

NRC INSPECTION MANUAL

NMSS/DFM

INSPECTION MANUAL CHAPTER 2694

FUEL CYCLE FACILITY CONSTRUCTION AND PRE-OPERATIONAL READINESS REVIEW INSPECTION PROGRAM

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2694-01 PURPOSE

The purpose of this Inspection Manual Chapter (IMC) is to define the construction inspection program (CIP) for fuel cycle facilities¹ (FCF) that are constructing new facilities per a license issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70, "Domestic Licensing of Special Nuclear Material" or under 10 CFR Part 40, "Domestic Licensing of Source Material."

2694-02 OBJECTIVES

The primary objective of this IMC is to establish a CIP for inspecting safety significant items and services (SSIS), and the associated activities that are conducted by the applicant or new licensee and their consultants, contractors, and suppliers. The following objectives are included in the CIP:

- 02.01 Verify, as applicable, that regulatory requirements and licensee commitments for management measures (MMs) are included in the design, fabrication, procurement, construction, and pre-operational testing of the facility.
- 02.02 Independently verify that the facility and associated SSIS, such as items relied on for safety (IROFS), are constructed and maintained in accordance with the MMs program, the license or license application, and the integrated safety analysis (ISA) or integrated safety analysis summary (ISAS).
- 02.03 Verify the effective implementation of a safety program that includes the following elements: 1) process safety information, 2) the ISA, and 3) MMs, as applicable.
- 02.04 Verify the effective implementation of the MMs program. Verify that this includes timely implementation of organizational staffing, procedures, instructions, MMs activities, and administrative controls necessary for licensee personnel, contractors, and subcontractors to achieve quality objectives important to safety.
- 02.05 Conduct risk-informed performance-based inspections and/or operational readiness reviews (ORR) across key construction functional areas (see Appendix B for a listing of areas) to verify that the licensee is prepared to implement the policies, processes, programs and procedures described in the license or license application, that are intended to protect health and minimize danger to life or property, protect the environment, physically secure the facility, transport of classified materials, and protect and secure classified and safeguards information. The results of these inspections will be used to determine whether any applicable license condition(s) required for subsequent operations have been met.

¹ FCFs that will process plutonium are not included in this IMC due to the unique hazards associated with the licensed material. In addition, fuel fabrication plants that process plutonium are required to comply with the quality assurance criteria in Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," of 10 CFR Part 50 per 10 CFR 70.22, "Contents of Applications," subpart (f). The CIP for this type of facility is included in IMC 2630, "Mixed Oxide Fuel Fabrication Facility Construction Inspection Program," or similar IMC.

2694-03 APPLICABILITY

The fuel cycle CIP applies to the construction of new FCFs that have been issued or require a license from the NRC, and includes nuclear fuel fabrication facilities, uranium enrichment plants, and uranium conversion plants. The CIP applies to all construction activities including design, procurement, fabrication, construction, and pre-operational testing activities. Note: Inspection oversight for major modifications for existing licensees are managed under IMC 2600, "Fuel Cycle Facility Operational Safety and Safeguards Inspection Program."

Implementation of this IMC will begin at an applicable time as determined by the NRC, but no later than the start of SSIS work by the applicant or licensee. The IMC 2694 applicability will continue through facility construction and pre-operational readiness activities and end at the issuance of the authorization to operate and process special nuclear material (SNM). Upon authorization to operate, the FCF oversight program is transferred and managed under IMC 2600.

Inspection and assessment activities for facilities undergoing construction and pre-operational readiness activities, including licensee activities that are performed "at-risk," (i.e., prior to NRC review and approval of a license or required license amendment) should be handled on a case-by-case basis. The FCFs in non-operating status generally do not pose the same levels of risk as operating facilities. Certain inspection procedures (IPs) may not be applicable in these cases, and others may need to be adjusted to the given situation to reflect the actual level of risk associated with each situation.

2694-04 DEFINITIONS

- 04.01 At-Risk Construction. The commencement of construction, as defined in 10 CFR 40.4 or 70.4, as applicable, prior to the approval of a license or license amendment in accordance with 10 CFR Part 40 or 70. At-risk construction applies to existing licensees constructing major modifications, and to new licensees or applicants constructing new facilities. Note: Commencement of construction, prior to the approval of a license or license amendment, may result in grounds for denial to possess and use special nuclear material in the plant or facility (per 10 CFR 40.32(e) or 10 CFR 70.23(a)(7)).
- 04.02 In-Process Construction. A new construction or major modification item or activity that is partially complete in that construction has commenced but all planned work steps, quality assurance requirements, MMs, tests, or other actions necessary to provide confidence that the item or activity conforms to specified requirements have not yet been completed which would reasonably be expected to identify, if adequately performed, any deviations from specified requirements prior to acceptance of the item or activity for use or service. An item should no longer be considered in-process if it has been accepted or approved by the entity responsible for performing independent inspection, if applicable.
- 04.03 Inspection Types. Inspections are classified as compliance-based or performance-based and are defined below.
- a. Compliance-based inspections emphasize compliance with NRC requirements or regulatory commitments that specify SSIS, such as IROFS, features, actions, or programmatic elements.

