



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 10, 2003

Mr. Robert E. Link, Site Manager
Framatome ANP, Inc.
2101 Horn Rapids Road
Richland, Washington 99352

SUBJECT: NRC INSPECTION REPORT 70-1257/03-004

Dear Mr. Link:

On June 9-13, 2003, the NRC conducted a routine inspection at the Framatome ANP facility in Richland, Washington. The purpose of the inspection was to determine whether activities authorized by your license were conducted safely and in accordance with NRC requirements. The areas examined during the inspection were operations and radiation protection. Within those areas, the inspection consisted of a selective examination of procedures, representative records, equipment, facilities and interviews with personnel. An exit briefing was conducted on June 13, 2003, with members of your staff.

Activities conducted at the facility were generally characterized by implementation of effective programs in the areas reviewed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available **electronically** for public inspection in the NRC Public Document Room **or** from the *Publicly Available Records (PARS) component of NRC's document system (ADAMS)*. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Wayne Britz at (817) 860-8194 or the undersigned at (817)860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle & Decommissioning Branch

Docket No.: 70-1257
License No.: SNM-1227

Enclosure:
NRC Inspection Report
70-1257/03-04

Framatome ANP, Inc.

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cc w/enclosure:

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 70-1257

License No.: SNM-1227

Report No.: 70-1257/03-04

Licensee: Framatome ANP, Inc.

Facility: Framatome ANP, Inc.

Location: Richland, Washington

Dates: June 9-13, 2003

Inspector: Wayne L. Britz, Fuel Facility Inspector
Fuel Cycle Decommissioning Branch

Accompanied by: Ernesto Quinones-Padovani, Nuclear Safety Intern
High Level Waste Branch, Division of Waste Management
Office of Nuclear Materials Safety and Safeguards

Approved By: D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle/Decommissioning Branch

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Framatome ANP, Inc.
NRC Inspection Report 70-1257/03-04

This routine, announced inspection included a review of selected aspects of the licensee's program for operational safety and radiation protection. Concurrent with the region based inspection was the performance of a routine criticality safety inspection performed by NRC Headquarters staff. This inspection was documented in NRC Inspection Report No. 70-1257/2003-202 dated July 1, 2003.

Operational Safety (88020; TI 2600/003)

- Except for two criticality safety posting violations identified by the headquarters inspection, operations involving the processing of special nuclear material were observed to be in accordance with established safety requirements. Followup on the NRC Bulletin 91-01 commitments found aggressive management efforts to assure that the commitments made to the NRC in relation to the NRC Bulletin 91-01 commitments of April 3, 2002, were successful. The physical condition of the safety equipment and the housekeeping in the dry conversion facility and uranium dioxide facility were observed to be adequate (Section 1).

Radiation Protection (83822)

- The licensee was adequately implementing the radiation protection program. The workers were observed to be following the requirements of the radiation protection program and were knowledgeable about the program requirements. All radiological doses were well below the 10 CFR Part 20 limits for individual workers and members of the public. The licensee met the applicable requirements set forth in the license, regulations and procedures (Section 2).

Follow-up (92701)

- Two inspection followup items from previous inspections were closed. One item concerned a dose calculation procedure in the Emergency Plan. The second item concerned a criticality safety validation methodology (Section 3).
- The inspectors reviewed the licensee's corrective actions committed to in response to the April 2-3, 2002, loss of criticality control event. Short-term corrective actions had been completed as previously reported. The longer term corrective actions were still in progress. The schedule for two of the licensee's commitments had been extended by the licensee's new management team which determined that additional monitoring of the implementation of the commitments should be undertaken. Consequently, the inspectors will again review the status during the next inspection (Section 3).

Report Details

Summary of Plant Status

The dry conversion, powder production, fuel pellet production, rod and bundle operations, ammonia recovery facility (ARF), lagoon uranium recovery (LUR), modular extraction/recovery facility (MERF), and the solids processing facility (SPF) were in operation. Gadolinium recovery and solid waste uranium recovery (SWUR), were not in operation.

1 Operational Safety (88020; TI2600/003)

1.1 Inspection Scope

The inspectors reviewed general facility operations to verify adherence to operational safety requirements specified in the license conditions and operating procedures.

