UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 18, 2024

Brian Ocampos
Quality Assurance Director
ORANO TN Americas, LLC
7135 Minstrel Way, Suite 300
Columbia, Maryland 21045

SUBJECT: ORANO TN AMERICAS, LLC – U.S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT NO. 71-9196/2024-201

Dear Brian Ocampos:

On August 19, 2024, through August 22, 2024, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an announced onsite inspection at the ORANO TN Americas, LLC fabrication (hereby referred as TNF) facility, Greensboro, North Carolina. On September 27, 2024, the NRC inspection team conducted a re-exit with Brian Ocampos and John Burchfield to inform an issue identified related to an important to safety (ITS) category A (ITS-A) foam material supplier.

The purpose of the inspection was to assess the adequacy of TNF's compliance with the NRC requirements for the design, modification, procurement, fabrication, assembly, testing and maintenance of the UX-30 uranium hexafluoride (UF_6) cylinder overpack (hereby referred as UX-30 overpack) components for which TNF is the certificate of compliance (CoC) holder.

The inspection scope included observation of fabrication activities, review of records and interviews with personnel to determine whether UX-30 overpack components are designed, modified, procured, fabricated, and maintained in accordance with the commitments and requirements specified in the applicable safety analysis report (SAR), the NRC's corresponding safety evaluation report, Title 10 of the *Code of Federal Regulations* (10 CFR) Part 71, "Packaging and Transportation of Radioactive Material," and the CoC; and to determine whether design, fabrication, and maintenance activities are conducted in accordance with TNF's NRC approved quality assurance program requirements. The enclosed report presents the results of this inspection, which were discussed with you and other members of TNF staff on August 22, 2024.

Based on the results of this inspection, the NRC inspection team determined that one Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (http://www.nrc.gov/about nrc/regulatory/enforcement/enforce pol.html). Because TNF initiated corrective actions to address this issue, this issue is being treated as Non-Cited Violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy. The NRC inspection team described this NCV in the subject inspection report. If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the NRC, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Director, Office of Nuclear Material Safety

and Safeguards; and (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.390, “Public inspections, exemptions, requests for withholding,” a copy of this letter, its enclosure, and your response (if any) if you choose to provide one, will be available electronically for public inspection in the NRC Public Document Room (PDR) or from the Publicly Available Records component of the NRC’s Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html. The PDR is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

Sincerely,

Signed by Rodriguez-Luccioni, Hector
on 10/18/24

Hector Rodriguez, Chief
Inspection and Oversight Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 71-9196

Enclosure:
Inspection Report No. 71-9196/2024-201

cc w/Encl: Brian Ocampos
brian.ocampos@orano.group

SUBJECT: ORANO TN AMERICAS, LLC – U.S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT NO. 71-9196/2024-201

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U.S. NUCLEAR REGULATORY COMMISSION
Office of Nuclear Material Safety and Safeguards
Division of Fuel Management

Docket:	71-9196
Report.:	71-9196/2024-201
Enterprise Identifier:	I-2024-201-0049
Certificate Holder:	ORANO TN Americas, LLC
Facility:	TNF Fabrication
Location:	Greensboro, NC
Inspection Dates:	August 19, 2024, through August 22, 2024
Inspection Team:	Raju Patel, Transportation and Storage Safety Inspector, Team Leader Jeremy Tapp, Senior Transportation and Storage Safety Inspector Azmi Djapari, Transportation and Storage Safety Inspector
Approved By:	Hector Rodriguez-Luccioni, Branch Chief Inspection and Oversight Branch Division of Fuel Management Office of Nuclear Material Safety and Safeguards

Enclosure

EXECUTIVE SUMMARY

ORANO TN Americas, LLC
NRC Inspection Report 71-9196/2024-201

On August 19, 2024, through August 22, 2024, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an announced onsite inspection at the ORANO TN Americas, LLC Fabrication (TNF) facility in Greensboro, North Carolina. The staff held an exit meeting on August 22, 2024. On September 27, 2024, the NRC inspection team conducted a re-exit with Brian Ocampos and John Burchfield to inform an issue identified related to an important to safety (ITS) category A (ITS-A) foam material supplier.

The purpose of the inspection was to verify and assess the adequacy of TNF's implementation and compliance with the NRC requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, “Reporting of Defects and Noncompliance,” and 10 CFR Part 71, “Packaging and Transportation of Radioactive Material,” for the design, modification, fabrication, assembly, testing, maintenance, and procurement of UX-30 overpack transportation packaging for which TNF is the certificate of compliance (CoC) holder. The inspection also included review of documents and observation of activities related to the fabrication, assembly, inspection, and testing of UX-30 overpack.

