



Department of Energy

Washington, DC 20585

QA: QA

MAY 20 2002

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EVALUATION OF INITIAL AND COMPLETE RESPONSE TO, VERIFICATION OF CORRECTIVE ACTIONS AND CLOSURE OF DEFICIENCY REPORT (DR) BSC-02-D-092

The Office of Quality Assurance staff has evaluated the initial and complete response to, verified the corrective actions of DR BSC-02-D-092, 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.

OQA:JB-1217

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

Enclosure:
DR BSC-02-D-092



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WMS07
WMS-11

MAY 20 2002

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8. ☒ DEFICIENCY REPORT
☐ CORRECTIVE ACTION
REPORT

NO. BSC-02-D-092

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DEFICIENCY/CORRECTIVE ACTION REPORT

1. Controlling Document:
AP-SI.1Q revision 3, ICN 3

2. Related Report No.:
N/A

3. Responsible Organization:
CIO

4. Discussed With:
John Pelletier / Steve Splawn / Matt Knop

5. Requirement:

- AP-SI.1Q, Section 2.0, Software item subject to QARD requirements cannot be used in quality affecting activities prior to the software being qualified and baselined.
- AP-SI.1Q, 5.7.3.1 / 5.7.3.2B: Ensure that software being used in obtained from SCM. / Software obtained from SCM used outside the range of validation shall be considered unqualified.

6. Description of Condition:

Contrary to the above requirements the following examples were identified. See continuation pages for more specific details.

The following data sets were reviewed during this investigation:

SN0001T0872799.006, SN0004T0501600.005, SN0007T0872799.014, SN0010T0872799.015, SN9907T0872799.002
SN9908T0581699.001, SN0009T0581699.006, SN0004T0571599.004, SN0004T0501600.006.

Contrary to requirement 1: and 2: above

DTN's SN0001T0872799.006, and SN0004T0501600.005 contained some software (TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, and SZ_Post) that were not obtained from SCM and were not qualified per AP-SI.1Q.

7. Initiator:
Jorge E. Monroe-Rammsy / CJ Houston

Date 03/15/02

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:
None

11. QA Review:

QAR

Date 3/27/02

12. Response Due Date:

10 Working Days From Issuance

13. DOQA Issuance Approval:

Printed Name RAM MURPHY

James B. Baylock for

Date 4/10/02

22. Corrective Actions Verified:

QAR

Date 5-10-02

23. Closure Approved by:

DOQA - James B. Baylock for

Date 5/20/02

Exhibit AP-16.1Q.1

Rev. 12/20/1999

ENCLOSURE

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8. ☒ DR/CAR
☐ Stop Work Order

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DEFICIENCY/CORRECTIVE ACTION REPORT/STOP WORK ORDER CONTINUATION PAGE

Example #1: Issues found in Software Used in DTN's

After six DTNs from Sandia National Laboratories have been analyzed, several errors were found. These errors are consistently repeated in each of the DTNs. During the analysis, errors associated with the software were found: compilation, execution, and format problems. Other kinds of common errors were the low level of information given for the input files and screen input data.

Software Errors

Compilation problems were found in some of the software routines. These problems consist of syntax errors. Several times the programmer writes command lines using the "Tab" key and "enter" key. When the FORTRAN sources are transferring from the CD to Unix platform (as an ASCII file) the "Tab" key does not transfer correctly. The same thing happens with the control command key "enter" when the file is transfer as a binary file. The consequence of this is the command lines exceed the column 73, missing quotation marks or parenthesis.

After correcting the compilation problems, execution problems appear. The execution problems are associated with programming logic. Multiple times the programmer opens a unit and re-opens it without closing it. Some compilers allow this under certain conditions.

After correcting the execution problems, reading format problems appear. These kinds of errors are easy to catch because the output file comes out full of zeros or the word "NaN." When the input file format is compared with the program-reading format, it is clear that they have inconsistencies. Compilers do not detect these kinds of problems, so the only conclusion here is that the programmer sent us the wrong source code.

With these kinds of problems it is difficult to reproduce the data, calculation or execution, creating skepticism about the results.

Sometimes the software routine is given in the attachment file as a hard copy (not a Fortran source). The only problem found here was that the hard copy had 21 pages of code.

