be notified of the procedure modification when approved.
C) The QE compliance checkers will be notified of the procedure modification when approved, and the current requirements for the interim.

18. Due Date: 3/28/02
- [x] For submittal of complete response
- [ ] For completion of corrective action

19. Response by: Thomas W. Doering, RM / James A. Blink, RF
Date 2/21/02 Phone 57776 / 54371

20. Evaluation: [ ] Accept [x] Partially Accept [ ] Reject
QAR Date 2-26-02

21. Concurrence:
DOQA Date 2/27/02

Exhibit AP-16.1Q.1 Rev. 12/20/1999

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DEFICIENCY/CORRECTIVE ACTION REPORT/STOP WORK ORDER CONTINUATION PAGE

Your initial response, dated 3/23/02 is partially accepted. This partial acceptance will not necessitate a revised response, providing the following concerns are adequately addressed in your complete response:

1. Your initial response does not address the errors in qualification documents satisfactorily. Errors which were initially identified in the deficiency were errors of fact and substance, and seemed to go beyond "cosmetic". Please provide your determination of how and why these errors occurred along with action to preclude recurrence.

2. Your response does not address the issue of altered dates on the VTR. Please assess how and by whom the alterations were made, and whether or not this was a case of failure to properly correct a record or if there was any intent to improperly alter the record. Action to preclude recurrence will have to be addressed.

3. Your initial response does not acknowledge the second deficiency described in the DR. Please address how and why the Independent Technical Review process failed to detect any of the errors identified and identify action to preclude recurrence.

Also, please ensure that during the assessment of the extent of condition, that your sample includes other code qualification documents, and other technical products developed, reviewed, and/or approved by the individuals identified in the Concerns Related Findings Report attached to the original DR. Your sample should also include samples of qualification packages and technical products from the same location, but by different individuals, and your sample should also include similar work done at other locations.

Sam E. Archuleta
QA Representative

2-26-02
Date

TYPE RESPONSE:
- [x] Initial
- [ ] Complete
- [x] Amended

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U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

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DGO 3/25/02

DEFICIENCY/CORRECTIVE ACTION REPORT (RESPONSE)

14a. Immediate Actions:
A) Check the significance of SW OS to SR. This has been completed. ITP test cases on Solaris 5.6 (the AMR OS) and 5.7 passed; therefore, the AMR results will not change after SW re-qualification is complete.
B) Assess significance of NUFT documentation errors (ITP, VTP, and VTR). This has been completed. The errors were determined to be unintentional (including alteration of dates), due to lack of attention to detail during review and approval, not affecting the validity of the software, and correctable by ICNs. The SW does not need to be removed from the baseline, and no SDN is required.
C) The QE organization has been requested to confirm that documents being processed through compliance checking meet the requirement to use SW under the OS version for which the SW was qualified.
Compliance Date: 2/21/02

14. Remedial Actions:
A) Qualify NUFT 3.0s on Solaris 5.6 and later OS versions, using the ICN'd procedure (see block 17).
B) Develop ICNs to NUFT 3.0s qual docs that correct the errors listed in this DR, and any others found during the DR investigation.

15. Extent of Condition:
A) Determine the users for five major SW codes (ANSYS, NUFT, TOUGH2, TOUGHREACT, and FEHM). Determine the OS used currently on workstations and whether it is compatible with the SW baseline. Notify users about risk of potential future deficiencies due to OS upgrades.
B) Review at least 50% of the AMRs approved in the last year (since 2/21/01) to determine if the OS cited is compatible with the current SW baseline. If the AMRs used SW on OS versions beyond the qualification OS, the SW will be qualified on the later OS, using the ICN'd procedure (see block 17), to verify that the technical conclusions of the AMR were valid.
C) Review the SW documents for EARTHVISION 5.0, NUFT 3.0.1s, and 3DEC 2.00. These were approved by the same RM. Issue ICNs to correct any errors found in the documentation

16. Cause: (Attach results of root cause detemination prepared in accordance with AP-16.4Q for a significant deficiency.)
A) The role of the user in determining SW qualification after OS upgrades wasn't clear in Section 5.7.3 (Use of SW) of the procedure. Section 5.8.4 (Operating Environment Changes), which addressed the issue more clearly, didn't identify a user role.
B) The errors in the NUFT 3.0s documentation were caused by inattention to detail by the originators, reviewers, and approvers. The errors fall into the categories of inconsistent dates (rerunning the test suite after signing the document, producing inconsistent date stamps), use of summary statements (27 test cases, for example) inconsistent with the body of the document (30 cases described), the OS5.5 error was detected in review but not fixed in the document, the reviewer date writeover was a pen-skip traceover (not a correction), and the ITSMA date correction was misplaced (looking like a writeover). The review process was ineffective in detecting and/or correcting these errors.

17. Action to Preclude Recurrence:
A) Develop an ICN to the procedure, providing a simple process for users to test qualified software when the OS is upgraded, without recourse to the developer. A draft ICN has been developed and is expected to begin the review process before the end of March 2002.
B) SW users will be notified of the procedure modification when approved.
C) The QE compliance checkers will be notified of the procedure modification when approved, and the current requirements for the interim. ~~ITSMA~~ reviewers ~~checklists~~ will be ~~modified~~ to include finding these types of inconsistencies and improper handwritten corrections in future reviews of SW documents.
Organizational QAB 3/22/02 reminded

18. Due Date: 4/26/02
- [x] For submittal of complete response
- [ ] For completion of corrective action

19. Response by: Thomas W. Doering, RM / James A. Blink, RI
Date 3/21/02 Phone 57776 / 54371

20. Evaluation: [X] Accept [ ] Partially Accept [ ] Reject
QAR Date 3/25/02

21. Concurrence:
DOQA James Blaylock Date 3/29/02

Exhibit AP-16.1Q.1 Rev. 12/20/1999

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2. Check if Amended ☐
Check if also Initial Response ☐

3. Extended Processing

☒ No ☐ Yes (If yes, submit Extended Processing request)

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DEFICIENCY REPORT/CORRECTIVE ACTION REPORT COMPLETE RESPONSE

4. Extent of Condition: (Amended response will be required if all Extent of Condition investigations are not complete and documented herein)

A) Determined the users for five major SW codes (ANSYS, NUFT, TOUGH2, TOUGHREACT, and FEHM). Determined the OS used currently on workstations and whether it is compatible with the SW baseline.
B) Reviewed at least 50% of the AMRs approved in the last year (since 2/21/01) to determine if the OS cited is compatible with the current SW baseline.
C) Reviewed the SW documents for EARTHVISION 5.0, NUFT 3.0.1s, and 3DEC 2.00. These were approved by the same RM.

These reviews are complete and are documented on IOM-0425022404 (J. Blink to T. Doering, dtd 5/1/02).

5. Impact: (Provide an impact statement relative to waste isolation and safety, and impact to other work, if any)

There is no direct impact to waste isolation or safety.
The documentation of software usage in AMRs is incomplete since operating system version is not specified in some cases. The software configuration management system has not met all of its procedural requirements in that user requests have been accepted that do not include the procedurally required operating system version information. The process for upgrading operating systems is sometimes outside of YMP control, resulting in non-compliance that is not apparent to the software users.
The overall result of the three items in the preceding paragraph is that traceability of work back to the hardware and software used is not as complete as was intended by the procedure authors. However, since operating systems are designed to be backward
(See Continuation Page)

6. Remedial Actions: (Document all actions necessary to address the results of the Extent of Condition)

A. Issue ICN04 to Rev 3 of AP-SI.1Q to specify the process to follow when operating environment changes (in comment resolution, issuance scheduled by 5/10/02).
B. Implement the ICN to extend the software baseline to current operating system versions for the five SW codes (ANSYS, NUFT, TOUGH2, TOUGHREACT, and FEHM).
C. Develop ICNs to NUFT 3.0s qual docs that correct the errors listed in this DR (no further errors were found to these documents during the DR investigation).

7. ☐ Root Cause (For a significant CAQ, attach results of formal root cause determination prepared in accordance with AP-16.4Q)
☑ Apparent Cause

A) The role of the user in determining SW qualification after OS upgrades was not clear in Section 5.7.3 (Use of SW) of the procedure. Section 5.8.4 (Operating Environment Changes), which addressed the issue more clearly, did not identify a user role.
B) The errors in the NUFT 3.0s documentation were caused by inattention to detail by the originators, reviewers, and approvers. The errors fall into the categories of inconsistent dates (rerunning the test suite after signing the document, producing inconsistent date stamps), use of summary statements (27 test cases, for example) inconsistent with the body of the document (30 cases described), an
(See Continuation Page)

8. Action to Preclude Recurrence: (Address those actions necessary to prevent the identified cause from recurring).

A. Remedial Action item A will contribute to prevention of recurrence.
B. Retire software versions no longer used on quality affecting work (for software included in the extent of condition investigation), so that they do not become inconsistent with upgraded operating systems.
C. Ensure the ICN in item A includes, in Section 5.7.3.2, the requirement for technical product documentation to include the operating environment information.
(See Continuation Page)

9. Due Date for Completion of Corrective Action: 05/24/02	10. Responsi bl e Manager: Thomas W. Doering / 05/01/02 / Date 5/2/2002 BSC QA 02-1100 5-2-02
11. QAR Evaluation: ☒ Accept ☐ Partially Accept ☐ Reject SAM E. ARCHULETA / Signature: Sam E. Archuleta NOT SIG. / Date: 5-6-02	12. QAM Concurrence: RAM MURTHY / Signature: James B. Blink for / Date: 5/10/02

AP-16.1Q.8 Rev. 03/25/2002

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

☒ DR/CAR/QO
☐ SWO

NO. BSC-02-D-070
PAGE OF
QA: QA

CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Block 5, continued
compatible, the reduced traceability is not likely to have affected the calculated results. The corrective actions will verify the backward compatibility of operating systems currently installed and will update the software baseline to current operating systems, verifying that the calculations were not afffected by the reduced traceability.

Block 7, continued
OS5.5 error detected in review but not fixed in the document, a reviewer date writeover that was a pen-skip traceover (not a correction), and the ITSMA date correction being misplaced (looking like a writeover). The review process was ineffective in detecting and/or correcting these errors.

Block 8, continued
D. SW users will be notified of the procedure modification when approved. The notification will highlight the risk of potential future deficiencies due to OS upgrades.
E. The QE compliance checkers will be notified of the procedure modification when approved, and the current requirements for the interim. Organizational reviewers were reminded to include finding these types of inconsistencies and improper handwritten corrections in future reviews of SW documents (Ref. e-mail C. Schneider to Swift/Peters/Doering/Dixon, 4/8/02, subject: "BSC-02-D-070 Lesson Learned, to Organizational Reviewers".)

BECHTEL SAIC COMPANY, LLC

Interoffice Memorandum

QA: QA

To:	Thomas W. Doering	**No.:**	0425022404
From:	James A. Blink	**Date:**	May 1, 2002
Re:	BSC-02-D-070	**CC:**	R.W. Andrews, S. Archuleta, G.K. Beall, P.R. Dixon, E.L. Hardin, R.L. Howard, K.D. Lachman, J.L. Mason, R.L. Schreiner, S.B. Splawn, W.W. Watson, J.D. Weaver, F.N. Zinkevich, RPC = 24 pages

*This IOM supercedes the 0425022424 version dated 04/26/02. Only changes are to the cc distribution, date and log number".

Summary

The extent of condition investigation for the subject DR involved three potential directions of extended deficiency:

- Errors in other software documentation approved by the same responsible manager who approved the software cited as deficient in the DR
- Use of software, in operating environments other than that for which the software was qualified, in AMRs other than the AMR cited as deficient in the DR
- Evolution of operating environments for registered software users, which would add risk of further deficiencies if the software is applied to new calculations supporting an LA

Each of these directions was pursued, and is documented below and in the three attachments.

Other Software Approved by the Same Responsible Manager

The software found to be deficient in the DR was NUFT 3.0s. The responsible manager for that software package was Barbara Campbell. The baseline of approved software was

searched for other software approved by the same individual. Three software products were identified:

- Earthvision V.5.0, baselined October 2001
- NUFT V.3.0.1s, baselined November 2000
- 3DEC V.2.0, baselined June 2000

Ed Miller of the ITSMA organization reviewed the documentation for the three products (Attachment 1). His conclusion was that the "documentation packages exceeded or met the software management/quality assurance ... procedures". Accordingly, the extent of condition investigation concludes that the deficiencies found in the NUFT V.3.0s documentation were isolated instances and not typical of work supervised by Barbara Campbell.

Inconsistency between Baselined Software Environments and Environments Cited in AMRs

Controlled copies (hard copy or on-line copies) of 131 AMRs were reviewed (Attachment 2). AMRs approved during the past year (since 2/21/01) were selected as appropriate for further investigation since deficiencies in them would be likely to continue in future documents if no actions are taken. About 39% (51) of the reviewed AMRs were effective after 2/21/01. Of these AMRs, 19 used level 1 or 2 software. There 100 citations of level 1 or 2 software in these AMRs.

Of the 100 citations, 18 were fully compliant in that the operating environment was clearly specified in both the AMR and the software baseline, and the environments matched. Most (70) of the citations were indeterminate because either the AMR or the baseline (or in some cases, both) did not clearly and specifically identify the operating environment. For example, "UNIX" was often cited, without identifying the version number of UNIX. In some cases, the platform (which is associated with the type of UNIX, such as SOLARIS) was not specified.

Twelve of the citations were clearly deficient. In those cases, there was enough identification of the operating environment in both the AMR and the software baseline to determine that the software had been used beyond its range of qualification (i.e., in an environment other than the environment in which it was qualified).

The extent of condition investigation concludes that neither the software baselining process nor the AMR development and checking process consistently identifies the operating environment with adequate detail. Procedural remedies and dissemination of these remedies to responsible individuals are recommended to improve this situation for future products, thereby reducing the small possibility of erroneous calculations due to operating environment evolution.

For existing products, this investigation recommends no action, since operating systems are designed to be backward compatible. When backward compatibility is not fully achieved by

the operating system engineers, the usual result is failure of the software to execute, rather than execution with erroneous results.

Inconsistency between Current Operating Environments and Baselined Software

Five major software products (ANSYS, FEHM, NUFT, TOUGH2, and TOUGHREACT) were selected for review (Attachment 3). These products were selected because they are key to both PA and Design analyses, and because they are used at all major geographical locations on the projects. The five products have multiple baselined versions, with a total of 28 identified in the baseline. A review of the software user database identified 138 computers on which installation of the software had been approved. The users of these computers were contacted, and they executed system utilities that identified the currently installed operating environment.

There were a total of 302 combinations of computer and software version which were individually reviewed. About 46% (138) of the items would be compliant if the baselined software were executed at the current time. About 50% of the items are at risk, i.e., they would be deficient if the software is executed to support quality affecting products, in that the operating environment has been upgraded since the software was baselined. The remaining items (14) are indeterminate because information was not available or because the software baseline was not explicit.

Testing software after operating system upgrade is a normal and simple process. The installation test cases are rerun and compared with the results in the baseline document. However, the process for documenting the results is onerous in the current procedure, requiring full requalification of the software. This investigator has worked with the software quality assurance organization to develop a streamlined method of documenting the normal process, which is being promulgated in an ICN to the procedure.

For each of the 164 items that were either at risk, or indeterminate, a recommended risk reduction path was identified. About 47% (77) of the items could be made compliant by converting the user request to a newer version already available. This could be stimulated by retiring the prior versions and removing them from the baseline. About 30% (50) of the items could be made compliant by extending the baseline to the new environments, which will be easy to accomplish when the procedure ICN is approved. About 15% (24) of the items could be made compliant by tagging the CPU and operating system as "historical" in the user database. There are 12 items for which the software baseline is not explicit for the operating environment. These items could be resolved by further investigation in the software organization, either by reviewing qualification documents or contacting the developing organization.

Attachments:

1. Review of Other Software Approved by the Same Responsible Manager [e-mail from E. Miller to J. Blink et al., 3/26/02, subject "DR70 Extent of Condition"] 3 pages
2. Comparison of AMRs and the Software Baseline [EXCEL File DR070-AMRs-JAB1.xls, stored on CPU 112376 in Summerlin Room 308], 6 pages
3. Comparison of Computer Operating Environments and the Software Baseline [EXCEL File DR070-Platform-OS-JAB2.xls, stored on CPU 112376 in Summerlin Room 308], 11 pages

JB:kms

Attachment 1
(3 pages, including this page)

Edward Miller
03/26/2002 05:24 PM

To: James Blink/YM/RWDOE@CRWMS, Lyle Southworth/YM/RWDOE@CRWMS, Dan Tunney/YM/RWDOE@CRWMS, Ed Melczer/YM/RWDOE@CRWMS, Martha Kohler/YM/RWDOE@CRWMS
cc: Steve Splawn/YM/RWDOE@CRWMS, Jeffery Mason/YM/RWDOE@CRWMS

Subject: DR70 Extent of Condition

QA:N/A Exclusionary

Good Afternoon,

On 03/21 SQC was requested to review support documentation for the below listed software products. This review was requested by Dr. Blink to determine, if any, additional "Extent of Condition" existed for DR70.