Based on the results of this inspection, the NRC inspection team assessed that overall, the implementation of TNF’s quality assurance program (QAP) was adequate. However, one Severity Level IV violation of the NRC requirements was identified by the team in the area of supplier control. The violation is summarized in the sections below and described in detail in the Report Details Section of this inspection report.

Management Controls

The team determined that overall, the quality assurance controls at TNF, which primarily includes the Quality System Procedures Manual (QSPM), were generally adequate and implemented in a graded approach, as defined in the QAP.

Overall, the team concluded that TNF was adequately implementing its document control and records program and has adequate procedures in place to meet the applicable regulations and QAP requirements.

The team concluded that TNF effectively implemented its nonconformance control program and corrective action program (CAP) and had adequate procedures in place to ensure compliance with the applicable regulations and QAP requirements.

The team determined, for the internal audits selected for review that TNF was performing internal audits in accordance with their QAP.

Design Control

The team reviewed TNF’s transportation license change (TLC) regarding safety analysis and drawing changes for the UX-30 overpack packaging. This included review of TLC No. TLC 719196-0002. The TLC was reviewed to determine if TNF adequately followed their design procedure TIP 3.7. The team also reviewed the initiating document that necessitated the TLC. This was typically an associated design change request but also included a submittal letter to the NRC. The team reviewed the associated design change record to verify TNF followed TIP

3.1 as required
and the design changes were made in the associated safety analysis and drawings as described. The team determined, for the items selected for review that the fabrication specifications were consistent with the design commitments and requirements documented in the safety analysis report (SAR) and CoC. The team concluded that TNF is effectively implementing its design control program and has adequate procedures in place to ensure compliance with the applicable regulations and QAP requirements.

Fabrication Controls

The team determined that overall, the quality assurance controls at TNF, which primarily includes the QSPM, were generally adequate and implemented in a graded approach, as defined in the QAP.

The team concluded that TNF personnel were familiar with the designated fabrication techniques, testing requirements, and quality control associated with the fabrication, and inspection of the UX-30 overpack packaging. The team concluded that TNF used suitable calibrated equipment to conduct fabrication and assembly activities. The team also noted that TNF identified, specified, and controlled tools and equipment in accordance with their quality implementing procedures and regulatory requirements.

Overall, the team determined that, TNF ensured materials, components, and other equipment received met procurement specifications, as applicable, and that the procurement specifications conformed to the design commitments and requirements contained in the SAR and CoC. However, the team identified this as an area for improvement. One Non-Cited Severity Level IV violation was identified for TNF’s failure to perform an adequate audit as well as annual evaluations of General Plastics (GP) (supplier of ITS-A foam material) QAP and failure to ensure GP had an adequate commercial-grade dedication (CGD) process for qualifying commercial suppliers for ITS-A calibration and testing services.

10 CFR Part 21

The team determined that the provisions of 10 CFR Part 21 were implemented; TNF's personnel were familiar with the reporting requirements of 10 CFR Part 21; and TNF complied with 10 CFR 21.6, "Posting requirements."

Personnel Training and Certifications

The team determined that TNF had trained and qualified individuals performing activities affecting quality and that TNF management provided appropriate oversight of quality related activities, as applicable.

REPORT DETAILS

1.0 Management Controls

1.1 Quality Assurance Program

a. Inspection Scope

The team verified that TNF's activities related to UX-30 overpack package are being conducted in accordance with TNF's CoCs, as well as their NRC approved QAP, and that implementing procedures are in place and effective. The team reviewed the TNF's QAP, "Quality Assurance Plan for TNF Fabrication," for 10 CFR Part 71, Subpart H, Revision 3, and the associated implementing procedures to assess the adequacy and effectiveness of TNF implementation of their QAP. The team conducted interviews with TNF personnel about their implementation of the 10 CFR Part 71 QAP, and implementing procedures, to determine whether TNF adequately controlled and implemented transportation packaging activities subject to the 10 CFR Part 71 requirements. The team also reviewed the QAP to determine if changes were made and if so that TNF performed these changes in accordance with the requirements of 10 CFR 71.106, as applicable.

