

 QUALITY AUDIT CONCERN DEPARTMENT OF ENERGY - RICHLAND OPERATIONS		2. QAC CONTROL NO. 8801-01	
1. TO: Name M. KREITER		Title MCC PROJECT MANAGER	
3. Location PNL - Richland, WA		5. Audit No. 8801	
4. Reference/Requirements PAP 901, Rev. 1, Control of Processes, Section 4.1 "The PM shall assure that controlled processes to be performed by his project and shall determine whether or not specific qualification is required."		6. Potential Reportability Under 10 CFR 60.73 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7. Description Attached are several procedural concerns which collectively indicate the need for qualification of technical procedures addressing the spent fuel operations.			
8. Lead Auditor (Signature) 		9. Issue Date 3.3.'88	10. Response Due Date 4.4.'88
11. Auditee Corrective Action Commitment			
12. Responsible Action Manager (Signature)		13. Date	14. Action Completion Due Date
ACTION VERIFIED			
15. Lead Auditor (Signature)		16. Date	
18. Final Distribution ORIGINAL-Audit Report File 1-- 2-- 3--		17. Final Review and Approval (Audit Concern Closed) _____ DIRECTOR - Quality Systems Division Date	

MCC-TP-8, Spent Fuel Identification and Control

1. Means to prevent loss of fuel from segmented rods during handling and storage were not apparent in this procedure. Such means should be devised (e.g., capping the ends) and appropriate steps be incorporated into the procedure.
2. The procedure does not specify the maximum length of time during which fuel samples can be exposed to the hot cell atmosphere. A concern exists that the fuel may partially oxidize under these conditions and thereby undergo a change in its chemical characteristics. This concern also extends to cutting operations whereby oxidation could be accelerated as a result of higher temperatures generated during cutting. (This effect has been reported in the Canadian Waste Management Program.) The procedure should at least specify a maximum length of time that fuel samples may remain in the hot cell atmosphere, and inerting the cutting operations should be evaluated.

MCC-TP-9, Fuel Rod Scanning Procedure

1. The procedure should reference a design report for the Fuel Rod Scanning System where the operating limits and requirements are clearly identified. Such a report could serve as a basis for 1) training the operators, 2) maintaining the system, and 3) implementing future upgrades. This report could be critical if the original staff responsible for the design are no longer available.

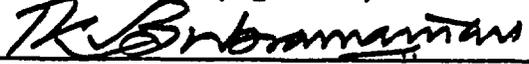
MCC-TP-10, Fission Gas Sampling

1. The procedure should reference a design report for the Fission Gas Sampling Systems where the operating limits and requirements are clearly identified. Such a report could serve as a basis for 1) training the operators, 2) maintaining the system, and 3) implementing future upgrades. This report could be critical if the original staff responsible for the design are no longer available.
2. The procedure does not provide a method to calibrate the Baritron pressure gauge after it has been installed. It is recommended that the system be modified to permit on-line calibration checks before and after fission gas sampling. The operational limits and vulnerability of the Baritron, e.g., sensitivity to particular gases and temperature, etc., should be identified in the design report. (See preceding concern.)