- b. Performance-based inspections emphasize inspection of actual activities and results. Performance-based inspections require measurable or calculable parameters and objective performance assessment criteria.

04.04 IROFS Boundary Packages. The IROFS boundary packages identify the specific functions to be performed by an IROFS and identify any items that may affect the function of the IROFS. The boundary packages may include information on planned and preventive maintenance, functional testing and inspection, calibration, and support systems (including instrumentation, cooling, etc.), as applicable. They also may include information on applicable MMs and records requirements for the IROFS.

04.05 Construction Open Item. A Construction Open Item is an inspection tracking mechanism for applicants performing construction activities at-risk, in which the licensing basis has not been established for the proposed activity through the issuance of a license required by 10 CFR Part 40 or 70, as applicable. A Construction Open Item is an observation during at-risk construction of a potential departure from a standard, design or construction document, license application, regulation, or any requirement, commitment, or condition reasonably expected to be established in a license issued in accordance with 10 CFR Part 40 or 70, as applicable. The discrepancy, if left unresolved, may result in a potential failure to meet a future regulatory requirement, condition of a license, or commitment. Construction Open Items shall be dispositioned and closed prior to the authorization to introduce licensed nuclear material (source, byproduct, and special) into the facility.

Construction Open Items will not be used to track new issues once the license is issued. Exiting Construction Open Items will be dispositioned in a timely manner after the license is issued. Such disposition may include closure with no action taken or transition to an Observation, Unresolved Item (URI), or Violation, as appropriate. For new licensees that are constructing at-risk with respect to a license amendment request (LAR), URIs will be issued for potential departures, identified during at-risk construction, from a standard, design or construction document, etc., identified in the LAR. URIs identified during at-risk construction, shall also be dispositioned prior to the authorization to operate.

04.06 Operational Readiness Review (ORR). An assessment review performed to satisfy a license condition or other regulatory requirement by a multi-disciplined inspection team to verify that a new facility or major modification can be operated safely within the intended safety basis. As part of the decision to commence operation of a new facility or a major modification, the NRC may review, assess, and consider the state of readiness of facility operation based on the results of the ORR inspection.

Prior to the authorization granted by the NRC to operate under its license, the NRC must verify that the facility is constructed in accordance with the requirements of the license. 10 CFR 70.32, "Conditions of Licenses," subpart (k) and 10 CFR 40.41, "Terms and Conditions of Licenses," subpart (g) establishes this process for uranium enrichment facilities. The NRC verifies that this requirement is met by performing ORRs. For non-enrichment facilities, NUREG-1520, "Standard Review Plan for Fuel Cycle Facilities License Applications," states that it is expected (though not explicitly required) that fuel cycle facilities will have ORRs prior to commercial operation via a license condition.

04.07 Safety-Significant Items and Services (SSIS). SSIS are those structures, systems, equipment, components, and activities of personnel that are designated as IROFS or

have a required safety function related to nuclear material (source, byproduct, or special). This is not intended to create a new regulatorily required category, only to provide a single umbrella term.

- 04.08 Very Low Safety Significance Issue Resolution (VLSSIR). The VLSSIR process, described in IMC 0610 Appendix G, was developed to provide a means for discontinuing inspection of issues involving unresolved licensing questions at existing facilities. Licensing basis questions typically arise at existing facilities due to the unavailability and/or quality of the historical record documenting the original licensing process, licensing basis, and the specific considerations, expectations, and commitments for the facility.

The VLSSIR process allows discontinuing inspection of issues involving an unresolved licensing basis question in which: (1) the resolution of the issue would require considerable staff effort; and (2) the agency has chosen to not expend further effort to resolve the question because the issue would be no greater than severity level (SL) IV, if determined to be a violation. The VLSSIR process cannot be used to disposition a known compliance issue or an issue where there is a clear indication that a noncompliance occurred, regardless of the significance.

The licensing basis for new facilities should be clearly defined and documented. Similar questions to those concerning the licensing basis for existing facilities due to limitations in the historical record should not arise for new facilities and as a result, the VLSSIR process is not applicable to new facilities.

2694-05 RESPONSIBILITIES AND AUTHORITIES

05.01 Director, Office of Nuclear Material Safety and Safeguards (NMSS)

Provides overall program direction for the fuel cycle CIP.