Additionally, the team reviewed the QAP authorities and responsibilities to determine if they were clearly defined and documented, and that the QA organization functioned as an independent group. The team also reviewed documents to verify that TNF used a graded approach to quality as documented in the QAP to verify that TNF identified ITS components in its UX-30 overpack packaging design.

b. Observation and Findings

The team assessed that TNF currently has an adequate QAP that included applicable implementing procedures in place to conduct effective quality activities in accordance with the SAR, and 10 CFR Part 21 and 10 CFR Part 71 requirements. The team verified that TNF clearly defined and documented the quality program authorities and responsibilities and that the quality assurance organization functioned as an independent group as described in the QAP. The team also found that TNF used a graded approach to categorize ITS components in its UX-30 overpack transportation packagings and made changes in accordance with 10 CFR 71.106.

No findings of significance were identified.

c. Conclusions

The team determined that TNF conducted quality related activities on the UX-30 overpack transportation packaging in accordance with their NRC approved QAP.

1.2 Nonconformance and Corrective Action Programs

a. Inspection Scope

The team reviewed selected records and interviewed selected personnel to verify that a nonconformance control program is effectively implemented, and that corrective actions for identified deficiencies are technically sound and completed in a timely manner. The team reviewed the following implementing procedures for TNF's nonconformance program and corrective action program:

- TIP 7.13, "Supplier Findings and Corrective Actions," revision 13
- TIP 15.1, "Reportability Determinations and Postings," revision 19
- TIP 15.2, "Control of Nonconforming Items," revision 22
- TIP 15.3, "Review of Supplier Nonconformances," revision 22
- TIP 15.4, "Control of Fabrication of Nonconforming Items," revision 8
- TIP 16.1, "Corrective Action," revision 34
- TIP 16.3, "Corrective Action Review Board," revision 18

The team reviewed TNF's nonconformance program to assess the effectiveness of controls established for the processing of nonconforming materials, parts, and components. The team reviewed a sample of nine nonconformance reports (NCRs) for the UX-30 overpack from 2022 to 2024. The review focused on NCRs that were dispositioned as "Use-As-Is" and "Repair," to determine if TNF had justified their dispositions of the NCRs adequately.

The team also reviewed TNF's CAP and reviewed a sample of corrective action reports (CARs) generated from 2022 through 2024. The CARs were reviewed to determine whether TNF completed corrective actions for identified deficiencies in a technically sound and timely manner. The review focused on the processing of Level 1 CARs which involved significant conditions adverse to quality, as well as Level 2 and Level 3 CARs which were considered less significant. The team reviewed TNF's CAR 2021-018 initiated for use of American National Standard Institute (ANSI) N14.1, "Uranium Hexafluoride Packagings Transport," and ANSI N-14.5, "Leakage Tests for Radioactive Materials," editions different from CoC Revision No. 31 as well as CAR 2024-020 initiated to change license drawing C-110-B-57922-001 revision 4, to add the use of alternate materials for shear lug. Both these CARs are associated with UX-30 overpack package TLC No. TLC 719196-0002, that revised the SAR, license drawing C-110-B-57922-001 and CoC that were approved by the NRC on July 9, 2024.

b. Observation and Findings

Overall, the team assessed that TNF had adequate nonconformance controls and CAP in place to identify, track, and resolve quality related deficiencies and deviations. Nonconformances and corrective actions reviewed were appropriately dispositioned and resolved in a timely manner and in accordance with implementing procedures.

No findings of significance were identified.

c. Conclusions

The team determined that TNF effectively implemented its nonconformance program and CAP and has adequate procedures in place to ensure compliance with the applicable regulations and QA requirements.

1.3 Documentation Controls

a. Inspection Scope

The team reviewed TNF's documentation control program to assess the effectiveness of controls established for the approval, issuance, revision, and use of quality documents. The team reviewed TNF's instructions and procedures regarding the control of documents and quality records, and interviewed responsible personnel to verify that documents are retained and located in areas consistent with the instructions and procedures. The team reviewed the following TNF quality procedures and work instructions:

- TNFQAP, "Quality Assurance Plan for TN Fabrication (TNF)," revision 3
- TIP 6.1, "Document Control," revision 22
- TIP 17.1, "Control of Quality Assurance Records," revision 20
- FPM 2.1, "Drawings Specification Procedure and Customer Contract Review and Control," revision 7
- FPM 5.1, "Traveler Preparation, Verification, And Approval," revision 15

The team verified that document changes and approvals are properly signed, dated, and recorded on each document reviewed.

