



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

April 17, 2019

Dr. Ronald J. Land  
Site Manager  
Framatome Inc.  
2101 Horn Rapids Road  
Richland, WA 99354-0130

**SUBJECT: FRAMATOME INC. – NUCLEAR REGULATORY COMMISSION INTEGRATED  
INSPECTION REPORT 70-1257/2019-002**

Dear Dr. Land:

This letter refers to inspections conducted from January 1 – March 31, 2019, at the Framatome Inc., facility in Richland, Washington. The purpose of these inspections was to perform routine reviews of the performance area of Safety Operations. The enclosed report presents the results of these inspections. At the conclusion of the inspections, the results were discussed with members of your staff at an exit meeting held on March 7, 2019.

Based on the results of these inspections, the Nuclear Regulatory Commission (NRC) has determined that no violations of more than minor significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this letter and its enclosure, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions, please contact Richard Gibson of my staff at 404-997-4718.

Sincerely,

*/RA/*

Eric C. Michel, Chief  
Projects Branch 2  
Division of Fuel Facility Inspection

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

Enclosure: (See page 2)

Enclosure:  
NRC Inspection Report 70-1257/2019-002  
w/Supplemental Information

cc:

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SUBJECT: FRAMATOME INC. – NUCLEAR REGULATORY COMMISSION INTEGRATED INSPECTION REPORT 70-1257/2019-002

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NAME	N. Pitoniak	D. Anderson	E. Michel	RGibson	GGoff		
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U. S. NUCLEAR REGULATORY COMMISSION  
REGION II

Docket No.: 70-1257

License No.: SNM-1227

Report No.: 70-1257/2019-002

Licensee: Framatome Inc.

Facility: Richland Facility

Location: Richland, Washington 99354

Dates: January 1 – March 31, 2019

Inspectors: N. Pitoniak, Senior Fuel Facility Project Inspector (A.1)  
D. Anderson, Fuel Facility Project Inspector (A.2)

Approved by: E. Michel, Chief  
Projects Branch 2  
Division of Fuel Facility Inspection

Enclosure

## **EXECUTIVE SUMMARY**

FRAMATOME INC.  
NRC Integrated Inspection Report 70-1257/2019-002  
January 1 through March 31, 2019

Inspections were conducted by regional inspectors during normal shifts in the performance areas of safety operations and facility support. The inspectors performed a selective examination of licensee activities that were accomplished by direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and a review of facility records.

### **Safety Operations**

- No violations of more than minor significance were identified related to the Operational Safety Program. (Paragraph A.1)
- No violations of more than minor significance were identified related to the Nuclear Criticality Safety Program. (Paragraph A.2)

### **Supplemental Information**

Key Points of Contact  
List of Items Opened, Closed, and Discussed  
Inspection Procedures Used  
Documents Reviewed

## **REPORT DETAILS**

### **Summary of Plant Status**

The Framatome facility converts uranium hexafluoride (UF<sub>6</sub>) into uranium dioxide (UO<sub>2</sub>) for the fabrication of low-enriched fuel assemblies used in commercial light water reactors. During the inspection period, normal production activities were ongoing.

### **A. Safety Operations**

#### **1. Operational Safety (Inspection Procedure 88020)**

##### **a. Inspection Scope**

The inspectors evaluated the operational safety of the facility in order to verify that the licensee operates the plant in accordance with Title 10 Code of Federal Regulations (CFR) Part 70, the license, and the license application. The inspectors interviewed the operations personnel and engineers and reviewed records associated with conversion of UO<sub>2</sub> pellets to powder (system 130) and the miscellaneous uranium recovery system – MURS (system 150) - to verify compliance with the Chapter 3 of the License Application, Integrated Safety Analysis (ISA) and ISA Summary. The inspectors also reviewed license requirements, quantitative risk assessments, criticality safety evaluations, and operating procedures associated with systems 130 and 150 to verify compliance with these requirements. The inspectors focused on IROFS 1113, 1402, 1403, 1404, 1405, 1410, 1640, 3806, 3808, and 3810 to verify adequate implementation as described in the ISA and that the licensee was in compliance with Chapter 11 of the License Application, Management Measures.