The software products that were reviewed:
- Earthvision, Version 5.0 (Baselined October 2001)
- NUFT, Version 3.0.1s (Baselined November 2000)
- 3DEC, Version 2.0 (Baselined June 2000)

PROCESS
This review was conducted in accordance with the applicable Software Quality Assurance and Management procedure (s); QAP-19.1, *Software Quality Assurance Procedure* and AP-SI.1Q, *Software* Management. Two different software process and management procedures, with revisions, were reviewed and utilized to ensure that the identified, correct and approved software processes was used for that specified time period for the software products development, qualification, verification/validation and baselining efforts.

The complete software qualified/baselined documentation packages were reviewed for the three (3) above listed software products. This documentation was obtained from the YMP Software Configuration Management (SCM) baselined library. The support documentation were and are entitled differently, but the text of the documents accomplished the "same goal" for the proper development, qualification, validation and baselining efforts, under the appropriate software quality assurance and management procedure (s) for that time period.

REVIEW CRITERIA
The review criteria incorporated many specific areas of concern too ensure that there is no impact or if an impact exists, what is the extent of the impact on the "Extent of conditions" for DR70. Those areas of concern (s) reviewed were:
- Ensure that all three (s) software products were correctly and accurately qualified/baselined in accordance with applicable procedures.
- Ensure that the Independent Technical Reviewer, if required, correctly, accurately and consistently reviewed the documentation in accordance with appropriate software quality assurance and management processes.
- Ensure that the Installation Test Plan (ITP) installation process was adhered to in accordance with the approved ITP.
- Ensure that the Validation Test Plan (VTP) validation process was adhered to in accordance with the approved VTP.
- Ensure that the approved test cases identified in the VTP correctly and accurately traced/tracked through the defined and approved requirements and the approved design boundaries.

- Ensure that the Validation Test Report (VTR) reflected the accurate test cases developed from/in the VTP.
- Ensure that VTP accurately and totally tested all test cases within the specified and defined boundaries to which the software was originally qualified.
- Ensure that the, if required, Independent Validation Tester (IVT), used the approved ITP and VTP correctly and accurately documented the results.
- Ensure that the identified and approved operating platform (s) and system (s) were correctly used throughout the support documentation and was in fact the actual used platforms/systems for the IVT validation processes and baselining SCM internal verification testing process.
- Ensure that, if required, when editorial changing of a document was done and/or required, it was accurately completed in accordance with AP-17.1Q.

CONCLUSION

This conclusion was derived from a complete review of the available documentation within the SCM Library and the YMP Reference Information System (RIS) database.

- All three (3) software products support documentation packages exceeded or met the software management/quality assurance documentation development and approval process per applicable procedures.
- No inconsistencies existed between each software product documentation technical and testing process text.
- No inconsistencies existed between the identified documented and approved software product operating platforms and systems for the validation and baselining effort.
- No inconsistencies existed at the execution phase of the ITR and IVT verification and validation process. All the specified test cases were tested and documented completely and accurately within the approved and defined boundaries to which the software was originally qualified.
- All three (3) software products are qualified and baselined in accordance with approved software quality assurance and management procedures for the development, approval, testing, qualification, verification, validation and baselining process.

Attachment 2
(6 pages, including this page)

DR070-AMRs-JAB1.xls
J. Blink
Today is 04/26/2002 13:31

Evaluated Items	
131	AMRs
51	Approved since 2/21/01
19	Approved since 2/21/01, w/ L1/2 SW
100	AMR-SW items evaluated

Status	
18	Compliant
70	Indeterminate
12	Deficient

Note: Solaris 2.6, 2.7, 8, and 9 are SUN-Marketing version numbers. SUN-Engineers echo these version numbers on startup as 5.6, 5.7, 5.8, and 5.9 respectively.

Note: STN used if nomenclature of SW in AMR and baseline differed slightly

Item #	Document #	Title	PMR Grp	Revision	ICN	Effective Date	Since 2/21/01?	Software/OS (L1 and L2 only; no routines or macros included in extent of condition investigation)	Approved SW/OS (Baseline Date: 4/25/02)	Compliant or Deficient Status
1	ANL-CRW-GS-000003	Characterize Framework for Seismicity & Structural Deformity at Yucca Mtn Nevada	DE	0	0	05/16/2000	No	N/A	N/A	N/A
2	ANL-EBS-GE-000004	Effects of Fault Displacement on Emplacement Drifts	DE	0	1	05/09/2000	No	N/A	N/A	N/A
3	ANL-EBS-GS-000001	Geochemistry Model Validation Report: Material Degradation and Release Mod	DE	0	0	10/17/2001	Yes	EQ3/6 V7.2b (PC CPU 117728, OS not given) EQ6 V7.2bLV (PC CPU 117728, OS not given)	Windows 95 Windows 95	Indeterminate Indeterminate
4	ANL-EBS-GS-000002	Geochemistry Model Validation Report: External Accumulation Model (Attachm	DE	0	0	10/05/2001	Yes	EQ3/6 V7.2b (machine not specified, stated as not used in the development of the AMR) EQ6 V7.2bLV (machine not specified, stated as not used in the development of the AMR) PHREEQC V2.0 (Dell Pentium II CPU U998E D&ES Austin TX, OS not given)	Windows 95, HP-UZ 10.20 Windows 95, HP-UZ 10.20 Windows NT 4.0 / 95	Indeterminate Indeterminate Indeterminate
5	ANL-EBS-HS-000003	Abstraction of NFE-Thermodynamic Env. & Perc. Flux	EBS	0	2	02/05/2001	No	N/A	N/A	N/A
6	ANL-EBS-MD-000001	Environment on the Surfaces of the Drip Shield & Waste Package Outer Barrier	WP	0	2	07/18/2001	Yes	None	N/A	N/A
7	ANL-EBS-MD-000002	Aging and Phase Stability of WP Outer Barrier	WP	0	1	09/26/2001	Yes	None	N/A	N/A
8	ANL-EBS-MD-000003	General Corrosion & Localized Corrosion of Waste Package Outer Barrier	WP	0	0	01/28/2000	No	N/A	N/A	N/A
9	ANL-EBS-MD-000004	General Corrosion & Localized Corrosion of the Drip Shield	WP	0	0	03/27/2000	No	N/A	N/A	N/A
10	ANL-EBS-MD-000005	SCC of the DS, the WP Outer Barrier, & the SS Structural Material	WP	0	1	10/31/2000	No	N/A	N/A	N/A
11	ANL-EBS-MD-000006	Hydrogen Induced Cracking of Drip Shield	WP	0	2	07/18/2001	Yes	None	N/A	N/A
12	ANL-EBS-MD-000007	Degradation of Stainless Steel Structural Material	WP	0	1	07/11/2001	Yes	None	N/A	N/A
13	ANL-EBS-MD-000011	Hydride-Related Degradation of SNF Cladding under Repository Conditions	WF	0	1	01/12/2001	No	N/A	N/A	N/A
14	ANL-EBS-MD-000012	Clad Degradation – Local Corrosion of Zirconium and its Alloys under Repository Conditions	WF	0	0	04/05/2000	No	N/A	N/A	N/A
15	ANL-EBS-MD-000013	Clad Degradation – Dry Unzipping	WF	0	0	05/03/2000	No	N/A	N/A	N/A
16	ANL-EBS-MD-000014	Clad Degradation – Wet Unzipping	WF	Decontrolled & Cancelled Eff. 1/12/01				N/A	N/A	N/A
17	ANL-EBS-MD-000015	CSNF Waste Form Degradation: Summary Abstraction	WF	0	0	01/20/2000	No	N/A	N/A	N/A
18	ANL-EBS-MD-000016	Defense HLW Glass Degradation	WF	0	2	10/15/2001	Yes	None	N/A	N/A
19	ANL-EBS-MD-000017	Pure Phase Solubility Limits – LANL	WF	0	1	01/24/2001	No	N/A	N/A	N/A
20	ANL-EBS-MD-000019	Secondary Uranium Phase Paragenesis and Incorporation of Radionuclides into Secondary Phases	WF	0	1	06/18/2001	Yes	None	N/A	N/A
21	ANL-EBS-MD-000020	Colloid-Associated Radionuclide Concentration Limits: ANL	WP	0	1	02/01/2001	No	N/A	N/A	N/A
22	ANL-EBS-MD-000023	Analysis of Mechanisms for Early Waste Package Failure	WP	2	0	09/29/2000	No	N/A	N/A	N/A
23	ANL-EBS-MD-000026	In-Drift Thermal-Hydrological-Chemical Model	EBS	0	2	03/23/2001	Yes	NUFT V3.0s (Solaris 5.6 [This is the deficiency noted in the DR])	Solaris 5.5.1	Deficient
24	ANL-EBS-MD-000027	Drift Degradation Analysis	EBS	1	1	10/26/2001	Yes	UDEC V2.0 (Dell OptiPlex Gxi CPU 116400 OS not given) UNWEDGE V2.3 (Dell OptiPlex Gxi CPU 116400 OS not given) DRKBA V3.3 (Dell OptiPlex Gxi CPU 116400 OS not given)	DOS 5.0 DOS Emulation Windows 95	Indeterminate Indeterminate Indeterminate
25	ANL-EBS-MD-000028	Water Diversion Model	EBS	0	0	02/01/2000	No	N/A	N/A	N/A
26	ANL-EBS-MD-000029	Water Drainage Model	EBS	0	1	07/05/2000	No	N/A	N/A	N/A
27	ANL-EBS-MD-000030	Ventilation Model	EBS	0	0	02/01/2000	No	N/A	N/A	N/A
28	ANL-EBS-MD-000031	Invert Diffusion Properties Model	EBS	1	1	08/01/2001	Yes	None	N/A	N/A
29	ANL-EBS-MD-000032	Water Distribution and Removal Model	EBS	1	0	01/23/2001	No	N/A	N/A	N/A
30	ANL-EBS-MD-000033	EBS Physical & Chemical Environment Model	EBS	1	0	11/30/2000	No	N/A	N/A	N/A
31	ANL-EBS-MD-000034	EBS Radionuclide Transport Model	EBS	0	1	07/27/2000	No	N/A	N/A	N/A
32	ANL-EBS-MD-000035	EBS FEPs and Degradation Modes Analysis	EBS	0	1	07/27/2000	No	N/A	N/A	N/A
33	ANL-EBS-MD-000036	Incorporation of Uncertainty & Variability of DS & WP Degradation in WAPDEG Analysis	WP	0	0	05/28/2000	No	N/A	N/A	N/A

34	ANL-EBS-MD-000037	In-Package Chemistry Abstraction	WF	1	0	02/15/2001	No	N/A	N/A	N/A
35	ANL-EBS-MD-000038	In-Drift Microbial Communities	EBS	0	1	11/09/2000	No	N/A	N/A	N/A
36	ANL-EBS-MD-000039	Seepage/Backfill Interactions	EBS	0	0	05/12/2000	No	N/A	N/A	N/A
37	ANL-EBS-MD-000040	In-Drift Gas Flux & Composition	EBS	0	0	05/23/2000	No	N/A	N/A	N/A
38	ANL-EBS-MD-000041	In-Drift Corrosion Products	EBS	0	0	12/15/1999	No	N/A	N/A	N/A
39	ANL-EBS-MD-000042	In-Drift Colloids and Concentration	EBS	0	0	05/12/2000	No	N/A	N/A	N/A
40	ANL-EBS-MD-000043	Seepage/Cement Interactions	EBS	0	0	05/23/2000	No	N/A	N/A	N/A
41	ANL-EBS-MD-000044	Seepage/Invert Interactions	EBS	0	0	05/23/2000	No	N/A	N/A	N/A
42	ANL-EBS-MD-000045	In-Drift Precipitates/Salts Analysis	EBS	0	3	01/14/2002	Yes	EQ3/6 V7.2b (PC CPU 131042 - Grand Junction CO, and Toshiba Satellite Pro 420CDS CPU 10656628 - Co Springs CO; both using Windows 95)	Windows 95	Compliant
								EQ6 V7.2bLV (PC CPU 131042 - Grand Junction CO, and Toshiba Satellite Pro 420CDS CPU 10656628 - Co Springs CO; both using Windows 95)	Windows 95	Compliant
43	ANL-EBS-MD-000046	Physical & Chemical Environmental Abstraction Model	EBS	0	1	11/09/2000	No	N/A	N/A	N/A
44	ANL-EBS-MD-000048	Initial Cladding Condition	WF	0	1	09/27/2000	No	N/A	N/A	N/A
45	ANL-EBS-MD-000049	Multiscale Thermohydrologic Model	EBS	0	2	01/22/2002	Yes	NUFT V3.0s (Solaris 5.6)	Solaris 5.5.1	Deficient
								MSTHAC V6.2 (Solaris 5.6)	Version has been superceded by 7.0	Indeterminate
								MSTHAC V6.3 (Solaris 5.6)	Version has been superceded by 7.0	Indeterminate
46	ANL-EBS-MD-000055	Flow of Water & Pooling in a Waste Package	EBS	0	0	05/24/2001	Yes	None	N/A	N/A
47	ANL-EBS-MD-000056	In-Package Chemistry for Waste Forms (superceded ANL-EBS-MD-000050)	WF	0	0	03/21/2000	Yes	EQ3/6 V7.2b (PC OS version not specified, CPU S822733)	Windows 95	Indeterminate
48	ANL-EBS-MD-000061	Analysis of Preclosure Design Basis Rock Fall Onto Waste Package	EBS	0	0	11/27/2001	Yes	VULCAN V.3.5NT on Intergraph workstation with NT OS (CPU117697)	Windows NT 4.0	Indeterminate
49	ANL-EBS-PA-000001	WAPDEG Analysis of WP & Drip Shield Degradation	WP	0	1	11/09/2000	No	N/A	N/A	N/A
50	ANL-EBS-PA-000002	FEPs Screening of Processes & Issues in Drip Shield & Waste Package Degradation	WP	1	0	02/05/2001	No	N/A	N/A	N/A
51	ANL-EBS-PA-000003	Abstraction of Models for Pitting & Crevice Corrosion of Drip Shield & WP Outer Barrier	WP	0	1	09/26/2001	Yes	None	N/A	N/A
52	ANL-EBS-PA-000004	Abstraction of Models of SCC of Drip Shield & WP Outer Barrier & Hydrogen Induced Corrosion of Drip Shield	WP	0	1	11/08/2000	No	N/A	N/A	N/A
53	ANL-EBS-PA-000005	Abstraction of Models for Stainless Steel Structural Material Degradation	WP	0	0	05/26/2000	No	N/A	N/A	N/A
54	ANL-EDC-NU-000001	Generic Degraded Configuration Probability Analysis for DOE CoDisposal Waste Package	WP	0	0	06/05/2001	Yes	None	N/A	N/A
55	ANL-MGR-GS-000001	Characterize Framework for Igneous Activity	DE	0	0	07/19/2000	No	N/A	N/A	N/A
56	ANL-MGR-GS-000002	Characterize Eruptive Process	DE	0	1	12/20/2001	Yes	None	N/A	N/A
57	ANL-MGR-MD-000001	Input Parameter Values for External and Inhalation Radiation Exposure Analysis	BIO	1	0	11/17/2000	No	N/A	N/A	N/A
58	ANL-MGR-MD-000002	Dose Conversion Factor Analysis GENII-S Ass Method	BIO	0	0	12/09/1999	No	N/A	N/A	N/A
59	ANL-MGR-MD-000003	Disruptive Event Biosphere Dose Conversion Factor Analysis	BIO	1	0	01/23/2001	No	N/A	N/A	N/A
60	ANL-MGR-MD-000004	Disruptive Event Biosphere Dose Conversion Factor Sensitivity Analysis	BIO	0	0	04/14/2000	No	N/A	N/A	N/A
61	ANL-MGR-MD-000005	Identification of Critical Group (Food & Tap Water)	BIO	1	1	01/24/2002	Yes	GENII-S V1.4.8.5 Gateway2000 PC (CPU111161, OS not stated);	Windows NT 4.0 / DOS Emulation	Indeterminate
62	ANL-MGR-MD-000006	Identification of Ingestion Exposure Parameters	BIO	0	0	02/09/2000	No	N/A	N/A	N/A
63	ANL-MGR-MD-000007	Environmental Transport Parameters Analysis	BIO	0	1	02/02/2001	No	N/A	N/A	N/A
64	ANL-MGR-MD-000008	Transfer Coefficient Analysis	BIO	0	2	09/21/2000	No	N/A	N/A	N/A
65	ANL-MGR-MD-000009	Nominal Performance Biosphere Dose Conversion Factor Analysis	BIO	1	0	01/23/2001	No	N/A	N/A	N/A
66	ANL-MGR-MD-000010	Non-Disruptive Biosphere Dose Conversion Factor Sensitivity Analysis	BIO	0	0	04/14/2000	No	N/A	N/A	N/A
67	ANL-MGR-MD-000011	Evaluation of Applicability of Biosphere-Related FEPs	BIO	1	0	02/22/2001	Yes	None	N/A	N/A
68	ANL-NBS-GS-000001	Natural Resources Assessment	UZ	0	0	01/26/2001	No	N/A	N/A	N/A
69	ANL-NBS-GS-000008	Future Climate Analysis	UZ	0	1	11/07/2001	Yes	None	N/A	
70	ANL-NBS-GS-000010	Description of Fracture Systems for External Criticality Reports	DE	0	0	10/01/2001	Yes	GAMV2 module from GSLIB 1.0MGGAMV2V1.201 on Solaris 2.6	Sun UNIX, Version not specified	Indeterminate
71	ANL-NBS-HS-000001	Analysis Comparing Advective-Dispersive Transport Solution to Particle Tracking	UZ	0	0	05/02/2000	No	N/A	N/A	N/A
72	ANL-NBS-HS-000002	Analysis of Hydrologic Properties Data	UZ	0	0	06/13/2000	No	N/A	N/A	N/A
73	ANL-NBS-HS-000005	Insitu Field Testing of Processes	UZ	1	0	01/08/2002	Yes	EARTHVISION -2 V4.0 (PC, UNIX; OS type and version not specified)	IRIX 6.4	Indeterminate
								ECRB-XYZ V.03 (Windows 98)	Windows 95/98	Compliant
74	ANL-NBS-HS-000007	Natural Analogs for UZ	UZ	0	0	04/24/2000	No	N/A	N/A	N/A

