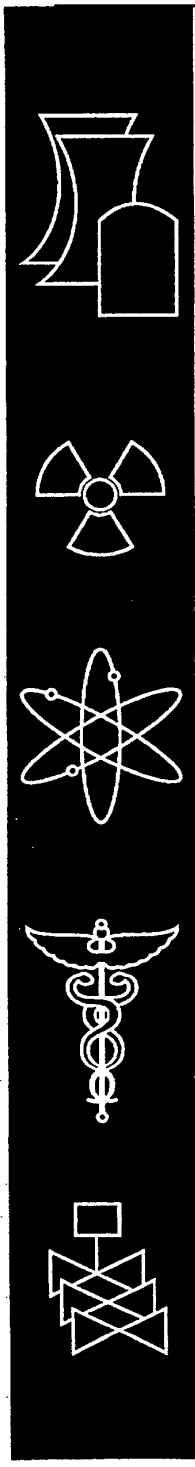
RAS K-193
APP000029
Submitted Sept. 29, 2011

NUREG-1718



Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility

Final Report

U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555-0001

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NUREG-1718

Standard Review Plan
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Final Report

Manuscript Completed: August 2000
Date Published: August 2000

Enrichment Section
Special Projects Branch

Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ABSTRACT

This Standard Review Plan (SRP) (NUREG–1718) provides guidance to the NRC staff reviewers in the Office of Nuclear Material Safety and Safeguards who will perform safety, safeguards, and environmental reviews of the anticipated application for a license to possess and use special nuclear material for a mixed oxide fuel fabrication facility under 10 CFR Part 70. This guidance includes the construction approval review specifically related to plutonium processing and fuel fabrication. The SRP ensures the quality, uniformity, stability, and predictability of the staff reviews. It presents a defined basis from which to evaluate proposed changes in the scope and requirements of the staff reviews. The SRP makes information about NRC acceptance criteria widely available to interested members of the public and the regulated industry. Each SRP section addresses the responsibilities of persons performing the review, the review areas, the Commission's regulations pertinent to specific technical matters, the acceptance criteria used by the staff, how the review is accomplished, and the conclusions that are appropriate for the Safety Evaluation Report for both the construction approval review and the license review.

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15.0 MANAGEMENT MEASURES

EXECUTIVE SUMMARY

The NRC expects to receive a license application from Duke Cogema Stone and Webster to license a mixed oxide (MOX) fuel fabrication facility under 10 CFR Part 70. (Throughout this document, Duke Cogema Stone and Webster is referred to as "the applicant.") Under Part 70, the MOX facility is classified as a plutonium processing and fuel fabrication plant. An applicant for a license to possess and use special nuclear material at a plutonium processing and fuel fabrication facility must obtain the NRC's approval prior to starting facility construction. This means that the NRC will conduct two reviews. The first review will determine if the NRC can grant the applicant a construction approval. The NRC makes this determination based on contents of the license application that are specifically required by Part 70 for construction approval. The required material is described in detail in 10 CFR 70.22(f).

The second review will determine if the NRC can grant the applicant a possession and use license for special nuclear material. The NRC makes this determination based on the full content of the license application as described in all of 10 CFR 70.22(f) and Subpart H to 10 CFR Part 70.

The NRC developed this Standard Review Plan (SRP) to provide guidance to the NRC staff reviewers in the Office of Nuclear Material Safety and Safeguards who will perform safety, safeguards, and environmental reviews of the anticipated application for a license to possess and use special nuclear material for the MOX facility—including the construction approval review. The NRC developed NUREG–1718 in parallel with NUREG–1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," which the NRC staff is currently developing to support a rulemaking for 10 CFR Part 70. The NRC staff has attempted to ensure that this SRP is consistent with the requirements of the ongoing rulemaking. The NRC staff has also attempted to ensure that, where applicable for a MOX facility, NUREG–1718 is consistent with the draft of NUREG–1520. However, reviewers and other readers should be aware that this document incorporates guidance that makes it specific for a MOX facility.