	QUALITY AUDIT CONCERN		2. QAC CONTROL NO.
	DEPARTMENT OF ENERGY - RICHLAND OPERATIONS		8801-02
1. TO: Name C. E. HUGHEY,	Title QAD Manager	3. Location PNL - Richland, WA	
4. Reference/Requirements PAP 201, Revision 2, ICNs 1, 2, 3 and 4 - "Indoctrination and Training" Section 4.3.2 - "Personnel shall receive the appropriate indoctrination and training".		5. Audit No. 8801	
		6. Potential Reportability Under 10 CFR 60.73 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7. Description			
Training to detailed procedures and revisions is considered to be ineffective. Examples of this concern are attached.			
8. Lead Auditor (Signature) <i>R. Bruberman</i>		9. Issue Date 3.3.'88	10. Response Due Date 4.4.'88
11. Auditee Corrective Action Commitment			
12. Responsible Action Manager (Signature)		13. Date	14. Action Completion Due Date
ACTION VERIFIED			
15. Lead Auditor (Signature)			16. Date
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1. PAP-404, Revision 3, Paragraphs 4.2.1 and 4.2.3b require the Project Manager to include quality levels in SOWs and the QAD Rep. to verify incorporation of quality levels. MCC SOW M28071, Rev. 1, Approved on 12/21/87, does not include a quality level however, QA requirements are included in SOW.
2. PAP-404, Rev. 3, Paragraph 4.2.3e requires that the Project Manager give final approval of SOWs for quality Level 1 services. Tuff SOW M37615, Rev. 0, issued 1/4/88, was approved by Task Leader and not Project Manager.
3. PAP-706, Rev. 1, ICN #PAP-706-R1-1, Paragraph 4.1.3, requires the use of an Inspection/Test Instruction (ITI) when performing receiving inspections. No ITI was completed for an autoclave received on 1/2/88 (PR/PO Q8633.) Documentation in the QC files provides evidence that the item was in fact inspected by QC upon receipt. This discrepancy was corrected during audit by issuance of internal letter (QC-072-GRA) and completion of an ITI.
4. PAP-705, Rev. 1, Paragraph 4.2.1 requires that the QC Rep. review submitted documents, verify applicable material numbers, and record the information. QC Review Plan and Record (RPR) for PR/PO T1713 (cylinders of dry air) received during 1/88, did not reflect verification of cylinder numbers to submitted material certifications. This discrepancy was corrected during audit by issuance of internal letter (QC-073-NWG) and correction to RPR.

[NOTE: Audit concerns 8801-04, 06 & 07 issued independent from this concern.]

 QUALITY AUDIT CONCERN DEPARTMENT OF ENERGY - RICHLAND OPERATIONS		2. QAC CONTROL NO. 8801-03	
1. TO: Name MAX KREITER		Title MCC PROJECT MANAGER	
3. Location PNL - Richland, WA		4. Reference/Requirements PAP 901, Rev. 1, "Control of Processes", Section 4.1 - Processes shall be identified and controlled.	
5. Audit No. 8801		6. Potential Reportability Under 10 CFR 60.73 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7. Description The attached concern addresses the reference of a Technical Procedure in several documents. The revision of the TP may not be the same.			
8. Lead Auditor (Signature) 		9. Issue Date 3.3.'88	10. Response Due Date 4.4.'88
11. Auditee Corrective Action Commitment			
12. Responsible Action Manager (Signature)		13. Date	14. Action Completion Due Date
ACTION VERIFIED			
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Concern on MCC-TP-5, Rev. 2, MCC-1P, and MCC-3S, "Glass Testing Procedures and Methods".

The Nuclear Waste Handbook and companion document, PNL-3990, is a set of controlled documents which is widely distributed and which includes the 9-30-83 version MCC-1P, Static Leach Test Method. However, there have been several revisions to this method, and it has been further modified by MCC-TP-5, Rev. 2, for use in testing West Valley glass. While PNL/MCC is internally in compliance with MA-60 requirements, holders of the Handbook may not necessarily be aware of the latest technical changes. Furthermore, two systems of technical procedures seem difficult to manage and are likely to result in technical inconsistencies.

It is recognized that recent discussions by DOE may lead to elimination of the programmatic requirement for the Handbook. However, PNL-MCC should also evaluate positive steps to resolve this situation. Actions that should be considered include: 1) Issuing notices to holders of the Handbook apprising them of the situation, 2) incorporating useful test methods directly into the MCC-TP system, and 3) recommending to DOE steps for a controlled termination of the Handbook. This latter could include publishing the latest versions of the test methods as PNL reports and providing copies of these to Handbook holders when the Handbook is recalled.



QUALITY AUDIT CONCERN

DEPARTMENT OF ENERGY - RICHLAND OPERATIONS

2. QAC CONTROL NO.

8801-04

1. TO: Name

MAX KREITER

Title

MCC PROJECT MANAGER

3. Location

PNL- Richland, WA

4. Reference/Requirements

PNL-MA-60 (11/10/86), Section 3.2 "Computer Software Control", SCP 312, Revision 1, ICN# SCP-312-1 (1/16/87), Para. 5.3.2 - "The Project Manager shall assure that an ITR (Independent Technical Review) of the SRF is performed..."