05.02 Regional Administrator, Region II

- a. Provides direction for management and implementation of the fuel cycle CIP elements.
- b. Ensures, within budget limitations, that the regional office staff includes adequate numbers of inspectors in the various disciplines necessary to carry out the inspection program described in this chapter, including that which may be needed for regional supplemental and reactive inspections.
- c. Directs the implementation of the supplemental inspection program, as applicable for construction activities.
- d. Applies inspection resources, as necessary, to deal with significant issues and problems at specific facilities under construction.
- e. Approves, signs, and issues authorization letters permitting the operation of new FCFs licensed under 10 CFR Part 40, "Domestic Licensing of Source Material" and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," as noted in Management Directive (MD) 9.29, "Organization and Functions, Regional Offices," and delegation of authority memorandum, "Delegation of Signature Authority – Authorizing the Operation

of Fuel Cycle Facilities,” (Agencywide Documents Access and Management System [ADAMS] Accession No. ML24229A190).

05.03 Director, Division of Fuel Management (DFM)

- a. Develops and directs the implementation of policies, programs, and procedures for inspecting applicants, licensees, and other entities subject to NRC jurisdiction.
- b. Assesses the effectiveness, uniformity, and completeness of the fuel cycle CIP.
- c. Approves changes to the FCF CIP.
- d. Approves proposed deviations from the inspection program described herein.

05.04 Director, Division of Fuels, Radiological Safety, and Security (DFRSS)

- a. Manages the implementation of the CIP elements.
- b. Develops and updates the Principal Inspection Plans (PIP) for fuel cycle inspections.
- c. Coordinates with DFM and NSIR to obtain specialized technical expertise, as necessary.
- d. Communicates significant changes to the CIP hours to DFM, submits deviations from the inspection program to DFM, as applicable, and coordinates with DFM on inspections of high visibility.
- e. Coordinates with additional agency staff, including Region II inspectors with expertise in construction technical areas, to complete associated IPs for construction activities.

05.05 Director, Division of Operating Reactor Safety (DORS)²

- a. Manages the implementation of the associated CIP elements.
- b. Coordinates with additional agency staff, including Region II DFRSS and DFM, to obtain specialized technical expertise in construction technical areas, to complete associated IPs for construction activities.

05.06 Director, Nuclear Security and Incident Response (NSIR)

- a. Oversees the implementation of the safeguards portion of the fuel cycle CIP (information security/physical security).
- b. Applies inspection resources, as necessary, to deal with significant issues and problems at specific facilities under construction.

05.07 Chief, Regional Fuels Oversight Branch

- a. Implements the fuel cycle CIP.
- b. Develops the branch PIP input.

² These responsibilities apply only when DORS has been designated as the lead entity responsible for construction inspection of a specified FCF.

- c. Coordinates with other appropriate inspection organizations in assessing facility performance.

05.08 Chief, Inspection and Oversight Branch (IOB), Division of Fuel Management

- a. Proposes changes to the fuel cycle CIP.
- b. Coordinates with Region II and DFM in assessing facility performance.

05.09 Chief, Material Control & Accounting Branch (MCAB), Division of Fuel Management

Proposes changes to the material control and accounting (MC&A) portion of the fuel cycle CIP.

2694-06 REQUIREMENTS

06.01 General

The CIP provides the inspection requirements for selectively assessing the SSIS and safety programs, as applicable. This includes the implementation of the applicant or new licensee's MMs program used to ensure the availability and reliability of IROFS or other controls, as applicable. Emphasis should be placed on, but not limited to, the inspection of the most risk significant SSIS as described in the licensing basis documents.

Emphasis is also to be placed on the licensee's oversight of principal contractors who are delegated authority to conduct activities related to safety, to verify they are implementing MMs in accordance with the licensee's program. The inspection program should include direct inspections as necessary to determine whether the elements of the licensee's MMs program are being effectively implemented throughout all stages of construction of SSIS, including equipment fabrication, assembly and installation, construction of new structures, systems, and components, as applicable.

06.02 Inspection Planning and Scheduling Considerations

The CIP inspection schedule should be based on the licensee's construction schedule and should be modified and updated periodically during the entire construction period.

Inspections should be announced, coordinated, and scheduled with the applicant/licensee such that the efficiency and effectiveness of the inspection effort are enhanced, and unnecessary burdens are minimized. As appropriate, inspections of various construction activities may be scheduled on rare occasion as unannounced inspections.

Emphasis should be placed on early identification of problems. Inspections will be conducted periodically throughout construction. Inspections will be scheduled early in the process during implementation of individual construction activities to develop confidence that the specific activities are being adequately performed at all stages. Inspection depth and frequencies may be expanded, if significant deficiencies are occurring, and during the licensee performance review (LPR), it is determined that additional or comprehensive construction program reviews are needed to identify underlying causes and the extent of problem areas to ensure areas needing

improvement have been corrected. Appendix B of this IMC provides additional guidance for conducting LPRs for facilities under construction.