75	ANL-NBS-HS-000015	Development of Numerical Grids for UZ Flow & Transport Modeling	UZ	0	1	02/06/2002	Yes	EARTHVISION V4.0 (UNIX type and version not specified)	IRIX 6.4	Indeterminate
								ESF4_XYZ V3.0 (PC OS version not specified)	Windows 95/98	Indeterminate
								WinGridder V1.0 (PC OS version not specified)	Windows 95/NT	Indeterminate
76	ANL-NBS-HS-000017	Analysis of Geochemical Data for the Unsaturated Zone	UZ	0	2	03/13/2002	Yes	None	N/A	
77	ANL-NBS-HS-000019	UZ & SZ Transport Properties	UZ	0	2	03/07/2002	Yes	FEHM V2.00 (Solaris version not specified)	Solaris version not specified	Indeterminate
								TRACRN V1.0 (Solaris version not specified)	Sun UNIX, Version not specified	Indeterminate
								RTA V1.1 (Solaris version not specified)	Sun UNIX, Version not specified	Indeterminate
								LAGRIT V1.0 (Solaris version not specified)	Solaris 2.7	Indeterminate
								Zombie V3.0 (UNIX version not specified)	MAC OS 7.5.3	Deficient
								STO-UNSAT V1.0 (Solaris version not specified)	Solaris version not specified	Indeterminate
								CART V1.0 (Solaris version not specified)	Solaris version not specified	Indeterminate
78	ANL-NBS-HS-000020	Fault Displacement Effects on Transport in the UZ	DE	1	0	09/27/2000	No	N/A	N/A	N/A
79	ANL-NBS-HS-000021	Geochemical & Isotopic Constraints on GW Flow Directions, Mixing, and Recharge at Yucca Mountain, Nevada	SZ	0	2	01/28/2002	Yes	NETPATH V2.13 (MS-DOS, version not specified, Compaq 400S1/1P/128/4S/2D+ DOM D828BZY50021)	Windows NT / DOS Emulation	Indeterminate
80	ANL-NBS-HS-000022	Modeling Sub Gridblock Scale Dispersion in 3D Heterogeneous Fractured Media (S0015)	SZ	0	1	10/23/2000	No	N/A	N/A	N/A
81	ANL-NBS-HS-000023	Abstraction of Flow Fields for TSPA	UZ	0	1	11/28/2000	No	N/A	N/A	N/A
82	ANL-NBS-HS-000024	Analysis of Base Case Particle Tracking Results of the Base-Case Flow Fields	UZ	0	0	01/31/2000	No	N/A	N/A	N/A
83	ANL-NBS-HS-000026	Particle Tracking Model and Abstraction of Transport Processes	UZ	0	0	04/24/2000	No	N/A	N/A	N/A
84	ANL-NBS-HS-000027	Analysis of Infiltration Uncertainty	UZ	0	0	05/25/2000	No	N/A	N/A	N/A
85	ANL-NBS-HS-000028	UZ Colloid Transport Mode	UZ	0	1	12/18/2001	Yes	FEHM V2.00 (Solaris version not specified)	Solaris version not specified	Indeterminate
								FEHM V2.10 (Solaris version not specified)	Solaris version not specified	Indeterminate
								TRACRN V1.0 (Solaris version not specified)	Sun UNIX, Version not specified	Indeterminate
86	ANL-NBS-HS-000029	Abstraction of Drift Scale Coupled Processes	NFE	0	0	05/25/2000	No	N/A	N/A	N/A
87	ANL-NBS-HS-000030	Input and Results of the Base Case Saturated Zone Flow and Transport Model f	SZ	0	1	11/12/2001	Yes	FEHM V2.10 (Solaris 5.7)	Solaris version not specified	Indeterminate
								GoldSim V6.03 (Windows NT4.00.1381; unqual, Section 5.11 cited)	Windows NT 4.0	Compliant
88	ANL-NBS-HS-000031	SZ Colloid-Facilitated Transport	SZ	0	0	06/09/2000	No	N/A	N/A	N/A
89	ANL-NBS-HS-000032	Simulation of Net Infiltration for Modern & Potential Future Climates	UZ	0	2	11/15/2001	Yes	MARKOV V1.0 (Windows NT 4.0)	Windows NT 4.0	Compliant
								PPTSIM V1.0 (Windows NT 4.0)	Windows NT 4.0	Compliant
								INFIL V2.0 (Windows NT 4.0)	Windows NT 4.0	Compliant
								ARCINFO V6.1.2 is stated as exempt, may be different than in other AMRs)	Superceded by later version	Compliant
90	ANL-NBS-HS-000033	Hydrogeologic Framework Model for the C148SZ Site-Scale F&T Model	SZ	0	2	11/12/2001	Yes	ARCINFO V7.2.1 (Windows NT V4)	Windows NT 4.0	Compliant
								PETROSYS V7.60d (Windows NT V4)	Windows NT	Indeterminate
								STRATAMODEL V4.1.1 (SGI Unix, no version specified)	IRIX 6.1, IRIX 6.5	Indeterminate
								ERMA Site Geologist V8.0.1 (Windows NT V4)	Windows NT 4.0	Compliant
91	ANL-NBS-HS-000034	Water-Level Data Analysis for the SZ Site-Scale F&T Model	SZ	1	0	02/06/2002	Yes	ARCINFO V7.2.1 (Windows NT V4.0)	Windows NT 4.0	Compliant
								3DEC V2.00 (Windows NT, version not specified)	Windows NT 4.0	Indeterminate
92	ANL-NBS-HS-000037	Coupled Thermal-Hydrologic-Mechanical Effects on Permeability	NFE	0	0	08/20/2001	Yes	NUFT V3.0s (SunSparc Unix OS3 - this is not a Solaris version format)	Solaris 5.5.1	Indeterminate
								EarthVision V5.1 (SGI Unix, version not specified)	IRIX 6.5	Indeterminate
93	ANL-NBS-MD-000001	Features, Events, and Processes in UZ Flow & Transport	UZ	1	0	04/16/2001	Yes	None	N/A	N/A
94	ANL-NBS-MD-000002	Features, Events, and Processes in SZ Flow and Transport	SZ	1	0	01/03/2001	No	N/A	N/A	N/A
95	ANL-NBS-MD-000003	Probability Distribution for Flowing Interval Spacing	SZ	0	2	06/06/2001	Yes	RIP V5.19.01 used in R0 and now retired; Dell OptiPlex GX1 CPU R429088, OS version not specified)	Retired	Indeterminate
								Statistica R5.1997, Excel 97-SR-1, and PV-Wave 6.21 listed as "commercially available" which is interpreted by the investigator as meaning "exempt" in this context	N/A	N/A
96	ANL-NBS-MD-000004	FEPs in Thermal Hydrology & Coupled Processes	NFE	0	1	02/05/2001	No	N/A	N/A	N/A
97	ANL-NBS-MD-000005	Abstraction of Drift Seepage	UZ	1	0	02/08/2001	No	N/A	N/A	N/A
98	ANL-NBS-MD-000006	Groundwater Usage by Proposed Farming Community	BIO	0	0	04/07/2000	No	N/A	N/A	N/A
99	ANL-NBS-MD-000007	Abstraction of BDCF Distributions for Irrigation Periods	BIO	0	1	01/24/2001	No	N/A	N/A	N/A
100	ANL-NBS-MD-000008	Distribution Fitting to the Stochastic BDCF Data	BIO	0	1	02/02/2001	No	N/A	N/A	N/A

101	ANL-NBS-MD-000009	Evaluate Soil/Radionuclide Removal by Erosion & Leaching	BIO	0	1	01/26/2001	No	N/A	N/A	N/A
102	ANL-NBS-MD-000010	Recharge & Lateral GW Flow Boundary Conditions	SZ	0	1	01/29/2002	Yes	SURFER 6.02 (stated as exempt in another AMR, but not stated as exempt here; no OS specified); assumed to be exempt	Not on Baseline	N/A
103	ANL-NBS-MD-000011	Uncertainty Distribution for Stochastic Parameters	SZ	0	0	05/26/2000	No	N/A	N/A	N/A
104	ANL-NBS-TH-000001	Thermal Tests Thermal-Hydrological Analysis Model	NFE	0	2	11/16/2001	Yes	TOUGH2 V3.4.2 (Solaris version not specified)	Solaris 2.x	Indeterminate
								TOUGH2 V1.4 (Solaris version not specified)	Solaris version not specified	Indeterminate
								TOUGH2 V1.3 Module EOS4 V1.0 (Solaris version not specified)	Solaris version not specified	Indeterminate
								NUFT 3.0.1s (Solaris version not specified)	Solaris 5.6	Indeterminate
105	ANL-SFS-MG-000005	Thermal Management Analysis for Lower-Temperature Designs	EBS	0	0	08/10/2001	Yes	ANSYS V5.6.2 on IRIX V.6.5	IRIX V.6.5	Compliant
106	ANL-WIS-MD-000004	DSNF and Other WF Degradation Abstraction	WF	0	1	03/20/2001	Yes	None	N/A	N/A
107	ANL-WIS-MD-000005	Disruptive Events Features, Events & Process (FEPs)	DE	0	0	04/24/2000	No	N/A	N/A	N/A
108	ANL-WIS-MD-000006	Inventory Abstraction	WF	0	3	01/21/2002	Yes	None	N/A	N/A
109	ANL-WIS-MD-000007	Clad Degradation – Summary and Abstraction	WF	0	1	02/01/2001	No	N/A	N/A	N/A
110	ANL-WIS-MD-000008	Clad Degradation-FEPs Screening Arguments	WF	0	1	11/02/2000	No	N/A	N/A	N/A
111	ANL-WIS-MD-000009	Miscellaneous Waste Form FEPs	WF	0	1	01/31/2001	No	N/A	N/A	N/A
112	ANL-WIS-MD-000010	Summary of Dissolved Concentration Limits	WF	1	1	06/29/2001	Yes	EQ3/6 V7.2b (HP-UX 10.20 and Windows 98)	Windows 95, HP-UX 10.20B	Deficient
113	ANL-WIS-MD-000012	WF Colloid-Associated Concentrations Limits: Abstraction & Summary	WF	0	1	01/23/2001	No	N/A	N/A	N/A
114	ANL-WIS-MD-000015	Dike Propagation Near Drifts	DE	0	1	11/13/2000	No	N/A	N/A	N/A
115	ANL-WIS-MD-000017	Igneous Consequence Modeling for TSPA-SR	DE	0	2	11/07/2001	Yes	None	N/A	N/A
116	ANL-WIS-PA-000001	EBS Radionuclide Transport Abstraction	EBS	0	3	08/03/2001	Yes	None	N/A	N/A
117	ANL-WIS-PA-000002	EBS FEPs/Degradation Modes Abstraction	EBS	1	0	02/15/2001	No	N/A	N/A	N/A
118	MDL-NBS-GS-000002	Geologic Framework Model	ISM	0	2	03/15/2001	Yes	Earthvision V4.0 (OS not specified)	IRIX 6.4	Indeterminate
119	MDL-NBS-GS-000003	Mineralogical Model	ISM	0	1	02/04/2000	No	N/A	N/A	N/A
120	MDL-NBS-GS-000004	Rock Properties Model	ISM	0	2	12/19/2000	No	N/A	N/A	N/A
121	MDL-NBS-HS-000001	Drift Scale Coupled Processes (DST & TCH Seepage)	NFE	1	2	03/11/2002	Yes	TOUGHREACT V2.2 (Solaris, version not specified, CPU 6332537; DEC Unix OSf1, CPU 6409291)	Solaris version not specified, DEC UNIX version not specified	Indeterminate
								TOUGHREACT V2.3 (Solaris, version not specified, CPU 6332537; DEC Unix OSf1, CPU 6409291)	Not on Baseline, possibly retired	Deficient
								SOLVEQ/CHILLER V1.0 (PC Windows, version not specified)	Windows 95/98	Indeterminate
								SUPCRT92 V1.0 (PC Windows, version not specified; MAC, OS version not specified)	Windows NT 4.0 / 98, Mac OS version not specified	Indeterminate
								TOUGH2 V1.4 (Solaris, version not specified, CPU 6332537; DEC Unix OSf1, CPU 6409291)	Solaris version not specified, COMPAQ TRU64 V5.1	Deficient
								AMESH V1.0 (Solaris, version not specified, CPU 6332537; DEC Unix OSf1, CPU 6409291)	Solaris 5.5.1, DEC OS 4.0	Deficient
								GSLIB V1.0SISIMV1.204 (Solaris, version not specified, CPU 6332537)	Solaris 5.5.1	Indeterminate
122	MDL-NBS-HS-000002	Seepage Model for PA Including Drift Collapse	UZ	1	0	12/20/2000	No	N/A	N/A	N/A
123	MDL-NBS-HS-000003	Calibrated Properties Model	UZ	0	1	03/07/2002	Yes	ITOUGH2 V3.2 (Solaris and DEC UNIX version not specified)	Solaris 5.5.1	Deficient
								TOUGH2 V1.4 (Solaris and DEC UNIX version not specified)	Solaris version not specified, COMPAQ TRU64 V5.1	Indeterminate
								infil2grid V1.6 (Solaris and DEC UNIX version not specified)	Solaris version not specified	Deficient
124	MDL-NBS-HS-000004	Seepage Calibration Model & Testing Data	UZ	1	0	01/05/2001	No	N/A	N/A	N/A
125	MDL-NBS-HS-000005	Conceptual & Numerical Models for UZ F&T	UZ	0	0	06/16/2000	No	N/A	N/A	N/A
126	MDL-NBS-HS-000006	UZ Flow Models & Submodels	UZ	0	1	12/18/2001	Yes	TOUGH2 V1.4 (Win95/98, Solaris version not specified, DEC OS version not specified)	Solaris version not specified, COMPAQ TRU64 V5.1, Windows 95 / 98 / NT	Indeterminate
								T2R3D V1.4 (Win95/98, Solaris version not specified, DEC OS version not specified)	Solaris version not specified, DEC OS version not specified, Windows 95 / 98 / NT 4.0	Indeterminate
								ITOUGH2 V3.2 (Solaris version not specified, DEC OS version not specified)	Solaris 5.5.1	Deficient
								TOUGHREACTE9 V1.0 (Solaris version not specified)	Solaris version not specified	Indeterminate
								TOUGHREACT V2.2 (Solaris version not specified, DEC OS version not specified)	Solaris version not specified, DEC OS version not specified	Indeterminate

