

**Department of Energy**Washington, DC 20585
May 18, 2000RECEIVED
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DNF SAFETY BOARD

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW
Washington, D.C. 20004-2901

Dear Mr. Chairman:

This is in response to your February 29, 2000, letter expressing the Defense Nuclear Facilities Safety Board's (Board) disturbance about the inaccurate and incomplete information the Board received on the Hanford Spent Nuclear Fuel Project.

The information in question pertained to a preliminary white paper that was provided to the Board's staff on hydrostatic testing of the Integrated Water Treatment System. This was preliminary information that our contractor provided, in parallel, to the Department of Energy (DOE) Richland Operations Office (RL) staff and your staff to facilitate review and discussion, which had not yet received a full review and quality assurance check by our contractor associated with the final information. The error was identified within twenty-four hours of issuance of the preliminary white paper, and your staff was immediately notified.

The DOE and our contractor recognize the importance of accurate information to support Project decisions, as part of an overall quality approach to this Project. As you can see in RL's response to me on the issue in the enclosed letter, RL is taking steps to assure improved processes and practices on this Project. I have discussed RL's approach with them and agree that these steps should greatly improve the quality on this critical cleanup project.

If you have further questions, please contact me at (202) 586-7710, or contact Mr. Mark Frei, Deputy Assistant Secretary for Project Completion on (202) 586-0370.

Sincerely,

Handwritten signature of Carolyn L. Huntoon in cursive.

Carolyn L. Huntoon
Assistant Secretary for
Environmental Management

Enclosure

cc: Mark Whitaker, Departmental Representative
to the Defense Nuclear Facilities Safety Board



United States Government

EM-40 for A
also cap of EM-1,
ARTHUR, WNUKOS

Department of Energy

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MAY 19 PM 3:09

Richland Operations Office

DNFSB SAFETY BOARD

DMST:HLB/00-DMST/001

QUALITY ASSURANCE PROGRAM DEFICIENCIES ON THE SPENT NUCLEAR FUEL PROJECT

Carolyn L. Huntoon, Assistant Secretary
for Environmental Management
EM-1, HQ

In response to your query, I wanted to share our actions to address quality related issues associated with equipment startup for the Hanford K-Basins Spent Nuclear Fuel (SNF) Project. Last October the Contractor provided incorrect information on the status of verifications of welds on the K-West Basin Integrated Water Treatment System (IWTS) to the U.S. Department of Energy (DOE) Richland Operations Office for transmittal to the Defense Nuclear Facilities Safety Board (DNFSB). They discovered their error within one day of transmitting the information and the Board staff was promptly notified. The Contractor recognizes that transmittal of the erroneous information damages the credibility of their efforts and the perception of the DOE Project. Action has been taken, by the Contractor, to insure that preliminary or provisional information will not be shared without a clear identifier that the information is preliminary or provisional and subject to change. The attached letter provides documentation of their actions. This incident is regrettable and disturbing. Their response, however, was judged appropriate.

There have been additional quality-related issues with the Phase Startup Initiative currently in progress. The Phased Startup Initiative is providing the opportunity to conduct cold and hot operational testing at the component and system levels well in advance of the formal readiness for operations review. This initiative is commendable, however, the number of engineering and operational issues that have arisen give us cause for concern. Issues related to the design and procurement of equipment and issues related to the conduct of the startup activities have been identified by our DOE project team, our facility representatives, and contractors. A number of these issues have been captured in the weekly reports of our DNFSB facility reps. In my estimation these quality issues reflect weak past practices and call into question the rigor of current practices.

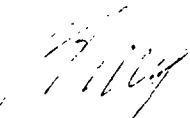
I have approached these issues from three perspectives:

- (1) Increasing the probability that the Contractor will be able to operate the fuel retrieval and drying systems reliably and efficiently following hot startup;
- (2) Insuring that lesson learned from the design, procurement, installation, and startup of the K-West IWTS are incorporated into the activities for the K-East system; and

- (3) Improving the overall quality and conduct of engineering of the SNF Project and sharing lessons with other Hanford projects.

To these ends we have first had an independent review of the conduct of engineering on the SNF Project conducted by Mr. David Lowe (formerly of DOE Rocky Flats and the DNFSB staff). Second, we have transmitted to the Contractor an enumeration of quality related issues we have identified that must be resolved prior to our readiness review (Attachment 2). Third, I have shared my concerns and expectations with the President of Fluor Hanford, Inc. and his Fluor Corporate executive sponsor. Fourth, I have been speaking with Mr. Randy Scott and other highly regarded professionals concerning support for improving our RL quality program and to better position us to raise the quality bar for our contractors.