NRC Region II will develop, maintain and implement a PIP and a schedule for the scope of the CIP at a specific facility, in accordance with Appendix C of this IMC. The PIP will be developed in coordination with the NMSS, NSIR, and other Region II disciplines, as needed, for specific time frames related to licensing and construction milestones for the project. The PIP will include the scope and the IPs that will be used for the inspections. The list of procedures for conducting inspections is provided in Appendix A of this IMC. The PIP will provide flexibility to address emerging issues that require additional inspection effort including receipt of allegations or changes in scheduling activities by the licensee.

06.03 Inspection and Technical Personnel Considerations

Qualified inspectors will be assigned responsibility for the conduct of applicable inspection requirements consistent with their experience and qualifications. In conducting this inspection program, it is necessary that inspectors be trained and/or experienced in the areas of Part 70 and/or Part 40, MMs, engineering, procurement, and construction activities applicable to the activities they are to inspect. A subject matter expert may accompany or assist inspectors to provide expertise in specific areas to enhance or expand the inspection effort. To this aim, the inspectors may be from the region, NSIR, NMSS inspectors, or other NRC and contractor organizations.

2694-07 GUIDANCE

07.01 General

The applicant/licensee holds primary responsibility for the safety of the FCF. The NRC provides independent oversight by conducting a sample of inspection activities to verify that construction is proceeding in accordance with regulatory requirements. The CIP outlined in this IMC represents the minimum level of oversight recommended to establish an acceptable level of confidence in the adequacy of facility construction and to support a conclusion there is reasonable assurance the licensee is prepared to safely operate the facility.

This IMC emphasizes a systematic evaluation of both the adequacy and implementation of the applicant's/licensee's safety programs. NRC inspections will focus on selected construction activities at the site. Inspection priorities are established through planned sampling of SSIS, including IROFS, and related with consideration given to their safety significance and the licensee's performance in inspected areas.

07.02 Inspection Areas

The specific areas to be inspected will include a sampling of the applicant's/licensee's SSIS and regulatory and safety commitments as identified in the approved license application, license, ISA, ISAS, and MMs program. SSIS, such as IROFS, for inspection will be chosen based on safety significance and evaluated with respect to multiple safety disciplines (criticality, fire, chemical, radiological, environmental) and engineering disciplines (civil, mechanical, electrical), as applicable.

Additionally, the NRC will periodically inspect the licensee's MM programs for adequate assurance that SSIS are designed, procured, fabricated, and installed/refurbished in accordance with the licensing bases documents, including ISAS and IROFS boundary packages, as applicable. The inspections will also verify that as-built construction, including in-process construction, as applicable, meets the approved design. In addition, the licensee's design change and design control process will be reviewed to verify that the design process effectively implements NRC requirements and other commitments made by the licensee.

Inspectors will utilize IPs 88200, "Inspections of Safety Significant Items and Services During Construction of Fuel Cycle Facilities," and IP 88201, "Inspections of Management Measures During Construction of Fuel Cycle Facilities," for technical and MMs inspections, as applicable, during the construction phase. Inspectors will utilize IP 88202, "Inspections of Operational Readiness During Construction of Fuel Cycle Facilities," along with existing operating core IPs (e.g., IP 88020, "Operational Safety") during ORR inspections, as applicable.

07.03 Inspection Procedures (IPs)

The PIP will use the IPs and appendices listed in Appendix A of this IMC. Some IPs may cover more than one inspection area, and additional IPs may be used as necessary or may not be applicable depending on the facility design.

07.04 Implementation

Region II is responsible for managing and implementing the PIP described in this IMC. The scheduling and conduct of inspections will be coordinated between Region II, NMSS, and NSIR, as appropriate, to ensure the effective and efficient completion of the inspection program.

This IMC is intended to provide the framework for managing the inspection effort. Where needed, sample sizes, frequencies of periodic inspections, and the time frame when certain inspection activities are to be performed are provided in the appropriate IP and/or PIP.

The inspection staff is expected to plan and conduct inspections based on safety considerations, current activities, and prior inspection results. Inspection staff should develop a schedule of inspections to be conducted based on the anticipated site activities that are to be performed. Inspection staff should review and revise the schedule as needed to account for changes in site activities.

The activities for conducting inspections should include the following:

- a. Developing and documenting detailed inspection plans consistent with the PIP.
- b. Scheduling and coordinating inspection activities in accordance with this IMC.
- c. Communicating inspection results, findings, and Construction Open Items to appropriate NRC and applicant/licensee management.
- d. Documenting completed inspections, findings, and Construction Open Items, as applicable.

Inspection issues related to occupational health and safety should be evaluated in accordance with IMC 1007, "Interaction Activities Between Regional Offices and OSHA."

If inspection findings or Construction Open Items are identified at a FCF under construction that also has the potential to have an impact on the U.S. Department of Energy (DOE) activities or jurisdiction, issues should be evaluated and referred in accordance with the memorandum of understanding between the DOE and NRC specific to the facility, if applicable.