								Infil2grid V1.6 (UNIX type and version not specified)	Solaris version not specified	Indeterminate
								EARTHVISION V4.0 (SGI IRIX 6.4)	IRIX 6.4	Compliant
								EXT V1.0_MEOS9 (UNIX type and version not specified)	Solaris version not specified	Indeterminate
127	MDL-NBS-HS-000007	Mtn Scale Coupled Processes (TH) Model	UZ	0	0	05/02/2000	No	N/A	N/A	N/A
								TOUGH2 V1.11 Module EOS9nT V1.0 (Solaris & DEC UNIX versions not specified, Mac OS 8.6)	Solaris version not specified, DEC OS version not specified, MAC OS 8.6	Indeterminate
128	MDL-NBS-HS-000008	Radionuclide Transport Models under Ambient Conditions	UZ	0	1	12/20/2001	Yes	TOUGH2 V1.4 (Solaris and DEC UNIX versions not specified)	Solaris version not specified, COMPAQ TRU64 V5.1	Indeterminate
								T2R3D V1.4 (Solaris and DEC UNIX versions not specified)	Solaris version not specified, DEC OS version not specified	Indeterminate
								FRACL V1.0 (Solaris and DEC UNIX versions not specified)	Solaris version not specified	Deficient
129	MDL-NBS-HS-000010	SZ Transport Methodology & Transport Component Integration	SZ	0	0	08/21/2000	No	N/A	N/A	N/A
								PEST V2.0 (Solaris version not specified)	Solaris 5.6	Indeterminate
								LaGriT V1.0 (Solaris version not specified)	Solaris 5.7	Indeterminate
								FEHM V2.00 (Solaris version not specified)	Solaris version not specified	Indeterminate
130	MDL-NBS-HS-000011	Calibration of the Site-Scale SZ Flow Model	SZ	0	1	07/10/2001	Yes	FEHM V2.10 (Solaris version not specified)	Solaris version not specified	Indeterminate
								NETPATH V2.13 (Windows NT, version not specified)	Windows NT, DOS emulation	Indeterminate
								MODFLOWP V2.3 (Windows NT, version not specified)	Solaris version not specified	Deficient
								DCPT V1.0(Windows version not specified)	Windows 95	Indeterminate
								DCPT V2.0 (Windows version not specified); Note listed as unqualified using Section 5.10 of the procedure	Not on baseline, but AMR lists as in-process	Compliant
								EARTHVISION V5.1 (SGI Unix version not specified)	IRIX 6.5	Indeterminate
								GSLIB V1.0MSISIMV1.203 (Solaris version not specified)	Solaris 5.5.1	Indeterminate
								GSLIB V2.0MSISIMV2.0 (Solaris version not specified)	Solaris version not specified	Indeterminate
								Infil2grid V1.6 (Solaris version not specified)	Solaris version not specified	Indeterminate
								ITOUGH2 V4.0 (Solaris and DEC UNIX versions not specified)	Solaris 5.5.1, DEC OS 4.0	Indeterminate
131	MDL-NBS-HS-000012	Unsaturated Zone Flow Patterns and Analysis	UZ	0	0	10/25/2001	Yes	ITOUGH2 V3.2 (Solaris version not specified)	Solaris 5.5.1	Indeterminate
								ITOUGH2 V3.2_drift (Solaris version not specified)	Solaris version not specified	Indeterminate
								T2R3D V1.4 (Solaris and DEC UNIX versions not specified)	Solaris version not specified, DEC OS version not specified	Indeterminate
								TOUGH2 V1.4 (Solaris and DEC UNIX versions not specified)	Solaris version not specified, COMPAQ TRU64 V5.1	Indeterminate
								TOUGH2 V1.5 (Solaris and DEC UNIX versions not specified); Note TOUGH2 V1.5 listed as unqualified using Section 5.10 of the procedure	Not on baseline, but AMR lists as in-process	Compliant
								Wingridder V1.1 (Window version not specified)	Windows 98	Indeterminate
								Wingridder V2.0 (Window version not specified); Note Wingridder V2.0 listed as unqualified using Section 5.10 of the procedure	Not on baseline, but AMR lists as in-process	Compliant

Attachment 3
(11 pages, including this page)

DR070-platform-OS-JAB2.xls
J. Blink

Today is 4/25/2002 21:49

This file is a list of platforms and their current OS
The group of platforms is taken from SURs for all baselined versions of the following SW: NUFT, ANSYS, FEHM, TO
The OS for which the SW is baselined is also shown, taken from the baseline
Solaris 2.6, 2.7, 8, and 9 are SUN-Marketing version numbers. SUN-Engineers echo these version numbers on startu
Bold in the Location and POC columns indicates the POC has responded.
Bold in other columns is info added or changed by the POC. Where appropriate, explanations were included in the Comments column
* means POC is not a user on the SUR

Note: Borg started as R431117, was renumbered as S819978, and will be renumbered to a new Rnnnnnn soon.
Note: If the qualification platform was Sun, and "UNIX" was the OS with no version specified, the baseline column uses "Solaris (no version specified)" as the version

Evaluated Items	
302	Computer-SW Version pairs
138	Number of Computers
5	Number of Codes
28	Number of Code Versions

Status	
138	Compliant
150	At Risk
14	Indeterminate

Recommended Risk Reduction Path	
50	Extend baseline when SW qualified
77	Retire SW or convert SUR to alternate version
24	Tag CPU-SW Version as "Historical" in SUR database
12	Review qualification documents to determine OS used in qualification
1	Continue to attempt to contact CPU user

Item Number	1 for first CPU mention, 0 for multiple CPU usage	Computer CPU #	Computer "Handle"	Geographic Location	POC*	Names on SUR	Computer Manufacturer	Model	OS Name	OS Version #	Comments	Software	SW OS (4/5/02 baseline)	Status (Compliant, Indeterminate, At-Risk)	Recommended Action
1	1	114441	Thermo	Las Vegas	Yl.Sun	Yl.Sun H.Yang	SGI	ACTANE	IRIX	6.5	IRIX 6.2 qualified 11/4/97	ANSYS 5.2SGI	SGI IRIX 6.1, Sun Solaris 2.6	Compliant	Update Baseline (see MOL)
2	1	115488	Hydro				Sun	UltraSparc	Solaris	5.6	MOL.19960128.0406. IRIX			Compliant	
3	1	700316					SGI	R4600	IRIX	6.2	6.5 qualified 6/9/99			Compliant	Update Baseline (see MOL)
4	1	700715	Suny				SGI	R8000	IRIX	6.2	MOL.199907160130, Solaris			Compliant	Update Baseline (see MOL)
5	1	700709		Las Vegas	Yl.Sun	Yl.Sun H.Yang	SGI		IRIX	6.2	Machine formerly used, no longer in the area; see comment in preceding line re IRIX 6.2 qualification	ANSYS 5.2SGI	SGI IRIX 6.1, Sun Solaris 2.6	Compliant	Annotate SUR database that machine is retired
6	1	102878	Opus	Las Vegas	M.Anderson	M.Anderson S.Bennett Z.Ceylan D.Colmont M.Dujin B.Harkins M.Hinds M.Lewis S.Mastilovic T.Mitchell M.Plinski H.Wade H.Wang S.Goluoglu D.Thomas D.McKenzie	HP		HP-UX	10.20		ANSYS 5.4	HP-UX 10.20	Compliant	N/A
7	1	105062	Milo				HP		HP-UX	10.20				Compliant	N/A
8	1	110431	Quiche				HP		HP-UX	10.20				Compliant	N/A
9	1	110669	Dallas				HP		HP-UX	10.20				Compliant	N/A
10	1	111503	Bobbi				HP		HP-UX	10.20				Compliant	N/A
11	1	111504	Spuds				HP		HP-UX	10.20				Compliant	N/A
12	1	114193	Bill				HP		HP-UX	10.20				Compliant	N/A
13	1	114408	Hazel				HP		HP-UX	10.20				Compliant	N/A
14	1	114434	Whacker				HP		HP-UX	10.20				Compliant	N/A
15	1	114435	Nuberger				HP		HP-UX	10.20				Compliant	N/A
16	1	115288	Major				HP		HP-UX	10.20				Compliant	N/A
17	1	115289	Zork				HP		HP-UX	10.20				Compliant	N/A
18	1	117161	Outland				HP		HP-UX	10.20				Compliant	N/A
19	1	117162	Truffles				HP		HP-UX	10.20				Compliant	N/A
20	1	700314	Oliver				HP		HP-UX	10.20				Compliant	N/A
21	1	700315	Rosebud				HP		HP-UX	10.20				Compliant	N/A
22	1	700667	Hodge				HP		HP-UX	10.20				Compliant	N/A
23	1	700669	Portnoy				HP		HP-UX	10.20				Compliant	N/A
24	1	700887	Bloom				HP		HP-UX	10.20				Compliant	N/A
25	1	700888	Zaltar				HP		HP-UX	10.20				Compliant	N/A
26	1	700891	Fluffy				HP		HP-UX	10.20				Compliant	N/A
27	1	2002611431	Gr0	Lynchburg	T.Doering*	J.Janes J.Biddle M.Balchik B.Brenneman G.Williams	HP		HP-UX	10.20		ANSYS 5.4	HP-UX 10.20	Compliant	N/A
28	0	114441	Thermo	Las Vegas	Yl.Sun	Yl Sun H.Yang	HP		HP-UX	10.20	This group jumped from Version 5.2 to 5.6.2, never used 5.4.	ANSYS 5.4	HP-UX 10.20	Compliant	N/A
29	0	115488	Hydro				HP		HP-UX	10.20				Compliant	N/A
30	0	700316					HP		HP-UX	10.20				Compliant	N/A
31	0	700715	Suny				HP		HP-UX	10.20				Compliant	N/A
32	0	700709		Las Vegas	Yl. Sun*	M.Pillow	HP		HP-UX	10.20	This group jumped from Version 5.2 to 5.6.2, never used 5.4. Machine formerly used, no longer in the area.	ANSYS 5.4	HP-UX 10.20	Compliant	Annotate SUR database that machine is retired
33	0	2002611431	Gr0	Lynchburg	T.Doering*	J.Janes J.Biddle M.Balchik B.Brenneman G.Williams	HP		HP-UX	10.20	HP8000 executable had convergence problems, but no incorrect sol'ns	ANSYS 5.4L2, HP7000 executable	HP-UX 10.20	Compliant	N/A
34	1	151324	Basselop	Las Vegas	M.Anderson	M.Anderson S.Bennett Z.Ceylan V.delaBrosse M.Dujin M.Lewis H.Marr M.Mastilovic T.Mitchell H.Wade	HP		HP-UX	11.0	ANSYS 5.6.2 not qual on HP-UX 11.0 as of 4/15/02	ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to HP-UX 11.0
35	1	151325	Bananajr				HP		HP-UX	11.0				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to HP-UX 11.0
36	1	117147	Dryheat	Las Vegas	B.Dunlap	B.Dunlap B.Ward	Sun	Sparc	Solaris	5.7	Solaris 2.6 & 2.7 = 5.6 and 5.7	ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	Compliant	N/A
37	0	2002611431	Gr0	Lynchburg			HP		HP-UX	10.20				Compliant	N/A
38	1	2015480316	Med1				HP		HP-UX	10.20				Compliant	N/A
39	0	102878	Opus				HP		HP-UX	10.20				Compliant	N/A

40	0	105062	Milo	Las Vegas	M.Anderson	J.Smotrel D.Kim T.Wiger A.Nana Y.Wang B.Brennemen M.Balchik J.Biddle (FGF); F.Faucher S.Bennett V.DelaBrosse C.Bola Z.Ceylan D.Colmont M.Dujin Bl.Harkins M.Hinds M.Lewis H.Marr S.Mastilovic D.McKenzie T.Mitchell H.Wade A.Scheider T.Schmitt (LV)	HP		HP-UX	10.20		ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	Compliant	N/A
41	0	110431	Quiche				HP		HP-UX	10.20				Compliant	N/A
42	0	110689	Dallas				HP		HP-UX	10.20				Compliant	N/A
43	0	111503	Bobbi				HP		HP-UX	10.20				Compliant	N/A
44	0	111504	Spuds				HP		HP-UX	10.20				Compliant	N/A
45	0	114193	Bitt				HP		HP-UX	10.20				Compliant	N/A
46	0	114408	Hazel				HP		HP-UX	10.20				Compliant	N/A
47	0	114434	Whacker				HP		HP-UX	10.20				Compliant	N/A
48	0	114435	Nuberger				HP		HP-UX	10.20				Compliant	N/A
49	0	115288	Major				HP		HP-UX	10.20				Compliant	N/A
50	0	115289	Zork				HP		HP-UX	10.20				Compliant	N/A
51	0	117161	Outland				HP		HP-UX	10.20				Compliant	N/A
52	0	117162	Truffles				HP		HP-UX	10.20				Compliant	N/A
53	0	700314	Oliver				HP		HP-UX	10.20				Compliant	N/A
54	0	700315	Rosebud				HP		HP-UX	10.20				Compliant	N/A
55	0	700667	Hodge				HP		HP-UX	10.20				Compliant	N/A
56	0	700669	Portnoy				HP		HP-UX	10.20				Compliant	N/A
57	0	700887	Bloom				HP		HP-UX	10.20				Compliant	N/A
58	0	700888	Zeltar				HP		HP-UX	10.20				Compliant	N/A
59	0	700891	Fluffy				HP		HP-UX	10.20				Compliant	N/A
60	0	114441	Thermo	Las Vegas	Yl.Sun	Yl.Sun H.Yang J.Kam N.Doraswamy	SGI	ACTANE	IRIX	6.5		ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	Compliant	N/A
61	0	115488	Hydro				Sun	UltraSparc	Solaris	5.6	Solaris 2.6 = 5.6			Compliant	N/A
62	1	117683	Blue Eyes				Sun	UltraSparc	Solaris	5.7	Solaris 2.7 = 5.7			Compliant	N/A
63	0	700715	Suny				SGI	R8000	IRIX	6.5				Compliant	N/A
64	1	114616	Vent	Las Vegas	Yl.Sun	Yl.Sun H.Yang J.Kam	Sun	UltraSparc	Solaris	5.6	Machine added to file, should have been on SUR and database; 114617 is a monitor for Vent; Solaris 2.6 = 5.6	ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	Compliant	N/A
65	1	117672		Las Vegas	Yl.Sun	Yl.Sun H.Yang J.Kam	SGI		IRIX		Machines formerly used, no longer in the area.	ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	Compliant	Annotate SUR database that machine is retired
66	0	700709					SGI		IRIX					Compliant	Annotate SUR database that machine is retired
67	1	112373	HOEYB	Las Vegas	B.Dunlap*		Dell	Poweredge	Windows	95	Separate SUR: Y.Xiang, MOL.20000407.0584, not on SUR report; FEHM V.2.00 never installed; No access by B.Dunlap	FEHM 2.00	Solaris (no version on baseline)	At Risk	Remove CPU from SUR database
68	1	112515	Bhima				HP	9000	HP-UX	10.20				At Risk	Remove CPU from SUR database
69	1	700805	Bacchus				HP	9000	HP-UX	10.20	FEHM V2.00 never installed			At Risk	Remove CPU from SUR database
70	1	700889	Odin				HP	9000	HP-UX	10.20				At Risk	Remove CPU from SUR database
71	1	914167	Eeyore	Los Alamos	Z.Dash	B.Robinson Z.Dash G.Zyvoloski (LANL); C.Ho N.Francis M.Ramura C.Li R.Baca M.Wilson J.Gauthier B.Arnold S.McKenna (SNL); J.Houseworth V.Vallikat	Sun	SparcStation10	Solaris	5.7	This machine has been retired			Compliant	Annotate SUR database that machine is retired
72	1	R404810	Worf				Sun	Ultra Enterprise	Solaris	5.7				Indeterminate	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of FEHM 2.11
73	1	R431117	Borg	Albuquerque	N. Francis		Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S619978			Indeterminate	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of FEHM 2.11
74	1	R431923	Picard				Sun	Ultra4	Solaris	5.7				Indeterminate	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of FEHM 2.11
75	0	914167	Eeyore	Los Alamos	Z.Dash	B.Robinson Z.Dash G.Zyvoloski M.McGraw	Sun	SparcStation10	Solaris	5.7	This machine has been retired	FEHM 2.10	Windows 2000, Solaris (no version specified)	At Risk	Annotate SUR database that machine is retired
76	0	R404810	Worf				Sun	Ultra Enterprise	Solaris	5.7				Indeterminate	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of FEHM 2.11

