NRC INSPECTION MANUAL

NMSS/DFM

INSPECTION PROCEDURE 88015

NUCLEAR CRITICALITY SAFETY

Effective Date: 01/01/2021

PROGRAM APPLICABILITY: IMC 2600B, 2602, 2694A, 2696A

88015-01 INSPECTION OBJECTIVES

Determine whether the licensee's[1] nuclear criticality safety (NCS) program is in accordance with 10 CFR Part 70 and license requirements[2] and provides for adequate protection of public health and safety.

88015-02 INSPECTION REQUIREMENTS AND GUIDANCE

Guidance in this inspection procedure is understood to be generic; individual licensees may use different terminology (e.g., for criticality analyses, audits and assessments), and may be subject to differing license requirements. In all cases, inspectors should be familiar with the licensee's specific license commitments, conditions, processes, and activities and should adapt the guidance in this procedure accordingly. Consult with the project inspectors and other NCS inspectors as needed to help in adapting this procedure to a licensee. Unless otherwise indicated, inspection requirements are to be completed over the course of the inspection year.

02.01 <u>Criticality Analysis.</u>

a. Inspection Requirements.

1. Select Criticality Safety Evaluations (CSEs) for inspection from those newly issued or revised since the most recent NCS inspection or based on risk, operational history, inspection history, etc.

2. Determine whether the selected CSEs adequately demonstrate subcriticality under normal and credible abnormal conditions, including with adequate subcritical margin. Determine whether conditions dismissed as incredible are properly justified, in accordance with license criteria, and those that are credible are evaluated in accordance with license requirements.

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[1] The term "licensee" as used herein may also apply to construction applicants.

[2] The term "license" or "license requirements" also generally includes a license application and any other documents incorporated into the license and/or application by reference, such as through a "tie-down" condition or commitment to follow an industry standard.

3. Determine whether the selected CSEs adequately demonstrate compliance with the double contingency principle (DCP) and/or 10 CFR 70.61, including independence and ~~un~~likelihood of selected contingencies and accident sequences.

4. Determine whether the selected CSEs appropriately identify limits and controls on controlled parameters, whether limits are consistent with criticality calculations (or other approved means of demonstrating subcriticality), whether any such calculations are based on validated methods and are performed consistent with their validation (including being within their validated area of applicability and having adequate subcritical margin), and whether models are constructed in accordance with technical practices as specified by license requirements (in particular, the licensee's justification for its subcritical margin). Determine whether controls are described in sufficient detail to ensure that parameters will be controlled within specified limits.

b. Inspection Guidance.

1. Select CSEs for inspection from those newly issued or revised, from those involved in recent reportable events or internal infractions, and from those that establish the safety basis of inspection focus areas. Determine whether properly reviewed and approved CSEs are in place prior to conduct of new or changed operations and have been peer-reviewed by qualified NCS staff. The selection of CSEs should take into consideration factors such as risk-significance, complexity, unusually heavy reliance on administrative controls, the use of new technology or unusual control methods, and operating history. Older CSEs and those from less risk-significant areas should also be periodically sampled.

   Historical experience demonstrates that areas of particular concern involve those where transfers of solution from favorable to unfavorable geometry can occur (e.g., from intended transfers as well as unintended backflow, spills, etc.) and where undetected accumulation of fissionable material in unfavorable geometry can occur. CSEs and areas where the licensee uses nondestructive assay should be periodically selected for review so that the inspection requirement of section 02.03.a.4 can be met.

2. Review selected scenarios from those CSEs to determine whether all credible abnormal conditions are systematically identified and evaluated based on the most reactive credible configurations. Methods for identifying credible abnormal conditions are specified in the license and/or ISA Summary. These methods may include the What-If, Checklist, Hazard and Operability (HAZOP), Failure Modes and Effects Analysis (FMEA), Fault Tree, and Event Tree methods. These methods should be appropriate to the hazard and process considered.