07.05 Inspection and Technical Personnel Considerations

Inspectors and technical representatives will be assigned responsibility for performing inspections consistent with their qualifications. In addition, inspectors performing inspection activities will either be provided familiarization training on this IMC and related procedures and/or become familiar with the requirements of this IMC and the applicable requirements of 10 CFR Parts 19, 20, 21, 30, 40, 70, 73, 74, and 95, as appropriate.

07.06 Inspection Requirements

Inspections will be based on 10 CFR Parts 20, 21, 30, 40, 70, and other applicable regulations, commitments, license application or license, and other documents including ISA, ISAS, etc., as part of the licensing basis. Inspections will confirm that applicable regulations, requirements, and commitments have been met. Selection of inspection attributes will be based on safety considerations, complexity of work activities, and construction experience.

07.07 Focus of Inspections

In order to effectively and efficiently allocate inspection resources, the NRC will perform sampling-type inspections to verify that the licensee is in compliance with NRC regulations. A combination of SSIS sample selection, risk-informed approaches, and inspections of the MM program will be used to help determine the necessary level of inspection effort.

Inspection staff will use applicable information from licensing basis documents to identify those SSIS whose failure would most greatly impact safety. This approach will identify safety significant SSIS so that the construction and pre-operational inspection samples are focused on those SSIS. The amount of inspection and activities selected for inspection should be consistent with the importance to safety of the SSIS and informed by prior inspection results in those construction areas.

Inspectors should consider how natural phenomena hazards could potentially affect SSIS that the licensee relies upon to maintain safety. This includes SSIS as well as procedures and personnel that the licensee relies upon to maintain safety and mitigate the consequences of natural phenomena-induced radiological, criticality, chemical, fire, and environmental accident sequences. One reference inspectors may consider for these types of inspections is Generic Letter 2015-01, "Treatment of Natural Phenomena Hazards in Fuel Cycle Facilities," (ML14328A029). In addition, inspections should reference the baseline design criteria in 10 CFR 70.64, as applicable, along with the applicable codes and standards referenced in the licensing basis of the facility. Inspectors should verify that the design bases of the SSIS and the MM programs are

implemented during construction to provide reasonable assurance of protection against natural phenomena and the consequences of potential accidents.

Inspection activities should emphasize the early identification of problem areas. It is important that inspectors evaluate whether noted problems represent isolated cases or are symptomatic of more programmatic problems. The PIP should be considered a living document and can be modified based on inspection findings and the quality of construction. To provide the perspective to perform this evaluation, inspectors should:

- a. determine the extent and the effectiveness of licensee's oversight of SSIS quality-related activities, as required by the MM program;
- b. examine the resolution of previously-identified problem areas and/or recurring problems, as required by the licensing basis documents and MMs programs;
- c. review deficiencies, assessment findings, and problems identified by the applicant/licensee or by its consultants, contractors, or suppliers identifying trends and/or problem areas; and
- d. determine whether additional NRC inspection efforts are merited in areas of concern.

Note: The evaluation described above and potential modifications to the PIP based on this evaluation is an ongoing process based on the principles of good regulation and is a different process than the formal LPR process.

07.08 Inspections During At-Risk Construction Activities.

During at-risk construction, NRC inspectors will concurrently perform oversight activities for such construction during the application or LAR review. These oversight activities do not constitute an approval of the design, application, or LAR. Instead, the oversight activities are intended to verify that the applicant or new licensee is constructing in accordance with the proposed design, based on the most up-to-date information submitted on the docket, with a priority given to work that the staff can only verify during construction. In particular, the oversight activities will focus on ensuring that the facility is constructed with sufficient quality standards. For example, inspectors may perform oversight activities related to structural concrete, structural steel, structural welding, piping systems, electrical components and systems, mechanical components and systems, fire protection systems, and confinement systems. Inspectors will carefully consider compliance with regulatory requirements, implementation of MMs, and the resolution of any identified deficiencies.

- a. A Construction Open Item, identified during at-risk construction activities, is an inspection tracking mechanism that applies only to new applicants, for which a licensing basis does not exist at the time the Construction Open Item was identified. Construction Open Items are discrepancies identified between the as-built condition and the license application, environmental report, ISAS, or other design basis document that supports the licensing review being performed. The inspector should identify, to the greatest degree possible, what information is required to close the Construction Open Item to the applicant at the exit meeting and a schedule for obtaining that information should be obtained.