Another problem was the low level of information regarding the execution process and/or sequences. Sometimes the execution needs to follow some sequence, which is not explained in the DTN. In some cases it is necessary to read the whole document to understand the sequence.

Table 1. Synthesis of the most common errors

Compilation Errors:	27 syntax errors were found. These errors correspond to violation of the column limit (73) having as a consequence missing quotations, parenthesis, etc.
Execution Errors:	Around 7 Fortran logic errors were found. These errors correspond to missing lines, which correspond to closing the open unit.
Format Errors:	4 software routines with reading format errors were found. This problem is repeated more than once in the same routine. The software routine reads the variable values in a format completely out of position; as a consequence, there are variables with zero input value.
Execution Sequences:	Low level of information about the correct execution sequence is provided in order to have a precise reproduction of the text case or cases. In most of the cases there is no information.

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8. ☒ DRCAR
☐ Stop Work Order
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Example of Potential Quality Concern for Software Used as compared to Software Identified within the Baseline.

ITEM #	DATA #	DESCRIPTION	QUALITY CONCERN	SOFTWARE USED	QUALITY CONCERNS	Used in AMR	COMMENTS
1	SN0001T0872799.006	THIS IS AN ABSTRACTION OF THE PROCESS-LEVEL MODEL: MULTISCALE TH MODEL. THE ABSTRACTION OF TH DATA PROVIDES THE TEMPERATURE, RELATIVE HUMIDITY, LIQUID SATURATION, EVAPORATION RATES, AND PERCOLATION FLUX IN THE NEAR-FIELD HOST ROCK AND IN THE ENGINEERED BARRIER SYSTEM. THE ABSTRACTED TH DATA PROVIDE A DIRECT INPUT TO THE TSPA-SR MODEL INCLUDING THE WASTE PACKAGE CORROSION MODEL AND THE IN-DRIFT GEOCHEMICAL ENVIRONMENT. THESE DATA SUPPORT SR AND ARE PRESENTED IN THE AMR UNDER DI NO: ANL-EBS-HS-000003.	Q	FEHM, GoldSim, TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, SZ_Post	(CIRS 1613), (DR-88)	E0040, E0105, F0155	Applications: TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, SZ_Post are not identified within the software baseline.
2	LA9908JC831321.001	MODEL INPUT AND OUTPUT FILES FOR MINERALOGIC MODEL "MM3.0" VERSION 3.0.	Q	STRATAMODEL; version 4. SigGen; version 2.	(CIRS 1613), (DR-88)	E0040, I0040, I0045, N0120, N0125, U0050, W0050	Versions of STRATAMODEL and SigGen are not identified within software baseline.
3	LB0011DSTTHCR1.002	THE DST THC MODEL IS USED TO INVESTIGATE THERMAL-HYDROLOGIC-CHEMICAL (THC) PROCESSES DURING THE DRIFT SCALE TEST (DST), THE TPTPMN SEEPAGE MODEL WITH BACKFILL, THE TPTPMN SEEPAGE MODEL WITHOUT BACKFILL, AND THE TPTPLL SEEPAGE MODEL. THE NEAR FIELD ENVIRON	Q	TOUGHREACT; version 2.20, TOUGHREACT; version 2.30, SOLVEQ/CHILLER; version 1.00, SUPCRT92; version 1.00, TOUGH2; version 1.40, AMESH; version 1.00, GSLIB; version 1.204, flipk; version 1.000, switch, regress, mk_incon, kreg, kswitch, exclude.f, assign.f, merggrid2.f, mk_circ2, avgperm.f, 2kgridv1a.for, sav1d_dst12d.f	(CIRS 1613), (DR-88)	none	codes not identified within the software baseline: switch, regress, mk_incon, kreg, kswitch, exclude.f, assign.f, merggrid2.f, mk_circ2, avgperm.f, 2kgridv1a.for, sav1d_dst12d.f
4	SN0004T0501600.005	INPUT FILES AND SUPPORTING FILES FOR THE SZ SITE-SCALE FLOW AND TRANSPORT MODEL RUNS FOR TSPA ABSTRACTION. THESE DATA SUPERSEDE PREVIOUSLY IDENTIFIED BY DTN: SN0003T0501600.003. THESE DATA SUPPORT SITE RECOMMENDATION AND APPEAR IN ANALYSIS/MODEL REPORT (AMR) UNDER DI NO: ANL-NBS-HS-000030.	Q	FEHM, GoldSim, TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, SZ_Post	(CIRS 1613), (DR-88)	S0075	Codes not identified within the software baseline: TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, SZ_Post
5	MO0011MWDEQ345.014	THESE ARE THE INPUT AND OUTPUT FILES FOR THE EQ3/6 PITZER SALTS MODEL VALIDATION USING THE YMP DATABASE, AS DESCRIBED IN THE IN-DRIFT PRECIPITATES/SALTS ANALYSIS AMR (ANL-EBS-MD-000045). THEY ARE USED TO COMPARE WITH PREDICTIONS USING THE PT4 DATABASE	Q	EQ3/6 V7.2b, EQ3NR, EQ3NR-exe139P5	(CIRS 1613), (DR-88)	none	Codes not identified in the software baseline: EQ3NR, EQ3NR-exe139P5