   Criteria for determining credibility will be specified in the license and/or Integrated Safety Analysis (ISA) Summary and may be elaborated on in procedures. Review the bases for selected events dismissed as incredible, and the process for which the event applies, to determine whether the bases are consistent with license requirements (including definitions of credible and any limitations on what types of considerations may be relied on in making that determination) and are documented in sufficient detail to permit an independent assessment of credibility. Determine whether the bases rely on any items which should be identified as NCS controls or items relied on for safety (IROFS). Historical experience indicates that failure to anticipate or evaluate credible conditions has been a recurring factor leading to accidents and other significant events.

Events that should be considered in CSEs include internal and external events such as natural phenomena (e.g., earthquakes, storms, flooding), fires, spills, maintenance activities, and loss of engineered or administrative controls.

Review selected scenarios to determine whether the CSEs adequately identify normal and credible abnormal conditions and demonstrate subcriticality, in accordance with the methods specified in the license.[3] Verify that calculations are performed in accordance with the technical practices and subcritical margins specified in the license and applicable procedures. Verify that calculations are performed within their validated area(s) of applicability (AOA(s)) and any limitations specified in the validation report are applied.

3. Review selected scenarios to determine whether the CSEs adhere to license commitments regarding the DCP. This includes ensuring the following:

(1) Whether assumptions, limits, and controls as specified in the CSEs are sufficiently robust to ensure that contingencies are unlikely to occur.[4] The inspectors should consider whether specified controls are reasonable and reasonably adhere to the preferred control hierarchy of passive over active engineered, engineered over administrative, favorable geometry over other parameters where practical, etc., whether limits incorporate adequate safety margin (relative to process variability, uncertainty, and system sensitivity), as required by the license and/or whether adequate management measures are specified to achieve the required likelihood/reliability (see section 02.02).

(2) Whether contingencies as specified in the CSEs are independent to the extent practical. By independent it is meant that the occurrence of one contingency must not reasonably be considered to cause, or increase the likelihood of, the second contingency. Identifying any credible common-mode failure necessarily means the DCP has not been met. Reliance on more than one controlled parameter is preferred to reduce the likelihood of unanticipated common-mode failures. In the event only one parameter is controlled, diversity is preferred over redundancy in selecting controls to reduce the likelihood of unanticipated common-mode failures. Processes relying only on redundant simple administrative controls to satisfy the DCP are therefore of particular concern. (Note that the independence of

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[3] This is to be based on approved methods, which may include the use of industry standards, handbooks, hand calculations, deterministic or probabilistic computer methods, or subcritical values specified in the license application. The discussion that follows generally assumes that safety limits are based on computer calculations, though it may be applied to other methods as appropriate.

[4] Use of the term "unlikely" must be understood in its proper context, which predates the issuance of the performance requirements in Subpart H of 10 CFR Part 70 by decades. This has no relation to the term as used in 10 CFR 70.61(c) and its use does not imply any quantitative standard of likelihood.

contingencies and the independence of IROFS may be defined differently and have a different historical and regulatory basis.)

(3) Whether provision is made for the timely detection and correction of contingencies, to reduce the vulnerability of the process to concurrent failures. Processes where undetected failures or slow accumulations can occur are therefore of particular concern.

4. Review applicable criticality code validation reports upon issuance and major changes, such as validation of a new computer code or expansion of the AOA(s). Requirements for performing validations and documenting results in validation reports will vary between licensees, but validation reports will generally include a specification of benchmark experiments, calculation and statistical analysis of the benchmarks, determination of the bias, bias uncertainty, and upper subcritical limit, and specification of the AOA(s) and any limitations on use of the code. Particular attention should be provided to the following considerations in reviewing validation reports—(1) whether selected experiments are applicable to calculations to be performed,[5] (2) whether statistical methods are used properly (e.g., assumptions regarding data normality and any trends adhered to, any rejected outliers appropriately justified, extrapolation or large interpolation of trends performed correctly and within appropriate limits), and (3) whether the AOA(s) are appropriately specified. The description of an AOA should include the range of composition of fissionable, moderating, reflecting, and absorbing materials, the neutron energy spectrum, computer code system hardware and software, nuclear data library, code options used, etc.

