



BWX Technologies, Inc.

April 24, 2019
19-020

ATTN: Document Control Desk
Director, Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Reference: 1) License No. SNM-42, Docket 70-27
2) NRC Regulation 10 CFR 70.17, "Specific Exemptions"
3) Federal Register Notice, 55 FR 19890, May 14, 1990

Subject: BWXT Nuclear Operations Group, Inc (NOG-L) Request for Exemption from 24-Hour Reporting Requirement of 10 CFR 70.50(b)(1)

Dear Sir or Madam:

In accordance with 10 CFR 70.17, BWXT Nuclear Operations Group, Inc., Lynchburg (NOG-L) is requesting an exemption from the 24-hour reporting requirement in 10 CFR 70.50(b)(1) for situations that require the imposition of additional radiological controls for greater than 24 hours due to an unplanned contamination event inside an established controlled area. The exemption would apply to NOG-L controlled areas as defined in Chapter 4, *Radiation Safety*, of the SNM-42 License Application.

The Enclosure to this letter provides NOG-L's justification and evaluation criteria for the exemption pursuant to 10 CFR 70.17 (Reference 2).

If you have questions or require additional information, please contact Chris Terry, Manager of Licensing and Safety Analysis, at cterry@bwxt.com or 434-522-5202.

Sincerely,

B. Joel Burch
Vice President and General Manager
BWXT Nuclear Operations Group, Inc. – Lynchburg

Enclosure

cc: NRC, J. Zimmerman
NRC, M. Baker
NRC, Region II
NRC, Resident Inspector

NM5520

ENCLOSURE

**TECHNICAL JUSTIFICATION FOR 10 CFR 70.50 (b)(1)
EXEMPTION REQUEST**

6 pages

TECHNICAL JUSTIFICATION FOR 10 CFR 70.50(b)(1) EXEMPTION REQUEST

Exemption Request

BWXT Nuclear Operations Group, Inc., Lynchburg (NOG-L) is the holder of NRC License SNM-42 for a fuel manufacturing facility at the Lynchburg, VA site.

NOG-L is requesting an exemption from the 24-hour reporting requirement in 10 CFR 70.50(b)(1) for situations due to an unplanned contamination event inside a radiological controlled area that requires worker access to the contaminated area to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area.

It should be noted that NOG-L is not seeking an exemption that would alter reporting requirements in 10 CFR 70.50(b)(1) for situations due to an unplanned contamination event *outside an established controlled area*. NOG-L will continue to notify NRC of an unplanned contamination event outside an established controlled area that requires worker access to an area to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area. This includes non-controlled areas such as adjacent hallways, rooms, rooftops and outdoor areas. The exemption would not preclude reporting of unplanned contamination events by other NRC requirements such as 10 CFR 20.2202 "Notification of Incidents", 10 CFR 20.2203 "Reports of Exposures, Radiation Levels and Concentrations of Radioactive Material Exceeding the Constraints or Limits" and Appendix A to Part 70 "Reportable Safety Events" that result in a failure to meet the performance criteria of 10 CFR 70.61 (i.e. high or intermediate consequence event).

Basis for Exemption

Licensed activities at the NOG-L fuel manufacturing facility include the establishment of controlled areas that are controlled as contaminated areas described in the NRC approved license. In Chapter 4, *Radiation Safety*, of the SNM-42 License Application, a controlled area at NOG-L is defined as an area in which readily dispersible radioactive material is handled. The function of a controlled area at NOG-L is to control process and manufacturing areas where unencapsulated uranium is routinely handled. These areas are designed to safely contain and control releases of radioactive material that may occur as the result of operations or maintenance activities. The design of these areas is intended for the continued protection of the health and safety of occupational workers, members of the public, and the environment. In other words, contamination inside the controlled areas is planned for by the granting of the SNM-42 license and the controls imposed therein. NOG-L does not believe it was the NRC's intent for these unplanned instances, which occur inside controlled areas, to be reported. The NRC stated in Federal Register Notice, 55 FR 19890, when the proposed revision to Part 70 was issued for comment, "The intent of these amendments is to require prompt notification (either immediately or within 24 hours) to the NRC of events that would require prompt action by the NRC to protect public health and safety or the environment."

Because minor levels of contamination in a controlled area is common, typical radiological control methods are used to minimize worker exposures, which include engineered controls, ventilation, access controls, protective clothing, respiratory protection, routine contamination surveys, airborne monitoring, exit monitoring, and if necessary, area access restrictions. Adjustments to controls are made as necessary, depending on airborne or contamination levels encountered during normal manufacturing operations (i.e. production and planned maintenance) and abnormal conditions (i.e., loss of containment).

Technical Justification

NOG-L proposes to commit to the following six criteria and provides a technical justification describing how each criterion will be met.