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Exhibit AP-16.1Q.2

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☐ Stop Work Order
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DEFICIENCY/CORRECTIVE ACTION REPORT/STOP WORK ORDER CONTINUATION PAGE

Example of Potential Quality Concern for Software Used as compared to Software Identified within the Baseline.

ITEM	DATA	DESCRIPTION	QUALITY	SOFTWARE USED	QUALITY CONCERNS	AMR	COMMENTS
6	SN0010T0872799.015	PERCOLATION FLUX TIME-HISTORY CURVES FROM FOUR INFILTRATION BINS REPRESENTATIVE OF THE HIGH INFILTRATION FLUX CASE ARE MAPPED INTO TWO INFILTRATION BINS REPRESENTATIVE OF THE LOW INFILTRATION FLUX CASE BASED ON MATCHING REPOSITORY COORDINATE LOCATIONS. THIS IS USED AS A PROXY FOR ONE OF THE LOW-INFILTRATION FULL-GLACIAL CLIMATES. THESE DATA SUPPORT SR AND APPEAR IN THE AMR UNDER DI NO: ANL-EBS-HS-000003.	Q	FEHM version ?, xfehm version 2.0, TOUGH2 version ?, future_cs_csnf.f version ?, future_cs_hlw.f version ?	(CIRS 1613), (DR-88)	none	No versions of the following codes are identified in the software baseline: xfehm, future_cs_csnf.f, future_cs_hlw.f
7	SN0007T0872799.014	THESE ARE THE ABSTRACTION RESULTS OF THE MULTISCALE TH MODEL FOR THE NO BACKFILL REPOSITORY DESIGN FOR TSPA-SR. THE TH ABSTRACTION PROVIDES DIRECT DATA AND AVERAGED DATA FOR THE TSPA MODEL ASSORTED IN TERMS OF TSPA DEFINED INFILTRATION RATE BINS (5 TOTAL BINS). THE ABSTRACTION FILES CONTAINED IN THIS SUBMITTAL INCLUDE THREE INFILTRATION FLUX CASES: LOW, MEAN (ALSO REFERRED TO AS MEDIUM), AND HIGH. THE ABSTRACTION RESULTS ARE FOR THE IN-DRIFT THERMODYNAMIC ENVIRONMENT AND THE THERMALLY ENHANCED PERCOLATION FLUX ABOVE THE CROWN OF THE DRIFT. THESE DATA SUPPORT SR AND APPEAR IN THE AMR UNDER DI NO: ANL-EBS-HS-000003	Q	GoldSim version 6.04.007, msmabs_ver_2.f, maxup1.03.f, Fract_p.exe, Fract_p.for, extinf2v1.00.f, extinf2v1.03.f	(CIRS 1613), (DR-88)	E0130, W0050	Codes not identified in the software baseline: msmabs_ver_2.f, maxup1.03.f, Fract_p.exe, Fract_p.for, extinf2v1.00.f, extinf2v1.03.f

4/5/02

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Exhibit AP-16.1.Q.2

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2. Check if Amended ☐

Check if also Initial Response ☒

3. Extended Processing ☒ 24 APR 02

☒ 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)

See continuation page.