5. Audit No.

8801

6. Potential Reportability Under 10 CFR 60.73

Yes No

7. Description

No ITR of the two SRF's pertaining to ORIGIN 2/VAX was performed.

8. Lead Auditor (Signature)

R. Subramanian

9. Issue Date

3.3.88

10. Response Due Date

4.4.88

11. Auditee Corrective Action Commitment

12. Responsible Action Manager (Signature)

13. Date

14. Action Completion Due Date

ACTION VERIFIED

15. Lead Auditor (Signature)

16. Date

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DIRECTOR - Quality Systems Division

Date



QUALITY AUDIT CONCERN

DEPARTMENT OF ENERGY - RICHLAND OPERATIONS

2. QAC CONTROL NO.

8801-05

1. TO: Name

Title

C. E. HUGHEY.

QAD MANAGER

3. Location

PNL- Richland, WA

4. Reference/Requirements

CRITERION 18,

NQA-1 (1986), Basic Requirement 18, "Audits"

PNL-MA-60, Section 18.1 (11/10/86)

5. Audit No.

8801

6. Potential Reportability
Under 10 CFR 60.73

Yes

No

7. Description REQUIREMENT The "scope" portion of Section 18.1 of PNL's QA Manual (PNL-MA-60) states, in part: "This section establishes the requirements for planning, performing and reporting audits to verify compliance with all aspects of the QA program and to determine its effectiveness. This section, together with the applicable documents, is intended to meet NQA-1 Basic Requirement 18, NQA-1 Supplement 18S-1 and 10 CFR 50, Appendix B, Criterion XVIII; and DOE requirements that are applicable to the programs and projects of the Office of Civilian Radioactive Waste Management."

CONCERN - Contrary to the above, no objective evidence was available to indicate that the Quality Control/Quality Engineering activities have been audited as required (PNL Audit files were reviewed for last two years.)

8. Lead Auditor (Signature)

R. Subramanian

9. Issue Date

3.3.88

10. Response Due Date

4.4.88

11. Auditee Corrective Action Commitment

12. Responsible Action Manager (Signature)

13. Date

14. Action Completion Due Date

ACTION VERIFIED

15. Lead Auditor (Signature)

16. Date

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QUALITY AUDIT CONCERN

DEPARTMENT OF ENERGY - RICHLAND OPERATIONS

2. QAC CONTROL NO.
8801-06

1. TO: Name Title
Steven C. Marschman Tuff Project Manager

3. Location
PNL - Richland, WA

4. Reference/Requirements
Criterion 17, Quality Assurance Records, NQA-1-1986
Reference: PNL-MA-60 Section 17.1, Paragraph 17.1.2.3
PAP-1704, Rev. 1, ICN #1, Paragraph 4.4.1

5. Audit No.
8801

6. Potential Reportability
Under 10 CFR 60.73
 Yes No

7. Description

Requirement

The Project Manager shall assure that all Laboratory Record Books (LRB) are periodically (at least once each month or as directed by the Project Manager) reviewed to confirm correct and adequate recording of significant information related to research project activities in accordance with this procedure.

Concern

Contrary to the above requirement, the NNWSI (Tuff) Laboratory Record Books are not being reviewed as required (e.g., Laboratory Record Book #BNW 52391).

8. Lead Auditor (Signature)
R. B. Brannaman

9. Issue Date
3.3.88

10. Response Due Date
4.4.88

11. Auditee Corrective Action Commitment

12. Responsible Action Manager (Signature)

13. Date

14. Action Completion Due Date

ACTION VERIFIED

15. Lead Auditor (Signature)

16. Date

18. Final Distribution

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17. Final Review and Approval (Audit Concern Closed)

DIRECTOR - Quality Systems Division

Date



QUALITY AUDIT CONCERN

DEPARTMENT OF ENERGY - RICHLAND OPERATIONS

2. QAC CONTROL NO.

8801-07

1. TO: Name

Steven C. Marschman

Title

Tuff Project Manager

3. Location

PNL - Richland, WA

4. Reference/Requirements

Criterion 17, Quality Assurance Records, NQA-1-1986
Reference: PNL-MA-60 Section 17.1, Paragraph 17.1.2.4
PAP-1704 Rev. 2, Paragraph 4.5, Inspection
of Completed Records

5. Audit No.

8801

6. Potential Reportability
Under 10 CFR 60.73

Yes

No

7. Description

Requirement

Paragraph 4.5.1 of PAP-1701 requires that at least once a month, the Project Records Custodian shall request records from Project Contributors for transfer to the PNL Records Center.

