NRC INSPECTION MANUAL

MANUAL CHAPTER 2630 NMSS/FCSS

MIXED OXIDE FUEL FABRICATION FACILITY CONSTRUCTION INSPECTION PROGRAM

2630-01 PURPOSE

The purpose of this Inspection Manual Chapter (IMC) is to define the Construction Inspection Program (CIP) for the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF). Specifically, the CIP will (1) verify that the design bases of the principal systems, structures, and components (PSSCs) and the Quality Assurance (QA) Program are being adequately implemented during construction to provide reasonable assurance of protection against natural phenomena and the consequences of potential accidents; and (2) verify that the construction of the PSSCs and items relied on for safety (IROFS) have been completed in accordance with the construction authorization and license application to possess and use special nuclear material in the MFFF.

Under a U.S. Department of Energy (DOE) initiative to determine options for the disposition of surplus plutonium from the weapons program, DOE selected an approach of fabricating mixed oxide fuel for use in commercial nuclear power plants, and selected the Savannah River Site for the MFFF. The Defense Appropriations Act of 1999, Section 202 of the Energy Reorganization Act of 1974, was amended to require U.S. Nuclear Regulatory Commission (NRC) licensing of the facility for fabricating mixed plutonium-uranium oxide nuclear reactor fuel for use in commercial nuclear reactors. NRC will perform the licensing under the provisions of 10 CFR Part 70.

Before an applicant is granted a license to operate a plutonium processing and fuel fabrication plant, the Commission must verify that the construction of the PSSCs has been in accordance with the application. In addition, the license application must include a description of the applicant's safety program and a summary of the integrated safety analysis (ISA). The safety program must demonstrate that each IROFS will perform its intended function to limit risks at the facility. The safety program is composed of process safety information, ISA, and management measures.

The MFFF CIP applies to all construction activities, including, the design, procurement, fabrication, construction, and pre-operational testing activities. Implementation of this IMC will begin at an applicable time as determined by NRC, but no later than the NRC issuance of the construction authorization, and will continue through facility construction activities as noted above.

2630-02 OBJECTIVES

The primary objective of this manual chapter is to establish a CIP for inspecting PSSCs and IROFS and inspecting associated activities that are conducted by the applicant and its consultants, contractors, and suppliers, to support the decision on issuance of a license to possess and use special nuclear material in the MFFF. The following objectives are included in the CIP:

02.01 Provide reasonable assurance that regulatory requirements and applicant commitments for design bases, quality assurance, and management measures are adequately included in the design, procurement, and construction of the MFFF.

02.02 Provide reasonable assurance that the MFFF and the associated PSSCs and IROFS were constructed in accordance with the quality assurance program, construction authorization, and license application to possess and use special nuclear material .

02.03 Verify the effective implementation of a safety program that includes the following elements: process safety information, ISA, and management measures.

02.04 Verify the effective implementation of the quality assurance program as specified in the MOX Project Quality Assurance Plan (MPQAP) and that it includes timely implementation of organizational staffing, procedures, instructions, QA activities, and administrative controls necessary to achieve quality objectives important to safety

02.05 Identify conditions that may adversely affect public and worker safety so that appropriate corrective actions can be taken.

02.06 Conduct risk-informed and performance based inspections across key functional areas to support the decision on issuance of a license to possess and use special nuclear material in the MFFF.

2630-03 DEFINITIONS

03.01 Construction Authorization Request (CAR). Document(s) submitted by the applicant providing a description of the facility site; a description and safety assessment of the design bases of the principal SSCs of the facility; and a description of the MPQAP.

03.02 Design Bases. Information that identifies the specific functions to be performed by a PSSC, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design.

03.03 In-Office (or Field) Review. Assessments, audits, or reviews conducted to assess licensing related activities.

03.04 Inspection. Measures consisting of examinations, observations, or measurements to determine the conformance of materials, parts, SSCs, services, or processes to predetermined quality requirements. Activities include performing audits, inspections, surveillance, and observations.

03.05 Inspection Types. Inspections are classified as compliance-based or performance-based and are defined below.

a. Compliance-based inspections emphasize inspection of compliance with prescriptive NRC requirements or regulatory commitments that specify SSCs

important to safety (as in the applicant's CAR), features, actions, or programmatic elements.

b. Performance-based inspections emphasize inspection of actual activity performance and results. Performance-based inspections require measurable or calculable parameters and objective performance assessment criteria. Note that a performance-based approach does not change the need for compliance with NRC requirements. In addition, a performance-based approach is typically more applicable to an operating facility and may not be appropriate to perform certain construction or pre-operational inspections.