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

N/A - No deficiencies within the scope of the DR have been identified, therefore there are no impacts related to the issues identified in this DR.

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

N/A - No actions within the scope of the DR have been identified.

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

N/A - No deficiencies within the scope of the DR have been identified, therefore there are no root causes or apparent causes related to the issues identified in this DR.

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

N/A - As no deficiencies were found and no causes identified, there are no actions to preclude recurrence.

9. Due Date for Completion of Corrective Action:

N/A

10. Responsible Manager:

Mike Jaeger

Printed Name

Signature

Date

4/24/2002

11. QAR Evaluation: ☒ Accept ☐ Partially Accept ☐ Reject

Sam E. Archuleta NOT SIG.
5-10-02

Printed Name

Signature

Date

12. QAM Concurrence:

Printed Name

Signature

Date

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Block 4: Extent of Condition

No immediate actions were required based on the initial analysis of the DR. All of the datasets referred to by DTN within the DR were removed from general access within ATDT as part of the ongoing CIRS 1613 efforts, and cannot currently be used in quality affecting work. Investigations completed at this point and detailed below have found no deficiencies when the allegedly deficient datasets were evaluated against the stated requirements. A detailed explanation of the findings is provided below as a justification statement, as required in cases where no immediate actions are necessary to bring the process under control.

The controlling document for this Deficiency Report (DR) as stated in Block 1 of the DR is: AP-SI.1Q Revision 3, ICN 3.

The following requirements are copied verbatim from Block 5 of the DR:

1. AP-SI.1Q, Section 2.0: Software item subject to QARD requirements cannot be used in quality affecting activities prior to the software being qualified and baselined.
2. AP-SI.1Q, 5.7.3.1/5.7.3.2B: Ensure that software being used is obtained from SCM./ Software obtained from SCM used outside the range of validation shall be considered unqualified.

While AP-SI.1Q Revision 3, ICN 3 is the stated governing procedure on the DR, the work represented by the DTN's within the DR was not performed during the effective dates of this version of the procedure. The work was performed prior to the effective date of AP-SI.1Q Revision 3. Prior to Revision 3, single use software routines and macros were documented within the technical product and were not subject to SCM control. As part of LVMO-00-D-039, all AMR's which contained such documentation were reviewed, and supplemental documentation was produced in some cases to ensure that all software could be independently verified and validated. These single use routines and macros are considered sufficiently documented and controlled for previous work, and the information produced by this software is considered Q. If the software is used again, it will be subject to software procedures in effect when the work is done. Current software procedures indicate that these codes will be placed under SCM control.

The DR asserts that numerous data submittals to the TDMS violate one or both of these requirements, which are from the previously cited controlling document. In order to prepare an initial response, each of the example DTNs on the DR was evaluated against the criteria for software qualification in effect at the time of work performance and the information provided in the DR.

ITEMS AND ISSUES LISTED IN BLOCK 6 OF THE DR:

DTN SN0001T0872799.006: AP-SI.1Q, REV 2, ICN 2, was the controlling software management procedure for this work. The items mentioned in association with this DTN in Block 6 and found within the DTN (TH-msmabs_ver_1.f, maxtwp1.00.f, and pillart1.00.f) as Fortran source code files are the source code for single use software routines correctly documented in ANL-EBS-HS-000003 Rev 00 ICN 01 (Accession # MOL.20001206.0143) in accordance with the governing procedure, Section 5.1.1. Therefore the statement that these items were not qualified in accordance with AP-SI.1Q on the DR is not accurate. As previously stated, single use routines are not submitted to or controlled by SCM.

DTN SN0004T0501600.005: AP-SI.1Q, REV 2, ICN 4, was the controlling software management procedure for this work. The items mentioned in association with this DTN in Block 6 and found as files within the DTN (SZ_Pre and SZ_Post) are the single use software routines correctly documented in ANL-NBS-HS-000030 Rev 00 (Accession # MOL.20000526.0330) in accordance with the governing procedure, Section 5.1.1. Therefore the statement that these items were not qualified in accordance with AP-SI.1Q on the DR is not accurate. As previously stated, single use routines are not submitted to or controlled by SCM.

DTN SN0004T0571599.004: This item has no deficiencies, as agreed by DR co-author. See attached e-mail from Jorge Monroe-Ramsey to Amy Loch. As there are no deficiencies, no remedial action is necessary.