Concern

Contrary to the above requirement...NNWSI (TUFF) Project Records have not been transferred to the PNL Records Center since the Project was transferred to PNL (6/29/87).

Although there is evidence that this subject has been under discussion with the sponsor, neither the QA Plan nor the PAP have been modified to permit deviation from the governing procedure.

8. Lead Auditor (Signature)

R. B. Brannaman

9. Issue Date

3.3.88

10. Response Due Date

4.4.88

11. Auditee Corrective Action Commitment

12. Responsible Action Manager (Signature)

13. Date

14. Action Completion Due Date

ACTION VERIFIED

15. Lead Auditor (Signature)

16. Date

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17. Final Review and Approval (Audit Concern Closed)

DIRECTOR - Quality Systems Division

Date



HOT CELL OPERATIONS

During review of the Hot Cell Processes, several observations were noted:

- o During removal of a fuel rod from an assembly, it was established that some scraping, or binding, will occur. This may cause the loss of some of the loose crud which could impact the quantitative calculations.
- o High speed cutting of a fuel rod could cause a temperature increase. It is not established if CO₂ formation at this point could lower the residual Carbon-14 in the external crud. In addition, due to the vibration during cutting has not been examined in terms of crud loss.
- o It has been established that Hot Cell D is contaminated. It can not be established if this condition could cause cross contamination on spent fuel samples.
- o Analysis for Carbon-14 in crud only determines the CO₃ type. Other sources are not included and MCC should investigate to confirm if an improved procedure is needed. The total inventory of Carbon-14 should be subject to further investigation.
- o The reversal of two (2) sets of photo negatives was noted (Reference DR 87-127). It is felt that the corrective action was vague. There was not explanation of how the correction was done.
- o It appears to be possible that samples could change during preparation and handling. The results of Carbon-14 analysis could be affected.



MCC-TP-7, SPENT FUEL ROD RETRIEVAL AND TRANSFER TO D-CELL

The procedure requires the operators to sign-off completion of individual steps in the procedure itself. This appears to be awkward when the procedure is controlled. It is suggested that the procedure be revised to require operators to sign-off a data sheet for the appropriate procedural steps.

MCC-TP-8 includes a list of applicable SOPs. These SOPs also appear to apply to MCC-TP-7.

The procedure requires the operators to verify that a particular step has been completed as required, but does not indicate the corrective action if a mistake was made. In general, procedures involving safety or significant programmatic issues should specify the appropriate procedural steps if the operation can not be or is not completed as intended. This could be generic, such as; 1) stop; 2) notify Task Leader; 3) develop a recovery plan. (This type of action may already be specified in the SOPs, in which case the SOP should be referenced.)

It is not clear from the procedure that a method has been implemented for positively identifying the original orientation (top and bottom) of the segments in the fuel rod. This problem needs considerations.

The procedure specifies that the load cell must be tested and the readout verified prior to use, but didn't provide steps to accomplish this or what the appropriate load limit should be during the actual pulling of a fuel rod. The load limit should be based on prevention of damage to the fuel rod being pulled.

It isn't clear from the procedure how proper orientation of the assembly can be positively maintained after removal of the assembly head. The procedure should be revised, if necessary, to assure that orientation of the assembly can be maintained, for example, by the addition of an index mark on one side of the spacer grids.



DEPARTMENT OF ENERGY
RICHLAND OPERATIONS

AUDIT OBSERVATION
CONTINUATION SHEET

AUDIT NO. 8801
Observation 8801-01
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MCC-TP-9, FUEL ROD SCANNING PROCEDURE

This procedure was reviewed by the Building Manager, Safety, and RM. It is suggested that the other procedures also be reviewed by these organizations prior to use.

Section 4.8.4: The instruction is unclear. It is suggested that power to the motors be shut off and tagged out anytime someone is working on the power supply, leads, or motors. This should be done at the circuit panel rather than relying on the IBM computer.