03.06 Items Relied on for Safety (IROFS). Structures, systems, equipment, components, and activities of personnel that are relied on to prevent potential accidents at a facility that could exceed the performance requirements in 10 CFR 70.61 or to mitigate their potential consequences. This does not limit the licensee from identifying additional structures, systems, components, or activities of personnel (i.e., beyond those in the minimum set necessary for compliance with the performance requirements) as items relied on for safety.

03.07 Management Measures. The functions performed by the licensee, generally on a continuing basis, that are applied to items relied on for safety, to ensure the items are available and reliable to perform their functions when needed. Management measures include configuration management, maintenance, training and qualifications, procedures, audits and assessments, incident investigations, records management, and other quality assurance elements.

03.08 MFFF startup. Activities associated with the cold start-up or hot start-up of the MFFF as defined below.

a. Cold Start-up. Pre-operational inspection, testing, or measurement activities not involving the use of licensed material on MFFF process systems or components.

b. Hot Start-up. Pre-operational inspection, testing, or measurement activities involving the use of NRC licensed material on MFFF systems or components.

03.09 Mixed Oxide (MOX) fuel. For the purposes of this manual chapter, a mixture of plutonium dioxide (PuO_2) in a depleted or natural uranium oxide (UO_2) matrix. Approximately 95% of the MOX material is composed of UO_2. The MOX fuel is characterized in terms of plutonium isotopics as reactor-grade or weapons-grade.

03.10 MOX Project Quality Assurance Plan (MPQAP). The applicant's or licensee's plan that defines the actions taken by applicant or licensee management and personnel during the performance of quality-affecting activities on the project to ensure quality assurance requirements are consistently met.

03.11 Operational Readiness Review (ORR). An assessment review inspection performed by a multi-disciplined inspection team to assure that a facility, or a major modification to a previously approved facility, can be operated safely within the intended safety basis. In order to support a decision on issuance of a license to process special nuclear material, NRC will review and assess the state of readiness of facility operation based on the results of the ORR inspection.

03.12 Principal Systems, Structures, and Components (PSSCs). Safety controls, required support systems, and associated safety functions identified in the design bases of the applicant's CAR that are required to satisfy the performance requirements of 10 CFR 70.61.

03.13 Quality Assurance (QA) Program. The applicant's or licensee's overall QA program to be applied to the design, fabrication, construction, testing, and operation of the SSCs. This includes the MPQAP, QA procedures, and all supporting procedures and program activities. The quality assurance program also provides a management control system to assure the attainment of quality objectives.

2630-04 RESPONSIBILITIES AND AUTHORITIES

04.01 Office of Nuclear Material Safety and Safeguards (NMSS)

a. Responsible for regulatory oversight of the MOX Fuel Fabrication Facility Project.

b. Responsible for the overall safety inspection program policy, guidance, and approval.

c. Responsible for the planning, performance, documentation, and enforcement associated with the aspects of the Headquarters criticality safety inspection program.

04.02 Region II Office

a. Ensures that adequate resources necessary to carry out the inspection process described in this IMC are provided to the staff.

b. Responsible for the planning, performance, documentation, and enforcement associated with the aspects of the inspection program that are performed by Region II.

c. Responsible for developing and maintaining the procedures to implement the Construction Inspection Program for the MFFF Project.

d. Concurs on the approval of the IMC and inspection procedures for activities relating to the MFFF.

04.03 Office of Nuclear Security and Incident Response

a. Responsible for the overall safeguards inspection program policy, guidance, and approval.

b. Responsible for the planning, performance, documentation, and enforcement associated with the aspects of the Headquarters Material Control and Accounting inspection program.

c. Concurs on the approval of the IMC and inspection procedures for activities relating to the safeguards aspects of the MFFF.

2630-05 BASIC REQUIREMENTS

05.01 General. The MFFF Construction Inspection Program provides the inspection requirements for selectively assessing the adequacy of PSSCs, IROFS, regulatory and safety-related programs. This includes the implementation of the applicant's QA program and other management measures used to ensure the availability and reliability of safety and safeguards PSSCs/IROFS. Substantial emphasis is to be placed on the inspection of the PSSCs/IROFS that are most important for reducing the likelihood of high- and intermediate-

consequence accidents through the implementation of commitments made by the applicant in the CAR, the ER, the MPQAP, and the license application.