DTN SN0004T0501600.006: This item has no deficiencies, as agreed by DR co-author. See attached e-mail from Jorge Monroe-Ramsey to Amy Loch. As there are no deficiencies, no remedial action is necessary.

24 APR 02

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CONDITION ADVERSE TO QUALITY CONTINUATION PAGE**Block 4: Extent of Condition (Continued)**

The reproducibility of data contained in DTN SN0007T0872799.014, DTN SN0010T0872799.015, DTN SN9907T0872799.002, DTN SN9908T0581699.001, DTN SN0009T0581699.006, DTN SN0004T0501600.005, and DTN SN0001T0872799.006 using the software documented within the technical product underwent a limited investigation. Initial interviews with a DR co-author indicate that the equipment and operating systems (Sun Platforms with UNIX operating systems) on which the original work was done was not available to the co-author. The testing which produced the failures was performed on an HP platform using the HP version of the UNIX operating system. As the UNIX operating system is significantly different on Sun versus HP platforms, it is suspected that the difficulties encountered by the DR co-author are the result of not having the correct equipment available to run the software. These DTN's are not available for general use due to their association with CIRS 1613, so no immediate remedial actions are necessary. A comprehensive Independent Validation and Verification (IV&V) task is beyond the scope of this DR. Should the results of other efforts such as CIRS 1613 indicate a condition adverse to quality a separate DR will be drafted to address this issue.

Note: Tangential to this DR is the DTN reinstatement plan for DTNs identified via CIRS 1613 which includes a reworking of the original CIRS 1613 list. DTNs produced under pre-Rev. 3 versions of AP-SI.1Q will only be inspected for (a), proprietary software code and (b), SCM baselined executables. If either of these entities are present in the TDMS submittal, the code will be removed from the submittal and resubmitted to the database. All pre-AP-SI.1Q Rev. 3 DTNs will then be tagged within ATDT to document their compliance (to prevent further potential perception of CAQ) and will be made active once again in ATDT. DTNs produced under AP-SI.1Q rev. 3 will be subject to inspection for single use codes/macros, baselined executables and proprietary codes which will be removed from those DTNs and then resubmitted to the TDMS database prior to their reinstatement.

ITEMS AND ISSUES FROM THE SPREADSHEET ATTACHED TO THE DR

Note that the issue statements from the spreadsheet were copied verbatim from the spreadsheet column labeled "Comments" for each DTN.

DTN SN0001T0872799.006

Issue Statement: TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, SZ_Post are not identified within the software baseline. Response: TH-msmabs_ver_1.f, Pillart1.00.f, and maxtwp1.00.f are source code for single use routines correctly documented under AP-SI.1Q Rev 02 ICN 02. These items are documented in ANL-EBS-HS-000003 (MOL.20010221.0160). SZ_Pre and SZ_Post are not found in or used to produce data in this DTN. It is concluded that there are no deficiencies. As there are no deficiencies, no remedial action is necessary.

DTN LA9908JC831321.001

Issue Statement: Versions of STRATAMODEL and SigGen are not identified within software baseline. Response: Stratamodel Version 4 was incorrectly listed in HTML Supplemental Information (the uncontrolled, non-quality information found on the web page containing links to the data.) CIRS 2525 was created to deal with the problem of this uncontrolled, non-q information and its association with TDMS datasets. The actual version of the software used to assist in the creation of the dataset is 4.1.1, which is qualified and Baselined. The code itself IS NOT included in the DTN. SigGen Version 2 was not found associated with this DTN. However, the software SigGen V2.0.0 was used to create an MD5 signature file to meet AP-SV.1Q requirements. The MD5 signature file is tagged with the name and version number of the software which produced it. This software was exempt under Section 2.0 of AP-SI.1Q Rev 02 ICN 02, the Software Management procedure in force at the time. The code itself is not included in the DTN. It is concluded that there are no deficiencies in the dataset or TDIF. The error in HTML supplemental information is covered under CIRS 2525, and is beyond the stated scope of this DR. As such, no further remedial actions are necessary.