77	0	R431117	Borg	Albuquerque	N.Francis	B.Arnold S.Kuzio J.Gauthier H.Zhang C.Ho	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	FEHM 2.10	Windows 2000, Solaris (no version specified)	Indeterminate	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of FEHM 2.11
78	1	R431678					Dell	OptiPlex			No longer used on YMP			At Risk	Annotate SUR database that machine is retired
79	0	R431923	Picard				Sun	Ultra4	Solaris	5.7				Indeterminate	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of FEHM 2.11
80	1	112161		Las Vegas	B. Dunlap*	F.Seifaee N.Graves	PC		Windows	NT4.0	UNIX Version of FEHM not used by Names in SUR; No access to machine by Dunlap	FEHM 2.10	Windows 2000, Solaris (no version specified)	At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
81	1	112371	PA_Dell13				PC	2200 PowerEdge	Windows	NT4.0	UNIX Version of FEHM not used by Names in SUR			At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
82	1	114328	Sage	Las Vegas	B.Dunlap*	K.Mon B.Butlard A.Mohib P.Mattie E.Devonec S.Mehta D.Kalinich A.Loch	Dell	6350 PowerEdge	Windows	NT4.0	UNIX Version of FEHM not used by Names in SUR	FEHM 2.10	Windows 2000, Solaris (no version specified)	At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
83	1	114329	Willow				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
84	1	114330	Joshua				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
85	1	114331	Mesquite				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
86	1	114332	Juniper				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
87	1	114333	Pinyon				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
88	1	114334	Aspen				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
89	1	114335	Cottonwood				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
90	1	117165	Prickly pear				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
91	1	117166	Saguaro				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
92	1	117167	Yucca				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
93	1	117168	Ocotillo				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
94	1	117169	Cholla				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
95	1	117170	Mescal				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
96	1	117171	Lechuguilla				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
97	1	117172	Hedgehog				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
98	1	117173	Organpipe				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
99	1	117322	PA_Master2				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
100	1	117323	PA_Master1				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
101	1	117324	PA_Master3				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT

102	1	117325	PA_Master4				Dell	6350 PowerEdge	Windows	NT4.0				At Risk	Delete from SUR Database, instruct users to do SUR for FEHM V.2.10NT
103	0	112371	PA_Dell13				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
104	1	113066	Mcneish				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
105	1	114227	PA_Titan				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
106	0	114328	Sage				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
107	0	114329	Willow				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
108	0	114330	Joshua				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
109	0	114331	Mesquite				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
110	0	114332	Juniper				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
111	0	114333	Pinyon				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
112	0	114334	Aspen				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
113	0	114335	Cottonwood				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
114	1	114505	PA_Wapdeg1				Dell	410 Precision	Windows	NT4.0	Appears twice on the same SUR?			Compliant	N/A
115	1	115783	PAMICRON1				Micron	PowerDigm XSU	Windows	NT4.0				Compliant	N/A
116	1	115784	PAMICRON2				Micron	PowerDigm XSU	Windows	NT4.0				Compliant	N/A
117	1	115785	PAMICRON3				Micron	PowerDigm XSU	Windows	NT4.0				Compliant	N/A
118	1	115786	PAMICRON4				Micron	PowerDigm XSU	Windows	NT4.0				Compliant	N/A
119	0	117165	Pricklypear				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
120	0	117166	Saguaro				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
121	0	117167	Yucca				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
122	0	117168	Ocotillo				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
123	0	117169	Cholla				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
124	0	117170	Mescal			J.McNeish	Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
125	0	117171	Lechuguilla			D.Sevougian	Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
126	0	117172	Hedgehog			E.Devonec D.Kalinich	Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
127	0	117173	Organpipe	Las Vegas	B.Dunlap	N.Graves B.Dunlap	Dell	6350 PowerEdge	Windows	NT4.0		FEHM 2.10NT	Windows NT 4.0	Compliant	N/A
128	1	117181	PA_Dell6			B.Bullard	Dell	420 Precision	Windows	NT4.0				Compliant	N/A
129	1	117182	PA_Dell8			J.Avvakoumides	Dell	420 Precision	Windows	NT4.0				Compliant	N/A
130	1	117183	PA_Dell7			S.Mehta	Dell	420 Precision	Windows	NT4.0	Appears thrice on the same SUR?			Compliant	N/A
131	0	117322	PA_Master2				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
132	0	117323	PA_Master1				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
133	0	117324	PA_Master3				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
134	0	117325	PA_Master4				Dell	6350 PowerEdge	Windows	NT4.0				Compliant	N/A
135	1	117689	PA_Master6				Dell	620 Precision	Windows	NT4.0				Compliant	N/A
136	1	117690	PA_Master7				Dell	620 Precision	Windows	NT4.0	117800 was a typo			Compliant	N/A
137	1	117691	PA_Master5				Dell	620 Precision	Windows	NT4.0				Compliant	N/A
138	1	117869	PA_Sandia				Dell	2400 PowerEdge	Windows	NT4.0				Compliant	N/A
139	1	117871	PA_Master11				Dell	620 Precision	Windows	NT4.0				Compliant	N/A
140	1	117872	PA_Master9				Dell	620 Precision	Windows	NT4.0				Compliant	N/A
141	1	117876	PA_Master10				Dell	620 Precision	Windows	NT4.0				Compliant	N/A
142	1	117878	PA_Master8				Dell	620 Precision	Windows	NT4.0				Compliant	N/A
143	1	117879	Wapiti				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
144	1	117880	Antelope				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
145	1	117881	Bobcat				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
146	1	117882	Chuckwalla				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
147	1	117883	Ellobo				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
148	1	117884	Roadrunner				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
149	1	117885	Bighorn				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
150	1	117886	Coyote				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
151	1	117887	Couger				Dell	6450 PowerEdge	Windows	NT4.0				Compliant	N/A
152	1	723F1859	Paciet	Los Alamos	Z.Dash	Z.Dash C.Gable S.Kefkar E.Kwicklis M.McGraw B.Robinson P.Stauffer B.Travis P.Tseng V.Vesselinov H.Viswanathan G.Zyvoloski A.Eddebbarh	Sun	Ultra2	Solaris	5.7		FEHM 2.11	Windows 2000, Solaris (no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine
153	0	114618	Vent	Las Vegas			Sun	Ultra2	Solaris	5.7	114617 is a monitor for Vent			At Risk	Retire SW in favor of V3.0.1a
154	0	115488	Hydro		J.Leem J.Kam		Sun	Ultra2	Solaris	5.6				At Risk	Retire SW in favor of V3.0.1a
155	1	6524874	Fourier	Las Vegas (LLNL machine)		J.Kam H.Yang	Sun	Ultra10	Solaris	5.6				At Risk	Retire SW in favor of V3.0.1a
156	1	6279255	a13es			E.Hardin T.Buscheck K.Lee R.Shaffer J.Gansemer J.Nitao C.Grant	Sun	Ultra2	Solaris	5.7	6279265 on SUR database is a typo	NUFT 2.0.1a	Solaris (no version specified)	At Risk	Retire SW in favor of V3.0.1a
157	1	6290823	a89				Sun	Ultra2	Solaris	5.7				At Risk	Retire SW in favor of V3.0.1a
158	1	6290830	a139	Livermore	J.Gansemer		Sun	Ultra2	Solaris	5.7				At Risk	Retire SW in favor of V3.0.1a
159	1	6290847	a116				Sun	Ultra2	Solaris	5.7				At Risk	Retire SW in favor of V3.0.1a
160	1	6426406	a117				Sun	Ultra2	Solaris	5.7				At Risk	Retire SW in favor of V3.0.1a
161	1	6496843	a175				Sun	Ultra10	Solaris	5.6	OS verified, this SUR was correct			At Risk	Retire SW in favor of V3.0.1a
162	1	102877	HPW3				HP	735	HP-UX	10.20				Compliant	N/A
163	1	111031	Draco				HP	C180	HP-UX	10.20				Compliant	N/A
164	0	112515	Bhima				HP	9000	HP-UX	10.20				Compliant	N/A
165	0	114193	Bill				HP		HP-UX	10.20	No access by Dunlap			Compliant	N/A
166	1	117229					HP		HP-UX	10.20	No access by Dunlap			Compliant	N/A
167	0	700667	Hodge	Las Vegas	B.Dunlap	B.Dunlap	HP		HP-UX	10.20	No access by Dunlap	NUFT 2.0h	HP-UX 10.20	Compliant	N/A
168	0	700669	Portnoy				HP		HP-UX	10.20	No access by Dunlap			Compliant	N/A

169	0	700805	Bacchus				HP	9000	HP-UX	10.20				Compliant	N/A
170	0	700887	Bloom				HP		HP-UX	10.20	No access by Dunlap			Compliant	N/A
171	0	700889	Odin				HP	9000	HP-UX	10.20				Compliant	N/A
172	0	700891	Fluffy				HP		HP-UX	10.20	No access by Dunlap			Compliant	N/A
173	0	114616	Vent				Sun	Ultra2	Solaris	5.7	114617 is a monitor for Vent			At Risk	Retire SW in favor of V3.0e
174	0	115488	Hydro				Sun	Ultra2	Solaris	5.6				At Risk	Retire SW in favor of V3.0e
175	1	115491		Las Vegas	J.Leem* J.Kam	J.Kam H.Yang E.Hardin M.Anderson G.Danko	Sun	Ultra2	Solaris	5.5.1	Machine not checked, don't know whose it is	NUFT 2.0s	Solaris 5.5.1	Compliant	Retire SW in favor of V3.0e
176	0	R431117	Borg				Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819976			At Risk	Retire SW in favor of V3.0e
177	0	R431923	Picard	Albuquerque	N.Francis*		Sun	Ultra4	Solaris	5.7				At Risk	Retire SW in favor of V3.0e
178	1	1135262		Reno	G.Danko		Sun	Ultra2	Solaris	5.8				At Risk	Retire SW in favor of V3.0e
179	0	6290830	s139	Livermore	J.Gansemer*	T.Buscheck	Sun		Solaris	5.7		NUFT 3.0.1s	Solaris 5.6	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
180	0	102877	HPW3				HP	735	HP-UX	10.20				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
181	0	111031	Draco				HP	C180	HP-UX	10.20	HP on one SUR, Sun on another; This SW not used on HP platforms			At Risk	Remove machine from SUR database, platform incompatible with SW qualification
182	0	112515	Bhima				HP	J282	HP-UX	10.20				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
183	0	114616	Vent	Las Vegas	B. Dunlap J.Leem J.Kam		Sun	Ultra2	Solaris	5.7	114617 is a monitor for Vent			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to
184	0	115488	Hydro				Sun	Ultra2	Solaris	5.6				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
185	0	700805	Bacchus				HP	J282	HP-UX	10.20	HP on one SUR, Sun on another; This SW not used on HP platforms			At Risk	Remove machine from SUR database, platform incompatible with SW qualification
186	0	700889	Odin			J.Kam H.Yang E.Hardin B.Dunlap T.Buscheck R.Shaffer J.Gansemer J.Nitao C.Grant K.Lee	HP	J2240	HP-UX	10.20				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
187	0	6524874	Fourier	Las Vegas (LLNL machine)	J.Kam		Sun	Ultra10	Solaris	5.6		NUFT 3.0.1s	Solaris 5.6	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
188	0	6279255	s13es				Sun	Ultra2	Solaris	5.7	6279265 on the SUR database is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
189	0	6290823	s89				Sun	Ultra2	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
190	0	6290830	s139	Livermore	J.Gansemer		Sun	Ultra2	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
191	0	6290847	s116				Sun	Ultra2	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
192	0	6426406	s117				Sun	Ultra2	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
193	0	6496843	s175				Sun	Ultra10	Solaris	5.6	5.7 on SUR is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
194	1	80cc607b		Las Vegas - UNLV	D.Pepper	J.Cardie D.Pepper Y.Chen	Sun		Solaris			NUFT 3.0.1s	Solaris 5.6	Indeterminate	Continue attempts to contact Users to determine computer and OS info
195	1	6371317	s103				Sun	Ultra1	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
196	1	6549273	s08				Sun	Ultra10	Solaris	5.6				Compliant	N/A
197	1	6549290	s70				Sun	Ultra10	Solaris	5.6				Compliant	N/A
198	1	6549297	s188				Sun	Ultra10	Solaris	5.6				Compliant	N/A
199	1	6738202	s107	Livermore	J.Gansemer	TBD	Sun	SunBlade100	Solaris	5.8	New machines at LLNL with no prior SUR	NUFT 3.0.1s	Solaris 5.6	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
200	1	6813244	Muse				Sun	SunBlade100	Solaris	5.8				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
201	1	3813261	s808				Sun	SunBlade100	Solaris	5.8				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
202	1	6332537	Hydra	Berkeley	N.Aden-Gleason*	J.Kim	Sun	UltraSparc	Solaris	5.5.1		NUFT 3.0e	Solaris 5.5.1	Compliant	N/A
203	0	1135262		Reno	G.Danko	G.Danko D.Behrami N.Shah	Sun		Solaris	5.8		NUFT 3.0e	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8

204	0	6738202	s107	Livermore	J.Gansemer*	J.Levatin	Sun	SunBlade100	Solaris	5.8	6414052 (SUR machine) was retired and replaced by this machine	NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
205	0	R404810	Worf				Sun	Ultra Enterprise	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
206	0	R431117	Borg	Albuquerque	N.Francis	N.Francis M.Itamura J.Leem C.Ho	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S619978	NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
207	0	R431923	Picard				Sun	Ultra4	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
208	1	6184740					Sun				This machine has been retired			Compliant	Annotate SUR database that machine is retired
209	0	6279255	s13ee				Sun	Ultra2	Solaris	5.7	6279265 on the SUR database is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
210	0	6290823	s89				Sun	Ultra2	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
211	0	6290830	s139				Sun	Ultra2	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
212	0	6290847	s116	Livermore	J. Gansemer	T.Buschack J.Gansemer C.Grant K.Lee J.Levatin J.Nitao N.Rosenburg R.Shaffer Yu.Sun	Sun	Ultra2	Solaris	5.7		NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
213	0	6426406	s117				Sun	Ultra2	Solaris	5.7	6426408 on SUR database is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
214	0	6496843	s175				Sun	Ultra10	Solaris	5.6	5.7 on SUR is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
215	1	6524867	s28				Sun	Ultra10	Solaris	5.6	5.7 on SUR is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
216	1	6549256	s11es				Sun	Ultra10	Solaris	5.6	5.7 on SUR is a typo			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
217	0	117147	Dryheat	Las Vegas	J.Leem	J.Leem V.Chipman	Sun	Ultra2	Solaris	5.7	CPU not on SUR?	NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
218	0	114816	Vent	Las Vegas	J.Leem*	H.Yang	Sun	Ultra2	Solaris	5.7	114817 is a monitor for Vent	NUFT 3.0s	Solaris 5.5.1	At Risk	approved, extend qualification to
219	0	R404810	Worf				Sun	Ultra Enterprise	Solaris	5.7	926H3DAC is the machine Serial Number, which was on the SUR			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
220	0	R431117	Borg	Albuquerque	N.Francis	B.Dunlap N.Francis M.Itamura	Sun	Ultra Enterprise	Solaris	5.7	701V0015 is the machine Serial Number, which was on the SUR	NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
221	0	R431923	Picard				Sun	Ultra4	Solaris	5.7	738F0958 is the machine Serial Number, which was on the SUR			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
222	1	11400891		Reno	G.Danko	G.Danko D.Bahrami N.Shah	Sun		Solaris	5.8		NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
223	0	6524874	Fourier	Las Vegas (LLNL machine)			Sun	Ultra10	Solaris	5.6				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
224	0	115488	Hydro		J.Leem* J.Kam	J.Kam	Sun	Ultra2	Solaris	5.6		NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
225	1	115506		Las Vegas			Sun		Solaris	5.6	Machine not checked, don't know whose it is.			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6; Locate machine
226	1	117646					Sun		Solaris	5.7	Machine not checked, don't know whose it is.			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7; Locate machine
227	0	6371317	s103				Sun	Ultra1	Solaris	5.7				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
228	0	6549273	s08				Sun	Ultra10	Solaris	5.6				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
229	0	6549280	s70				Sun	Ultra10	Solaris	5.6				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
230	0	6549287	s188	Livermore	J.Gansemer	TBD	Sun	Ultra10	Solaris	5.6	New machines at LLNL with no prior SUR	NUFT 3.0s	Solaris 5.5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.6
231	0	6738202	s107				Sun	SunBlade100	Solaris	5.8				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8