Emphasis is also to be placed on the applicant's activities that assure principal contractors delegated authority to conduct activities related to safety are implementing an acceptable QA program in accordance with the applicant's QA program. The inspection program provides for the direct inspection throughout all stages of construction, including equipment fabrication, assembly and installation, and structural construction activities as may be necessary to ascertain whether elements of the QA program are being effectively implemented.

05.03 Inspection Planning and Scheduling Considerations. The MFFF construction phase inspection schedule should be based on the applicant's construction schedule and should be modified and updated periodically during the entire construction period.

Inspections should be coordinated and scheduled such that the efficiency and effectiveness of the inspection effort is enhanced and unnecessary burden to the applicant is minimized. To the extent practicable, the construction and pre-operational inspections should be coordinated with the applicant to ensure that key construction activities are in accordance with the site construction project schedule. As appropriate, inspections of various construction activities should be scheduled as unannounced inspections.

Emphasis should be placed on early identification of problems. Inspections will be conducted periodically throughout the construction. Inspections will be scheduled early in the process implementation of individual construction activities to develop confidence that the specific construction activities have been adequately accomplished at all stages of construction.

Comprehensive construction program reviews aimed at determining underlying causes and extent of problem areas should be conducted if NRC management concludes significant deficiencies are occurring. Inspection depth and frequencies may be expanded to assure problem areas have been corrected. Corrective action programs are essential to effective resolution of individual deficiencies and programmatic issues. Inspection effort should be planned to specifically evaluate program effectiveness.

NRC Region II will develop, maintain and implement a Master Inspection Plan (MIP) and schedule for the MOX FFF construction inspection project. The MIP will be developed in coordination with the Technical Support Group (TSG) and Special Projects Branch (SPB) and for specific time frames related to licensing or construction milestones for the project. The MIP will include the scope and the inspection procedures that will be used for the inspections. The list of procedures for conducting inspections is provided in Appendix A of this IMC. The MIP will provide flexibility to address emerging issues that require additional inspection efforts, receipt of allegations, changes in funding activities by DOE or changes in scheduling activities by the applicant.

05.04 Inspection and Technical Personnel Considerations. Certified inspectors will be assigned responsibility for the conduct of applicable inspection requirements consistent with their qualifications. In conducting this inspection program, it is necessary that inspectors be trained and/or experienced in the areas of QA, engineering, procurement, and construction activities applicable to the activities they are to inspect. Specialists may accompany or assist inspectors to provide expertise in specific areas to enhance or expand the inspection effort.

05.05 Resident Inspector Program. Region II management will designate a primary interface inspector. Resident inspector(s) may be assigned to the site during the various phases of construction. The Senior Resident Inspector would normally be the primary interface with the applicant for coordination of inspection scheduling for specific construction activities. The resident inspector(s) should also participate in inspections within their areas of qualification using the inspection procedures listed in Appendix A and coordinate the preparation of integrated inspection reports. The resident inspector(s) may be assigned to the site on a rotational basis during construction, and may be changed periodically, based on the type of construction activities being conducted.

2630-06 GUIDANCE

06.01 General. The applicant/licensee is ultimately responsible for the safety of the nuclear facility. The NRC ensures through an audit type of inspection program that the responsibility is carried out in an effective manner during the activities of facility construction. The construction inspection program presented in this manual chapter is considered the minimum necessary to achieve an acceptable level of confidence as to the adequacy of construction at the facility.

This IMC emphasizes a systematic evaluation of the adequacy and effectiveness of the applicant's QA and construction programs and their implementation. NRC will perform inspections of selected activities at the applicant's or licensee's project offices at the proposed MFFF site and other project facilities. Inspections will also be performed, as necessary, at the facilities of the applicant's consultants, contractors, and suppliers. This IMC establishes priorities for inspection by planned sampling of PSSCs/IROFS and related activities consistent with their importance to safety and should consider the performance of the applicant in the areas inspected.