- b. For new licensees that are constructing at-risk with respect to a LAR, URIs will be issued for potential departures identified between as-built construction and applicable standards, designs or construction documents, etc., identified in the LAR that, if left unresolved, may result in a non-compliance. URIs identified during at-risk construction, shall also be dispositioned prior to the authorization to operate.
- c. Processing Construction Open Items/URIs
 - 1. Construction Open Items and URIs for at-risk construction discrepancies will be documented in publicly available reports, in accordance with IMC 0616, "Fuel Cycle Safety and Safeguards Inspection Reports," for transparency to internal and external stakeholders.
 - 2. If a Construction Open Item/URI is resolved prior to issuance of a license or LAR, and/or does not result in a departure from the approved license or amendment, the Construction Open Item/URI will be closed with no enforcement action and documented appropriately. If the Construction Open Item/URI results in a departure from the licensing basis, the observation will be evaluated to determine if a violation has occurred and documented appropriately.

Specifically, for closure of Construction Open Items, enforcement typically would not apply because a license requirement did not exist at the time the Construction Open Item was identified. However, if the existing discrepancy is not adequately addressed and remains after a license has been issued, the staff shall consider how these deviation(s) should be dispositioned using NRC guidance including the Enforcement Policy, prior to issuance of the authorization to process SNM.

- 3. Each Construction Open Item/URI will be considered on a case-by-case basis, and may require further inspection to close, either during construction or during an ORR. Construction Open Items/URI, generically, could be resolved in multiple ways, including but not limited to physically reworking the as-built condition to match the future licensing requirements; revise/update licensing requirements; and/or utilize the configuration management program to change the design, justify as-built use-as-is configurations, etc.
- 4. The failure of the licensee to take the appropriate corrective actions to address the Construction Open Items/URIs by the end of the construction phase could result in a denial by the NRC to allow operations.

07.09 Operational Readiness Reviews (ORR)

- a. Prior to the authorization granted by the NRC to operate a uranium enrichment facility under its license, the NRC verifies that the facility is constructed in accordance with the requirements of the license. As required by 10 CFR 70.32, "Conditions of Licenses," subpart (k) and 10 CFR 40.41, "Terms and Conditions of Licenses," subpart (g) establishes this process for uranium enrichment facilities. The NRC staff verifies that this requirement is met by performing ORRs. For non-enrichment facilities, NUREG-1520, "Standard Review Plan for Fuel Cycle Facilities License Applications," states that it is expected (though not explicitly required) that FCFs will have ORRs prior to commercial operation via a license condition.

- b. The NRC may consider the use of phased ORR inspections as a tool to provide input for decisions regarding the operational readiness of areas and processes. In order to support a decision to allow operations, NRC senior management reviews and assesses the state of readiness of facility operation based on the results of the ORR inspection(s). The status of previously identified inspection findings, Construction Open Items, and URIs identified during at-risk construction, are also considered during the decision-making process.
- c. IP 88202, "Inspections of Operational Readiness During Construction of Fuel Cycle Facilities," is applicable to uranium enrichment facilities at which operation is prohibited by 10 CFR 40.41(g) and 10 CFR 70.32(k) until the Commission verifies through inspection that the facility has been constructed in accordance with the requirements of the license. It may also be used for new FCF, other than uranium enrichment facilities, where a license condition exists that specifies that an ORR be conducted before operation to verify that the facility has been constructed in accordance with the requirements of the license.
- d. ORR inspections will include, but are not limited to:
 - 1. SSIS such as IROFS, and associated MMs with a focus on operational readiness to support safe processing of SNM;
 - 2. IROFS samples may focus more specifically on administrative controls and/or IROFS that due to the nature of construction, were not previously inspected;
 - 3. Functional area programs, as applicable; and applicant's or new licensee's resolutions/corrective actions associated with Construction Open Items identified at-risk construction or other findings/violations identified during construction, as applicable.

07.10 Entrance and Exit Meetings

a. Inspector Communications with Licensee Management

Inspectors are required to engage with licensee management as part of every inspection. This includes regular daily communication and entrance/exit discussions to ensure transparency and provide updates on inspection progress and findings.

b. Entrance and Exit Meetings

1. Entrance Meetings

Inspectors should conduct an entrance meeting with the senior licensee representative responsible for the areas being inspected. For non-routine inspections (e.g., reactive inspections), an entrance meeting must be held to outline the purpose and scope of the inspection.

2. Exit Meetings

An exit meeting must be held whenever:

- (a) a more-than-minor violation is preliminarily identified, or
- (b) a URI is opened.

While formal entrance and exit meetings are generally expected, they are not required if both the licensee management and the inspection team lead agree they are unnecessary. Regardless of the format, inspectors must communicate any changes to open items and any minor violations to the appropriate licensee point of contact before departing the site.

Exit meetings may be conducted in person, virtually, or in a hybrid format. They may also be held after the conclusion of onsite activities (e.g., during the following week), provided:

- the licensee is informed of the official end of the inspection before inspectors leave the site, and
- no additional inspection hours are charged beyond the onsite portion, except when the inspection is held open with branch chief approval (e.g., pending receipt of requested documentation).

c. Communication of Observations and Insights

Clear communication of inspection observations is a critical part of the inspection process and should occur regularly throughout the inspection. These communications may include daily discussions, periodic status meetings, or a pre-exit meeting if desired by the team and licensee.