232	0	6813244	Muse				Sun	SunBlade100	Solaris	5.8				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
233	0	3813251	s808				Sun	SunBlade100	Solaris	5.8				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.8
234	1	6177725	Telos2				IBM	RS6000	AIX	4.3				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
235	1	6269840									SW not installed, remove from SUR database			Indeterminate	Remove machine from SUR database
236	1	6286656									SW not installed, remove from SUR database			Indeterminate	Remove machine from SUR database
237	1	6287097		Berkeley	N.Aden-Gleason*	C.Oldenburg K.Pruess G.Moridis C.Haukwa					SW not installed, remove from SUR database	TOUGH2 1.11MEOS 1.2.3.4.5	Solaris (no version specified)	Indeterminate	Remove machine from SUR database
238	0	6332537	Hydra				Sun	UltraSparc	Solaris	5.5.1				At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or retire SW in favor of V1.4
239	1	6353525					Apple	PowerPC	Mac OS	9.1				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
240	0	6177725	Telos2				IBM	RS6000	AIX	4.3				At Risk	Review qualification documentation to determine OS Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
241	0	6269840		Berkeley	N.Aden-Gleason*	K.Pruess C.Oldenburg S.Finsterle					SW not installed, remove from SUR database	TOUGH2 1.11MEOS 7RV0.3R	IBM RS/6000 ICX (no version specified)	Indeterminate	Remove machine from SUR database
242	0	6332537	Hydra				Sun	UltraSparc	Solaris	5.5.1				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
243	0	6335873									SW not installed, remove from SUR database			Indeterminate	Remove machine from SUR database
244	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	C.Oldenburg K.Pruess	Sun	UltraSparc	Solaris	5.5.1		TOUGH2 1.11MEOS 7V0.12R	Solaris (no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
245	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	L.Han	Sun	UltraSparc	Solaris	5.5.1	Also on Moridis & Hu SUR	TOUGH2 1.11MEOS 9NTV1.0	Mac 8.6, UNIX (Sun and Dec platforms, no version specified), Windows 95	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
246	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	J.Houseworth H.Liu	Sun	UltraSparc	Solaris	5.5.1		TOUGH2 1.11MEOS 9NTV1.0	Mac 8.6, UNIX (Sun and Dec platforms, no version specified), Windows 95	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
247	1	6433067	Topopah				Compaq	Alpha	OSF1	5.0A				At Risk	Review qualification documentation to determine OS Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
248	0	6353525		Berkeley	N.Aden-Gleason*	G.Moridis M.Hu	Apple	PowerPC	Mac OS	9.1		TOUGH2 1.11MEOS 9NTV1.0	Mac 8.6, UNIX (Sun and Dec platforms, no version specified), Windows 95	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Mac OS 9.1. Or, retire SW in favor of V1.4
249	1	6409482	Tram				DEC	Alpha	OSF1	4.0				At Risk	Determine if platform compatible with platforms qualified for. If so, extend qualification to this OS Version when AP-SI.1Q R3 ICN04 approved. Or, retire SW in favor of V1.4
250	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	Y.Wu C.Haukwa R.Ahlers J.Liu N.Spycher	Sun	UltraSparc	Solaris	5.5.1		TOUGH2 1.3	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
251	1	6392852	Fumo				DEC	Alpha	OSF1	4.0				At Risk	Review qualification documentation to determine DEC OS Version qualified to; update SW baseline, reevaluate SUR status for this machine

252	0	112515	Bhima				HP	9000	HP-UX	10.20				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
253	0	700805	Bacchus	Las Vegas	B.Dunlap	J.Houseworth Y.Xiang V.Vallikat B.Dunlap	HP	9000	HP-UX	10.20		TOUGH2 1.3	UNIX (Sun and DEC platforms, no version specified)	At Risk	Remove machine from SUR database, platform incompatible with SW qualification
254	0	700889	Odin				HP	9000	HP-UX	10.20				At Risk	Remove machine from SUR database, platform incompatible with SW qualification
255	0	R404810	Worf				Sun	Ultra Enterprise	Solaris	5.7				At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
256	0	R431117	Borg	Albuquerque	N.Francis	C.Ho N.Francis M.Itamura C.Li R.Baca M.Wilson J.Gauthier B.Arnold	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	TOUGH2 1.3	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
257	0	R431923	Picard				Sun	Ultra4	Solaris	5.7				At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
258	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	S.Mukhopadyay	Sun	UltraSparc	Solaris	5.5.1		TOUGH2 1.3MEOS 4V1.0	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V1.4
259	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	J.Birkholzer	Sun	UltraSparc	Solaris	5.5.1		TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.
260	1	6441154	Azreel				Compaq	Alpha	OSF1	5.1				Compliant	N/A
261	1	6441161	Pagany				Compaq	Alpha	OSF1	5.1				Compliant	N/A
262	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	K.Zhang J.Liu P.Dobson A.Unger E.Sonnenthal N.Spycher C.Weekley	Sun	UltraSparc	Solaris	5.5.1		TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64 V5.1	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.
263	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	Q.Zhou M.Zhu S.Muykhapady	Sun	UltraSparc	Solaris	5.5.1	Combined names from 2 SURs	TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64 V5.1	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.
264	0	6392852	Furno				DEC	Alpha	OSF1	4.0				At Risk	Review qualification documentation to determine DEC OS Version qualified to; update SW baseline, reevaluate SUR status for this machine.
265	1	2412		Las Vegas (Nye Cty)	P.Montazer	P.Montazer	DEC	Alpha	NT4.0 SP5		User replied he thought this correct, but was on travel so couldn't check on the machine itself	TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64 V5.1	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Windows NT4.0
266	0	R404810	Worf				Sun	Ultra Enterprise	Solaris	5.7				At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.
267	0	R431117	Borg	Albuquerque	N.Francis		Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT,	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.

268	0	R431923	Picard				Sun	Ultra4	Solaris	5.7			Compaq TRU64 V5.1	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.
269	1	HP03-7394-0000-9081-2130		Golden CO	G.LeCain* (USGS)	N.Lu (CSM)	HP	Pavilion 445	Windows	98, 1.00		TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64 V5.1	Compliant	N/A
270	0	6332537	Hydra				Sun	UltraSparc	Solaris	5.5.1				At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine.
271	1	6335989	Scully	Berkeley	N.Aden-Gleason*	Y.Wu C.Haukwa R.Ahlers H.Liu	DEC	Alpha	OSF1	4.0		TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64 V5.1	At Risk	Review qualification documentation to determine DEC OS Version qualified to; update SW baseline, reevaluate SUR status for this machine.
272	1	6368420	YSWu				Micron	x86	Windows 95	4.00.950B				Compliant	N/A
273	1	6392869	Calx				DEC	Alpha	OSF1	4.0				At Risk	Review qualification documentation to determine DEC OS Version qualified to; update SW baseline, reevaluate SUR status for this machine.
274	0	R404810	Worf			C.Ho M.Itamura	Sun	Ultra Enterprise	Solaris	5.7				At Risk	Retire SW in favor of V1.4
275	0	R431117	Borg	Albuquerque	N.Francis	P.Burck G.Barr	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	TOUGH2 3.1.1	Solaris 2.x (version not explicit)	At Risk	Retire SW in favor of V1.4
276	0	R431923	Picard			S.Sobolik N.Francis S.Altman S.Webb	Sun	Ultra4	Solaris	5.7				At Risk	Retire SW in favor of V1.4
277	0	R404810	Worf			C.Ho M.Itamura	Sun	Ultra Enterprise	Solaris	5.7				At Risk	Retire SW in favor of V1.4
278	0	R431117	Borg	Albuquerque	N.Francis	P.Burck G.Barr	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	TOUGH2 3.1.2	Solaris 2.x (version not explicit)	At Risk	Retire SW in favor of V1.4
279	0	R431923	Picard			S.Sobolik N.Francis S.Altman S.Webb	Sun	Ultra4	Solaris	5.7				At Risk	Retire SW in favor of V1.4
280	0	R404810	Worf			C.Ho M.Itamura	Sun	Ultra Enterprise	Solaris	5.7				At Risk	Retire SW in favor of V1.4
281	0	R431117	Borg	Albuquerque	N.Francis	P.Burck G.Barr	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	TOUGH2 3.4.1	Solaris 2.x (version not explicit)	At Risk	Retire SW in favor of V1.4
282	0	R431923	Picard			S.Sobolik N.Francis S.Altman S.Webb	Sun	Ultra4	Solaris	5.7				At Risk	Retire SW in favor of V1.4
283	0	R431117	Borg	Albuquerque	N.Francis	C.Ho M.Itamura P.Burck M.Wilson G.Barr S.Sobolik N.Francis S.Altman S.Webb	Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978	TOUGH2 3.4.2	Solaris 2.x (version not explicit)	At Risk	Retire SW in favor of V1.4
284	0	R431923	Picard				Sun	Ultra4	Solaris	5.7				At Risk	Retire SW in favor of V1.4
285	1	6313864		Berkeley	N.Aden-Gleason*	E.Sonnenthal N.Spycher T.Xu					SW not installed, remove from SUR database	TOUGHREACT 1.0	Solaris 5.5.1	Indeterminate	Remove machine from SUR database
286	0	6332537	Hydra				Sun	UltraSparc	Solaris	5.5.1				Compliant	N/A
287	0	6313864		Berkeley	N.Aden-Gleason*	E.Sonnenthal N.Spycher T.Xu J.Li Y.Wu R.Ahlers H.Liu					SW not installed, remove from SUR database	TOUGHREACT 2.1	UNIX (Sun and DEC platforms, no version specified)	Indeterminate	Remove machine from SUR database
288	0	6332537	Hydra				Sun	UltraSparc	Solaris	5.5.1	6332573 on SUR is a typo			At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
289	0	6392869	Calx				DEC	Alpha	OSF1	4.0				At Risk	Review qualification documentation to determine DEC OS Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
4	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	Y.Wu R.Ahlers H.Liu	Sun	UltraSparc	Solaris	5.5.1	6332573 on SUR is a typo	TOUGHREACT 2.1	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
291	0	6392852	Fumo				DEC	Alpha	OSF1	4.0				At Risk	Review qualification documentation to determine DEC OS Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
292	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	N.Spycher T.Xu E.Sonnenthal J.Liu	Sun	UltraSparc	Solaris	5.5.1		TOUGHREACT 2.2	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4

293	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	L.Guoping M.Zhu	Sun	UltraSparc	Solaris	5.5.1		TOUGHREACT 2.2	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
294	0	R404810	Worf	Albuquerque	N.Francis	N.Francis M.Itamura J.Leem C.Ho	Sun	Ultra Enterprise	Solaris	5.7		TOUGHREACT 2.2	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
295	0	R431117	Borg				Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978			At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
296	0	R431923	Picard				Sun	Ultra4	Solaris	5.7				At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
297	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	P.Dobson	Sun	UltraSparc	Solaris	5.5.1		TOUGHREACT 2.2	UNIX (Sun and DEC platforms, no version specified)	At Risk	Review qualification documentation to determine Solaris Version qualified to; update SW baseline, reevaluate SUR status for this machine. Or, retire SW in favor of V2.4
298	0	R404810	Worf	Albuquerque	N.Francis*	C.Jove-Colon	Sun	Ultra Enterprise	Solaris	5.7		TOUGHREACT 2.4	Solaris 5.5.1, TRU64 UNIX, OS1 V4.0	At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
299	0	R431117	Borg				Sun	Ultra Enterprise	Solaris	5.7	This machine had an earlier CPU number of S819978			At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to Solaris 5.7
300	0	6332537	Hydra	Berkeley	N.Aden-Gleason*	E.Sonnenthal N.Spycher P.Dobson G.Lu T.Xu	Sun	UltraSparc	Solaris	5.5.1		TOUGHREACT 2.4	Solaris 5.5.1, TRU64 UNIX, OS1 V4.0	Compliant	N/A
301	1	6409291	Calico				DEC	Alpha	OSF1	4.0				Compliant	N/A
302	0	6433067	Topopah				Compaq	Alpha	OSF1	5.0A				At Risk	When AP-SI.1Q R03 ICN04 approved, extend qualification to

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

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CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Verification of corrective action commitments was conducted on 11 thru 12 June 2002. Results of the verification are as follows:
REMEDIAL ACTIONS:

1. Verified that AP-SI,1Q Rev 3/ICN 4 has been issued and was effective 5/172/02. Also verified that the new version incorporates the changes that were committed to in the Complete Response dated 5/2/02. The revision provides for an effective method for responding to changes or upgrades to new Operating System (OS) environments. This action also contributes significantly toward action to preclude recurrence of conditions described in this Deficiency Report (DR).
2. Verified that the new controls provided by the above cited revision to AP-SI.1Q were applied to various versions of ANSYS, NUFT, TOUGH2, TOUGHREACT, AND FEHM. Bechtel SAIC Co, LLC Interoffice Memorandum (IOM) No: 0603022856, dated May 31, 2002, Attachment 1,details the specific versions of upgraded codes. The BSC IOM is attached to this verification document (Attachment 1). Documentation of each of the upgrades was reviewed in the SCM Library.
3. Verified correction of documents in support of NUFT V3.0s qualification to verify that errors listed in the DR have been corrected. The documents, maintained on file in the SCM Library contain the evidence that corrective action commitments stated in the DR have been met.

ACTION TO PRECLUDE RECURRENCE:

1. Action described in Remedial Action Item 1, above, in addition to serving as remediation of the deficient condition, also constitutes appropriate action to preclude recurrence.
2. Verified that the commitment to retire software that are no longer used in the program has been met. By retiring these codes, the chance of using these codes inadvertently is eliminated. If and when the use of these codes ever becomes necessary, they can be brought out of retirement and re-qualified with the appropriate OS environments. Identification of the specific codes retired is also contained in Attachment 1 of the above cited IOM. Each of the listed retirements was verified in the SCM Library. The current Software Baseline Report was also checked to ensure retired codes have been removed. None of the associated work related to DIRS update, nor AP-2.14Q impact analyses were verified because they are outside the scope of this DR.
3. Each of the codes requiring updates (as identified in Attachment 1 of the IOM) was reviewed and verified by checking the current version of the Software Baseline Report. In all cases, the updated OS was reflected on the current report.
4. Verified, by review of AP-SI.1Q that the controls in the latest revision specifically address the required elements of information to be documented, including software OS information.
5. Verified that software users have been notified of the procedure revision. Objective evidence of this notification is contained in Attachment 3 of the above mentioned IOM.
6. Verified that Compliance Checkers have also been notified of the procedure revision. Objective evidence of this notification is contained in Attachment 4 of the above cited IOM.
7. Finally, verified the last Action to Preclude Recurrence, which was to remind reviewers of the types of errors in software documentation which were not "captured" during review of NUFT V3.0 documents. This reminder was disseminated via email, a copy of which is attached to this verification document (Attachment 2).

IMPACT:
Concur with the Responsible Manager's assessment of impact. The backward compatibility of upgrades will be verified during the process to perform installation testing of the changes to the baseline, as will documentation of successful test results to show no impact on previous calculations.

Corrective actions to address this DR were very aggressively pursued by the responsible organization. Corrective and preventive actions are deemed to have been appropriate and thorough. Recommend this DR be closed at this time.

Sam E. Archuleta
QA Representative

6-13-02
Date

Attachments: As stated.

BECHTEL SAIC COMPANY, LLC

Interoffice Memorandum

QA: QA

To:	Thomas W. Doering	**No.:**	0603022856
From:	James A. Blink	**Date:**	May 31, 2002
Re:	BSC-02-D-070 Ready for Verification	**CC:**	R. Andrews, S. Archuleta, K. Beall, J. Gebhart, R. Howard, K. Lachman, J. Mason, R. Schreiner, S. Splawn, D. Tunney, W. Watson, J. Weaver, F. Zinkevich, RPC = 19 pages

The remedial actions and actions to preclude recurrence identified in BSC-02-D-070 are substantially complete, and verification can begin. The remaining items are in their final stages and are expected to be ready for verification by 6/6/02.

The Complete Response, signed by T. Doering on 5/2/02 and J. Blaylock on 5/10/02 includes the following Remedial Actions. The status and location of verification information is noted for each item:

- Issue ICN04 to Rev 3 of AP-SI.1Q. This was completed, with effective date 5/17/02. It is available in the on-line procedures database.
- Implement the ICN to extend the software baseline to current OS versions for ANSYS, NUFT, TOUGH2, TOUGHREACT, and FEHM. Attachment 1 provides details on specific versions upgraded to new OS environments. The attachment refers to the on-line baseline of qualified software. Some items were completed on the 5/23 baseline, and others on the 5/30 baseline. A few remaining items are in process and are indicated to be on the "6/6 baseline (TBV)". Of these, all but one have an SBRF received by SW Configuration Management, and the final item has had the ITP test runs completed with the SBRF in preparation.
- Develop ICNs to NUFT3.0s qualification documents to correct errors listed in the DR. This was completed on 5/17/02. Attachment 2 is an e-mail from ITSMA confirming completion of CP2 review.