I am committed to high standards of quality and conduct of engineering for all DOE activities. The aforementioned efforts seek to address specific issues, root causes, and cross cutting issues to improve the performance of the SNF Program and all projects at RL. I would welcome any advice or recommendations from you.



Harry L. Boston, Deputy Manager
for Site Transition

Attachments

cc: M. W. Frei, EM-40

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DNF SAFETY BOARD



FLUOR DANIEL

Fluor Daniel Hanford, Inc.
P.O. Box 1000
Richland, WA 99352

April 28, 2000

FH-0002420

Dr. P. G. Loscoe, Director
Office of spent Nuclear Fuels
U.S. Department of Energy
Richland Operations Office
Post Office Box 550
Richland, Washington 99352

Dear Dr. Loscoe:

**CONTRACT NUMBER DE-AC06-96RL13200 - RESPONSE TO CONCERNS
REGARDING TRANSMITTAL OF INFORMATION TO OUTSIDE
ORGANIZATIONS**

This letter is written in response to your concerns regarding the Spent Nuclear Fuel (SNF) Project ensuring that all information transmitted to outside organizations, such as the Defense Nuclear Facility Safety Board (DNFSB), is accurate and timely.

This Project is very sensitive to the need to provide accurate and timely information. We have attempted to ensure that this has been the case, and regret that any information has caused confusion in the past. We have reviewed our process and have found it to be fundamentally sound. Since preliminary information is subject to change, emphasis will be placed on ensuring that such data has been clearly identified as "draft" to eliminate the potential for confusion.

All formal data submitted to the DNFSB is carefully reviewed by SNF Project senior management and is submitted via your office. To meet the DNFSB's need for current investigations, preliminary information is submitted directly to the local DNFSB representative, with a clear understanding of the preliminary status of the information. This system is working well and will prevent the confusion created previously.



Dr. P. G. Loscoe

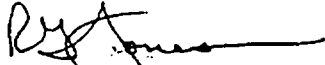
FH-0002420

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April 28, 2000

The SNF Project remains committed to providing accurate and timely information. Our personnel clearly understand this requirement and our process should ensure this requirement is met.

Very truly yours,

A handwritten signature in black ink, appearing to read "R. G. Jones", with a long horizontal flourish extending to the right.

R. G. Jones, Vice President
Spent Nuclear Fuel Project

ljc



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

00-SFO-102

APR 27 2000

Mr. R. D. Hanson, President
Fluor Hanford, Inc.
Richland, Washington 99352

Dear Mr. Hanson:

**CONTRACT NO. DE-AC06-96RL13200 - CONTINUING QUALITY ASSURANCE (QA)
PROGRAM DEFICIENCIES ON THE SPENT NUCLEAR FUEL (SNF) PROJECT**

Since 1995, evaluations by contractors and the U.S. Department of Energy, Richland Operations Office (RL) have identified deficiencies with the implementation of a QA Program in the SNF Project. The SNF Project has implemented several corrective actions resulting in immediate and long-term improvement. However, as the equipment installation nears completion, there are still several quality-related issues that need to be addressed prior to the systems, structures, and components (SSC) being declared ready for operation. These issues are discussed in the attachment and include:

- Quality of the Testing Program for SSCs;
- Quality of Procurement Activities;
- Quality of Activities in Support of Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements Documents (QARD);
- Quality of Fluor Federal Services performance as defined by the recent Fluor Hanford, Inc. (FHI) vendor evaluation; and
- Quality of Fluor Federal Services Work Activities.

Resolution of these issues is necessary prior to declaration that SSCs are ready for operation. While it is understood that the quality issues associated with procurement are a result of historic problems embedded in how FHI managed Nuclear SSC procurements at Hanford, and that some corrective actions are in process, these quality issues must be addressed on the SNF Project. FHI progress on existing corrective actions does not appear to support completion of some actions prior to system startup approval.

No response is required by FHI to RL at this time regarding closure of these issues. However, it is important for FHI to understand that RL considers that satisfactory closure of the issues discussed in the letter and its attachments is necessary prior to declaration that the SNF Project is ready for operation. FHI must also provide assurance that FFS procurement quality issues have been evaluated and will not adversely impact completed or on going work on the SNF Projects.

If any direction is provided by a Contracting Officer's Representative (COR) which your company believes exceeds the COR's authority, you are to immediately notify the Contracting Officer and request clarification prior to complying with the direction.

If you have any questions please contact me, or you may contact William L. Smoot of my staff on (509) 376-7465.