Inspectors are encouraged to share relevant insights with licensee management, even if those insights do not meet the threshold for inclusion in an inspection report (e.g., observations that deviate from guidance but are not violations). When doing so, inspectors should:

1. First share the insights with regional management and the senior resident inspector.
2. Ensure all insights are relevant to NRC's regulatory responsibilities.
3. Be objective, factual, and specific—avoid generalizations (e.g., use "Procedures were followed in each case we observed" instead of "Procedure adherence was good").
4. Avoid advising or consulting with the licensee (e.g., do not suggest how to improve draft documents or compare practices across facilities).
5. Determine in advance whether the licensee wants to receive such observations during the exit meeting. If not, they should not be discussed at that time.

d. Charging of Inspection Time

1. Time spent on scheduled entrance and exit meetings, including preparation, is inspection time and should be distributed among the applicable IPs.
2. Routine daily communications with licensee management are also considered part of the inspection and should be charged accordingly.
3. Time for post-inspection virtual exit meetings should not be charged unless the inspection is officially extended with approval.

07.11 Inspection Reports

Inspection findings shall be documented in inspection reports in accordance with the applicable revision to IMC 0616. When possible, routine inspection results and findings should be integrated into a single, periodic inspection report, comprised of one or more visits by regional or headquarters inspectors. Inspection issues that cannot be resolved at the time of the inspection will be documented as a Construction Open Item if the issue was identified during construction at-risk, or an URI if a license has been issued. It is imperative that inspection findings and Construction Open Items/URIs, for discrepancies identified during at-risk construction, are appropriately documented in the inspection reports so that subsequent inspections can verify whether the licensee took the appropriate corrective actions. The Region II staff will track and close inspection findings in accordance with procedures and processes.

To the extent possible, inspection reports will be written to limit the amount of classified and sensitive information contained within the reports. Inspection reports that do contain classified or sensitive information must be appropriately handled, marked and protected as required by the applicable NRC directives regarding classified information, safeguards information, and sensitive unclassified non-safeguards information.

07.12 Inspection Findings and Enforcement

Inspection findings, identified during the construction and pre-operational phases of FCFs for which this IMC is applicable, will be documented in accordance with IMC 0616, after they have been placed in context and assessed for safety significance. Violations from construction inspection activities will be processed in accordance with the NRC Enforcement Policy. During construction and pre-operational activities, the guidance in the Enforcement Policy, Section 2.2.6, "Construction," and Section 6.5, "Facility Construction (10 CFR Part 50 and 52 Licensees and Fuel Cycle Facilities)," will apply for determining the appropriate SL for MM violations and/or quality assurance (QA) violations, as applicable. The inspection findings will be categorized as violations, non-cited violations, apparent violations, deviations, nonconformances, or URIs. This includes the use of notices of violations for violations of SL IV and above and civil penalties, as appropriate.

For applicants conducting construction activities, as defined by 10 CFR 40.4 and 70.4, and being performed at-risk, inspection findings such as violations, non-cited violations, and apparent violations, do not typically arise without a licensing basis. However, some cases may occur during construction that warrant enforcement actions. Some examples may include:

1. an event resulting in actual consequences, such as an inadvertent exposure during radiography examinations, that exceeded radiation exposures exceeding 10 CFR Part 20, "Standards for Protection Against Radiation;"
2. licensing submittal or failure to submit information to the NRC that impacted the ability of the NRC to perform its regulatory oversight function; or
3. willful violations by applicants, their contractors, employees, and agents.

During construction inspections, the failure of the licensee/applicant to meet commitments specified in the license application or other licensing basis documents

(e.g., ISA/ISAS), shall be documented in the inspection report(s) as noted above. The failure of the licensee/applicant to take the appropriate corrective actions to address the inspection findings and/or Construction Open Items/URIs prior to completion of construction and pre-operational testing, could result in a denial by the NRC to allow operations.

In some rare cases, Construction Open Items/URIs, identified during construction performed prior to an approved licensing basis, may reveal issues associated with the assumptions upon which the ISA or license application/LAR is based. In these cases, a Construction Open Item/URI could impact the decision to grant a license. Additionally, the severity and number of Construction Open Items/URIs, may impact the decision to grant a license. As such, ongoing communication between Region II staff and NMSS, is essential, especially during at-risk construction inspection findings that could potentially impact licensing decisions.

07.13 Licensee Performance Review (LPR)

Periodic reviews of the licensee's performance of construction and pre-operational activities provide NRC management with an overview of the licensee's performance and provide feedback of NRC management's conclusions regarding the quality of the licensee's programs for protecting the public health and safety. Increases or decreases in inspection oversight will be based on an assessment of licensee performance. Note: LPR's do not apply to applicants constructing at-risk.