b. Observation and Findings

The team toured areas of the facility where quality documents are stored to verify the documents are being stored as required by TNF's quality procedures and instructions. The team noted that work traveler dictates the revision of the procedures, drawings, which the team confirmed were the latest version against those in TNF database. TNF's fabrication project manager along with Material Control Coordinator assures configuration control of the latest approved drawings and issuance of controlled drawing books to the shop. The team reviewed the manufacturing plan and quality record for UX-30 overpack project in-progress and confirmed the welding procedure used by a welder during welding of a UX-30 overpack component was the latest revision specified in the work traveler. Based on its review, the team determined that TNF was following its procedures to ensure that fabrication drawings and specifications were consistent with the TNF design drawings, NRC approved licensing drawings, and design requirements/commitments. No findings of significance were identified.

c. Conclusion

Overall, no concerns were identified with the development, TNF approval, transmittal, control, and record keeping of fabrication drawings and specifications at TNF. The team concluded that TNF was adequately implementing its document control records program

and has adequate procedures in place to ensure compliance with the applicable regulations and QA requirements.

1.4 Audit Program

a. Inspection Scope

The team verified that audits of the QAP and activities affecting the safety aspects of the packaging are scheduled, have been performed as scheduled, and that identified deficiencies have been satisfactorily resolved in a timely manner. The team reviewed the audit program to verify that TNF scheduled, planned, and performed audits in accordance with their NRC approved QAP and implementing procedures. The team reviewed the audit results to determine whether TNF identified deficiencies and addressed these deficiencies within their CAP.

The team selected a sample of internal audits and interviewed personnel to verify that TNF effectively implemented their audit program. This sample included a review of lead auditor certifications and qualifications. The team reviewed the 2022, and 2023 TNF internal audits. The team reviewed the following TNF implementing procedures:

- TIP 18.1, “Internal Audits,” revision 18
- TIP 18.2, “Surveillances,” revision 5

b. Observation and Findings

The team reviewed TNF internal audit reports and confirmed that TNF performs internal audits on a yearly basis and audits all eighteen QA program elements and develops audit plans in accordance with approved procedures. The team noted that the audit plans identify the organization being audited, audit scope, requirements, audit team, activities for audit, applicable documents, schedule of the audit, and identification of audit checklists that audit personnel would use to prepare and conduct the audit. As stated in the TNF audit procedure, the audit team shall consist of one or more auditors, one being designated as the lead auditor. The team noted that TNF provided objective evidence, documentation, and examined to the depth necessary to determine that auditors effectively implemented the applicable criteria. The team noted that a TNF lead auditor issues and signs all audit reports. The corporate quality assurance manager is responsible for the development of the internal surveillance schedules for random surveillances. In addition, the QA manager is responsible for assigning personnel to perform the random surveillances, providing surveillance training, determining the surveillance methods, and reviewing the results.

The team reviewed the internal audit results to determine if TNF identified deficiencies and addressed the deficiencies within their CAP. The team noted that the auditors identified four audit findings and four audit observations during the 2022 audit and that all the issues were captured as CARs. The team also noted that the audit report included the auditors had performed verification of adequate implementation of the corrective actions taken on previous year internal audit CARs.

No findings of significance were identified.

d. Conclusions

The team concluded that TNF had an adequate audit program in place to schedule, evaluate, and document the results. The team determined that TNF appropriately identified issues and documented them in the CAP as required.

2.0 Design Control

a. Inspection Scope

The team interviewed selected personnel and reviewed selected design documentation to determine that adequate design controls are implemented. The team focused its review in the areas of design modifications, quality classification evaluation for structures, systems, and components (SSCs), review and control of design calculations, and verification of commercially available computer programs. The team specifically reviewed TNF design activities related to CoC No. 9196 for the UX-30 overpack packaging. The team reviewed the following TNF implementing procedures associated with design control to verify the procedures were adequate and adequately followed:

- TIP 2.5, “Order Entry and Project Planning,” revision 18
- TIP 3.1, "Design Control," revision 29
- TIP 3.2, "Calculations," revision 17
- TIP 3.3, "Computer Software Test Control and Commercial Dedication," revision 14
- TIP 3.4, "Identification and Control of Computer Software Error Messages," revision 8
- TIP 3.6, “Quality Classification,” revision 10
- TIP 3.7, “10 CFR Part 71 License Change Control,” revision 3