The inspectors performed field walk-downs of systems 130 and 150 with approved piping & instrumentation diagrams (P&IDs) and procedures to verify the field configurations were maintained in accordance with the configuration control requirements of the License Application Chapter 11.1, Configuration Management. During the walked downs for systems 130 and 150, the inspectors focused on the field configuration of the ultrasonic cleaning station to confirm the associated IROFS were present and capable of performing the intended safety functions as required by 10 CFR 70.62. The inspectors also evaluated other engineered and administrative safety controls to verify capability of preventing or mitigating associated accident scenarios.

The inspectors interviewed four operators to determine that the licensee implemented and communicated their administrative controls. The inspectors reviewed various standard operating procedures (SOPs) to verify that required response actions for associated ISA accident sequences had been transcribed into these procedures. The inspectors evaluated the procedures' contents with respect to operating limits for preventing upset conditions in order to verify that such limits were adequately described in the procedures.

The inspectors observed operators conducting a calibration of accountability scale 19412-15 in accordance with Work Order (WO) C600I001. The inspectors also observed technicians conducting moisture alarm surveillance testing of the Blended Low Enriched Uranium (BLEU) facility per WO C323P003. These activities were conducted

to verify the reliability and availability of equipment to perform their intended safety functions for compliance with Chapter 11 of the License Application and 10 CFR 70.62(d), Management Measures. The inspectors also reviewed completed surveillances and functional test instructions of select IROFS to verify management measures, as required by the ISA and License Application Chapter 3, were implemented and corrective actions were planned or taken for negative trends or failures.

The inspectors reviewed qualification and training records for two Criticality Control Key Custodians (CCKCs) regarding initial and continuing training programs to verify compliance with the training requirements of the License Application Chapter 11, Section 11.3, Training and Qualification.

The inspectors reviewed the licensee's corrective action program (CAP) entries since the last operational safety inspection to determine that deviations from procedures and unforeseen process changes affecting nuclear criticality, chemical, radiological, or fire safety were documented and reviewed promptly, per the License Application Chapter 11.6, Incident Investigation and Corrective Action. In addition, the inspectors reviewed the licensee's corrective actions to verify they were adequate to address and resolve the issue and prevent recurrence.

b. Conclusion

No violations of more than minor significance were identified.

2. Nuclear Criticality Safety (Inspection Procedure 88015)

a. Inspection Scope

The inspectors performed a nuclear criticality safety (NCS) inspection to determine whether the licensee's NCS program is in accordance with 10 CFR Part 70 and license requirements and provides for adequate protection of public health and safety.

*Criticality Analysis*

The inspectors reviewed selected nuclear criticality safety analyses (NCSAs): NCSA-130, Conversion of UO<sub>2</sub> Pellets to U<sub>3</sub>O<sub>8</sub> Powder and NCSA-150, Miscellaneous Uranium Recovery System (MURS), Version 23, and additional NCSAs (please see the listing in Section 4 of the Attachment). The inspectors reviewed the aforementioned NCSAs to determine whether these NCSAs were implemented prior to conduct of new or changed operations and that the NCSAs were of sufficient detail and clarity to permit independent review. The inspectors also reviewed the associated assumptions and calculations to verify consistency with the Double Contingency Principle, assurance of subcriticality under normal and credible abnormal conditions with the use of subcritical margin, technical practices and methodologies, and treatment of NCS parameters as per Chapter 5, Nuclear Criticality Safety, of the License Application.

The inspectors reviewed the licensee's generation of accident sequences to determine whether the NCSAs systematically identified normal and credible abnormal conditions in accordance with the commitments and methodologies in the License Application. The inspectors reviewed accident sequences/upsets that the licensee determined to be not credible in order to verify that the bases for the incredibility were consistent with the

commitments, definitions, and methodologies in the License Application. The inspectors also conducted this review to determine that these NCSAs contained sufficient detail to allow for an independent assessment of scenarios for credibility.

The inspectors verified no changes were made to the validation report since the last NCS inspection.

#### *Criticality Implementation*

The inspectors performed walk-downs of System 130 and System 150 to determine whether existing plant configuration and operations were covered by, and consistent with, the process description and safety basis in the aforementioned NCSAs. The inspectors reviewed process and system descriptions, specifications, and drawings to verify that engineered controls established in the NCSAs were included and being implemented as specified. The inspectors reviewed operating procedures and postings to determine that selected administrative controls established in the NCSAs were present. The inspectors interviewed operators and engineers to verify that administrative actions established in the NCSAs were understood and implemented as specified.