A process for performing a computer code verification upon code system (e.g., SCALE) changes, and on a periodic basis, should be in place, and code systems should be placed under configuration control to prevent unintended changes.

Review the description of controlled parameters, controls, and limits in the CSEs to determine whether they are clear and unambiguous, described in sufficient detail to ensure they will perform their intended safety functions, and consistent with the results of calculations (or other methods to demonstrate subcriticality). In addition to establishing subcritical limits (limits on one or more parameters that ensure compliance with specified k_{eff} limits), licensees may establish safety limits (as specified in CSEs and/or other safety basis documents) and routine operating limits (as specified by line operations in procedures or work instructions) more conservatively to increase confidence that subcritical limits will not be exceeded. While specific terms and definitions vary between licensees, established limits should be sufficient to account for process variability and uncertainty (including manufacturing tolerances, measurement precision, instrument drift, etc.) and should render credible process deviations sufficiently unlikely to ensure that the performance requirements of 10 CFR 70.61 and the DCP are met. All attributes and components of controls needed to ensure compliance with the performance requirements and DCP should be described in appropriate detail. (The validation

[5] Benchmark applicability is particularly sensitive to the specific nuclides present (including enrichment) and the neutron energy spectrum and the parameters that most affect the spectrum (moderation). The applicability of benchmarks should be justified based on accepted methods (screening criteria of NUREG/CR-6698, TSUNAMI, etc.).

report should be inspected on an as-needed basis, depending on whether there are any significant changes to the report.)

02.02 Criticality Implementation.

a. Inspection Requirements.

1. Determine whether the existing plant configuration and plant operations are covered by, and consistent with, the process description and safety basis in CSEs (i.e., the CSE accurately or conservatively describes the operation as it actually exists, including whether assumptions used in the analysis are valid).

2. Determine whether selected engineered controls established in CSEs are appropriately specified in process and system descriptions, specifications, drawings, piping and instrumentation diagrams, and ultimately appropriately implemented in the field.

3. Determine whether selected administrative controls established in CSEs are appropriately specified in written procedures, postings, training modules, and ultimately appropriately implemented in the field.

4. Determine whether selected engineered and administrative controls (including equipment relied on to perform enhanced administrative controls) established in CSEs are subject to appropriate quality assurance and management measures, and whether any controls needed to meet the performance requirements of 10 CFR 70.61 are identified as IROFS.

5. Review management measures for selected criticality IROFS to ensure that they are available and reliable to function when needed.

b. Inspection Guidance.

1. Determine whether CSEs adequately bound actual fissile material operations[6] in the facility, through review of documents, discussions with licensee staff, and walkdowns of selected operations, including temporary operations and those performed by functions such as radiological safety, MC&A, and maintenance. The amount, composition, and configuration of process materials and equipment as modeled in CSEs should be a realistic or conservative representation of actual plant conditions and should be maintained consistent with the current plant configuration. If required by the licensee's NCS program these key dimensions and material should have been verified by the licensee's NCS or QA function.

2. Through observation of equipment, if practical, and through review of drawings, diagrams, specifications, etc., determine whether passive and active engineered controls have been constructed, installed, and operated as specified in CSEs. Equipment important for criticality safety should be clearly identified as such in accordance with the licensee's configuration control program. Examine the

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[6] The terms "fissile" and "fissionable" have different technical meanings, but here are used more or less interchangeably to refer to material of concern to NCS (mainly uranium enriched in ^{235}U and plutonium). While the preferred and broader term is "fissionable," terms that are historically used are retained.

material condition of engineered controls for degradation that could impact their safety function.

3. Through observation of operations, if practical, and through review of operating procedures, postings, work instructions, etc., determine whether administrative controls are appropriately communicated to operators. Through discussion with operators, determine whether they understand the administrative controls in their procedures, postings, and instructions, and perform them as specified in CSEs. Procedures and posting should be written, and training conducted, so that operators clearly understand controls and know which procedural steps are important for criticality safety.