06.02 Program Areas. The specific areas to be inspected will include a sampling of the applicant's PSSCs/IROFS and regulatory and safety commitments as identified in the approved CAR and in the latest revision of the approved MPQAP. PSSCs/IROFS for inspection will be chosen based on safety significance and evaluated through an integrated approach with respect to multiple safety disciplines (criticality, fire, chemical, radiological, environmental) and engineering disciplines (civil, mechanical, electrical).

The NRC will periodically inspect the applicant's programs for adequate assurance that PSSCs/IROFS are designed, procured, fabricated, and installed in accordance with approved design bases. The inspections will also ensure that as-built construction meets the approved design. In addition, the applicant's design change and design control process will be reviewed to gain additional assurance that the design process used for the facility effectively implemented NRC requirements and other licensing design commitments made by the applicant. These reviews may be accomplished by multi-disciplinary technical review and/or inspection teams to verify the quality of design products and, inferentially, the entire facility design. Inspections will verify reasonable assurance that the environmental protection programs are consistent with the CAR and its associated SER, the environmental report, and design specifications and drawings.

06.03 Inspection Procedures. The planned IPs for the construction inspection program are listed in Appendix A. Some IPs may cover more than one program area and additional IPs may be prepared as necessary.

06.04 Implementation. Region II is responsible for managing and implementing the inspection program described in this IMC. The scheduling and conduct of inspections will

be coordinated with Region II and FCSS, 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 Inspection Procedure and/or inspection plan.

The inspection staff is expected to plan and conduct assessments, audits, inspections, surveillances, and observations based on safety considerations, current activities, and performance. Region II staff should develop, on at least an annual basis, a schedule of inspections to be conducted, based on the anticipated site activities that are to be performed in the upcoming year. Region II staff should review and revise the schedule as needed to account for changes in site activities. Region II management should inform FCSS and document any changes from the planned inspections. The activities for conducting inspections should include the following:

a. Developing and documenting detailed inspection plans.

b. Scheduling and coordinating inspection activities in accordance with this IMC.

c. Communicating inspection results, findings, and open items to appropriate NRC and applicant or licensee management.

d. Documenting completed inspections, findings, and open items.

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

06.05 Inspection and Technical Personnel Considerations. Inspectors and technical representatives will be assigned responsibility for performing inspections consistent with their qualifications. In addition, inspectors performing MOX inspection activities will either be provided familiarization training on this IMC and related procedures or become familiar with the requirements of this IMC and the applicable requirements of 10 CFR Part 70.

06.06 Inspection Requirements. Inspections will be based on 10 CFR Part 70 and other applicable regulations, commitments, conditions, the CAR , the applicable SER, and the construction authorization. Inspections will confirm that applicable regulations, requirements, and commitments have been met. Selection of inspection attributes will be based on safety considerations, status of work activities, and performance.

06.07 Focus of Inspections. In order to effectively and efficiently allocate inspection resources, the NRC will perform sampling-type inspections to verify that the applicant/licensee is in compliance with NRC regulations. A combination of PSSCs/IROFS sample selection, statistical methods, risk-based approaches, and inspections of the quality assurance program, will be used to help determine the necessary level of inspection effort.

Risk based information from the applicant’s license submittals, process hazards analyses, and ISAs should be used to identify those PSSCs and IROFS whose failure would most greatly impact the MFFF’s risk profile. This approach would allow the more risk significant PSSCs and IROFS to be identified so that the construction and pre-operational inspection samples could be focused on those PSSCs and IROFS. The amount of inspection and

activities selected for inspection should be consistent with the importance to safety of the PSSCs, IROFS, and the performance of the applicant or licensee in those areas.

It should be noted that a performance-based approach is more directly applicable to an operating facility and may not be readily applied to construction or pre-operational inspections. In the early stages of the project, the majority of inspections may be compliance-based and will focus on QA program implementation. 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 systemic problems. To provide the perspective to perform this evaluation, inspectors should:

a. Focus inspections on the compliance of previously identified problem areas and/or on recurring problems.

b. Focus inspection efforts on problems that indicate programmatic weaknesses.

c. Periodically, verify the adequacy of the applicant's corrective action program to identify, track, trend, resolve, and prevent problem recurrence.

d. Review deficiencies, audit findings, and problems identified by the applicant or by its consultants, contractors, or suppliers to identify trends and/or problem areas; and

e. Ascertain whether additional NRC inspection effort is merited in the areas of concern.