The inspectors reviewed the ISA summary and supporting ISA documentation to determine whether the controls identified in the ISA were supported by technical bases in the NCSAs.

#### *Criticality Operational Oversight*

The inspectors reviewed NCS-related training records, material, and procedures to determine whether operator training included instruction in criticality hazards and control methods; whether the licensee's established NCS-related operator training was consistent with commitments in the License Application, including American Nuclear Society standards where applicable; and whether NCS staff was involved in the development of operator training. The NCS-related training records reviewed included training and qualification checklists for two CCKCs. Additionally, the inspectors interviewed operations staff to determine whether they were cognizant of NCS hazards and control methods related to their specific job function.

The inspectors accompanied licensee NCS engineers on a walk-downs of various areas of the facility to determine whether NCS staff routinely inspected fissile material operations to ascertain whether criticality requirements were being satisfied. Specifically, inspectors observed operators and engineer interactions during a calibration of accountability scale 19412-15 as per WO C600I001. The inspectors also observed such interactions during moisture alarm surveillance testing of the BLEU facility. Additionally, the inspectors interviewed NCS engineers and reviewed NCS audit records that had been documented since the last NCS inspection to determine whether NCS staff performed sub-critical requirements were met.



### *Criticality Programmatic Oversight*

The inspectors reviewed the selected NCSAs listed above to verify that they were performed in accordance with NCS program procedures and received appropriate independent review and approval.

### *Criticality Incident Response and Corrective Action*

The inspectors performed interviews and reviewed records to determine whether the licensee maintained emergency response capability consistent with emergency plans and procedures. The inspectors conducted interviews and reviewed records to verify that qualified NCS staff were readily available to advise the licensee in an emergency. The records and procedures reviewed included E08-03-3.11, "Environmental Safety Liaisons," Version 5; E08-06-1.0, "Assessment Resource Manual," Version 1; and Environmental Safety Liaison Training Roster, dated March 1, 2018.

The inspectors reviewed selected NCS-related condition reports to determine whether anomalous conditions were promptly identified and entered into the CAP; whether they received the appropriate level of investigation consistent with license commitments and procedures; whether proposed corrective actions were sufficiently broad; whether they were prioritized on a schedule commensurate with their significance; and whether they were completed as scheduled and were adequate to prevent recurrence. Additionally, the inspectors reviewed NCS-related CAP entries to assess whether the licensee followed regulatory requirements and procedures with regards to reporting plant conditions to the NRC. The CAP entries reviewed are listed in the appendix.

b. Conclusion

No violations of more than minor significance were identified.

**C. Exit Meeting**

The inspection scope and results were presented to members of the licensee's staff at various meetings throughout the inspection period and were summarized on March 7, 2019, to R. Land and staff. No dissenting comments were received from the licensee. Proprietary information was discussed but not included in the report.

## SUPPLEMENTAL INFORMATION

### 1. KEY POINTS OF CONTACT

<u>Name</u>	<u>Title</u>
M. Crawford	Project Management
W. Doane	Nuclear Criticality Safety Manager
C. Kahambwe	Nuclear Criticality Safety Engineer
J. Kreitzberg	Nuclear Criticality Safety Engineer
C. Manning	Licensing and Compliance Manager
B. Nelson	Nuclear Criticality Safety Engineer
S. Nunez	Security and Emergency Preparedness Manager
K. Rhoten	Calibration Technician
M. Salisbury	Engineering
T. Tate	Environmental, Health, Safety, and Licensing Manager

### 2. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

### 3. INSPECTION PROCEDURES USED

88015 Nuclear Criticality Safety  
88020 Operational Safety

### 4. DOCUMENTS REVIEWED

#### Records:

JCO 2018-008  
JCO 2018-009  
JCO 2018-010  
NCS Infraction 19-001  
Work Order 13401900  
Work Order C205I001  
Work Order C810I001-0001  
Work Order C823I011  
Work Order 13382591  
Work Order 13402170  
Work Order 13405644  
Work Order 13395441  
Work Order 13371791  
Work Order 13374874  
Work Order 13385794  
Work Order C600I001  
Work Order C323P003  
E04-07-201808, NCS Audit/Inspection Report – August 2018, dated October 15, 2018  
E04-07-201809, NCS Audit/Inspection Report – September 2018, dated October 20,  
2018  
E04-07-201810, NCS Audit/Inspection Report – October 2018, dated December 4, 2018