4. Review the ISA Summary and supporting ISA documentation for selected fissile material operations, to determine whether hazards and controls are treated in the ISA appropriately and consistently with the CSEs. Consistency does not mean that ISA documents and CSEs must analyze criticality hazards, sequences, and controls the same way. The purposes and methods of the ISA and CSEs are different, and the set of controls used to meet the performance requirements and DCP may be different. It must be recognized that other controls besides IROFS may be important for safety, and their significance does not necessarily correlate to whether they are designated as IROFS. The designation of a control~~s~~ as an IROFS is of primarily regulatory significance, with IROFS and non-IROFS controls actual impact on facility safety depending on the management measures that are applied to the control. (See IMC 2606 for guidance on crediting non-IROFS controls in enforcement space) While the analyses of events and the discussion of controls may differ between the ISA documentation and the CSEs according to their respective approved methodologies, factual contradictions with regard to descriptions of the process or underlying assumptions should not occur.

   Through walkdowns, interviews with operations and NCS engineers, maintenance personnel, and operators determine if the management measures that are actually being applied to the IROFS include all those needed to ensure that i~~f~~t functions as intended by the NCS function, and any license requirements for management measures to apply to IROFS. The ISA Summary is a regulatory tool that may be useful in the identification of processes, sequences, and controls for detailed inspection. However, the CSEs establish the safety basis of NCS controls, and hence should be the main focus of the documentation review portion of the inspection.

5. Verify that management measures identified in the ISA Summary for criticality IROFS are properly implemented. Review and become familiar with the licensee's program(s) for ensuring that IROFS and safety controls are available and reliable when called upon to perform their intended safety functions. This would typically include programs for maintenance, surveillance, and testing of the controls; training of workers to properly implement or respond to the controls.

   Maintenance, surveillance, and functional testing should be conducted in a manner and frequency sufficient to ensure that NCS controls will be available and reliable to perform their safety function, to the extent relied on to meet the performance requirements of 10 CFR 70.61 and the DCP. Records of failures should be maintained as required by 10 CFR 70.62(a)(3). These records should demonstrate, among other things, the adequacy of the licensee's management measures. Controls should be verified to be in place and working correctly upon installation and following maintenance activities, as well as on a specified periodicity. Surveillance may be credited both for reducing the probability of failure and for limiting its duration. Functional testing should thoroughly test all components of control systems needed to perform the intended safety function. Configuration and change control programs should ensure that new operations are not initiated until all controls are properly verified, and that proper control is maintained over any components taken out-of-service to ensure they are not returned to service unintentionally or without proper verification. Assess the overall effect on safety when IROFS are taken out of service for planned maintenance activities.

Additional guidance can be found in IP 88020, Operational Safety."

02.03 Criticality Operational Oversight.

a. Inspection Requirements.

1. Determine whether operator training includes instruction in, and operators are knowledgeable of, criticality hazards and control methods, and whether NCS staff is involved in the development of operator training.

2. Determine whether NCS staff routinely inspect fissile material operations to ascertain that criticality requirements are being complied with, including both engineered and administrative controls. Determine whether all such areas are inspected before start-up and on a frequency specified by license requirements and with appropriate thoroughness.

3. Assess the conduct of activities for monitoring process conditions, in particular sampling and nondestructive assay to detect long-term accumulation.

b. Inspection Guidance.

1. NCS training for fissile material operators and other relevant staff should address the consequences of criticality; should stress the need for compliance with procedures, postings, and other written instructions; should discuss the phenomenon of nuclear criticality and the means of control (the controlled parameters and their effect on criticality safety), and should address the specific ways those means are controlled in the facility. NCS training should be commensurate with operators' specific responsibilities and should include both general NCS training and job-specific training on controls and limits in their areas of responsibility. Training should not be overly theoretical or abstract. NCS staff should be actively involved in developing, reviewing, presenting, and overseeing NCS training for all staff requiring it.