- 1) The majority of established and posted controlled areas that may require additional controls reside within the site's Protected Area (PA), which is not accessible to the public. The Lynchburg Technology Center (LTC) and the Waste Treatment Facility controlled areas reside within the site's Owner Controlled Area (OCA). The PA is surrounded on all sides by the OCA, which is also isolated from the public.

The PA and OCA are maintained in accordance with applicable NRC security requirements of 10 CFR 73 and the site Physical Security Plan. Within the PA the established controlled areas are clearly posted and reside within an area encompassed by physical barriers with restricted access. The PA is controlled as a Restricted Area as defined in 10 CFR 20.1003. Access to the PA is restricted to either individuals with security clearances and current safety training or individuals that are formally escorted by trained security/safety escorts. At no time can members of the public access the PA without being escorted or trained. The controlled areas within the OCA at the LTC and the Waste Treatment Facility are clearly posted and are controlled as Restricted Areas as defined in 10 CFR 20.1003. Access to the OCA requires an individual to either be escorted or to have completed General Employee Safety training (GEST) and don dosimetry for the duration of their time on-site.

- 2) Controls are imposed as necessary to keep radiation exposures and releases as low as reasonably achievable.

NOG-L maintains and implements an effective Radiation Protection Program to keep worker exposures As Low as Reasonably Achievable (ALARA). These radiation protection principles are necessary to implement NRC ALARA requirements in 10 CFR 20.1101 and include engineering and other exposure control practices such as action levels to protect workers described in approved standard operating procedures. These principles are an integral part of the overall Radiation Protection Program that is routinely inspected by the NRC. Routine control adjustments to minimize exposures include modifications to protective clothing, adding respiratory protective equipment or restricting access to portions of a controlled areas and are anticipated, allowed, and at times prudent. Operations are conducted in accordance with approved procedures for routine work in controlled areas that provide flexibility for upgrading and downgrading controls in response to changing radiological conditions.

- 3) Facility Safety and Radiation Protection personnel are trained and qualified in contamination control and response and are readily available.

NOG-L provides sufficient Radiation Control Technician (RCT) staffing on each production shift (day shift, second shift and third shift) to support and respond to radiological conditions in a controlled area to ensure appropriate and timely actions are taken. The RCTs are trained in contamination control procedures and techniques required for responding to a contamination event and are readily available to respond as needed. The RCTs must successfully complete a rigorous training and qualification program prior to performing unsupervised activities and complete annual refresher

training to continue unsupervised work. These personnel are augmented as needed with emergency response personnel trained in handling hazardous and radiological materials in normal and abnormal conditions. Radiation Safety Professionals provide guidance and technical radiation safety expertise to the RCTs and Emergency Response personnel. Radiation Safety Professionals support is augmented by Nuclear Criticality Safety (NCS) Engineers, Environmental Engineering, Industrial Hygiene specialists and facility engineering who provide discipline-specific support and technical guidance as appropriate.

- 4) Equipment and facilities that may be needed for contamination control are readily available.

Controlled areas are designed to control contamination in process and manufacturing areas at the facility where unencapsulated uranium is routinely handled. These controls include engineered features such as ventilated areas designed to provide air flow from areas of lesser potential contamination to areas of higher potential contamination. Activities and process equipment that could potentially generate airborne uranium are designed with ventilated containment enclosures, hoods, dust capturing exhaust ports, local exhaust systems and other devices to minimize the release of uranium in work areas. The air and gasses from fuel manufacturing processes are exhausted as appropriate through filter media prior to being recirculated back into work areas or exhausted to the environment. Routine engineered and facility control adjustments to minimize exposures and the extent of a release include shutting down equipment, adding localized exhaust ventilation and closing or reducing containment hood openings. Specialized radiation protection contamination control equipment is available for contamination control response.

- 5) Radiation surveys of unplanned contamination events in controlled areas are performed and are available for NRC inspection upon request.

Appropriate radiation surveys are performed by qualified personnel during or after an unplanned contamination event as necessary to assess radiological conditions and provide the appropriate response. The type of survey is determined by staff Radiation Safety Professionals as described in the NRC approved license and in accordance with approved procedures. Survey results are compared to specified action guides and when contamination levels in excess of action levels are found, appropriate actions are taken, and the affected area is decontaminated in a safe and timely manner. Survey records for contamination events are documented pursuant to 10 CFR 20.2103 and are available for review.

- 6) Unescorted workers in controlled areas are trained on methods to reduce radiation exposures including contamination controls and response actions for abnormal or upset conditions.