The team reviewed a TLC regarding safety analysis and drawing changes for the UX-30 overpack packagings performed. This included TLC No. TLC 719196-0002. The TLC was reviewed to determine if TNF adequately followed TIP 3.7. The team also reviewed the initiating document that necessitated the TLC. This was typically an associated design change request (DCR) but also included a letter to the NRC. The team reviewed the associated DCR to verify TNF followed TIP 3.1 as required and the design changes were made in the associated safety analysis and drawings as described. The team confirmed the changes were approved and incorporated in CoC Revision No, 32 approval date June 28, 2024.

b. Observation and Findings

The team assessed that TNF had adequate and effective controls established by the implementing procedures for project planning, development of project quality requirements, implementing project controls, developing design specifications, design development and design controls, performing and reviewing design calculations, performing quality classification of SSCs, performing overall design reviews, and performing competent authority design licensing.

No findings of significance were identified.

c. Conclusions

The team concluded that TNF is effectively implementing its design control program and has adequate procedures in place to ensure compliance with the applicable regulations and QAP requirements.

3.0 Fabrication Controls

3.1 Procurement

a. Inspection Scope

The team determined whether the procurement specifications for materials, equipment, and services received met the design requirements. The team reviewed TNF's processes that address procurement, including traceability and receipt inspection. The team reviewed selected drawings and records and interviewed selected personnel to verify that the procurement specifications for materials and services performed at TNF Greensboro, NC facility met design requirements. The team verified that TNF used a graded approach for identifying ITS components during the design process and applied this graded quality to components and material procurement documents. The team reviewed audits for suppliers of ITS materials, equipment, and service, which included General Plastics Manufacturing Company (GP), a category A foam material supplier. In UX-30 overpack, the space between the inner and outer overpack shells is filled with an energy-absorbing and insulating closed-cell polyurethane foam material that completely encases the UF6 cylinder. TNF fabrication drawing X-30-238E, "Fabrication and Assembly UX-30 Overpacks," revision 16, lists polyurethane foam as safety related ITS-A material. This requires TNF to procure polyurethane foam from an approved supplier whose QA program meets the requirements of 10 CFR 71 Subpart H. The team selected ITS-A materials such as foam for review. The team reviewed the following implementing procedures, drawings, and procurement documents:

- TIP 4.1, "Procurement Document Control," revision 39
- TIP 7.1, "Supplier Evaluations," revision 25
- TIP 7.2, "Supplier Audits," revision 13
- TIP 7.9, "Receipt Inspection," revision 13
- TIP 7.11, "Approved Vendor List," revision 16
- FPM 5.3, "Procurement Specification," revision 4
- FPM 7.1, "Receipt Inspection," revision 0
- Drawing No. C-110-B-57922-0001, "UX-30 Overpack," revision 5
- Drawing No. X-20-238E, "Fabrication and Assembly UX-30 Overpacks," revision 16
- Purchase Order (PO) P2024-0058 to GP dated 1/17/2024

The team also reviewed the TNF Approved Suppliers List dated 8/16/2024, certified material testing reports, and receipt inspection reports (RIRs). The review of RIRs included foam material under RIR No. 1006790, revision 0 and stainless-steel plate and sheet materials under RIR Nos. 1008547, revision 0; 1008548, revision 0; and 1008763, revision 0 respectively.

b. Observation and Findings

The team reviewed TNF's external audit of GP, a supplier of high-performance foam products, that was performed August 30-September 1, 2021. The team noted GP's QA manual primarily endorses a commercial program specifically written to aerospace standard (AS) 9100:2016, "AS9100 Quality Management Systems- Requirements for Aviation, Space and Defense Organization." Further, the team reviewed TNF's annual 2022 and 2023 supplier evaluations of GP's performance. The team noted that TNF's annual supplier evaluations of GP's QA program failed to capture GP's endorsement of 10 CFR Part 71, Subpart H, and reporting requirements of 10 CFR Part 21. The team noted that TNF did not commercially dedicate nor invoke supplier restrictions of ITS-A material for UX-30 overpack. Based on review of TNF's triannual audit and annual supplier evaluations of GP's QA program manual, the team determined that TNF failed to adequately qualify and approve GP as an ITS-A supplier of polyurethane foam.

In addition, the team reviewed TNF's assessment of a GP external audit specific to commercial calibration and testing services and noted that the acceptance was based solely on International Laboratory Accreditation Cooperation – Mutual Recognition Arrangement (ILAC–MRA) accreditation. The team noted that TNF failed to ensure GP approved commercial suppliers using the CGD process for ITS-A calibration and testing services and adequately implemented the NRC endorsed industry-developed guidelines, Nuclear Energy Institute (NEI) Technical Report 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services," revision 1.

