

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 6, 1994

MEMORANDUM FOR: G.W. Cunningham, Technical Director

COPIES: Board Members

FROM: Paul F. Gubanc

SUBJECT: Report of Visit to the Savannah River Site (SRS) F-Canyon and FB-Line to Review Order Compliance, February 28 - March 4, 1994.

1. **Purpose:** This trip report documents a DNFSB Staff review of DOE order compliance at the F-Canyon and FB-Line facilities at the DOE Savannah River Site (SRS). The review was conducted by Paul Gubanc, Chip Martin and Rick Schapira, of the DNFSB Staff, and outside experts, Ahmad Faramarzi, Len Skoblar, and Douglas Volgenau during the period February 28, 1994, to March 4, 1994.
2. **Summary:** The team reviewed the current status of DOE order compliance at the F-Canyon and FB-Line facilities for both the Westinghouse Savannah River Company (WSRC) and the DOE Savannah River Operations Office (DOE-SR). The review included pertinent documentation, discussions with individuals who had participated in the compliance effort and facility/area management, facility tours and observation of actual work practices to provide first-hand data. The demonstration of both administrative compliance (Phase 1) and field adherence (Phase 2) were included in this review for the 52 DOE Orders of interest to the DNFSB (Attachment A). WSRC had commenced their compliance assessment efforts during the July 1993, time frame at both facilities and indicated completion of both phases at the F-Area facilities near the end of February 1994. The following summarizes the major comments of this review.
 - a. The compliance reviews (both Phase 1 and 2) had been completed by WSRC for the 52 DOE orders and the results had been reviewed by DOE-SR. The FB-Line appears to be ahead of the F-Canyon in its efforts to demonstrate compliance, however, neither facility can claim full compliance at this time. Additional SRS effort and DNFSB reviews will be required to assure an adequate order compliance posture.
 - b. Most of the WSRC assessments suffered from inadequate preparation, inadequate training or supervision of the assessors, and/or inadequate definition of the final products. This applied to both Phases 1 and 2. Many of the Phase 2 assessments were not performance-based and simply revalidated the existence of the administrative requirements (i.e., a repeat of Phase 1).

- c. DOE Instruction DP-AP-202, *Order Compliance Self-Assessment Instruction*, Revision 2, states that each "assessment will also serve to help line and functional organizations learn more about the sources of requirements and how they are implemented. Therefore, the assessment should be performed by the responsible manager and not by a quality assurance group, central self-assessment group, or subcontractor." In some instances, F-Area assessments were performed by individuals outside of line management.
- d. The F-Canyon Commitment Tracking System (CTS) already contains hundreds of deficiencies with many more to be added from the order compliance assessments. WSRC management's approach, to date, has been to resolve these deficiencies one-by-one, which results in narrow, "stop-gap" corrective measures and an overloading of management with detail. Collecting these individual deficiencies into programmatic themes and developing root cause corrective actions will be necessary to focus management attention and to effect long-term improvements.
- e. WSRC Manual SCD-4, *Operational Readiness Functional Area Requirements*, is being used by WSRC as the basic evaluation criteria for developing its Phase 2 assessments. As has been previously discussed with both DOE-SR and WSRC, SCD-4 is a useful bridge from operations to the order requirements, however, caution must be exercised in its use. Assessors using SCD-4 should be technical experts in their field and mindful of SCD-4's limitations. In particular, SCD-4 requires supplemental facility-specific information (e.g., facility procedure references) to provide adequate specificity for a meaningful assessment.
- f. The review team found that, in some instances, assessors found it difficult to use SCD-4 for Phase 2 evaluations or that the assessments were misfocused because of the frame of reference of the reviewer. For example, the WSRC reviewers of Conduct of Operations utilized WSRC manual 2S, *Conduct of Operations*, in lieu of SCD-4 because 2S provided greater detail. In another instance, a radiological work practices assessment focused on the technicians to the exclusion of the operators since the assessors were from the health physics organization (as opposed to line management). As discussed above, SCD-4, and the facility-specific assessment cards derived from it, would benefit from enhancements in technical content and specificity.
- g. Although a limited review of SCD-4 indicated no major flaws, WSRC has not yet conclusively demonstrated that SCD-4 contains all the significant Health and Safety order requirements. The review team understood that DOE-SR had previously challenged WSRC on this subject.
- h. As currently practiced by WSRC, the demonstration of order compliance is fully the responsibility of each facility. This results in redundant reviews of common areas by

multiple facilities and often makes the facility management responsible to assess programs not under their purview (e.g., site dosimetry accreditation). WSRC and DOE-SR senior management both agreed that the WSRC order compliance program should be reviewed to improve the efficiency, effectiveness and appropriate assignment of responsibility. DOE-SR and WSRC will target to brief the Board members by June 1994, on their planned upgrades.