Formal nuclear safety training is required for unescorted workers entering a controlled area. Visitors to a controlled area are escorted by trained personnel. The training includes information about radiation and radioactive materials, precautions or procedures to minimize exposure, the purposes and functions of protective devices employed; and their responsibility to report promptly to the licensee any condition which may lead to or cause a violation of NRC regulations and licenses or unnecessary exposure to radiation and/or radioactive material. The training also includes the

appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation and/or radioactive material and nuclear criticality safety principles. Training policy requires that workers must complete nuclear safety training prior to unescorted access in the controlled area. The training is typically provided using computer-based training but may be performed by authorized instructors. Previously trained workers who are allowed unescorted access to the controlled area are retrained annually. The effectiveness of the training program is evaluated by either initial training exam or re-training exam.

10 CFR 70.17 Evaluation Criteria

Pursuant to 10 CFR 70.17(a), the NRC may grant an exemption from the requirements of 10 CFR Part 70 if the staff determines that the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest.

NOG-L has determined that granting the proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, other laws, or the Commission's regulations. Therefore, the requested exemption is authorized by law.

NOG-L has also determined that an exemption from the requirement to report within 24 hours a situation due to an unplanned contamination event inside an established controlled area that requires worker access to the contaminated area to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area, will not endanger life or property or the common defense and security. As described above, NOG-L has established controlled areas that are designed to safely contain releases of radioactive material that may occur as a result of operations or maintenance activities that are within a restricted area with no unescorted public access. The additional controls imposed by the license and implemented through procedures for controlled areas make it unlikely that an event would occur which would require prompt action by the NRC to protect public health or safety or the environment. An internal review has revealed that in 63 years of NOG-L operations, no unplanned contamination incident inside a controlled area has required prompt action by the NRC or its predecessor, the Atomic Energy Commission, to protect public health and safety or the environment. In addition, NOG-L uses trained and qualified radiation protection personnel who have appropriate equipment readily available. While the exemption request would eliminate the 24-hour reporting requirement for unplanned contamination events inside a controlled area, NOG-L will continue to make required reports of situations due to an unplanned contamination event outside an established controlled area, maintain records of these events, and would provide this information to NRC for inspection upon request. Also, from a regulatory oversight and response perspective, it should be noted that the NOG-L site has a full-time NRC Resident Inspector who conducts safety and compliance inspections of plant activities under NRC purview on a daily basis. The NRC Resident Inspector at NOG-L performs routine reviews of radiological conditions of the controlled areas during his inspections of the facility under Inspection Procedures (IP) 88135, *Resident Inspection Program for Category I Fuel Cycle Facilities* and IP 88135.02, *Resident Inspection Program Plant Status Activities*.

The elimination of the 24-hour reporting requirement also does not involve information or activities that could potentially impact the common defense and security of the United States. Rather, the requested exemption is administrative in nature and would reduce

the number of licensee actions triggered by an event that imposes additional radiological controls or by prohibiting entry into an area. Based on its review of this information, NOG-L concludes that granting this exemption request would not endanger life or property or the common defense and security.

Finally, granting this exemption request is otherwise in the public interest because it promotes regulatory efficiency by relieving NOG-L from a reporting requirement that is of low safety significance given the site-specific conditions and programs described above. The exemption would relieve NOG-L from generating initial notification reports within 24 hours and written follow-up reports within 30 days of certain contamination events and the NRC staff from receiving and processing these reports, thereby allowing resources to be focused on other activities of higher significance or consequence.

Conclusion:

Based on the above, NOG-L has concluded that the activities to be authorized by the issuance of an exemption are in compliance with law, and will not endanger life or property or the common defense or security. NOG-L also concludes that granting the exemption is in the public interest by promoting regulatory efficiency with no adverse impacts on public health and safety or the environment.

Accordingly, NOG-L requests an exemption from the 24-hour reporting requirement in 10 CFR 70.50(b)(1) for situations due to an unplanned contamination event inside an established radiological controlled area that requires worker access to the contaminated area to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area.

NOG-L proposes a new Safety License Condition S-16 be issued to reflect the exemption from reporting as follows:

- S-16 Notwithstanding the requirements of 10 CFR 70.50(b)(1), the licensee is exempt from the requirement to notify the NRC within 24 hours of unplanned contamination events inside an established controlled area that requires worker access to the controlled area, or any portion thereof, to be restricted for more than 24 hours by imposing additional radiological controls or by prohibiting entry into the area.

The licensee commits to 1) Establish and post controlled areas that reside within the licensed Protected Area (PA) or Owner Controlled Area (OCA) which is not accessible to the public without escort, 2) Impose controls as necessary to keep radiation exposures and releases as low as reasonably achievable, 3) Ensure radiation protection personnel are trained and qualified in contamination control and are readily available, 4) Provide equipment and facilities that may be needed for contamination control, 5) Perform radiation surveys of unplanned contamination events in controlled areas and provide records for NRC inspection upon request, 6) Train unescorted workers in controlled areas on methods to reduce radiation exposures including contamination controls and response actions for abnormal or upset conditions.