The goal of NCS training is to ensure that fissile material operators understand the hazards and controls in their respective areas. The inspectors should determine, through observation of operations and discussion with operators, whether operators understand the NCS hazards and controls in their areas.

Ensuring that operators are knowledgeable about their responsibilities for criticality safety, including response to upset conditions, should be the primary focus of this portion of the inspection, as opposed to reviewing training records.

(This inspection requirement should be completed once per year, unless significant issues or changes warrant additional inspection.)

2. The inspectors should determine whether the licensee ensures that all fissile material operations are inspected by the NCS organization on a frequency as specified by license requirements, to ensure that NCS limits and controls are being complied with, and that process conditions have not changed so as to invalidate the basis for those controls and limits. NCS staff assigned to perform these inspections should be trained and qualified to perform those tasks and should maintain familiarity with operations and frequent communication with operators and operations management. Good rapport between the safety and operations organizations is essential, and analysts should be observed to be spending a considerable portion of their time in the field.

   Performance of the licensee’s inspections should rotate so all plant areas are inspected at a specified frequency. The frequency of inspections may be graded commensurate with risk-significance; however, no operations and areas that affect NCS should be neglected. The inspectors should accompany NCS staff on these inspections, if practical, to observe their scope and depth and observe the interaction between NCS and operations staff. Ideally, NCS staff should observe operations in progress and discuss the limits and controls with operators, supervisors, and managers. NCS staff should bring any deviations from criticality requirements to the attention of operations, document them in their inspection reports, and ensure they receive prompt and effective corrective action commensurate with their significance.

   In addition to these periodic inspections, NCS staff should also inspect new or changed operations prior to start-up, with a scope and depth commensurate with their significance.

3. Process monitoring involving sampling and nondestructive assay are particularly susceptible to error, including common-mode failures. During CSE reviews and walkdowns, the inspectors should be on the lookout for any areas in which fissile material can accumulate or concentrate undetected or in inaccessible locations, such as in storage tanks, waste storage, long-run piping, or process ventilation. This is particularly important when material can accumulate in an unfavorable geometry, and during transfers from favorable to unfavorable geometry. Sampling and laboratory analysis methods should be careful examined for any potential common-mode failure, particularly when relying on common operators, equipment, or methods. Laboratory analysis or nondestructive assay equipment should be calibrated using representative standards in accordance with licensee procedures. Nondestructive assay for mass, concentration, or enrichment control should be based on assumptions appropriate to the process and have sufficient margin to account for uncertainties in material characterization, geometric configuration, and measurement error. When possible focus on observing real or simulated NDAs surveys that are credited with reducing or preventing accumulations (e.g., in ductwork).

(This inspection requirement should be completed once per year, unless significant changes warrant additional inspection.)

02.04 Criticality Programmatic Oversight.

a. Inspection Requirements.

1. Review new or changed administrative NCS Program procedures, to determine whether they adequately implement license requirements and whether the NCS Program is enacted in accordance with them.

2. Determine whether NCS staff reviews new or changed fissile material operations and procedures, including maintenance requests/plans, consistent with program procedures and at a level commensurate with their significance.

3. Determine whether CSEs are performed in accordance with NCS Program procedures and receive appropriate independent review and approval.

4. Determine whether NCS Program audits are conducted at the frequency, scope, etc. specified by license requirements and with appropriate thoroughness. Determine whether audit observations and findings are communicated to licensee management and whether they are appropriately resolved.

5. Determine whether NCS staff (including trainees, NCS Engineers, and Senior NCS Engineers[7]) are qualified in accordance with license requirements and have the necessary education and experience to perform their duties. Determine whether activities performed by NCS staff are commensurate with their training and qualification (e.g., whether only qualified NCS engineers perform CSEs).

b. Inspection Guidance.