MCC-TP-10, FISSION GAS SAMPLING

This procedure does not require purity check on the argon supply. It is recommended that the procedure require a positive check on the argon purity, e.g. analyses, or that the argon be filtered through a molecular sieve to avoid potential system contaminations.

- o In general the terms used in procedures should be consistent throughout the procedure and among procedures. For example, in one sentence an item may be called a probe but the next reference may call it a device.

AUDIT NO. 8801



DEPARTMENT OF ENERGY
RICHLAND OPERATIONS

AUDIT OBSERVATION

AUDIT NO. 8801
Observation 8801-02

PNL-MA-60, SCP 317, Paragraph 5.2.3:

This requirement states that: "The custodian shall assure that the approved RFT, [instrument used to obtain a computer code from outside PNL]...[is] sent in accordance with PAP-101,.. The reference AP is applicable to communications with and commitments made to sponsors. For acquisition from suppliers it refers the user to procedures contained in other sections of the PNL-MA-60 manual. The acquisition of ORIGIN2/VAX code was accomplished by sending the approved RFT with a cover letter to the ORNL.

The audit team observed that for code acquisition the reference to PAP-101 seems out of place.

AUDIT NO. 8801



DEPARTMENT OF ENERGY
RICHLAND OPERATIONS

AUDIT OBSERVATION

AUDIT NO. 8801

Observation 8801-03

PNL-MA-60, Section 6.1, PAP 601, Rev. 3, Section 4.1.2, and 4.2.1

"The Technical Procedure Coordinator (TPC) assigned by the line or Project Manager...shall maintain the distribution list for Quality Level I TP's and TI's." (Section 4.1.2)

"...and the TPC shall prepare master lists of the documents which they distribute. These lists shall be either Table of Contents...or Controlled Document Lists (CDL's typically used for TP's and TI's)."

The observation pertains to TI's (Technical Instructions). Interviews with C. Wilson, R. Einzinger and B. O. Barnes seemed to indicate that no TI's had been issued yet. It was further explained that a TI is used to augment a TP (Technical Procedure) with details not usually found in TP's. However; review of laboratory notebooks revealed that something akin to supplementary guidance was used by a task leader who called it Technical Instructions. These letters however, served to augment a Technical Plan and were in the format of an official memorandum from one task leader to another.

The audit team recommends that the concept of Test Instructions be examined and explained to those who have to work with it. The recommendation is particularly made with respect to any augmentation, clarification, or increased level of detail of procedures or test plans for Quality Level I work.

The audit team specifically suggests that procedures SFO 2-1 and SFO 1-2 explicitly require that any memos intended to initiate a specific oxidation run be included in the laboratory notebook or otherwise be retained as a part of the test documentation.

AUDIT NO. 8801



DEPARTMENT OF ENERGY
RICHLAND OPERATIONS

AUDIT OBSERVATION

AUDIT NO. 8801
Observation 8801-04

PNL-MA-60, SECTION 6.1, PAP 601, REV. 3, SECTION 4.1.2

"The Technical Procedure Coordinator (TPC)...shall maintain a distribution list for Quality Level I TP's and TI's."

In the case reviewed the distribution list was physically maintained by Document Control Section of the Records Center. The TPC did retain the authority to add or delete names from the list, but the TPC did not have a distribution list available to him.

Several interpretations may be attached to the phrase "maintain a distribution list." The manner in which distribution lists are maintained and controlled now appears to be working well. The audit team therefore recommends that the Line or Project Manager assign the Document Control Section of the Records Center as TPC.

AUDIT NO. 8801



DEPARTMENT OF ENERGY
RICHLAND OPERATIONS

AUDIT OBSERVATION

AUDIT NO. 8801
Observation 8801-05

PAP-602, Rev. 2, Paragraph 4.1.10

States that the QADPC shall assign an effective date for ICNs. The ICN form has a block for "date issued" but no indication of when the ICN is to be effective. Based on interviews: 1) Quality Assurance personnel state that the "date issued" is the effective date, 2) individuals in two different departments who issue the documents state that the "date issued" is the date the ICNs must leave their offices to the controlled document holders. Recommend that this difference in interpretation be resolved by adding an effectivity date to the ICN form.

AUDIT NO. 8801