Attachment 1
BSC-02-D-070 Verification
Consists of 19 Pages

The same Complete Response includes the following Actions to Preclude Recurrence. The status and location of verification information is noted for each item:

- Remedial action 1 (see above)
- Retire software versions (for the 5 codes listed above) that are no longer used on quality affecting work. This has been completed for all but one item, as shown on Attachment 1. The 5/30 baseline of qualified software (on-line) can be used to confirm these retirements. The final item has been received, and will be on the 6/6 baseline.
- Ensure the ICN to the procedure includes in Section 5.7.3.2 the requirement for technical product documentation to include SW OS information. This was included in the ICN, which can be verified on-line.
- Notify SW users of the procedure modification. This was completed by e-mail to managers on 5/17/02 (see attachment 3)
- Notify Compliance Checkers of the procedure modification. This was completed by e-mail on 5/17/02 (see attachment 4)

Attachment 5 is an e-mail to software configuration management listing the open items to be completed for the 6/6 baseline. Of the six items, four already have the feeder information into software configuration management. The fifth has been promised by the UZ Dept for the next few days, and the sixth requires review of documents in SW CM to determine the final action.

The SW retirement actions required a series of 2.14 Impact Analyses. Attachment 6 is a list of DIRS links to the SW and the actions taken. Attachment 7 is an e-mail to Document Control and DIRS Coordination to correct three minor items found during these Impact Analyses.

Attachments:

1. List of software versions and operating systems, and the DR action (compliance, upgrade, retire). Some actions can be verified from the baseline of qualified software, and others from the software user database in SWCM (4 pages)
2. ITSMA CP-2 review of NUFT 3.0s ICNs (2 pages)
3. Notification of procedure change, to SW users (2 pages)
4. Notification of procedure change, to compliance checkers (2 pages)
5. List of open items, to SWCM (2 pages)
6. Result of 2.14 Impact Analysis DIRS check, can be verified in DIRS (2 pages)
7. Actions requested from Document Control and DIRS Coordination, based on Impact Analysis (2 pages)

JB:kms

Attachment 1
(4 pages, including this page)

DR070-retire or upgrade-JAB2.xls		This file is a list of SW versions for 5 codes, and their DR status								
J. Blink		All baselined versions of the following SW: NUFT, ANSYS, FEHM, TOUGH2, and TOUGHREACT are involved								
Today is		Status is No Change (maintain on baseline as is), Retire, or Upgrade OS (specify which OS versions)								
05/31/2002 15:55		Solaris 2.6, 2.7, 8, and 9 are SUN-Marketing version numbers. SUN-Engineers echo these version numbers on startup as 5.6, 5.7, 5.8, and 5.9 respectively.								
Item Number	Software	SW OS (4/5/02 baseline)	Computer Manufacturer	Model	OS Name	OS Version #	ction Compliant-No Action qd, Retire SW Version, pdate to New OS)	Responsible Individual	Description of Action	Status of Action
1	ANSYS 5.2SGI	SGI IRIX 6.1, Sun Solaris 2.6 (baseline needs to be updated for IRIX 6.2 and 6.5 IAW cited docs in companion spreadsheet)	SGI	ACTANE, R4600, & R800	IRIX	6.2	Compliant-No Action Rqd	N/A	N/A	No further action rqd
2			SGI	ACTANE, R4600, & R800	IRIX	6.5	Compliant-No Action Rqd	N/A	N/A	No further action rqd
3			Sun	UltraSparc	Solaris	5.6	Compliant-No Action Rqd	N/A	N/A	No further action rqd
4	ANSYS 5.4	HP-UX 10.20	HP		HP-UX	10.20	Compliant-No Action Rqd	N/A	N/A	No further action rqd
5	ANSYS 5.6.2	SGI IRIX 6.5, HP-UX 10.20, Sun Solaris 2.6 & 2.7	HP		HP-UX	10.20	Compliant-No Action Rqd	N/A	N/A	No further action rqd
6			HP		HP-UX	11.0	Update to New OS	M. Anderson	Qualified on prior procedure	5/30 baseline
7			Sun	Sparc and Ultrasparc	Solaris	5.6	Compliant-No Action Rqd	N/A	N/A	No further action rqd
8			Sun	Sparc and Ultrasparc	Solaris	5.7	Compliant-No Action Rqd	N/A	N/A	No further action rqd
9			SGI	ACTANE and R8000	IRIX	6.5	Compliant-No Action Rqd	N/A	N/A	No further action rqd
10	FEHM 2.00	Solaris (no version on baseline)	Dell	Poweredge	Windows	95	Retire SW Version (all OSs)	B.Gundlach	SBRF submitted 5/20, accepted 5/22. 2.14 complete	5/30 baseline
11			HP	9000	HP-UX	10.20				
12			Sun	SparcStation10, Ultra4, and UltraEnterprise	Solaris	5.7				
13	FEHM 2.10	Windows 2000, Solaris (no version specified)	Sun	SparcStation10, Ultra4, and UltraEnterprise	Solaris	5.7	Update to New OS	B.Gundlach	SBRF submitted 5/20, accepted 5/22	5/30 baseline
14			Dell	2200 PowerEdge and 6350 PowerEdge	Windows	NT4.0	Refer Windows NT users to FEHM 2.10NT	J. Mason	SUR database updated to be consistent with historical and current uses of the 2 STNs for FEHM 2.10 (NT and W2000/S5.7). Users notified	No further action rqd
15	FEHM 2.10NT	Windows NT 4.0	Dell	Dell: 2400 PowerEdge, 6350 PowerEdge,6450 PowerEdge, 410 Precision, 420 Precision, and 620 Precision. Micron: Powe3rDigmXSU	Windows	NT4.0	Compliant-No Action Rqd	N/A	"NT" removed from version number	5/23 baseline
16	FEHM 2.11	Windows 2000, Solaris (no version specified)	Sun	Ultra2	Solaris	5.7	Update to New OS	B.Gundlach	SBRF submitted 5/20, accepted 5/22	5/30 baseline
17	NUFT 2.0.1s	Solaris (no version specified)	Sun	Ultra2 and Ultra10	Solaris	5.6	Retire SW Version (all OSs)	E. Melczer	SBRF submitted 5/21, accepted 5/22. 2.14 complete	5/30 baseline
18			Sun	Ultra2	Solaris	5.7				
19	NUFT 2.0h	HP-UX 10.20	HP	735, C180, and 9000	HP-UX	10.20	Retire SW Version (all OSs)	E. Melczer	SBRF submitted 5/21, accepted 5/22. 2.14 complete	5/30 baseline
20	NUFT 2.0s	Solaris 5.5.1	Sun	Ultra2	Solaris	5.5.1	Retire SW Version (all OSs)	E. Melczer	SBRF submitted 5/21, accepted 5/22. 2.14 complete	5/30 baseline
21			Sun	Ultra2	Solaris	5.6				
22			Sun	Ultra2 and UltraEnterprise	Solaris	5.7				
23			Sun	Ultra2	Solaris	5.8				
24	NUFT 3.0.1s	Solaris 5.6	HP	735, C180, J282, and J2240	HP-UX	10.20	Never qualified for HP-UX, notify SUR submitter	J. Mason	Remove CPUs 700889, 112515, 700805, 111031, and 102877 from SUR database. Notified user Duntap who is on the SUR.	No further action rqd

Attachment 1 (3 pages) 48 of 58 6/3/02

25			Sun	Ultra2 and Ultra10	Solaris	5.6	Update to New OS	E. Melczer	SBRF submitted 5/30	5/30 baseline
26			Sun	Ultra1 and Ultra2	Solaris	5.7	Update to New OS	E. Melczer	SBRF submitted 5/30	6/6 baseline (TBV)
27			Sun	SunBlade100	Solaris	5.8	Update to New OS	E. Melczer	SBRF submitted 5/30	6/6 baseline (TBV)
28	NUFT 3.0s	Solaris 5.5.1	Sun	UltraSparc	Solaris	5.5.1	Compliant-No Action Rqd	N/A	N/A	No further action rqd
29			Sun	Ultra2 and Ultra10	Solaris	5.6	At Risk	J. Leem	SBRF received 5/22 and accepted same day	5/23 baseline
30			Sun	Ultra Enterprise, Ultra1, Ultra2, and Ultra4	Solaris	5.7	At Risk	J. Leem	SBRF received 5/22 and accepted same day	5/23 baseline
31			Sun	SunBlade100 and Ultra10	Solaris	5.8	At Risk	E. Melczer	SBRF submitted 5/28	6/6 baseline (TBV)
32	TOUGH2 1.11MEOS 1.2.3.4.5	Solaris (no version specified)	IBM	RS6000	AIX	4.3	Never qualified for IBM-AIX, notify SUR submitter	J. Mason	No SUR found. Deleted from SUR database	No further action rqd
33			Sun	UltraSparc	Solaris	5.5.1	Review qualification documentation to determine Solaris Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	5/30 baseline
34			Apple	PowerPC	Mac OS	9.1	Never qualified for MacOS, notify SUR submitter	J. Mason	No SUR found. Deleted from SUR database	No further action rqd
35	TOUGH2 1.11MEOS 7RV0.3R	IBM RS/6000 ICX (no version specified)	IBM	RS6000	AIX	4.3	Retire SW Version (all OSs)	I. McClung	SBRF submitted 5/21, accepted 5/22. 2.14 complete	5/30 baseline
36			Sun	UltraSparc	Solaris	5.5.1				
37	TOUGH2 1.11MEOS 7V0.12R	Solaris (no version specified)	Sun	UltraSparc	Solaris	5.5.1	Retire SW Version (all OSs)	I. McClung	SBRF submitted 5/21, accepted 5/22. 2.14 complete	6/6 baseline (TBV)
38	TOUGH2 1.11MEOS 9NTV1.0	Mac 8.6, UNIX (Sun and Dec platforms, no version specified), Windows 95	Sun	UltraSparc	Solaris	5.5.1	Review qualification documentation to determine Solaris Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	6/6 baseline (TBV)
39			DEC	Alpha	OSF1	4.0	Review qualification documentation to determine DEC OS Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	6/6 baseline (TBV)
40			Compaq	Alpha	OSF1	5.0A	Review qualification documentation to determine Compaq OS Version qualified to	J. Mason	Add to baseline. Compaq and DEC merged	6/6 baseline (TBV)
41			Apple	PowerPC	Mac OS	9.1	Update to New OS	I. McClung	ITP was run. Documentation not submitted as of 5/30. Pending	6/6 baseline (TBV)
42	TOUGH2 1.3	UNIX (Sun and DEC platforms, no version specified)	Sun	UltraSparc	Solaris	5.5.1	Review qualification documentation to determine Solaris Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	5/30 baseline
43			Sun	Ultra Enterprise and Ultra4	Solaris	5.7	Review qualification documentation to determine Solaris Version qualified to	JT Schneider	SUR withdrawn by requester. Withdrawal accepted 5/22.	No further action rqd
44			HP	9000	HP-UX	10.20	Never qualified for HP-UX, notify SUR submitter	J. Mason	SUR withdrawn by requester, never installed on the HP platform. SUR database updated	No further action rqd
45			DEC	Alpha	OSF1	4.0	Review qualification documentation to determine DEC OS Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	5/30 baseline

Attachment 1
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48	TOUGH2 1.3MEOS 4V1.0	UNIX (Sun and DEC platforms, no version specified)	Sun/DEC	UltraSparc/Alpha	Solaris/OSF1	5.5.1 /4.0	Review qualification documentation to determine Solaris Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28. Included DEC as now shown to the left and on the baseline	5/30 baseline
49	TOUGH2 1.4	UNIX (Sun and DEC platforms, no version specified), Windows 95/98/NT, Compaq TRU64 V5.1	Sun	UltraSparc	Solaris	5.5.1	Review qualification documentation to determine Solaris Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	5/30 baseline
50			Sun	Ultra Enterprise and Ultra4	Solaris	5.7	Review qualification documentation to determine Solaris Version qualified to	JT Schneider	SUR withdrawn by requester. Withdrawal accepted 5/22.	No further action rqd
51			DEC	Alpha	OSF1	4.0	Review qualification documentation to determine DEC OS Version qualified to	J. Mason	E-mail from I. McClung to J. Blink 5/21 stated 5.5.1 was qualification OS. Updated SBRF rcvd 5/28 matches DR99 file copy	No DEC OS on 5/30 baseline. Either add DEC OS from SBRF or do as indicated on next line.
52			DEC	Alpha	NT4.0 SP5		Review qualification documentation to determine OS Version qualified to	J. Mason	WindowsNT OS running on DEC platform. Installation verified functionality similar to any IBM-compatible	Baseline entry for DEC needs to have "(Windows NT)" after it, to match SUR and SBRF
53			Compaq	Alpha	OSF1	5.1	Compliant-No Action Rqd	N/A	N/A	Compaq OS version not on 5/30 baseline. Modify to match SBRF by dropping Compaq platform or adding SBRF's OS.
54			HP	Pavilion 445	Windows	98, 1.00	Compliant-No Action Rqd	N/A	N/A	No further action rqd
55			Micron	x86	Windows 95	4.00.950B	Compliant-No Action Rqd	N/A	N/A	No further action rqd
56	TOUGH2 3.1.1	Solaris 2.x (version not explicit)	Sun	Ultra Enterprise and Ultra4	Solaris	5.7	Retire SW Version (all OSs)	J.T.Schneider	SBRF received 5/20 and accepted 5/21. 2.14 complete	5/30 baseline
57	TOUGH2 3.1.2	Solaris 2.x (version not explicit)	Sun	Ultra Enterprise and Ultra4	Solaris	5.7	Retire SW Version (all OSs)	J.T.Schneider	SBRF received 5/20 and accepted 5/21. 2.14 complete	5/30 baseline
58	TOUGH2 3.4.1	Solaris 2.x (version not explicit)	Sun	Ultra Enterprise and Ultra4	Solaris	5.7	Retire SW Version (all OSs)	J.T.Schneider	SBRF received 5/20 and accepted 5/21. 2.14 complete	5/30 baseline
59	TOUGH2 3.4.2	Solaris 2.x (version not explicit)	Sun	Ultra Enterprise and Ultra4	Solaris	5.7	Retire SW Version (all OSs)	J.T.Schneider	SBRF received 5/20 and accepted 5/21. 2.14 complete	5/30 baseline
60	TOUGHREACT 1.0	Solaris 5.5.1	Sun	UltraSparc	Solaris	5.5.1	Retire SW Version (all OSs)	I. McClung	SBRF submitted 5/21, accepted 5/22. 2.14 complete	5/30 baseline
61	TOUGHREACT 2.1	UNIX (Sun and DEC platforms, no version	Sun	UltraSparc	Solaris	5.5.1	Retire SW Version (all OSs)	I. McClung	SBRF submitted 5/21, accepted 5/22. 2.14	5/30 baseline
62			DEC	Alpha	OSF1	4.0				
63	TOUGHREACT 2.2	UNIX (Sun and DEC platforms, no version specified)	Sun	UltraSparc	Solaris	5.5.1	Retire SW Version (all OSs)	I. McClung	SBRF submitted 5/21, accepted 5/22. 2.14 complete	5/30 baseline
64			Sun	Ultra Enterprise and Ultra4	Solaris	5.7				
65	TOUGHREACT 2.4	Solaris 5.5.1, TRU64 UNIX, OS1 V4.0	Sun	UltraSparc	Solaris	5.5.1	Compliant-No Action Rqd	N/A	N/A	No further action rqd
66			Sun	Ultra Enterprise	Solaris	5.7	Update to New OS	JT Schneider	SUR withdrawn by requester. Withdrawal accepted 5/22.	No further action rqd
67			DEC	Alpha	OSF1	4.0	Compliant-No Action Rqd	N/A	N/A	No further action rqd
68			Compaq	Alpha	OSF1	5.0A	Compliant-No Action Rqd	N/A	Note: OSF1 5.0A is the same as TRU64 UNIX	No further action rqd

ATTACHMENT 1 44 of 58

Attachment 2
(2 pages, including this page)

James Blink
06/03/2002 11:01 AM

To: Kathie Sinclair/YM/RWDOE@CRWMS
cc:

Subject: Re: Nuft 3.0s DR070 CP2 Package

QA:N/A Exclusionary

---------- Forwarded by James Blink/YM/RWDOE on 06/03/2002 11:01 AM ----------

Dianne Spence

05/17/2002 03:22:03 PM

To: Ed Melczer/YM/RWDOE@CRWMS
cc: Lyle Southworth/YM/RWDOE@CRWMS, Jeffery Mason/YM/RWDOE@CRWMS, Mike Jaeger/YM/RWDOE@CRWMS, Nagaraj Pillutla/YM/RWDOE@CRWMS, James Blink/YM/RWDOE@CRWMS, Thomas Buscheck/YM/RWDOE, Martha Kohler/YM/RWDOE@CRWMS

Subject: Re: Nuft 3.0s DR070 CP2 Package

QA:N/A Exclusionary

I have completed the Software Baseline Request CP 2 re-review for comment response resolution for the subject software submitted under SAN LLNL 2002-111. I have signed off on the SBRF page 2 (Faxed copy) acknowledging completion of the documentation. I will transmit the package to SCM for baseline. Upon receipt of the original SBRF page 2 for CP 2, I will sign it and replace the faxed copy with the original. I have attached the checklist and a pdf file for the signed SBRF and cover pages and page 1 of the checklist reflecting comment resolution.