DTN LB0011DSTTHCR1.002

Issue Statement: codes not identified within the software baseline: switch, regress, mk_incon, kreg, kswitch, exclude.f, assign.f, merggrid2.f, mk_circ2, avgperm.f, 2kgridvla.for, savld_dst2d.f Response: switch V1.0 (STN 10322-1.0-00), regress V1.0 (STN 10321-1.0-00), mk_incon V1.0 (STN 10350-1.0-00),

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Block 4: Extent of Condition (Continued)

kreg V1.0 (STN 10318-1.0-00), kswitch V1.0 (STN 10319-1.0-00), exclude.f V1.0 (STN 10316-1.0-00), assign.f V1.0 (STN 10315-1.0-00), merggrid2.f V1.0 (STN 10314-1.0-00), mk_circ2 V1.0 (STN 10312-1.0-00), avgperm.f V1.0 (STN 10378-1.0-00), 2kgridvla.for V1.0 (STN 10382-1.0-00) and sav1d_dst2d.f V1.0 (STN 10381-1.0-00) were all qualified and baselined prior to the submittal of the DTN. The codes are not included in the DTN. It is concluded that there are no deficiencies. As there are no deficiencies, no remedial action is necessary.

DTN SN0004T0501600.005

Issue Statement: Codes not identified within the software baseline: TH-msmabs_ver_1.f, Pillart1.00.f, maxtwp1.00.f, SZ_Pre, SZ_Post

Response: TH-msmabs_ver_1.f, Pillart1.00.f and maxtwp1.00.f are not found in or used to produce data in this DTN.

SZ_Pre and SZ_Post are source code for single use routines correctly documented under AP-SI.1Q Rev 02 ICN 02. These items are documented in ANL-NBS-HS-000030 Rev 00 (Accession # MOL.20000526.0330). It is concluded that there are no deficiencies. As there are no deficiencies, no remedial action is necessary.

DTN MO0011MWDEQ345.014

Issue Statement: Codes not identified in the software baseline: EQ3NR, EQ3NR-exe139P5

Response: EQ3NR is a module of the qualified and baselined EQ3/6 V7.2b. The code is not included within the DTN, and EQ3NR was clearly identified as part of the qualified and baselined EQ3/6 V7.2b when it was mentioned in the source AMR, ANL-EBS-MD-000045 REV 00 ICN 02 (MOL.20010220.0008). No item by the name of EQ3NR-exe139P5 could be found in the DTN, the source AMR, the hardcopy TDIF, or in a directory listing of the software. It is concluded that there are no deficiencies. As there are no deficiencies, no remedial action is necessary.

DTN SN0010T0872799.015

Issue Statement: No versions of the following codes are identified in the software baseline: xfehm, future_cs_csnf.f, future_cs_hlw.f

Response: No item by the name xfehm could be found in the DTN, the source AMR, or the hardcopy TDIF. The files future_cs_csnf.f and future_cs_hlw.f found within the DTN are source code for single use routines correctly documented under AP-SI.1Q Rev 02 ICN 04. These items are documented in ANL-EBS-HS-000003 (Accession # MOL.20010221.0160). It is concluded that there are no deficiencies. As there are no deficiencies, no remedial action is necessary.

DTN SN0007T0872799.014

Issue Statement: Codes not identified in the software baseline: msmabs_ver_2.f, maxup1.03.f, Fract_p.exe, Fract_p.for, extinf2v1.00.f, extinf2v1.03.f

Response: The items msmabs_ver_2.f, maxup1.03.f, Fract_p.exe and Fract_p.for could be found in the DTN, the source AMR, or the hardcopy TDIF. The files extinf2v1.00.f and extinf2v1.03.f are source codes for single use routine correctly documented under AP-SI.1Q Rev 02 ICN 04. These items are documented in ANL-EBS-HS-000003 (Accession # MOL.20010221.0160). It is concluded that there are no deficiencies. As there are no deficiencies, no remedial action is necessary.

Any further actions beyond those investigative actions already taken to validate/invalidate the perceived deficiencies is deemed to be unnecessary. The DR co-authors have concurred in the above stated investigative findings. It was also agreed that the DR should be closed or voided. It is therefore recommended that the DR be closed at this time.