The team determined that the two examples described above constituted a violation of 10 CFR 71.115, "Control of purchased material, equipment, and services," which states, in part that the certificate holder shall establish measures to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures must include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery.

Contrary to the above, TNF failed to perform an adequate audit as well as annual evaluations of GP's QA program to ensure procured materials (polyurethane foam) meets all applicable requirements of 10 CFR Part 71, Subpart H as required by TNF's procurement documents. In addition, TNF failed to ensure GP approved commercial suppliers using the CGD process for ITS-A calibration and testing services and adequately implement the NRC endorsed NEI 14-05A, revision 1, guidance when relying on an ILAC–MRA accreditation process in lieu of performing commercial-grade survey as part of the CGD process.

The team dispositioned the violation using the traditional enforcement process in Section 2.3 of the Enforcement Policy. The team determined the violation was more-than-minor safety significance in accordance with Inspection Manual Chapter (IMC) 0617, "Vendor and Quality Assurance Implementation Inspection Reports," Appendix E, "Minor Examples of Vendor and QA Implementation Findings," Example 8.a; because the suppliers QA program did not meet all applicable requirements of 10 CFR Part 71, Subpart H. The team characterized the violation as a Severity Level IV violation in

accordance with the NRC's Enforcement Policy, Section 6.5. TNF entered the issue into its CAP under CARs 2024-078 and 2024-088. As a result, TNF halted all work related to the UX-30 overpack project at GP until adequate corrective actions are taken and is developing additional corrective actions for UX-30 overpack foam material procurement and for the foam that has already been previously supplied. Because this violation was of low safety significance and was entered into TNF's CAP, the issue was not repetitive or willful, this is being treated as a Non-Cited Violation (NCV), consistent with Section 2.3.2.a of the Enforcement Policy.

c. Conclusions

Overall, the team determined that, materials and components procured and received by TNF met procurement specification, as applicable, and that the specifications conformed to the design commitments and requirements contained in the SAR and CoC. The team identified one violation of NRC requirements with two examples as cited above. No other issues were identified.

3.2 Fabrication, Assembly, Inspection, and Testing

a. Inspection Scope

The team reviewed selected drawings, procedures, and records related to UX-30 overpack to determine if fabrication, assembly, and testing activities met SAR, design commitments and requirements documented in CoC No. 9196. The team interviewed selected personnel and reviewed the fabrication specification and drawings against the licensing drawings to determine whether TNF implemented adequate controls. The team reviewed the following documents:

- TIP 10.1, "Inspections," revision 8
- TIP 11.1, "Test Control," revision 7
- TIP 14.1, "Inspection and Test Status," revision 6
- FPM 5.1, "Traveler Preparation Verification and Control," revision 15
- FPM 5.5, "Traveler Issuance and Use," revision 3
- FPM 14.1, "Inspection, Tags & Stamps," revision 6
- Form 2.5-2, Technical and Quality Requirement No. 14126.FD1.UX30, "Technical and Quality Requirements for Fabrication," revision 16
- Traveler Serial Nos. 48091 and 48092
- Drawing X-20-238E, "Fabrication and Assembly UX-30 Overpacks," revision 16
- Drawing X-20-325, "Fabrication and Assembly Cradle (NSQR–1) NUPAC UX-30," revision 22.

The team also reviewed the control of measuring and test equipment (M&TE) program to evaluate how TNF identified, specified, and controlled tools and equipment in accordance with their standard procedures. The team reviewed a sample of the M&TE used for fabrication of the UX-30 overpacks. The sample included a review of travelers that identified the use of specific M&TE that the team selected such as a light meter, digital caliper, welding machines, weld fillet gage, and a tape measure. The team reviewed the calibration records to verify calibration dates, testing standards, and traceability of the associated M&TE. The team verified that personnel used M&TE within their rated capacities and sensitivities as documented in calibration records.