1.2 Observations and Findings

The inspectors observed general operations in the dry conversion facility and UO₂ Building. Work operations were observed and discussed with personnel. Work areas where operations were performed were observed for their proper postings, criticality safety controls, work planning, maintenance and radiation work permits and protective clothing as required. The progress toward lagoon cleanup was reviewed. Lagoon 5a was empty. Grids were marked out in Lagoon 3 in preparation to be cut out. Grids were marked out on the dry waste in Lagoon 4 for the removal of the waste on the top liner. The inspectors found the operations to be in conformance with the regulations and procedures.

The inspectors discussed site operations in relation to the NRC Bulletin 91-01 commitments of April 3, 2002, concerning a loss of criticality safety control during the filling of a 45-gallon drum with uranium oxide from 5-gallon safe batch containers. Details are discussed in Section 3, Followup, of this report. The discussions were held individually with the Vice President Operations, the Richland Site Manager, the new Richland Fuel Operations Manager and the new Richland Site Quality Manager. Additionally, the four licensee identified compliance failures noted in NRC Inspection Report 70-1257/03-03 dated May 16, 2003, and an Inspection Followup Item (IFI 70/1257/0303-01) were discussed. These events resulted in a plant stand down to review operations and safety of operations with all employees. The inspectors will review corrective actions during the next inspection when items such as the root cause analysis will be completed. Management stressed that leadership by walking around and the new training program were an important part of their program. The discussions indicate an aggressive management effort to assure that the commitments made to the NRC in relation to the NRC Bulletin 91-01 commitments of April 3, 2002, are successful.

An NRC headquarters criticality safety review was conducted during the same week and in coordination with the regional inspectors to review the status of the corrective actions taken in relation to the NRC Bulletin 91-01 commitments. Two violations concerning

criticality safety postings were listed in the headquarters NRC Inspection Report No. 70-1257/2003-202 dated July 1, 2003.

The inspectors were briefed on the status of the high enriched uranium blend down project by the new project leader. The schedules and coordination with other parts of the project were reviewed and discussed. The licensee expects to begin product demonstrations in August 2004.

The physical condition of the safety equipment and the housekeeping in the DCF and UO₂ Building were observed to be adequate.

1.3 Conclusions

Except for two criticality safety posting violations identified by the headquarters inspection, operations involving the processing of special nuclear material were observed to be in accordance with established safety requirements. Followup on the NRC Bulletin 91-01 commitments found aggressive management efforts to assure that the commitments made to the NRC in relation to the NRC Bulletin 91-01 commitments of April 3, 2002, were successful. The physical condition of the safety equipment and the housekeeping in the dry conversion facility and uranium dioxide facility were observed to be adequate.

2 **Radiation Protection (83822)**

2.1 Inspection Scope

The radiation protection program was reviewed to ensure that operational controls were adequate to protect the health and safety of the workers and members of the general public. Portions of this radiological protection inspection module were reviewed in Inspection Report 70-1257/03-02 dated April 18, 2003.

2.2 Observations and Findings

The radiation protection program and procedures were reviewed for compliance with the license and the regulations. Procedures from EMF-1507, *Health Physics and Radiological Safety Procedures* and EMF-1508, *Site Radiological Operating Procedures*, were reviewed. Records supporting the procedures were reviewed including:

- Unusual Incident Log
- Potential Exposure Event Reports
- Violations of Radiation Safety
- Fenceline Concentrations (from stack concentrations and dispersion factors)
- Outgoing Radioactive Material Shipment Records
- Respiratory Issuance Log
- Respiratory Surveillance Report
- Maintenance and Radiation Job Permits
- Instrument Source Checks, and
- Observations of Weaknesses in Following Radiation Work Procedures

The records containing potential exposures, unusual incidents and observations of weaknesses indicate a well monitored and critiqued radiological program.

The inspectors conducted a site survey using EMF-1507, 6.12, *Routine Fenceline/Office Building Exterior Radiation Level Surveys*, and a Ludlum Model 2401-S Pocket Meter with a cesium iodide scintillation detector. There were several vans loaded with fuel ready for shipment offsite. The van's proximity to the site boundary raises the radiation level in that area. The radiation readings ranged from a background reading of 10 microRoentgen per hour on the site to 1600 microRoentgen per hour in the uranium hexafluoride cylinder storage area. The survey indicated that NRC limits in 10 CFR 20.1301, *Dose limits for individual members of the public*, were met at the fenceline.