The SRP ensures the quality, uniformity, stability, and predictability of the staff reviews. It presents a defined basis from which to evaluate changes in the scope and requirements of the staff reviews. The SRP makes information about NRC acceptance criteria widely available to interested members of the public and the regulated industry. Each SRP section addresses the responsibilities of persons performing the review, the review areas, the Commission's regulations pertinent to specific technical matters, the acceptance criteria used by the staff, how the review is accomplished, and the conclusions that are appropriate for the Safety Evaluation Report for both the construction approval review and the license review. Subject areas for the NRC staff reviews include:

- General information about the applicant and the plant site;
- The applicant's financial qualifications to construct and operate the facility;
- The applicant's organization and administration;
- The analysis of potential accidents, including:
    - The potential hazards;

- The potential likelihoods and consequences; and
- How the applicant will prevent or mitigate potential accidents, where necessary.

- The applicant's provisions to:

  - Protect its employees from exposure to radiation;
  - Protect against a nuclear criticality;
  - Protect the public and environment from radioactive material;
  - Provide for chemical safety;
  - Provide for protection against fires; and
  - Protect the workers, public, and environment during emergencies.

- The applicant's plans to:

  - Protect against the theft or loss of radioactive material;
  - Physically protect the radioactive material, including transportation; and
  - Protect information that is classified in the interest of national security.

- The applicant's management measures, which include:

  - Quality assurance;
  - Configuration management;
  - Maintenance;
  - Training and qualifications;
  - Plant procedures;
  - Audits and assessments;
  - Incident investigation; and
  - Records management.

In each of the subject areas, the document describes:

- The purpose of the review;
- Who should perform what role in the review;
- The specific material a reviewer would expect to see in the application;
- The applicable regulations and guidance;
- The basis for determining if the material is acceptable;
- Instructions for the review (including the construction approval); and
- An example of how to summarize the review and findings.

The NRC staff will use this document as the basis for licensing the MOX fuel fabrication facility.

ACRONYMS AND ABBREVIATIONS

2SX	*2nd Pass Solvent Extraction*
ACI	*American Concrete Institute*
AEC	*Active Engineered Control*
AEGL	*Acute Exposure Guideline Level*
AISC	*American Institute of Steel Construction*
ALARA	*As Low As Reasonably Achievable*
ANS	*American Nuclear Society*
ANSI	*American National Standards Institute*
AOA	*Area(s) of Applicability*
AP	*Aqueous Polishing*
ASCE	*American Society of Civil Engineers*
ASME	*American Society of Mechanical Engineers*
ASTM	*American Society for Testing and Materials*
BDC	*Baseline Design Criteria*
BFP	*Back Flow Preventer*
BOCA	*Building Code by Building Officials and Code Administrators International*
BTP	*Branch Technical Position*
CAAS	*Criticality Accident Alarm System*
CAM	*Continuous Air Monitor*
CAMS	*Continuous Air Monitoring System*
CCTV	*Closed Circuit Television*
CFR	*Code of Federal Regulations*
CM	*Configuration Management*
CSE	*Criticality Safety Evaluation*
D	*Dose*
DAC	*Derived Air Concentration*

DBP	*Dibutyl Phosphate*
DIW	*Deionized Water*
DOE	*Department of Energy*
DWM	*Division of Waste Management*
EA	*Environmental Assessment*
EAL	*Emergency Action Level*
EIS	*Environmental Impact Statement*
ERDA	*Energy Research and Development Administration*
ERPG	*Emergency Response Planning Guidelines*
FCSS	*Fuel Cycle Safety and Safeguards*
FHA	*Fire Hazards Analysis*
FKG	*Formula Kilogram*
FM	*Factory Mutual Research Corporation*
FMEA	*Failure Modes and Effects Analysis*
FNMCP	*Fundamental Nuclear Material Control Plan*
FOCI	*Foreign Ownership, Control, or Influence*
FONSI	*Finding of No Significant Impact*
HEPA	*High Efficiency Particulate Air*
HFE	*Human Factors Engineering*
HS&E	*Health, Safety and the Environment*
HSI	*Human Systems Interface*
HTP	*Hydrogenated Tetrapropylene*
I&C	*Instrumentation and Control*
IBC	*International Building Code by International Code Council*
ICRP	*International Council on Radiation Protection*
ID	*Inventory Difference*
IEEE	*Institute of Electrical and Electronic Engineers*
IROFS	*Items Relied on For Safety*