Sincerely,



P. G. Loscoe
Contracting Officer's Representative

SFO:WLS

Attachment

cc w/attach:

J. W. Foster, DESH
R. P. Ruth, DESH
J. A. Swenson, DESH
R. B. Wilkinson, DESH
B. R. Hill, FHI
R. G. Jones, FHI
D. B. Van Leuven, FHI
R. B. Willard, FHI
T. Choho, NHC

**OUTSTANDING QUALITY ISSUES
ON THE
SPENT NUCLEAR FUEL PROJECT**

1. Quality of the Testing Program for Systems Structures and Components

- a) The U.S. Department of Energy (DOE), Richland Operations Office (RL) Integrated assessment of the Spent Nuclear Fuel (SNF) Project Testing Program was issued on March 8, 2000, (00-SFO-06). The primary issue of the assessment was the inadequate engineering control, participation, and ownership of the Testing Program. The most significant example was that the SNF Project has not developed adequate planning to implement a credible methodology to validate functional and design criteria. While actions are underway to develop the credible methodology, these actions will not be completed until early summer. When coupled with the Quality Level 3 issue corrective actions and the Code fabrication issues that have not been resolved, it appears that the Project has a major task to demonstrate that the systems, structures, and components (SSC), meet quality, design, and functional requirements.

2. Quality of Procurement Activities

- a) Application of 10 C. F. R. Part 830.120 quality program requirements to Quality Level 3 (General Service) procurements, which have a safety function as defined in the Quality Assurance (QA) Rule.

On October 9, 1998, RL issued letter 98-AMW-028, informing Fluor Hanford, Inc. (FHI) that their practice of not applying the QA Rule to General Service Procurements that supported Radiological Facilities/Radiological Support Systems was not in accordance with the Nuclear Safety Rule.

On July 1, 1999, the DOE Director, Office of Enforcement and Investigation issued Enforcement Guidance Supplement 99-01 to address enforcement of 10 C. F. R. Part 830.120 (Quality Assurance Rule) for Facilities below Hazard Category III. This guidance supplement supported the position taken by RL as outlined in its October 1998 letter, directed that the rule be properly applied complex wide and agreed to defer enforcement action for issues that fall under the scope of this supplement until January 1, 2000. The deferment was to allow sufficient time for contractors to modify processes to ensure they are in compliance with 10 C. F. R. Part 830, including General Counsel Ruling 1995-1.

On November 3, 1999, FHI issued a Noncompliance Tracking System (NTS) report (NTS-RL- PHMC-PHMC GENL-1999-0003) documenting the potential non-compliance with the QA Rule. Corrective action commitment dates to address this issue at the facility level were recently changed from January 6, 2000, to June 30, 2000. As such, actions to address this potential non-conformance on the SNF Project have not been implemented. The longer that SNF Project takes to address this issue, the more systems

will be procured, fabricated, and accepted through a process that is flawed and will require gap analysis and justifications that they are acceptable.

As recent as the week of April 3, 2000, an issue was identified in which the vendor of a lifting tool for the Integrated Water Treatment System (IWTS) Knockout Pot, identified as Quality Level 3, did not receive a vendor evaluation and was not placed on the evaluated suppliers list as required by HNF-MP-599. The rationale provided by the SNF Project was that since HNF-PRO-268, *Control of Purchases Items and Services*, did not require Quality Level 3 to be evaluated, no evaluation was performed. It should be noted that significant quality issues were identified during receipt inspection, which required rework to meet the procurement documents. Non-conformance Reports were written to identify the original quality issues. (NCR No. A.9-08 dated March 20, 2000, and A.9-09 dated March 23, 2000).

While the SNF Project has followed the FHI procedures, these procedures do not completely implement the QA Rule. As a result, a rationale for how applicable portions of the QA Rule were applied with a graded approach to Quality Level 3 SSC is required in accordance with the QA Rule.

- b) During discussions with the FHI Director, Nuclear Safety Regulatory Compliance it was pointed out that FHI has a problem with the use of "P" Cards to procure Quality Level zero (0) items that should have been designated Quality Level 1, 2, and/or 3 items; and as such require application of the QA Rule requirements. This issue has been identified by FHI and is being added to the issued NTS report on Quality Level 3 procurements. Its impact has not been evaluated by the SNF Project.
- c) There is a need to provide justification of the fabrication of systems to standards that were lower than what was required by applicable Code. This is both a quality issue and a system fabrication/testing issue. An example of this issue is the procurement of the Cold Vacuum Drying (CVD) Facility HVAC System without applying N-509/N-510 requirements as specified in DOE 6430.1a and the Washington Administrative Code (WAC). This issue requires the same type of justifications as the quality issue discussed in item 2.a. above. (MACTEC-MEIER Letter No. 99-153 dated March 17, 1999).