The inspectors toured the dry conversion and UO₂ facilities observing postings, equipment, radiation instrument calibrations, surveys, radiological work and general conditions. The inspectors reviewed radiation operations with radiation protection personnel. The inspectors also reviewed the radiation protection program implementation in the plant. During the site tour, the inspectors observed that radiation detection instruments were affixed with current calibration stickers. New radiological instrument probe hangers were installed to aid avoiding potential contamination on the probe before handling the probe. Employees were observed properly monitoring themselves before leaving controlled areas.

The inspectors reviewed the 2002 annual as low as is reasonably achievable (ALARA) program as required by 10 CFR Part 20.1101(b) and (d), License Condition 2.2.2, *ALARA Committee* and License Condition 3.1.1, *ALARA Policy*. There were no significant changes in the occupational exposures during year 2002. The collective dose for year 2002 was 104 man-rem. The collective dose for year 2001 was 105 man-rem. All radiological doses were well below the 10 CFR Part 20 limits for individual workers and members of the public. The ALARA report presents detailed data and trends for exposures in the various work areas, discusses ongoing and future projects and efforts to control and reduce exposures in the work place. The ALARA program was discussed with the manager of the radiation protection group. Areas were evaluated for the effect of wearing and not wearing respirators at certain levels to reduce the total personnel radiological exposure. Areas such as the pellet eject system were improved to reduce respiratory protection use and the pellet dump station was evaluated for improvements to reduce dose. The exposures for the new pellet production line using blended down high enriched uranium was discussed, especially considering additional controls needed to reduce expected higher internal and external radiological doses. The annual ALARA report was thorough and provided all the relevant data to determine that the site was maintaining radiological exposures to plant personnel and to members of the public as low as reasonably achievable.

2.3 Conclusions

The licensee was adequately implementing the radiation protection program. The workers were observed to be following the requirements of the radiation protection program and were knowledgeable about the program requirements. All radiological doses were well below the 10 CFR Part 20 limits for individual workers and members of the public. The

licensee met the applicable requirements set forth in the license, regulations and procedures.

3 Followup (92701)

(Closed) IFI 70-1257/0106-02: The procedure should describe the correct radiological dose calculation programs and meteorological information sources which are intended to be used during emergencies.

A prior inspector's review of Implementing Procedure 3.11, *Environmental Safety Liaisons*, found that the procedure's Appendix I, Section 3.0, *Releases to Air*, could not be implemented because information such as mixed layer depth, height of dispersed plume and the vertical off-centerline correction required for the atmospheric dispersion calculation were not available with the licensee's meteorological information system. This matter was discussed with licensee representatives and they indicated the intent to review the procedure for needed changes to describe the correct radiological dose calculation programs and meteorological information sources which are intended to be used during emergencies.

The inspectors reviewed the changes issued in EMF-32, *Emergency Plan*, Part III, Implementing Procedures 3.11, *Environmental Safety Liaisons*, Rev. 6, dated May 2003. The implementing procedure changes removed the section, "Dose Calculation From Portable Air Sampler," and replaced it with EMF-1507, *Health Physics and Radiological Safety Procedures*, 6.2 Radioactive Gaseous Effluent Sampling. The procedural change is acceptable and the inspection followup item is closed.

(Closed) IFI 70-1257/2001-005-01: Track licensee action to amend the license to incorporate a new validation methodology.

A prior inspection review of a new criticality safety computer code and validation protocol identified that it would require a license amendment which the licensee indicated would be pursued. The licensee's action to amend the license to incorporate a new validation methodology was tracked as an inspection followup item.

The inspectors reviewed the licensee's new validation methodology dated October 24, 2002, and determined that it provides results that are more conservative than the validation methodology that is currently described in Chapter 4.2 of License SNM-1227. On the basis that the application of the new validation methodology increases the margin of safety in criticality safety analyses, an amendment was not required, and IFI 70-1257/2001-005-01 is closed.