An objective of the program is to provide a body of information that will be used as guidance to NRC management on changes that may be required in the facility specific construction and pre-operational inspection programs. IMC 2604, "Licensee Performance Review," describes the program for conducting and documenting evaluations of licensee performance and is supplemented with Appendix B of this IMC that provides guidance to assess the licensee's performance in the construction phase. The responsibilities and authorities, performance review scheduling, review process, and documentation guidelines specified in IMC 2604 should be used in conducting the LPR. Region II is responsible for adjusting the scope and frequency of the review during the construction and pre-operational phases, as needed, based on construction schedules and inspection findings. An initial recommended frequency for this assessment is once per year, with the initial assessment occurring approximately one year after the start of construction activities.

07.14 Resident Inspector(s) for FCFs Under Construction

Based upon the unique circumstances of the facility under construction, construction resident inspector(s) may be deemed necessary to provide oversight and to better manage changes to the PIP. The decision to assign one or more resident inspectors during construction will be made by the Office Director of NMSS and the Regional Administrator of Region II under the advice of the Division Directors for DFM and DFRSS. The following considerations may assist management in determining if resident inspector(s) are warranted:

- a. the number, frequency, and complexity of the inspection activities
- b. the quality and ability to have effective communications on construction status, schedule changes, and modifications to the design

- c. the qualitative risk associated with the facility's processes and construction
- d. Physical Security or Information Security (INFOSEC) requirements both during construction and during operations
- e. the stages of construction and the inspection-needs at those times
- f. planned construction pace

If warranted, construction resident inspector(s) may also serve as project managers for construction activities—including the development and implementation of the PIP. The determination for the need for one or more resident inspectors should be made as early as possible.

2694-08 REFERENCES

Delegation of Authority Memorandum, "Delegation of Signature Authority – Authorizing the Operation of Fuel Cycle Facilities," (ML24229A190)

Generic Letter 2015-01, "Treatment of Natural Phenomena Hazards in Fuel Cycle Facilities," (ML14328A029)

IMC 0616, "Fuel Cycle Safety and Safeguards Inspection Reports"

IMC 1007, "Interfacing Activities Between Regional Offices of NRC and OSHA"

IMC 2604, "Licensee Performance Review"

IMC 2681, "Physical Protection and Transport of Special Nuclear Material and Irradiated Fuel Inspections of Fuel Facilities"

IMC 2683, "Material Control and Accounting Inspection of Fuel Cycle Facilities"

IP 92702, "Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders"

MD 4.5, "Contingency Plan for Periods of Lapsed Appropriations"

MD 9.29, "Organization and Functions, Regional Offices"

MD 8.3, "NRC Incident Investigation Program"

NMSS Policy & Procedure 7-05, "Procedures for Processing of Technical Assistance Requests"

NRC Enforcement Policy

NUREG-1520, "Standard Review Plan for Fuel Cycle Facilities License Applications"

Temporary Instruction 2600/016, "Inspection of Activities Associated with NRC Generic Letter 2015-01," Revision 1, (ML16293A899)

END

List of Appendices:

- Appendix A: Fuel Facility Construction Inspection Program – Construction and Pre-operational Inspection Procedures
- Appendix B: Fuel Facility Construction Inspection Program – Licensee Performance Review, Supplement for Inspection Manual Chapter (IMC) 2604
- Appendix C: Principal Inspection Plan (PIP) Creation

List of Attachments:

- Attachment 1: Revision History for ICM 2694

Attachment 1: Revision History for IMC 2694

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML071270569 05/16/07 CN-07-016	New document created to implement the construction and ORR inspection program at United States Enrichment Corporation (USEC), Inc. American Centrifuge Plant (ACP).	None	ML071270550
N/A	ML15261A629 12/17/15 CN-15-030	Revision 1 – Correct editorials; updates information to address material license transfer; address change in responsibilities for NRC Region II, NSIR, and NMSS.	None	ML15261A632
N/A	ML17069A203 08/30/17 CN-17-017	The IMC was revised to be a general IMC and is no longer specific to ACP. The new IMC was revised to accommodate new applicants as well. Updated IP list to reflect only those on the public or official use only Inspection Procedure databases Update reference to Enforcement Policy as “Supplement II” as it no longer exists in the current document. Modified the purpose of IMC to pull content from TI 2600/015; the licensee’s preparedness to prevent or mitigate credible events.	None	ML17096A378
N/A	ML25030A117 06/24/25 CN 25-020	Construction Inspection Update: Major revision, including at-risk construction, use of Open Items, new Appendix C: “Principal Inspection Plan (PIP) Creation,” and reference to three new construction inspection procedures: IP 88200, IP 88201, and IP 88202. Updates also made for NRC Region II (RII) reorganization.	None	N/A