1. NCS Program procedures implement the authority and responsibilities of the program as specified in license requirements. The NCS Manager should ensure the proper development and implementation of these procedures. Management and staff authority and qualifications should be commensurate with the assigned responsibilities. Procedures should cover all essential NCS Program elements, including evaluating new or changed fissile material operations in CSEs, establishing NCS limits and controls, providing advice to management and operations to support routine operations and during emergency response, participating in the training of fissile material operators, and inspecting operations to ensure compliance with NCS limits and controls.

   (This inspection requirement should be completed on an as-needed basis, depending on whether there are any significant changes to program procedures.)

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[7] The exact titles of NCS staff, including the NCS Manager, and organization of the NCS Program within the licensee's management hierarchy, varies. Inspectors should ascertain who performs the required functions and apply the guidance accordingly.

2. Requests for new operations or for changes to existing operations should be reviewed by NCS staff. The scope of the review may vary in accordance with license requirements and program procedures, but should be commensurate with the significance (e.g., risk-significance, complexity, novelty) of the request. The screening process to determine the level of NCS review is as important as the subsequent review itself and should be documented in the change package along with the 70.72 evaluation. The inspectors should assess whether selected change requests are reviewed by NCS when required, and whether operations has the opportunity to provide feedback on the feasibility of proposed limits and controls, prior to implementation.

3. Independent (peer) review of CSEs should be conducted by qualified staff, typically Senior NCS Engineers. CSEs should be documented at an appropriate level of detail, sufficient to permit independent verification of results, including a clear description of all assumptions, models, and analyses. The independent review must be performed and documented as required in program procedures.

4. The inspectors should review audit reports and discuss the resolution of NCS Program audit observations and findings with licensee management. NCS Program audits should be performed periodically, and include personnel independent of the NCS Program function, as specified by license requirements. This may include contractors or other personnel external to the facility. Audit findings should be communicated to licensee management, who should ensure they receive appropriate corrective action commensurate with their significance.

   (This inspection requirement should be completed on an as-needed basis, depending on whether any new program audits have been performed.)

5. NCS engineers are expected to have education and experience commensurate with their assigned responsibilities, and as specified in license and procedural requirements. This should include not only technical experience in the principles of NCS, but also familiarity with facility operations and license requirements. Rather than make this a separate focus of the inspection, the inspectors should be able to obtain a good understanding of NCS staff qualifications through its routine interactions with the staff.

   (This inspection requirement should be completed on an as-needed basis, depending on whether there are any new or newly qualified NCS staff.)

02.05 <u>Criticality Incident Response and Corrective Action.</u>

a. Inspection Requirements.

1. Determine whether the licensee’s criticality accident alarm system (CAAS) complies with regulatory requirements.

2. Determine whether the licensee maintains emergency response procedures that address response to CAAS evacuation alarms, protection of workers and the public from the consequences of accidental criticality, and reentry and recovery procedures.

3. Determine whether the licensee is identifying issues in the area of NCS, entering them into the corrective action program (CAP), and correcting the condition as required by license, procedure, and or NRC requirements. Licensees with an approved CAP will have their corrective action program inspected in accordance with IP 88161, "Corrective Action Program (CAP) Implementation at Fuel Cycle Facilities". Corrective actions as a result of violations will be inspected in accordance with IP 92702, "Follow up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, And Alternative Dispute Resolution Confirmatory Orders".

b. Inspection Guidance.

1. The inspectors should assess the CAAS design characteristics, coverage, and operability. Design characteristics and coverage should be evaluated upon installation of a new CAAS or upon significant changes to the existing CAAS (e.g., upgrades to new technology, expansion to cover new areas). Inspectors need not reexamine those features unless such changes have occurred since the last NCS inspection, although facility changes that rearrange process areas or introduce additional shielding can affect the basis for coverage. Each of these areas is discussed in further detail below:

(1) The inspectors should determine whether the CAAS design meets regulatory requirements and license commitments, including if so committed, to ANSI/ANS-8.3. These include (1) whether the CAAS is designed and implemented so as to minimize false alarms (by coincidence or majority logic and setting detection thresholds sufficiently above; (2) whether components are resistant to environmental conditions (heat, vibration, radiation, corrosive gases, etc.) and natural phenomena (lightning, thunder, flooding, earthquakes, etc.); (3) whether detector failure is self-announcing; and (4) whether there is adequate emergency power for detectors and electricity or air for horns to ensure the horns will continue to annunciate until manually reset. Specific design criteria may be specified in the license, license application, ISA Summary, ANSI/ANS-8.3, and/or internal procedures.