[Attachments removed for IOM]

Have a good week-end.

Di

ATTACHMENT 2

Attachment 3
(2 pages, including this page)

James Blink
05/17/2002 01:33 PM

To: Thomas Doering/YM/RWDOE@CRWMS, Peter Swift/YM/RWDOE@CRWMS, Paul Dixon/YM/RWDOE@CRWMS, Jack Cloud/YM/RWDOE@CRWMS, Muthuraman Iyer/YM/RWDOE@CRWMS, Stephen Cereghino/YM/RWDOE@CRWMS

cc: Robert Andrews/YM/RWDOE@CRWMS, William Watson/YM/RWDOE@CRWMS, Rob Howard/YM/RWDOE@CRWMS, Ernest Hardin/YM/RWDOE@CRWMS, Dennis Thomas/YM/RWDOE@CRWMS, Dan Tunney/YM/RWDOE@CRWMS, Judith Gebhart/YM/RWDOE@CRWMS, Steve Splawn/YM/RWDOE@CRWMS, Jeffery Mason/YM/RWDOE@CRWMS, Paula Thompson/YM/RWDOE@CRWMS, Ken Beall/YM/RWDOE@CRWMS, Fred Zinkevich/YM/RWDOE@CRWMS, Nancy Williams/YM/RWDOE@CRWMS

Subject: AP-SI.1Q, R3 ICN4

QA:N/A Exclusionary

The subject procedure was issued today. Please inform your subordinate managers and ask them to inform their software users of the following provisions of the ICN. Please cc me on your note so I can include it as part of the BSC-02-D-070 Verification Package.

- The ICN clarifies that the SW baseline includes the operating environment, down to the version number of the Operating System (OS).
- Users whose computers have upgraded operating systems (or which are replaced by new hardware) are obligated to file a new Software User Request (SUR) before using the software for quality affecting work in the new environment.
- If the new environment (OS Version) has not been baselined for the software code, the user (any user) can reexecute the ITP on the new environment, and document success with a Software Baseline Request Form (SBRF). Although the procedure is not this specific, SW CM, ITSMA, and I recommend inclusion (as an attachment to the SBRF) of either the files produced in the ITP execution, or a printed extract from the files that documents the successful execution of the ITP.
- Once any user has done the ITP, SW CM will baseline the software in the upgraded environment, and other users can obtain approval to use the software with an SUR.
- The prior process was more extensive, beginning with a new Software Activity Plan and progressing through CP-1 and CP-2 checkpoints. A consequence of the streamlined process is that the software documents (SAP, RD, DD, ITP, VTP, VTR, and UM) may not cite all the operating environments in which the software is qualified. Users and compliance checkers should use the on-line software baseline as the definitive source of information as to what operating systems a software item is qualified in.

This e-mail, when further distributed, is one of the Actions to Prevent Recurrence for DR BSC-02-D-070.

Regards,

Jim

Attachment 4
(2 pages, including this page)

Dan Tunney
05/17/2002 01:02 PM

To: Judith Gebhart/YM/RWDOE@CRWMS, Larry Abernathy/YM/RWDOE@CRWMS, James E. Clark/YM/RWDOE@CRWMS, Steve Schuermann/YM/RWDOE@CRWMS, Kenneth Gilkerson/YM/RWDOE@CRWMS, Cynthia Humphries-Alder/YM/RWDOE@CRWMS, Donna Sinks/YM/RWDOE@CRWMS, Ardell Whiteside/YM/RWDOE@CRWMS, Paul Buenviaje/YM/RWDOE@CRWMS, James Graff/YM/RWDOE@CRWMS, Steve Harris/YM/RWDOE@CRWMS, Charlie Warren/YM/RWDOE@CRWMS, James George/HQ/RWDOE@CRWMS, Hank Greene/YM/RWDOE@CRWMS, Darrell Svalstad/YM/RWDOE@CRWMS

cc: Steve Dana/YM/RWDOE@CRWMS, Robb Keele/YM/RWDOE@CRWMS, James Blink/YM/RWDOE@CRWMS, Richard Powe/YM/RWDOE@CRWMS

Subject: ISSUE OF AP-SI.1Q, REV. 3, ICN 4, SOFTWARE MANAGEMENT RESPONSE TO DEFICIENCY REPORT BSC-02-D-070

QA:N/A Exclusionary

Quality Engineering personnel who review calculations, models, and analyses that document the use of software should be aware that AP-SI.1Q has been revised (effective May 17, 2002) to clarify the requirements for documenting the use of software and to clarify the process for controlling changes in operating environment. Quality Engineering personnel should verify that documentation of the use of software complies with AP-SI.1Q, Revision 3, ICN 4.

Thank you.

JOB 6/3/02

Attachment 4 ~~(1 page)~~

Attachment 5
(2 pages, including this page)

James Blink
05/31/2002 04:05 PM

To: Cherry Sims/YM/RWDOE@CRWMS
cc: Jeffery Mason/YM/RWDOE@CRWMS, Steve Splawn/YM/RWDOE@CRWMS, Dan Tunney/YM/RWDOE@CRWMS, Judith Gebhart/YM/RWDOE@CRWMS, Sam Archuleta/YD/RWDOE@CRWMS, William Watson/YM/RWDOE@CRWMS, Thomas Doering/YM/RWDOE@CRWMS, Ed Melczer/YM/RWDOE@CRWMS, Ivelina McClung/YM/RWDOE@CRWMS

Subject: 5/30 software baseline

QA:N/A Exclusionary

Cherry,

Looks like most of the DR070 actions are reflected in the 5/30 baseline. Good job to process so many items so fast.

The attached file is my latest status sheet. Please take a look at it, focusing on the right hand column. Specifically, look at the following rows for open actions:

- NUFT 3.0.1s on Solaris 5.7 and 5.8 need to be added, due to SBRFs already submitted by Ed
- NUFT 3.0s on Solaris 5.8 needs to be added, due to SBRF already submitted by Ed
- TOUGH2 1.11MEOS7 0.12R on Solaris 5.5.1 needs to go off (retire), due to SBRF already submitted by Ivelina
- TOUGH2 1.11MEOS9NT V1.0 on Solaris 5.5.1, DEC OSF1/4.0, and Compaq OSF1/5.0A need to be added, due to SBRFs already submitted by Ivelina
- TOUGH2 1.11MEOS9NT V1.0 on MacOS 9.1needs to be added, due to SBRF either submitted today by Ivelina or to be submitted Monday or Tuesday of next week
- TOUGH2 1.4 on DEC OSF1/4.0 and Compaq OSF1/5.1 need to be added, due to SBRF already submitted by Ivelina, or the Compaq platform needs to be deleted and the DEC platform annotated "(running Windows NT)" based on the historical SUR from Danko/Montazer

Regards,

Jim

Attachment 5 JOB 6/3/02 1 page
52 of 58

Attachment 6
(2 pages, including this page)

DR070-retire-Impact Analysis.xls		This file is a list of DIRS checks on SW to be retired					
J. Blink		Solaris 2.6, 2.7, 8, and 9 are SUN-Marketing version numbers. SUN-Engineers echo these version numbers on startup as 5.6, 5.7, 5.8, and 5.9 respectively.					
Today is							
05/31/2002 16:08							
Item Number	Software	Action (Compliant-No Action Rqd, Retire SW Version, Update to New OS)	SW DIRS Number	Under Development Documents Citing SW DIRS Number		DIRS POC	Impact of SW Retirement
1	FEHM 2.00	Retire SW Version (all OSs)	146971	ANL-NBS-HS-000022 R00 ICN02	Mdlg Sub Gridlock Scale Dispersion in 3D Hetero Fractured Media	mckennas	R00 ICN01 issued, Eddebaragh said SW version not being used in ICN02
				ANL-NBS-HS-000026 R00 ICN01	Particle Tracking Model & Abstr. of Transport Processes	houseworthj	R00 issued, Houseworth said SW version not being used in ICN01, and no ICN being produced
				MDL-NBS-HS-000010 R00 ICN01	SZ Transport Methodology & Transport Component Integration	eddebbarha	R00 issued, Eddebaragh said SW version not being used in ICN01
				TDR-MGR-MD-000007 R00 ICN01	FY01 SSPA V1	leem2	Controlled document has been issued, DIRS correction submitted
2	NUFT 2.0.1s	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
3	NUFT 2.0h	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
4	NUFT 2.0s	Retire SW Version (all OSs)	149925	None	N/A	N/A	N/A
5	TOUGH2 1.11MEOS 7RV0.3R	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
6	TOUGH2 1.11MEOS 7V0.12R	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
7	TOUGH2 3.1.1	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
8	TOUGH2 3.1.2	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
9	TOUGH2 3.4.1	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
10	TOUGH2 3.4.2	Retire SW Version (all OSs)	151196	MDL-NBS-HS-000015 R00	Drift-Scale Coupled Processes (DST and TH Seepage)	birkholzerj	Document is being produced according to Ralph Wagner, but will not use TOUGH2 V.3.4.2
11	TOUGHREACT 1.0	Retire SW Version (all OSs)	114096	None	N/A	N/A	N/A
12	TOUGHREACT 2.1	Retire SW Version (all OSs)	Not in DIRS	N/A	N/A	N/A	N/A
13	TOUGHREACT 2.2	Retire SW Version (all OSs)	112019	None	N/A	N/A	N/A
			153219	MDL-NBS-HS-000001 R02	Drift-Scale Coupled Processes (DST and THC Seepage)	spychern	R01 ICN02 issued, Houseworth signed 2.14 indicating SW version not being used in R02
				TDR-MGR-MD-000007 R00 ICN01	FY01 SSPA V1	leem2	Controlled document has been issued, DIRS correction submitted

Attachment 6 6/3/02 Page 1 of 58

Attachment 7
(2 pages, including this page)

James Blink
06/03/2002 10:57 AM

To: Kathie Sinclair/YM/RWDOE@CRWMS
cc:

Subject: DIRS and Doc Control Actions to be taken to close DR BSC-02-D-070

QA:N/A Exclusionary

---------- Forwarded by James Blink/YM/RWDOE on 06/03/2002 10:57 AM ----------

James Blink
05/31/2002 04:23 PM

To: William Olson/YM/RWDOE@CRWMS, John Stucky/YM/RWDOE@CRWMS
cc: Dan Tunney/YM/RWDOE@CRWMS, Judith Gebhart/YM/RWDOE@CRWMS, Sam Archuleta/YD/RWDOE@CRWMS, William Watson/YM/RWDOE@CRWMS, Thomas Doering/YM/RWDOE@CRWM, Jim Houseworth/YM/RWDOE@CRWMS, Jeffery Mason/YM/RWDOE@CRWMS

Subject: DIRS and Doc Control Actions to be taken to close DR BSC-02-D-070

QA:N/A Exclusionary

Bill and John,

As part of the closure of the subject DR, we retired a number of software versions. This required a 2.14 Impact Analysis which included DIRS searches. The following situations were identified during the process, which could be corrected within your organizations. Please make the corrections and notify myself and the people on the cc list above. Sam is the QAR for the DR, FYI.

- Change the DIRS status of TDR-MGR-MD-000007 R00 ICN01 (FY01 SSPA Volume 1) to "controlled" in DIRS, rather than "under development". John, you can verify the correct status by looking at the on-line list of controlled documents, with no further input from Doc Control, in this case.
- Two DIRS items have slightly different wording, but are indeed the same exact item. They both are TOUGHREACT 2.2 Software, the exact same STN (I checked with SW CM). We don't want future users of DIRS to use the older number, and we want to be sure that any changes in status of the SW item get reflected in DIRS. This can only be assured if the two items are linked. I think you can supercede the older DIRS number (112019) with the newer (153219). There are no "under development" items linnked to 112019, so this won't disrupt any reviews currently in progress. If the title of DIRS 112019 (short and long entries) are "superceded by DIRS 153219", I think this situation would be very clear to current and future users. This seems to be similar to situations where a new item supercedes an older one, but even more straightforward. John, please let me know if this is workable or if you have an alternate path forward.
- Document Control needs to delete ANL-NBS-000026 R00 ICN01 (Particle Tracking Model and Abstraction of Transport processes AMR). It is not under development, according to the RM, Jim Houseworth. Evidently, they will go directly to R01. Then, notify John Stuckey so he can delink it from the SW item that it cites and take other appropriate actions.

John, Thanks for clarifying some of the other items in my earlier e-mails. The above list is what is left after I processed that info.

Regards,

ATTACHMENT 7

Cheryl Schneider
06/12/2002 09:37 AM

To: Sam Archuleta/YD/RWDOE@CRWMS
cc:
Subject: BSC-02-D-070 Lesson Learned, to Organizational Reviewers

QA:N/A Exclusionary

see attached:

---------- Forwarded by Cheryl Schneider/YM/RWDOE on 06/12/2002 09:37 AM ----------

Cheryl Schneider
04/08/2002 09:21 AM

To: Peter Swift/YM/RWDOE@CRWMS, Mark Peters/YM/RWDOE@CRWMS, Thomas Doering/YM/RWDOE@CRWMS, Paul Dixon/YM/RWDOE@CRWMS
cc: Rob Howard/YM/RWDOE@CRWMS, Douglas Weaver/YM/RWDOE@CRWMS, Ernest Hardin/YM/RWDOE@CRWMS, James Blink/YM/RWDOE@CRWMS, Dan Tunney/YM/RWDOE@CRWMS

Subject: BSC-02-D-070 Lesson Learned, to Organizational Reviewers

QA:N/A Exclusionary

Please read revised message from Jim Blink.

---------- Forwarded by Cheryl Schneider/YM/RWDOE on 04/08/2002 09:20 AM ----------

James Blink
04/05/2002 10:03 AM

To: William Watson/YM/RWDOE@CRWMS
cc: Dan Tunney/YM/RWDOE@CRWMS

Subject: BSC-02-D-070 Lesson Learned, to Organizational Reviewers.

QA:N/A Exclusionary

Bill,

I have edited the previously sent e-mail (below) in response to the Bob Richards note. The changed section is in bold (the change is a deletion of part of the bullet).

The original e-mail read:

- "... One individual's pen skipped while writing, and he traced over the character instead of crossing it out, rewriting, and initialling/dating. ..."

Bob Richards kindly pointed out that AP-17.1Q allows tracing over a character to enhance its legibility. Thus, the traceover was not a correction, and crossing out, rewriting, initialling, and dating would not have been appropriate. I deleted the traceover part of the guidance below.

Since the DR response was OK, resending this e-mail should be sufficient.

Regards,

Jim

Robert Andrews
03/25/2002 09:53 AM

Attachment 2
BSC-02-D-070 Verification
Consists of 2 Pages

Sent by: Cheryl Schneider

To: Peter Swift/YM/RWDOE@CRWMS, Mark Peters/YM/RWDOE@CRWMS, Thomas Doering/YM/RWDOE@CRWMS, Paul Dixon/YM/RWDOE@CRWMS
cc: Rob Howard/YM/RWDOE@CRWMS, Douglas Weaver/YM/RWDOE@CRWMS, Ernest Hardin/YM/RWDOE@CRWMS, James Blink/YM/RWDOE@CRWMS

Subject: BSC-02-D-070

QA:N/A Exclusionary

Please address this issue with your staff, by forwarding this information to individuals originating, reviewing, and approving Software (SW) QA documents. The reason for this request is stated in the next paragraph, and was developed in conjunction with the QAR for the subject DR.

Block 17C of the DR-070 response states "Organizational reviewers will be reminded to include finding these types of inconsistencies and improper handwritten corrections in future reviews of SW documents".

The specific examples in block 16B are:

- Inconsistent dates. Files were date stamped after the document approval date. This was due to *reruns* of the files after the approval date. It would be more transparent if the files used in document approval are frozen and not reexecuted, or if the record package / DTN used the files runs executed prior to the document approval.
- Inconsistency of text with tables. For example, a table had 30 entries, but the text describing it stated there were 27 cases.
- Inconsistency of text. For example, an OS version was repeatedly referred to correctly as 5.5.1, except in one location which used 5.5.
- **Improper handwritten corrections. One individual placed a correction too close to the original location, obscuring it, and forgot to date after initialling.**

Each of these errors was determined to be, on investigation, not affecting the result of the document. However, a slightly more rigorous review initially would have saved considerable investigation, avoided a QA-Indeterminate situation, and enhanced our reputation for doing solid work. Reviewers should look for these types of minor inconsistencies; fixing them up front is far better than doing it in DR-space or being confronted with inconsistencies during licensing.

bob