

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 8, 1993

MEMORANDUM FOR: G. W. Cunningham

COPIES: Board Members

FROM: J. T. Arcano, Jr.

SUBJECT: Savannah River Site, F-Canyon and FB-Line, Trip Report for October 6-8, 1993, Review of Quality Assurance

1. **Purpose:** This memorandum describes the observations of Defense Nuclear Facilities Safety Board (DNFSB) Staff, J. T. Arcano, Jr., and Outside Expert, J. D. Porter, during a quality assurance review from October 6-8, 1993 which focused on F-Canyon and FB-Line at the Savannah River Site (SRS).
2. **Summary:** The quality assurance program currently implemented at F-Canyon and FB-Line follows the precepts of American Society of Mechanical Engineers Quality Assurance Program Requirements for Nuclear Facilities (NQA-1). Implementation of DOE Order 5700.6C, Quality Assurance, is not scheduled until September 30, 1994, as approved by the Department of Energy. Nuclear Material Processing Division (NMPD) has twenty-one program implementing procedures which must be revised, approved, trained on, and implemented before this date. Major findings from this review of Westinghouse Savannah River Company (WSRC) at F-Canyon and FB-Line include:
 - a. Management assessment programs at F-Canyon and FB-Line appear to be ineffective. Although management purported to be conducting seven different types of management assessments, only a small portion of these assessments are truly management assessments in the context of DOE Order 5700.6C.
 - b. F-Canyon did not have a corrective action program. Only a scheduling system which tracks deficiencies linked to restart of operations exists. No system was in place to identify or trend recurring and long-term issues.

FB-Line has an action item tracking system in place, however, it appears to overload the scheduling system. No system was in place to identify or trend recurring and long-term issues.
3. **Background:** F-Canyon processes nuclear fuel targets using the solvent extraction process to remove highly radioactive fission products and to separate plutonium and uranium. The uranium is converted to oxide in F-Canyon's A-Line and plutonium solution is transferred to the FB-Line for further processing. F-Canyon has not

operated since March, 1992 after being shut down to resolve an Unreviewed Safety Question. F-Canyon is currently scheduled to recommence operations early in 1994 to process inventory in solution in the facility, and possibly targets from the SRS L-Basin.

At FB-Line, plutonium nitrate solution received from F-Canyon is precipitated, filtered, and converted to plutonium metal. Also, FB-Line's recovery process dissolves plutonium bearing scrap, and purifies and concentrates the solution using a cation exchange process. The resulting solution is then sent to F-Canyon for further purification. FB-Line has not operated since January, 1990; it is scheduled to resume operations early in 1994 to support F-Canyon operations.

Department of Energy - Savannah River (DOE-SR) and WSRC have scheduled Operational Readiness Reviews (ORRs) for each facility prior to resuming operations. F-Canyon and FB-Line are scheduled for contractor ORRs in November, 1993 to be followed by a DOE ORR in January, 1994.

This quality assurance review consisted of briefings by WSRC personnel from F-Canyon and FB-Line; a review of quality assurance policy directives; a tour of F-Canyon and FB-Line; and personnel interviews. The review focused on the following aspects of DOE Order 5700.6C, Quality Assurance: Program (Criterion 1), Corrective Action (Criterion 3: Quality Improvement), Documents and Records (Criterion 4), Procurement (Criterion 7), Measurement and Test Equipment (Criterion 8: Inspection and Acceptance Testing), Management Assessment (Criterion 9), and Independent Assessment (Criterion 10). Training and Qualification reviews of F-Canyon and FB-Line were conducted separately.

4. Discussion:

- a. Program: WSRC is taking a phased approach to implementing DOE Order 5700.6C across SRS. Phase I of the program consisted of revising company-level documents via changes to the WSRC Quality Assurance Manual (1Q). DOE-SR considers that the 1Q Manual to have been revised in accordance with DOE Order 5700.6C.

During Phase II, F-Canyon and FB-Line procedures and documentation are to be revised to incorporate the new 1Q Manual requirements. The F-Area Separations Manager has stated that he intends to be in compliance with DOE Order 5700.6C by September 30, 1994, which is when WSRC has committed to have the Order fully implemented at SRS. Nuclear Material Processing Division (NMPD) has twenty-one program implementing procedures which must be revised, approved, trained on, and implemented before this date.

Interviews indicated that personnel were knowledgeable of their responsibilities regarding quality and stopping unsafe work. However, the F-Area Separations

Manager indicated that the stop work philosophy was not consistently executed across his facilities, and needed improvement.

b. Management Assessments: The management assessment programs at F-Canyon and FB-Line appear to be ineffective. Management purported to be conducting seven different types of management assessments. However, with the exception of startup preparations, the management assessment aspect of the program consists mainly of management tours, which are, essentially, monitor watches. Specific issues with these tours include:

- (1) No specific guidance exists which defines what areas are to be assessed during tours, and these tours have resulted in few substantive findings.
- (2) Since February, 1993, no F-Canyon management tours have been conducted on back shifts during the week.
- (3) Senior management tours are formally announced by memorandum, alerting personnel of upcoming tours.
- (4) A review of the tour corrective actions revealed several that had not been addressed in a timely manner.

A review of the Readiness Self-Assessment, which is an assessment unique to restart, indicated that this effort lacks senior management involvement. It is conducted by level 5 personnel (shift managers). Level 3 personnel (facility managers) are only involved in the review of this assessment.

c. Independent Assessments: Two separate quality assurance organizations exist which support F-Canyon and FB-Line. Site Quality Assurance and Nuclear Materials Processing Division Quality Assurance are established organizations which provide a myriad of independent audits, assessments, and surveillances of F-Area operations. Although the Independent Assessment Program appears to be effectively implemented, the various types of independent assessments need to be integrated to improve their effectiveness.

d. Corrective Action Program: DOE Order 5480.19, Conduct of Operations, calls for identified deficiencies to be documented, trended, and corrected. In addition, DOE Order 4330.4A, Maintenance Management Program, calls for reported deficiencies to be monitored in order to identify recurring, generic, and long-term problems as well as calling for corrective actions to be tracked until completion.

- (1) F-Canyon: At the time of this review, F-Canyon did not have a corrective action program. Management stated that a program was to be selected and

implemented the following week, but that the features this system were still undetermined. The scheduling system currently used only tracks deficiencies linked to restart of operations at F-Canyon, leaving the possibility that other deficiencies might not be accounted for. No system was in place to identify or trend recurring and long-term issues.

- (2) FB-Line: FB-Line has an action item tracking system in which all actions requiring correction are entered into FB-Line's Integrated Operations Schedules (IOS) tracking system. Although this approach appears to ensure that all deficiencies are accounted for, it also appears that it overloads the scheduling system, diluting the effectiveness of its discussion at Plan of the Day (POD) meetings. The Corrective Action tracking system was in place for FB Line, however, it had not yet been formalized as its defining procedure was still in draft form. Also, no system was in place to identify or trend recurring and long-term issues.