Attachment

E04-07-201811, NCS Audit/Inspection Report – November 2018, dated December 20, 2018  
 E04-07-201812, NCS Audit/Inspection Report – December 2018, dated February 13, 2019  
 E04-07-201901, NCS Audit/Inspection Report – January 2019, dated February 13, 2019  
 E04-NCSA-130, Conversion of UO<sub>2</sub> Pellets to U<sub>3</sub>O<sub>8</sub> Powder, Version 12  
 E04-NCSA-600, Specialty Fuels Powder Preparation, Version 18  
 E04-NCSA-090, UO<sub>2</sub> Powder Production, Version 17  
 E04-NCSA-820, Dry Conversion Powder Production Process, Version 15  
 E04-NCSA-150, Miscellaneous Uranium Recovery System (MURS), Version 23  
 NCS Infraction 2019-005  
 NCS Infraction 2019-002  
 NCS Infraction 2018-023  
 NCS Infraction 2018-024  
 NCS Infraction 2018-026  
 HRR-CMO-00021, UCAR – Criticality Control Key Custodian (CCKC), dated February 16, 2016  
 HRR-CMO-00021, UCAR – Criticality Control Key Custodian (CCKC), dated July 23, 2015

**Procedures:**

1703-76, Issue Investigation and Causal Analysis Procedure, Version 024  
 ADM-00006, Administrative Procedure for Documentum (DCM) Documents, Version 30.0  
 AID-10340, Reference 1003 GSE Model 350 Digital Weight Indicator with Various Weigh Platforms, Version 2.5  
 E04-05-01, Nuclear Criticality Safety Standards, Version 16.0  
 E04-06-002, Criticality Safety – NCS Work Practices, Version 5.2  
 E08-03-3.11, Environmental Safety Liaisons, Version 5  
 E08-06-1.0, Assessment Resource Manual, Version 1  
 E12-01-007, Justification for Continued Operation Under Compensatory Safety, Version 7.1  
 E15-03-002, Integrated Safety Analysis Program Standard, Version 10.0  
 E19-02-006, Management of Environmental, Health, and Safety Records, Version 12.0  
 FRM-20309, Waste Operations – GSUR SX, Raffinate Tank 304 Pump Out Log, Version 3.0  
 MCP-30324, Richland Procedure Writers Guide, Version 14.0  
 MCP-30325, Instrument Repetitive Maintenance, Version 14.0  
 MCP-30379, Modification Change Control, Version 15.0  
 MCP-30383, Preventive Maintenance, Version 5.2  
 SOP-40250, Ultrasonic Cleaning Sink, Version 6.1  
 SOP-40789, Maintenance Engineering Procedure – Work Order Instructions, Version 18.0  
 SOP-40791, Maintenance Work Permit (MWP) and Pre-Job Briefing (PJB), Version 16.0  
 SOP-40839, Instrument Repetitive Maintenance (IRM), Version 12.1  
 SOP-40841, Preventive Maintenance (PM), Version 4.2  
 SOP-40920, Items Relied on for Safety (IROFS) and Equipment Essential to Safety, Version 7.0

**Condition Reports Written as a Result of the Inspection:**

CR 2019-694 Documented Comments Identified by NRC during IP 88020 inspection,  
dated March 7, 2019

**Condition Reports Reviewed:**

2018-8803, 2018-9076, 2018-9196, 2018-9612, 2018-9395, 2018-9734, 2018-9901,  
2018-9923, 2018-10094, 2018-10121, 2018-10130, 2018-10181, 2018-10290, 2018-  
10495, 2018-10502, 2018-10534, 2018-10588, 2018-10639, 2018-10794, 2019-68,  
2019-114, 2019-120, 2019-134, 2019-158, 2019-165, 2019-188, 2019-235, 2019-345,  
2019-347, 2019-380, 2019-489, 2019-503, 2019-529, 2019-532, 2019-545

**Other Documents:** None