The team reviewed the following documents and records specific to welding, nondestructive examination (NDE) and M&TE:

- TIP 2.1, “Indoctrination and Training,” revision 29
- TIP 2.3, “Qualification of Inspection and Test Personnel,” revision 9
- FPM 2.3, “Qualification and Certification of Nondestructive Personnel,” revision 4
- FPM 9.1, “Control of Special Process and Test,” revision 7
- FPM 9.2, “Welding Performance Qualification Testing and Records,” revision 6
- FPM 12.1, “Control of Measuring and Test Equipment,” revision 6
- Form FPM 9.1-4, “Welder Record Sheet Manufacturing Plan & Quality Record”
- Form FPM 9.2-7, “Welder and Welding Operator Continuance”
- Welding Procedure Specifications (WPS) WPS 08081–101, revision 9
- WPS-08082–106, revision 3
- VT, “Visual Examination Procedure,” revision 4
- UX-30-VT Engineering Fabrication Procedure, “VT Acceptance Criteria for ASME Section III NF 2019 Edition,” revision 3
- UX-30 Visual Examination Report

b. Observation and Findings

The team assessed that TNF established adequate controls for the fabrication activities performed at TNF Greensboro. The team noted that TNF implemented their QA manual, quality procedures, and special processes with qualified personnel, using approved procedures for assembly, welding, and testing. The team determined that TNF provided the appropriate information on shop travelers in accordance with approved procedures, and the travelers identified applicable drawings, material specifications, work instructions, and procedures applicable to the manufacturing activity. The team noted that TNF Greensboro does not perform any maintenance activities. The team also noted that visual examinations were the only form of NDE being conducted for the UX-30 overpack at this facility.

The team observed the welding activities for the upper and lower assemblies of the UX-30 overpack and confirmed that they were conducted using qualified WPS per assembly drawings by qualified personnel. The team reviewed the WPS, procedure qualification records, welder performance qualification records, and NDE personnel qualification records to ensure that TNF met the applicable American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code Section IX, “Welding, Brazing and Fusing Qualifications,” requirements for the control of special processes.

The team also verified that the welds and visual examinations were performed by certified individuals, confirming consistency with ASME B&PV Code Section V “Nondestructive Examination,” requirements. Additionally, the team selected the continuity records of the welders observed welding on UX-30 overpack components and verified that the continuity records were maintained every 6 months as required by the ASME B&PV Code section IX for each welding process and thickness qualified. The inspection team verified through review of UX-30 travelers that Inspection and test results were documented in accordance with quality procedures, with all records traceable to the corresponding UX-30 package serial numbers. In addition, the team observed the storage of weld materials, confirming that these materials were properly identifiable and traceable from receipt through all stages of the UX-30 overpack

fabrication process. The team also assessed TNF established an adequate calibration program in accordance with their quality standard procedure requirements, industry standards and regulatory requirements.

No findings of significance were identified.

c. Conclusions

The team concluded, for the ITS components selected for observation and review that TNF performed fabrication and testing in accordance with the UX-30 overpack SAR, written procedures, and specifications. In addition, TNF personnel demonstrated a familiarity with the specified design, designated fabrication techniques, testing requirements, and quality control associated with the fabrication of the UX-30 overpack package to meet SAR design commitments and requirements documented in the CoC.

4.0 **10 CFR Part 21**

a. Inspection Scope

The team verified that provisions are in place for reporting defects which could cause a substantial safety hazard, as required by 10 CFR Part 21. The team reviewed the 10 CFR Part 21 procedure TNF implementing procedure (TIP) 15.1, “Reportability Determinations and Postings,” revision 19 to verify if provisions were in place for reporting defects that could cause a substantial safety hazard and whether TNF would complete the required evaluation and notification in a timely manner. The team requested a list of 10 CFR Part 21 evaluations and notifications associated with any transportation activities and interviewed personnel to verify if TNF was familiar with the implementing procedure. TNF had no incidence of deficiencies or defects that would rise to a level of 10 CFR Part 21 evaluation, hence had none. The team also verified if TNF complied with 10 CFR 21.6, “Posting requirements.”

b. Observation and Findings

The team assessed that TNF has provisions in place for evaluating deviations and reporting defects that could cause a substantial safety hazard, as required by 10 CFR Part 21. The team noted that the 10 CFR Part 21 posting at TNF’s fabrication area met the applicable requirements of 10 CFR Part 21. The team also assessed that TNF employees are knowledgeable of reporting requirements and training have been performed to TNF TIP 15.1 procedure.

No findings of significance were identified.

c. Conclusions

The team determined that the provisions of 10 CFR Part 21 were implemented; TNF's personnel were familiar with the reporting requirements of 10 CFR Part 21; and TNF complied with 10 CFR 21.6, "Posting requirements."