(This inspection requirement is on an as-needed basis and should be completed only if significant changes are made to the CAAS)

(2) The inspectors should examine the licensee's documentation demonstrating dual alarm coverage over all areas in which it is required, to determine if conservative assumptions about (1) the source strength and spectrum; (2) source location; and (3) the amount and location of intervening shielding have been made. And ultimately, whether alarm setpoints are appropriate for detecting the minimum accident of concern. Due to the large uncertainties inherent in such calculations, the calculated dose or dose rate at the detector from the minimum accident of concern normally exceeds the detection threshold by a substantial margin.

(This inspection requirement is on an as-needed basis and should be completed only if significant changes are made to the CAAS)

2. The NCS program should require that reentry and recovery from an evacuation or limit violation be governed by corrective procedures that ensure the remaining safety margin is acceptable, or not further reduced if already unacceptable. The NCS function should review all recovery procedures. When all personnel or areas are not required to evacuate, the inspectors should review the emergency response provisions for the personnel or areas who don't evacuate. The inspectors should assess whether qualified NCS staff are readily available to advise the licensee in an emergency and whether the licensee has the authority to overrule restrictions on the use of firefighting agents in order to reduce overall risk. If the use of moderating fire suppressants (e.g., water, foam) is allowed, their use must be accounted for in CSEs. If there are restrictions on such fire suppressants, they should be communicated appropriately to both onsite and offsite responders. The inspector should also assess how NCS-risks will be handled during emergencies before NCS staff gets there.

   (This inspection requirement should be completed once per year, unless significant changes warrant additional inspection.)

88015-03 RESOURCE ESTIMATE

The resource estimate to perform this inspection procedure is as specified in Table 1 of IMC 2600 Appendix B with a variance of ±10%.

88015-04 REFERENCES

10 CFR 70, "Domestic Licensing of Special Nuclear Material"

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

Regulatory Guide 3.71, "Nuclear Criticality Safety Standards for Fuels and Material Facilities"

NUREG/CR-6698, "Guide for Validation of Nuclear Criticality Safety Calculational Methodology"

88015-05 PROCEDURE COMPLETION

Performance of each applicable inspection requirement will constitute completion of this procedure, with the scope and breadth to be determined by the inspectors in accordance with the approved inspection plan.

END

Attachment:
Revision History for IP 88015

ATTACHMENT

Revision History for IP 88015

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment and Feedback Resolution Accession Number (Pre-Decisional, Non-Public Information)
	09/05/06 CN 06-020	This document has been revised to: (1) emphasize the risk informed, performance based approach to inspection, (2) impose changes to the core inspection program based on operating experience, and (3) remove completed or obsolete MCs and incorporate other fuel cycle MCs into a central location.	None	ML061940240
N/A	ML112720153 11/07/11 CN 11-027	Revised the resource estimates based on changes made to IP 88017.	None	ML112720159
N/A	ML15071A069 08/11/15 CN 15-015	Revised to combine IP 88015, 88016, and 88017 into one procedure, to streamline, simplify, and generalize it to be applicable to all fuel cycle facilities and to be consistent with licensing guidance, and to incorporate lessons learned from operating experience.	Seminar 12/31/2015	ML15139A425
NA	ML20213C588 10/20/20 CN 20-052	Revision to implement the recommendations from the Smarter Inspection Program (ML20077L247and ML20073G659);	Complete by December 2020	N/A