(Discussed) VIO 70-1257/0203-01: Failure to maintain double contingency control for criticality safety; VIO 70-1257/0203-02, Failure to maintain configuration control for criticality safety; VIO 70-1257/0203-03, Operator failure to follow procedure requiring drum inspection and management failure to provide adequate supervision; VIO 70-1257/0203-04, Failure to identify necessary criticality safety controls in the CSA and CSS; VIO 70-1257/0203-05, Failure to include CSA and CSS requirements in the SOP.

On April 3, 2002, the licensee reported an event in accordance with NRC Bulletin 91-01 commitments concerning a loss of criticality safety control involving the filling of a 45-gallon drum with uranium oxide from 5-gallon safe batch containers. In this event, the 45-gallon drum selected for filling did not contain the requisite neutron absorber spider assembly, and the drum was filled without the primary criticality safety control.

The NRC performed a team inspection on April 15-18, 2002, to review the event. On June 13, 2002, the NRC described the results of its inspection in Inspection Report 70-1257/02-03 with the identification of the five apparent violations. Following a predecisional enforcement conference on July 26, 2002, the apparent violations were dispositioned by the NRC as a Severity Level III problem with five violations of NRC requirements.

The inspectors had previously reviewed the status of the response to NRC reactive team Inspection Report 70-1257/0203 dated June 13, 2002, and Notice of Violation and Proposed Imposition of Civil Penalty dated August 28, 2002. The inspectors had also previously reviewed the licensee's response and commitments for corrective actions as detailed in their letter to the NRC dated September 26, 2002, *Reply to a Notice of Violation*. The licensee had developed an action plan and status report which contained the topical headings of 1) management and supervisory accountability, 2) worker training and qualification, 3) procedural work-arounds, 4) adequacy of root cause evaluations, 5) requirements flow-down, and 6) configuration management system adequacy. Inspection Report 70-1257/2002-08 dated January 2, 2003, and Inspection Report 70-1257/2003-02 dated April 18, 2003, reported on the inspector's review of the corrective actions taken as of March 28, 2003. During this inspection, the inspectors reviewed the status of corrective action items since that time.

Since the March 28, 2003, review of the status of the corrective actions, new senior management reviewed the status of the corrective action items and determined that additional review should be conducted to monitor the implementation of the commitments to the NRC. A new Condition Report #10502, *Review (audit) of the 91-01 Commitments (Condition Report 10140)* was written. The condition report addressed each of the commitments and established a due date of June 23, 2003, and assigned the responsibility for followup to the manager, fuel operations. The inspector will followup on the status during the next inspection.

Violations 70-1257/0203-01, and 70-1257/0203-03 concerned the failure to maintain double contingency control for criticality safety when an operator did not perform a required procedural step. Through a follow-on investigation, the licensee identified management and supervisory accountability, and worker training and qualification as contributory causes of the violation.

The new condition report discussed above will verify that the expectations are being met at the worker level, reevaluate the metrics developed to determine if they are the right ones, followup with employees to determine if the metrics are understood by the employees and determine if accountability discipline systems have been effective. The long-term commitment in this section is the establishment of a program for standard operating procedure program restructuring. Complete implementation of the procedure program restructuring has been scheduled for May 1, 2005.

Violation 70-1257/0203-02 concerned the failure to maintain configuration control for criticality safety when the licensee modified a piece of equipment used to handle licensed material by removing a passive engineered criticality safety control, a neutron absorbing spider assembly, and allowed the component to be returned to service without review and approval, and without utilizing the engineering change notice system. The licensee identified configuration management program deficiencies/limitations as a contributory cause of the violation.

The new condition report will monitor the effectiveness of addressing management expectations regarding distractions in the workplace and re-review the engineering change notice process. The long-term commitment in this section is the implementation of a document control improvement program. Complete implementation has been scheduled for May 1, 2005.

Violation 70-1257/0203-04 concerned the failure of the criticality safety analysis and their associated criticality safety specifications (CSS) to specifically identify the NCS controls for precluding the use of 45-gallon drums without installed neutron-absorbing boron spiders. The licensee identified the area of requirements flow down as a contributory cause of the violation.