5.0. **Personnel Training and Certifications**

a. Inspection Scope

The team reviewed selected records and procedures, and interviewed selected personnel to verify that individuals performing activities affecting quality are properly trained and qualified, and to verify that management and QA staff are cognizant and provide appropriate oversight.

Specifically, the team reviewed the indoctrination and training records for three selected TNF employees and contractors that have performed design engineering activities to verify the training was adequate. The team reviewed qualification records of one nondestructive examination personnel to determine they were qualified in accordance with the requirements of ASME Code Section V. The team selected qualification records of three welders that had performed welding activity on UX-30 overpack package components to determine they were qualified in accordance with the requirements of ASME Section IX "Welding, Brazing and Fusing Qualifications," code. The team reviewed records for two quality control inspectors that had performed quality related inspection activities on UX-30 overpack package components. The review also included three lead auditor qualification records.

b. Observation and Findings

The team found that sample of TNF staff member's records reviewed, each had completed the required QA indoctrination and training and attained the applicable qualifications to perform their duties.

The team also found that TNF's welders qualifications met the requirements of ASME B&PV code Section IX and TNF's NDE personnel qualification program met the requirements of American Society of Nondestructive Testing Recommended Practice No. SNT-TC-1A. For the NDE personnel observed, the team found they were qualified in accordance with TNF's quality procedures.

No findings of significance were identified.

c. Conclusions

The team concluded that TNF had trained and qualified individuals performing activities affecting quality and that TNF management provided appropriate oversight of quality related activities, as applicable.

6.0 **Entrance and Exit Meeting**

On August 19, 2024, the NRC inspection team discussed the scope of the inspection during an entrance meeting with the TNF staff. On August 22, 2024, the NRC inspection team discussed the preliminary results and observations during an onsite debrief meeting with the TNF staff. The team completed the inspection activities on August 22, 2024, and held an exit meeting with TNF staff. On September 27, 2024, the NRC inspection team conducted a re-exit with Brian Ocampos and John Burchfield to inform

an issue identified related to an ITS-A supplier. Section 1 of the attachment to this report shows the attendance for the entrance, debrief, and exit meetings.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES AND INDIVIDUALS INTERVIEWED

Name	Title	Affiliation	Entrance	Debrief	Exit
Raju Patel	Inspection Team Leader	NRC	X	X	X
Jeremy Tapp	Inspector	NRC	X	X	X
Azmi Djapari	Inspector	NRC	X	X	
Brian Ocampos	Quality Assurance Director	TNF Americas LLC			X
John Adams	Fabrication Project Manager	TNF Americas LLC	X	X	X
Tom Bock	Safety Manager	TNF Americas LLC	X	X	
Steve Simao	Fabrication Project Manager	TNF Americas LLC	X	X	
Mike Cameron	TNF Plant Manager	TNF Americas LLC	X		
John Burchfield	TNF QA Manager	TNF Americas LLC	X	X	X
Nelson Melendez	Quality Control	TNF Americas LLC			X

2. INSPECTION PROCEDURES USED

IP 86001	Design, Fabrication, Testing, and Maintenance of Transportation Packagings
NUREG/CR-6407	Classification of Transportation Packaging and Dry Spent Fuel Storage System Components According to Importance to Safety
NUREG/CR-6314	Quality Assurance Inspections for Shipping and Storage Containers

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description
None	None	None	None

4. LIST OF ACRONYMS USED

10 CFR	Title 10 of the *Code of Federal Regulations*
ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CAR	Corrective Action Report
CGD	Commercial-Grade Dedication
CoC	Certificate of Compliance
DCR	Design Change Request
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ITS	Important to Safety
NCR	Nonconformance Report
NRC	U.S. Nuclear Regulatory Commission
PDR	Public Document Room
PO	Purchase Order
QA	Quality Assurance
QAP	Quality Assurance Program
QSPM	Quality System Procedures Manual
SAR	Safety Analysis Report
SSC	Structure, System, and Component
TIP	TNF Implementing Procedure
TLC	Transportation License Change
TNF	TN Americas, LLC fabrication

5. DOCUMENTS REVIEWED

- TLC No. 719196-0002, “Transportation License Change,” revision 3
- Internal Audit Report (IA)-2022-01, IA-2022-011, IA-2023-09, IA-2023-01
- Qualification and annual assessments for three lead auditors
- CARs 2022: 217, 221, 222, 231, 232, 233, 234
- CARs 2023: 005, 006, 007, 169, 170, 171
- CARs 2024: 018, 020, 056, 074, 075