06.08 Management Entrance and Exit Meetings. Inspectors are required to meet with applicant management as part of every inspection. Inspectors should hold an entrance meeting with the senior applicant representative who has responsibility for the areas to be inspected. Each inspection must include the discussion of inspection results with applicant management. At the conclusion of an inspection, inspectors must discuss their preliminary findings with the applicant's management at a scheduled exit meeting. Management entrance and exit meetings with applicant personnel should be scheduled to minimize the impact on other applicant activities necessary to assure the safe and proper construction of the facility.

06.09 Inspection Reports. Inspection findings shall be documented in inspection reports in accordance with the applicable revision to IMC 0610, "Inspection Reports." The inspection findings should be integrated into a single inspection report to encompass findings from resident inspections, in-office reviews, and/or one or more visits by regional or headquarters inspectors over a specific period of time (e.g., a 6-week period). Special inspections may be documented in a separate inspection report. Inspection issues that cannot be resolved at the time of the inspection will be documented as open items, inspection follow-up items, or unresolved items, in accordance with IMC 0610. Region II will track open items in an inspection program information management system and subsequent inspections will include resolution of these issues.

06.10 Findings Outside of Inspector's Qualifications. Inspectors sometimes identify issues or violations outside of the inspector's qualifications or expertise. In these cases, the inspector is responsible for (1) determining if an immediate threat to the public or worker health or safety exists, and if one does exist to notify applicant management immediately; and (2) determining if the issue is better addressed by an inspector with different qualifications (i.e., a specialist inspector). Inspectors may follow issues outside of their

qualifications or expertise with the concurrence of a regional manager responsible for the area associated with the issue and the inspector's supervisor.

06.11 Communication With Local Public Officials. As a matter of NRC philosophy, the NRC maintains an "open door" policy with regard to access by the public or federal, state and local officials to the NRC staff and to publicly available electronic documentation concerning an applicant's performance. The degree of interaction that is considered necessary to enhance public confidence in the NRC is expected to vary widely dependant upon the situation at each facility. Guidance pertaining to communication with stakeholders external to the NRC can be found in the latest revision of the Communication Plan for the MFFF and applicable regional office procedures.

06.12 Inspection Findings and Enforcement. All inspection findings identified during the construction and pre-operational periods will be documented in accordance with the applicable revision to IMC 0610 after they have been placed in context and assessed for safety significance. Potential violations from inspection activities will be processed in accordance with the NRC's Enforcement Policy, NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions," using traditional enforcement tools. The inspection findings (or open items) will then be categorized as violations, deviations, non-conformances, unresolved items, or inspector follow-up items. This includes the use of notices of violations for violations of severity level IV and above and civil penalties, as appropriate.

It is important to note that if the applicant or licensee has been granted the authorization to begin construction of the MFFF, and the NRC determines that the construction is not in accordance with the applicant's commitments, then the operating license may be denied (see 10 CFR 70.23(a)(8)). The failure of the applicant or licensee to meet commitments specified in the CAR shall be documented in the inspection report(s) as noted above. It is imperative that open items be appropriately documented in the inspection reports so that subsequent inspections can verify whether or not the applicant took the appropriate corrective actions. The failure of the applicant to take the appropriate corrective actions to address the open items by the end of the construction phase could result in either a denial to issue the operating license or a delay in the issuance of the operating license.

06.13 Assessment of Applicant Performance (AAP). Different types of construction activities may require certain levels of inspection effort to provide the same degree of assurance of quality work. Increases or decreases in inspection oversight will be based on an assessment of applicant performance. Periodic reviews of the applicant's performance of construction and pre-operational activities may be warranted to provide NRC management with an overview of the applicant's performance, and provide feedback of NRC management's conclusions regarding the quality of the applicant's programs for protecting the public health and safety. 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 MFFF construction and pre-operational inspection programs. IMC 2604, "Licensee Performance Review" describes the program for conducting and documenting evaluations of licensee performance for operating fuel cycle facilities. Appendix B provides guidance to assess the applicant's performance in the construction phase of the MFFF. The responsibilities and authorities, performance review scheduling, review process, and documentation guidelines, specified in IMC 2604 should be used in conducting the AAP. Region II is responsible for adjusting the scope and frequency of the review during the construction phase, as needed, based on MFFF construction schedules and inspection findings.