3. Quality of Activities in Support of Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements Documents (QARD)

- a) National Spent Nuclear Fuel (NSNF) Program has raised issues via formal Corrective Action Requests (CAR) in the areas of sampling, custody transfer, characterization, peer reviews, and computer model validation and verification. (Document from R. D. Davis, NSNF to P. G. Loscoe, RL, Audit 99-NSNF-AU-044, dated September 8, 1999).
- b) On March 7, 2000, FHI requested in letter FHI-0000141 that RL approve FHI deferral of certain corrective actions developed by FHI in response to the NSNF assessment. The letter provided some justification for the FHI strategy, however, was not detailed enough for RL to agree with the approach and forward such approach to NSNF Program. The

SNF Project also submitted a letter to RL requesting a waiver from the S/RID requirements for the Project to submit a Compliance schedule approval (CSA) to justify any non-conformance to an S/RID requirement that exceeds 120 days for resolution. RL has prepared a letter rejecting the waiver and requesting that FHI provide the CSA to RL in accordance with HNF-PRO-265.

4. Quality of Fluor Federal Services (FFS) Issues as defined by the Recent FHI Vendor Evaluation

- a) As a result of recent issues at the Office of River Protection, FHI performed a vendor re-evaluation of FFS with emphasis in the area of Control of Purchased Items and Services. This review identified several deficiencies that resulted in flagging the Evaluated Supply List (ESL) for FFS in areas they were deficient.
- b) *FHI has documented the FFS problem on NTS Report; NTS-RL-PHMC-GENERAL-2000-0003, dated April 4, 2000.* Actions currently being taken by FHI include evaluation of all released work to FFS for application of the flagged areas on the ESL. FHI is also taking action to validate, relative to all FHI to FFS releases, that the correct quality level was identified and that the correct quality requirements were specified for each quality level.
- c) SNF Project is required to evaluate the open FFS work authorizations, which require the same Nuclear Quality Assurance (NQA)-I QA requirements and/or supplements found to be deficient during the ESL review. Then the Project is required to identify and implement immediate compensatory measures for each work authorization (as needed) to ensure that ongoing work is compliant with FHI governing QA requirements. This action was to be completed by April 10, 2000. To date, this analysis and resulting corrective actions have not been completed.
- d) FHI is revising the NTS report discussed in 4.b. above to also require an evaluation of those activity-related quality requirements that were not evaluated during the ESL review. This is partially driven by the population of issues discussed in Paragraph 5 below and the need to provide a complete ESL evaluation.
- e) The current set of FHI corrective actions does not address an evaluation of work already completed where the release required work in areas in which FFS was found to be deficient.

5. Quality of Fluor Federal Services Work Activities

- a) Several recent instances have been identified in which the performance of work activities other than Control of Purchased Items and Services were not in accordance with QA Rule requirements as stipulated in the pass down of quality requirements.

b) Although it was clear by discussions with the SNF Project Director and the FHI Vice President for Performance Improvement, that FFS performance of work was deficient, the performance of work was not evaluated by the Vendor re-certification review.

c) Areas where problems have been identified include:

- Improper establishment of hydrostatic test boundaries during testing of the IWTS. This has occurred on two separate occasions and results in a lack of credibility with the FFS process for defining hydrostatic test boundaries, (OR RL--PHMC-SNF-2000-001);
- IWTS Piping installation issues, (TDR No. 3331-04,05,07);
- Validation and Verification issues for the control of the ORIGEN2 program. This issue may be a larger issue because other codes used by the project have not been evaluated; (Document from R. D. Davis, NSNF, to P. G. Loscoe, RL, Audit 99-NSNF-AU-044, dated September 8, 1999);
- Addition of the wrong glycol to the hydraulic chiller on two separate occasions; (NCR-A.7-02, dated March 14, 2000);
- Failure to implement additional nondestructive examination; (NDE) requirements for non-hydrostatic tested valves, (OR-RL—PHMC-SNF-2000-001);
- Installation of only nine of the required ten modified hangers for the flexible transfer system at KW-Basin, (NCR-A.7-03 dated March 17, 2000);
- FFS shop practice of welding to uncontrolled drawing (RL letter No. 00-A&E-073, dated April 24, 2000);
- FFS supervisor did not follow a hoisting and rigging procedure in that he did not sign off all prerequisites to a procedural step prior to completion of the step. Two sign offs were made six months after completion of the step and a third signature has yet to be made, (Draft Facility Representative Surveillance S-00-OOD-SNFP-029);
- The weights used to support the load testing of various components at the K Basins were not calibrated as required; and (Facility Representative Surveillance, S-00-OOD-SNFP-028, dated April 25, 2000); and
- A construction acceptance test was modified to delete a test specification and Hoisting and Rigging manual requirement without getting relief from those requirements. (Draft Facility Representative Surveillance, S-00-OOD-SNFP-029).