NRC Inspection Report No. 70-1257/2003-202 dated July 1, 2003, contains two notices of violation for criticality safety postings which are related to the licensee's response to this violation (e.g., develop a program for improving the criticality postings using operator input, and ensure appropriate and practical implementation of each new or revised criticality specification.) The inspector will followup on the response to the violations.

The licensee's corrective action date to complete the development of a program for improving the criticality postings has been extended to October 18, 2004. A report assessing the number and effectiveness of administrative criticality controls to measure progress in reducing the number of administrative controls has been scheduled for October 18, 2004.

Violation 70-1257/0203-05 concerned the failure to include the requirements the criticality safety analysis and their associated CSS in a standard operating procedure. The licensee identified the area of requirements flow down as a contributory cause of the violation.

The licensee's commitment to make procedures more readily accessible to operators with more terminals has been scheduled for completion June 30, 2003. An assessment of the root cause effectiveness based on root cause reports issued has been extended to October 1, 2003.

Based on the new condition report issued by new management, the reviews to be conducted of the corrective actions in process or completed and the extension of completion dates of two of the corrective actions, the inspector will again review the status during the next inspection. This inspection followup item remains open.

4 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on June 13, 2003. The licensee did not identify any of the information discussed at the meeting as proprietary.

ATTACHMENT

PARTIAL LIST OF LICENSEE PERSONNEL CONTACTED

R. K. Burklin, Manager, Radiation Protection
J. M. Deist, Criticality Safety
W. Doane, Criticality Safety
R. E. Link, Site Manager
Tami Longmire, Manager, Training
L. J. Maas, Manager, License and Compliance
C. D. Manning, Criticality Safety, Regulatory Compliance
D. W. Parker, Manager, Environmental Health, Safety, and Licensing
C. Perkins, Operations Manager
T. C. Probasco, Manager, Safety, Security and Emergency Preparedness
T. J. Tate, Supervisor, Radiological Safety
L. Tupper, Manager, Richland Site Quality
T. S. Wilkerson, V.P. Operations
C. J. Yeager, Special Projects

OTHER NRC INSPECTORS ONSITE

J. Lubinski, Inspection Section Chief, Division of Fuel Cycle Safety & Safeguards, Hqtrs
L. Berg, Criticality Safety Inspector, Division of Fuel Cycle Safety & Safeguards, Hqtrs

INSPECTION PROCEDURES USED

88020; TI 2600/003	Operational Safety
83822	Radiation Protection
92701	Followup

OPEN, DISCUSSED AND CLOSED ITEMS

Discussed

70-1257/0203-01	VIO	Failure to maintain double contingency control for criticality safety.
70-1257/0203-02	VIO	Failure to maintain configuration control for criticality safety.
70-1257/0203-03	VIO	Operator failure to follow procedure requiring drum inspection and management failure to provide adequate supervision.
70-1257/0203-04	VIO	Failure to identify necessary criticality safety controls in the CSA and CSS.
70-1257/0203-05	VIO	Failure to include CSA and CSS requirements in the SOP.
70-1257/0303-01	IFI	Review the licensee's investigation and followup on four licensee identified compliance issues involving 1) high radiation areas, 2) improper handling of caustic material resulting in a spill on the operator, 3) a NRC 10 CFR Part 71.95 reportable transportation

incident for improper packaging for shipment, and 4) improper work planning on demolition of hoods containing asbestos.

Closed

- 70-1257/2001-005-01 IFI Tracks licensee action to amend the license to incorporate a new validation methodology.
- 70-1257/0106-02 IFI The procedure should describe the correct radiological dose calculation programs and meteorological information sources which are intended to be used during emergencies.

LIST OF ACRONYMS USED

ADAMS	agencywide documents access and management systems
ADU	ammonium diuranate
ARF	ammonia recovery facility
CFR	Code of Federal Regulations
DCF	dry conversion facility
ECN	engineering change notice
ELO	Engineering Laboratory Operations Building
IFI	inspection follow-up item
IRM	instrument repetitive maintenance
LUR	Lagoon Uranium Recovery
MERF	modular extraction/recovery facility
NCS	nuclear criticality safety
PM	preventive maintenance
SPF	Solids Processing Facility
SS&L	Safety, Security and Licensing
SWUR	Solid Waste Uranium Recovery facility
UF ₆	uranium hexafluoride
UO ₂	uranium dioxide