- i. DOE-SR acknowledged that they could not demonstrate order compliance to the level of detail expected by the DNFSB Staff or as demonstrated by WSRC. The DOE-SR Assistant Manager for Environment, Safety, Health and Quality (AMESHQ) is assigned and committed to an aggressive upgrade program for DOE-SR in this regard. He committed to brief the Board members by June 1994, on the planned upgrades.
 - j. Several plant safety systems were found to be misclassified at a lower level. For example, the 292-F emergency diesel generator (EDG-292F) provides electrical power to the F-Canyon ventilation exhaust system, when normal sources are unavailable. According to WSRC documentation, EDG-292F, including its auxiliary systems, should be classified as nuclear safety (NS) class. The F-Canyon's master equipment list, however, places this equipment in the lowest category; Production Support (PS). As a result of this misclassification, the equipment will receive the lowest priority in maintenance and testing activities. This equipment was originally purchased as a PS item to replace the permanent EDG on a temporary basis. However, WSRC has determined that the temporary EDG will be utilized to support normal facility operation (instead of the unreliable permanent unit) and has initiated the process to upgrade it to NS category. In addition, in order for the EDG to meet the requirements for equipment in category NS, it will need to be moved from the temporary trailer bed outside the F-Canyon and placed inside a secure structure protecting it from possible environmental hazards (e.g., high wind, tornado).
3. **Background:** The F-Canyon facility processes nuclear fuel targets by solvent extraction to remove highly radioactive fission products and retrieve residual uranium and plutonium for future use. The uranium is converted to oxide form at the canyon's A-Line and the plutonium is transferred to the FB-Line for processing into metallic form. F-Canyon has not operated since March 1992. The FB-Line has not operated since January 1990. These facilities are currently making preparations to resume operations in the near future. Preparations to resume operations have included an effort to assess compliance with DOE Orders for both facilities.
 4. **Discussion:** Demonstrating DOE Order compliance at the SRS is currently practiced as discussed below.

- a. Order Compliance Definition: DOE procedure DP-AP-202, *Order Compliance Self-Assessment Instruction*, Revision 2, dated August 3, 1992, defines order compliance as follows:

"Compliance exists when applicable DOE Order statements (mandatory and non-mandatory) are included in appropriate documented policies, programs, procedures, and practices AND these documented policies, programs, procedures, and practices are demonstrably adhered to during office or facility activities."

This definition is divided it into two component parts: Administrative or Phase 1 compliance and Adherence or Phase 2 compliance. SRS utilizes DP-AP-202 as the primary instruction for its order compliance program.

- b. Phase 1 Compliance: The objective evidence which SRS utilizes to support an assertion of Phase 1 compliance includes the local site or facility implementing documents (e.g., procedures) and matrices which cross-reference each order requirement to the local implementing documents. For WSRC, these matrices are contained in documents called Compliance Assessment Packages (CAPs), one for each DOE order of interest to the Board. At SRS, DOE-SR reviews each of the WSRC CAPs for acceptability.
- c. Phase 2 Compliance: The objective evidence which SRS utilizes to support an assertion of Phase 2 compliance includes three major elements:
1. A collection of recent, formally documented assessments which have competently assessed a representative portion of the significant health and safety requirements.
 2. An on-going program of technical assessments which envelopes the DOE health and safety related order requirements and can be expected to identify non-compliances when they are observed.
 3. A corrective action program that ensures that identified deficiencies are prioritized and tracked and that corrective actions are completed.

WSRC uses manual SCD-4, *Operational Readiness Functional Area Requirements*, as the basis for developing its Phase 2 assessment program. This manual attempts to provide a linkage between the significant health and safety requirements to the facility level management programs for their implementation.

- d. Disposition of Non-Compliances: The above referenced Phase 1 and 2 assessments will identify non-compliances to the requirements of DOE orders. In accordance with DP-AP-202, those non-compliances which cannot be corrected immediately must be

compensated for in the interim. These compensatory measures require formal DOE approval and are termed Requests for DOE Approval (RFAs). The most common form of RFA is the Compliance Schedule Approval (CSA) which provides an interim program of compensatory measures until full compliance can be achieved. _____

- e. DNFSB Staff F-Area Order Compliance Review Approach: At the time of the review, SRS advised that the Phase 1 CAPs were nearly complete, including DOE-SR review, for both F-Canyon and FB-Line. An initial set of Phase 2 assessments had also been completed although WSRC did not claim they had yet demonstrated Phase 2 compliance. The review team scrutinized both phases by reviewing the CAPs, the field adherence (Phase 2) assessments, by interviewing those individuals responsible for the assessments and the training administered to the participants to prepare them to conduct the assessments. In addition, discussions with facility, area, and supporting organizations' management were held. This practice was accomplished for both facilities and for site level orders. Lastly, numerous facility tours and work practices were observed to provide first-hand data.
5. **Future Staff Actions:** A follow-up DNFSB Staff review will be required to assess whether DOE-SR and WSRC have demonstrated order compliance prior to the resumption of F-Canyon and FB-Line operations. This follow-up review is currently scheduled for June 1994 however it is subject to change based on SRS F-Area schedules and preparations.