ISA	*Integrated Safety Analysis*
LEU	*Low Enriched Uranium*
MC&A	*Material Control and Accounting*
MCNP	*Monte Carlo Neutron Proton Code*
MDC	*Minimum Detectable Concentration*
MFT	*Mass Flow Totalizer*
MOX	*Mixed Oxide*
MP	*MOX Process*
M/S	*Mixer/Settler*
NCRP	*National Council on Radiation Protection*
NCS	*Nuclear Criticality Safety*
NDA	*Non-Destructive Assay*
NEPA	*National Environmental Policy Act*
NFPA	*National Fire Protection Association*
NIOSH	*National Institute for Occupational Safety and Health*
NIST	*National Institute of Standards and Technology*
NMSS	*Office of Nuclear Material Safety and Safeguards*
NRC	*Nuclear Regulatory Commission*
NSI	*National Security Information*
NVLAP	*National Voluntary Laboratory Accreditation Program*
OER	*Operating Experience Review*
OSHA	*Occupational Safety and Health Administration*
P^3	*Plutonium Purification Process*
P&IDs	*Piping and Instrumentation Diagrams*
PCFD	*Process Criticality Flow Diagram*
PEC	*Passive Engineered Control*
PFD	*Process Flow Diagram*
PHA	*Process Hazard Analysis*

PM	*Preventive Maintenance*
PPE	*Personnel Protective Equipment*
PSI	*Process Safety Information*
QA	*Quality Assurance*
QC	*Quality Control*
RD	*Restricted Data*
RG	*Regulatory Guide*
RSO	*Radiation Safety Officer*
RWP	*Radiation Work Permits*
SBC	*Southern Building Code by Southern Building Code Congress International Inc.*
SEC	*Securities and Exchange Commission*
SEID	*Standard Errors of Inventory Difference*
SER	*Safety Evaluation Report*
SNM	*Special Nuclear Material*
SRD	*Shipper-Receiver Differences*
SRP	*Standard Review Plan*
SSC	*Structure, System, and Component*
SSNM	*Strategic Special Nuclear Material*
T	*Likelihood Index*
TBP	*Tributyl Phosphate*
TEDE	*Total Effective Dose Equivalent*
TRT	*Tactical Response Team*
UBC	*Uniform Building Code by International Conference of Building Officials*
UL	*Underwriters Laboratories Inc.*
V&V	*Verification and Validation*

GLOSSARY

The following terms are defined here by the staff for the purposes of this Standard Review Plan (SRP). Many terms are taken from 10 CFR 70.4 or other regulations. Terms listed in this glossary represent the definition of the word in any chapter of this SRP. Words for which the definitions change between chapters are listed in the individual chapters.

Accident sequence	An unintended sequence of events that, given the failure of certain items relied on for safety (IROFS) identified in the sequence, would result in environmental contamination, a radiation exposure, a release of radioactive material, an inadvertent nuclear criticality, or an exposure to hazardous chemicals, provided the chemicals are produced from licensed radioactive material. The term "accident" may be used interchangeably with accident sequence.
Active-engineered control	A physical device that uses active sensors, electrical components, or moving parts to maintain safe process conditions and requires no human action.
Acute	This term is defined in 10 CFR 70.4.
Administrative control	Either an augmented-administrative control or a simple-administrative control.
Augmented-administrative control	A required or prohibited human action, combined with a physical device that alerts the operator that the action is needed or prohibited to maintain safe process conditions or that otherwise adds substantial assurance to the required human performance.
Available and reliable to perform their function when needed	This term is defined in 10 CFR 70:4.
Baseline design criteria	A set of criteria specifying design features and management measures that are required and acceptable under certain conditions for new processes or facilities specified in 10 CFR 70.64. These criteria are, in general, the acceptance criteria applicable to safety design described in the chapters of this SRP.
Configuration management (CM)	This term is defined in 10 CFR 70.4.