06.14 Operational Readiness Reviews. The NRC may consider the use of phased operational readiness review (ORR) inspections as a tool to provide input for NRC decisions regarding the operational readiness of MFFF areas or processes. In order to support a

decision on issuance of a license to process special nuclear material, 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 are also considered during the decision-making process.

END

Appendix A

MIXED-OXIDE (MOX) FUEL FABRICATION FACILITY INSPECTION PROGRAM
CONSTRUCTION PHASE INSPECTION PROCEDURES
(INSPECTION PROCEDURES MAY BE ADDED OR DELETED AS REQUIRED)

	QA Inspection Procedures
IP 88106	Quality Assurance: Program Development and Implementation
IP 88107	Quality Assurance: Design and Documentation Control
IP 88108	Quality Assurance: Control of Materials, Equipment, and Services
IP 88109	Quality Assurance: Inspection, Test Control, and Control of Measuring and Test Equipment
IP 88110	Quality Assurance: Problem Identification, Resolution, and Corrective Action
IP 88111	10 CFR Part 21 Inspection-Facility Construction
IP 88112	Software Validation
IP88113	Control of the Electronic Management of Data
IP 88114	Quality Affecting Item Procurement (10 CFR Part 21) and Commercial Grade Item Dedication Process (Reactive)
IP 88115	Supplier/Vendor Inspection
IP 88116	Inspection of Quality Assurance Interfaces
	Resident Inspector Procedures
IP 88130	Resident Inspection Program for On-Site Construction Activities at the Mixed Oxide Fuel Fabrication Facility
	Construction Inspection Procedures
IP 88131	Geotechnical/Foundation Activities
IP 88132	Structural Concrete
IP 88133	Structural Steel and Supports
IP 88134	Piping Relied on For Safety
IP 88135	Pipe Supports and Restraints
IP 88136	Mechanical Components
IP 88137	Electric Cable
IP 88138	Electrical Components and Systems

IP 88139	Ventilation and Confinement Systems
IP 88140	Instrumentation and Control Systems
IP 55050	Nuclear Welding General Inspection Procedure
IP 55100	Structural Welding General Inspection Procedure
IP 88141	Procedures- Fire Prevention/Protection
IP 88142	Underground Fire Water Loop and Equipment Installation
	Pre-Operational Inspection Procedures
IP 88150	Training and Qualification of Plant Personnel
IP 88151	Facility Changes and Change Process (10 CFR 70.72)
IP 88152	Physical Protection Equipment and Barriers
IP 88153	Material Control and Accounting
IP 88154	Fire Safety and Protection Systems
IP 88155	Functional Verification IROFS
IP 88156	Integrated Safety Analysis Implementation
IP 88157	Waste Management Equipment and Systems
IP 88158	Environmental Protection-Initial and Periodic Inspections
IP 88159	Process Enclosures and Vessels
IP 88160	Utilities and Bulk Chemicals
IP 88050	Emergency Preparedness

Appendix B

MIXED-OXIDE (MOX) FUEL FABRICATION FACILITY
ASSESSMENT OF APPLICANT PERFORMANCE (AAP) PROCESS -

1. PURPOSE

This appendix provides guidance for assessing the applicant's performance in the construction phase of the MOX fuel fabrication facility (MFFF) and to provide feedback of NRC management's conclusions regarding the quality of the applicant's/licensee's construction and pre-operational programs. The results of such a review should:

- Provide an assessment of applicant performance to U.S. Nuclear Regulatory Commission (NRC) management.
- Inform the applicant/licensee and the public how the NRC assesses facility performance.
- Provide a basis for adjusting the construction and pre-operational inspection program, including such areas as focus, frequency, and resources.

2. OBJECTIVES

2.1. To describe the processes for assessing MFFF performance.

2.2. To ensure that the assessments are performed in a timely, effective, and efficient manner.

2.3. To ensure that the assessments are focused on determining whether safety has been adequately and effectively maintained.

3. DEFINITIONS

3.1 Functional Areas. The following definitions describe the program and functional areas that form the basis for the Assessment of Applicant Performance (AAP). It should be noted that depending on the stage of the construction project, not all functional areas would be applicable during a given assessment period. Each functional area is comprised of two or more inspection program areas.

a. Management Measures. Activities involving implementation of the applicable management measures as described in the applicant's quality assurance program.

1. Quality Assurance. Verifying that the applicant has implemented the controls as established in the DCS MPQAP (all sections).