**LIST OF 52 DOE ORDERS OF INTEREST TO DNFSB
ARRANGED BY TOPICAL AREA**

I. Nuclear Safety and Standards

- A. 1300.2A DOE Standards Program
- B. 5480.5 Safety of Nuclear Facilities
- C. 5480.6 Safety of DOE-Owned Nuclear Reactors
- D. 5480.21 Unreviewed Safety Questions
- E. 5480.22 Technical Safety Requirements
- F. 5480.23 Nuclear Safety Analysis Reports (replaced 5481.1B for nuclear facilities)
- G. 5480.24 Nuclear Criticality Safety
- H. 5480.25 Safety of Accelerator Facilities
- I. 5480.28 Natural Phenomena Hazards Mitigation
- J. 5480.30 Nuclear Reactor Safety Design Criteria
- K. 5481.1B Safety Analysis and Review System
- L. 6430.1A General Design Criteria

II. Management Systems

- A. 1360.2B Unclassified Computer Security Program
- B. 4330.4A Maintenance Management Program
- C. 4700.1 Project Management System
- D. 5000.3B Occurrence Reporting and Processing of Operations Information
- E. 5480.26 Trending and Analysis of Operational Information Using Performance Indicators
- F. 5480.29 Employee Concerns
- G. 5700.6C Quality Assurance

III. Personnel, Training and Operations

- A. 5480.17 Site Safety Representatives
- B. 5480.18A Accreditation of Performance-Based Training for Category A Reactors and Non-Reactor Nuclear Facilities
- C. 5480.19 Conduct of Operations Requirements for DOE Facilities
- D. 5480.20 Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities
- E. 5480.31 Startup and Restart of Nuclear Facilities

IV. Emergency Preparedness

- A. 5500.1B Emergency Management System
- B. 5500.2B Emergency Categories, Classes, and Notification and Reporting Requirements
- C. 5500.3A Planning and Preparedness for Operational Emergencies
- D. 5500.4A Public Affairs Policy and Planning Requirements for Emergencies

- E. 5500.7B Emergency Operating Records Protection Program
 - F. 5500.10 Emergency Readiness Assurance Program
- V. Environmental Protection and Radioactive Waste
- A. 5400.1 General Environmental Protection Program
 - B. 5400.2A Environmental Compliance Issue Coordination
 - C. 5400.3 Hazardous and Radioactive Mixed Waste Program
 - D. 5400.4 Comprehensive Environmental Response, Compensation, and Liability Act Requirements
 - E. 5400.5 Radiation Protection of the Public and the Environment
 - F. 5440.1E National Environmental Policy Act Compliance Program
 - G. 5820.2A Radioactive Waste Management
- VI. Occupational Health and Safety
- A. 5480.8A Contractor Occupational Medical Program
 - B. 5480.9 Construction Safety and Health Program
 - C. 5480.10 Contractor Industrial Hygiene Program
 - D. 5483.1A Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities
- VII. Transportation and Fire Safety
- A. 1540.2 Hazardous Material Packaging for Transport - Administrative Procedures
 - B. 1540.3A Base Technology for Radioactive Material Transportation Packaging Systems
 - C. 5480.3 Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances and Hazardous Wastes
 - D. 5480.7A Fire Protection
 - E. 5632.11 Physical Protection of Unclassified Irradiated Reactor Fuel in Transit (superseded DOE Order 1540.4A, same title)
- VIII. Environment, Safety and Health and Radiation Protection
- A. 5480.1B Environment, Safety and Health Program for DOE Operations
 - B. 5480.4 Environmental Protection, Safety and Health Protection Standards
 - C. 5480.11 Radiation Protection for Occupational Workers, including DOE/EH-0256T, Radiological Control Manual (compliance with this DOE Manual is invoked through DOE 5480.11)
 - D. 5480.15 DOE Laboratory Accreditation Program for Personnel Dosimetry
 - E. 5482.1B Environment, Safety, and Health Appraisal Program
 - F. 5484.1 Environmental Protection, Safety and Health Protection Information Reporting Requirements