Jorge Monroe-Rammsy

04/19/2002 10:53 AM



To: Amy Loch/YM/RWDOE@CRWMS
cc: Celister Houston/YM/RWDOE@CRWMS, Mike Jaeger/YM/RWDOE@CRWMS, David Ashley/YM/RWDOE@CRWMS, Matt Knop/YM/RWDOE@CRWMS, John Pelletier/YM/RWDOE@CRWMS, Judith Gebhart/YM/RWDOE@CRWMS

Subject: Re: DTN SN0004T0501600.006 and DTN SN0004T0571599.004

QA:N/A Exclusionary

You are right. Those DTNs were mistakenly included in the DR. You can support your comment by looking at my spreadsheet.

Jorge

Amy Loch



Amy Loch

04/19/2002 10:32 AM

To: Jorge Monroe-Rammsy/YM/RWDOE@CRWMS
cc: Celister Houston/YM/RWDOE@CRWMS, Mike Jaeger/YM/RWDOE@CRWMS, David Ashley/YM/RWDOE@CRWMS, Matt Knop/YM/RWDOE@CRWMS, John Pelletier/YM/RWDOE@CRWMS, Judith Gebhart/YM/RWDOE@CRWMS

Subject: DTN SN0004T0501600.006 and DTN SN0004T0571599.004

QA:N/A Exclusionary

Hi Jorge,

This e-mail is to confirm our agreement on the issues of DTN SN0004T0501600.006 and DTN SN0004T0571599.004, which we discussed April 18th. As we said, when information from your research was transferred to the DR text, these DTN's were mistakenly placed in Block 6 of the DR. As you and I both found in our research of these DTN's, there are no deficiencies or problems pertaining to unqualified or uncontrolled software. These DTN's should not have been included in the DR.

As we agreed, I have sent this summary to all interested parties. You can now confirm by a "reply to all" and add additional information if you wish. Thank you for taking the time to sit down with me so that we could clarify this issue.

Amy

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

☒ DR/CAR/QO
☐ SWO

NO. BSC-02-D-092

PAGE OF

QA: QA

CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Completed verification of corrective actions on May 9, 2002, as follows:

Confirmed that, although AP-SI.1Q, Rev 3/ICN 3 was cited in the Deficiency Report (DR) as the controlling document, the work that was done to produce the cited data sets was actually accomplished in accordance with previous revisions of AP-SI.1Q, which did permit the use of "routines and macros" which were documented in technical products. There was never a requirement to baseline such routines or macros.

Confirmed that the codes "discovered" within the DTNs were, in fact, "single use routines and macros", and as such, were never intended to be submitted to the baseline and controlled by Software Configuration Management (SCM). The results of the investigation conducted by the responsible organization in the complete response indicate that some codes reportedly used in cited DTNs were included in error. Confirmed that the inclusion of those codes in the DR were, in fact, in error. Also confirmed, through review of the cited technical products, that the "routines and macros" were, in fact, properly documented in technical products. Thus, what were originally reported as deficiencies were not, in fact, deficient conditions according to the revision of AP-SI.1Q in force at the time the data sets were developed.

Confirmed that when the DR initiators initially tested codes which had been bundled into the data sets, such tests were performed in an operating environment which was foreign to the environment in which the data were originally developed. That is, the tests were performed on an HP platform, using the HP version of the UNIX operating system. Work to develop the data was originally done on a Sun platform with a Sun version of the UNIX operating system. Through interviews with the Managers of BSC Software Configuration Management and BSC Software Quality Assurance, it was determined that testing within the foreign operating environment could, indeed, account for the errors originally documented in the DR. Subsequent efforts to investigate the reported errors have failed to produce any objective evidence of "hard" code errors. The conclusion is, therefore, that the inappropriate use of the foreign operating environment accounts for the errors noted, and it is deemed that the cited errors do not indicate failures of the code which require further corrective action.

In view of the above, the conclusion is that there are no deficient conditions which require immediate or remedial actions, nor is there a need for actions to preclude recurrence of the conditions noted in this DR. By virtue of non-existent deficient conditions, there is no impact resulting from conditions described in this DR.

Based on the extensive investigation of each of the cited deficiencies, and the conclusion that the cited deficiencies were not, in fact, deficiencies, I recommend that this DR be closed at this time.



Sam E. Archuleta
QA Representative

5-10-02
Date