2. Design Control. Verifying the control of the design of PSSCs, IROFS, and for activities associated with the preparation, review, approval, and verification of documents used for design, procurement, and fabrication;

3. Categorization of Systems, Structures and Components. Verifying the proper implementation of a graded QA approach to the categorization of PSSCs and IROFS, based on safety significance;

4. Configuration Management. Verifying the configuration management system for documenting an established baseline configuration and controlling changes to PSSCs and IROFS to preclude inadvertent degradation of safety and verifying

that a system to evaluate, implement, document, and track each change to the site, PSSCs, IROFS, processes, equipment, computer programs, and activities of personnel has been established and implemented.

5. Procedures Verifying the control of management procedures with regard to distribution, version control, management review and approval;

6. Audits and Assessments. Verifying the performance of audits and assessments required during construction;

7. Records Management Assessing the records management system for the handling and storing of records generated or required in the design, construction, and operation phases of the facility;

b. Facility Construction and Pre-Operation. Activities involving construction and pre-operational activities;

1. Construction Activities. Verifying that construction activities (foundation, structural concrete and steel, piping systems and supports, mechanical, electrical, and instrument components) are conducted in accordance with the construction authorization and quality assurance program. Verifying that the applicant can recognize non-routine events affecting safety, utilize an internal reporting system, and to identify and execute corrective actions to resolve deviations from commitments made in the CAR and MPQAP.

2. Pre-Operational Activities. Verifying that the applicant has instituted effective management measures to provide for the safe startup testing of the facility during both routine and upset conditions, to recognize non-routine events affecting safety, utilize an internal reporting system, and to identify and execute corrective actions to return the facility to a safe and secure pre-operational condition after possible upsets. Pre-operational activities may also include the verification that the applicant has implemented an acceptable Safety Operations program (including Chemical Safety, Criticality Safety, Operational Safety, Fire Protection, and Radiological Controls programs).

c. Facility Support. Management measures and systems, including training, emergency preparedness, and maintenance.

1. Training and Qualification of Plant Personnel Verifying the training and qualification of facility personnel for activities relied on for the development of safety controls; including the training, testing, retesting, and qualification of managers, designers, technical staff, construction personnel, technicians, and other personnel whose level of knowledge is relied on for safety;

2. Emergency Preparedness. Verifying that the applicant has established an effective emergency management program to protect the workers, public, and the environment in the event of reasonably postulated events that could threaten the facility.

3. Maintenance. Verifying that the applicant has established an effective maintenance program to ensure the functionality and operability of IROFS in the event of reasonably postulated events that could threaten the facility and surrounding population.

d. Safeguards and Security. Activities involving implementation of the applicable safeguards and security measures to assure adequate accounting and protection of special nuclear materials during receipt and transfer operations.

e. Special Topics. These are issues that may arise on an occasional basis, but are not included in the review on a routine basis unless the significance of the issue rises to a level that is perceived to affect the quality of applicant performance. Examples include quality of application and licensing submittals, deviations from commitments in the Construction Authorization Request, labor-management issues, and contractor difficulties.

3.2 Areas Needing Improvement. Actual and/or potential risk-significant recurring performance (root causes or events) requiring resolution or corrective action. If a number of deficiencies occurred early in the period and the applicant's management corrected the problems as evidenced by no events for the last half of the cycle, then less weight should be given to those issues when evaluating the applicant's performance. On the other hand, more weight should be given to issues that are identified late in the assessment period.

4. EVALUATION FACTORS

4.1 The AAP should review the applicant's performance in each of the applicable functional areas, using a common set of evaluation criteria. A suggested set of evaluation factors are provided below:

a. Management involvement and control;

b. Approach to identification and resolution of technical issues from a safety and safeguards perspective;

c. Approach to (operational) events (including timeliness, analysis, reporting, effectiveness of corrective actions, and recognition of generic issues within the facility);

d. Staffing (considering experience, expertise, and availability of staff and management);

e. Aspects of performance that may reflect on the effectiveness of training and qualification programs relative to the specific functional area; and

f. Evidence of positive or negative performance trends.

4.2 NMSS and the Region II Branch Chiefs may confer occasionally to consider the suitability of the current evaluation factors and recommend any necessary changes.

5. IMPLEMENTATION

5.1 The responsibilities and authorities, performance review scheduling, review process, and documentation guidelines, specified in IMC 2604 should be used in conducting the AAP.