Consequence	Any result of interest caused by an event or sequence of events. In this context, adverse consequences refers to the adverse health or safety effects on workers or the public, and to adverse environmental impacts of accidents.
Consequence of concern	Adverse radiological, chemical, or environmental effects exceeding any of the levels specified in 10 CFR 70.61.
Construction approval	An approval provided by the NRC to an applicant that allows construction of the principal structures, systems, and components of a plutonium processing and fuel fabrication plant.
Controlled area	This term is defined in 10 CFR 20.1003.
Controlled parameter	A measurable parameter that is maintained within a specified range by one or more specific controls to ensure the safety of an operation.
Critical mass of special nuclear material (SNM)	This term is defined in 10 CFR 70.4.
Design bases	For the purposes of this SRP, this term is defined as in 10 CFR 50.2.
Deviation from safe operating conditions	A parameter outside its established safety limits, or an item relied on for safety that cannot perform its intended function.
Double contingency	This term is defined in 10 CFR 70.4.
Engineered control	Either an active-engineered control or a passive-engineered control.
Event	An occurrence; a change of conditions from a prior state.
External event	An event for which the likelihood cannot be altered by changes to the regulated facility or its operation. This would include all natural phenomena events plus airplane crashes, explosions, toxic releases, fires, etc., occurring near or on the plant site that cannot be controlled by actions of plant personnel.
Hazardous chemicals produced from licensed materials	This term is defined in 10 CFR 70.4.

Integrated safety analysis (ISA)	This term is defined in 10 CFR 70.4.
Integrated safety analysis summary	This term is defined in 10 CFR 70.4.
Items relied on for safety (IROFS)	This term is defined in 10 CFR 70.4.
Management measures	This term is defined in 10 CFR 70.4.
Mitigative control	A control intended to reduce the consequences of an accident sequence, not to prevent it entirely. When a mitigative control works as intended, the results of the sequence are called the mitigated consequences.
Natural phenomena event	Earthquakes, floods, tornadoes, tsunamis, hurricanes, and other events that occur in the natural environment and could adversely affect safety. Natural phenomena events, depending on their likelihood of occurrence, may be credible or incredible.
New processes at existing facilities	Systems-level or facility-level design changes to process equipment, process technology, facility layout, or types of licensed material possessed or used. This definition does not, generally, include component-level design changes or equipment replacement.
Passive-engineered control	A device that uses only fixed physical design features to maintain safe process conditions, and requires no human action.
Preventive control	A control intended to prevent an accident entirely, that is, to prevent any of the types of radiological or chemical consequences in 10 CFR 70.61 of any magnitude.
Principal structures, systems, and components (SSCs)	Safety controls that are identified in the design bases as providing protection against the consequences of accidents or natural phenomena. Designating a control as a principal SSC is effectively synonymous with designating that control as an IROFS.

Process hazard analysis (PHA)	That activity, and its product, that evaluates the identified hazards of operating the plant processes; describes potential accident sequences, including the items relied on to prevent or mitigate the progress of such sequences; and evaluates the likelihood and consequences of the sequences. This activity of necessity involves the determination of the likelihood of the initiating event and the likelihood of failure of the individual items (controls) relied on for safety, and, where more than one item is relied on in a sequence, the likelihood of various combinations of failures that lead to the assessment of the overall likelihood of arriving at the accident consequence.
Process safety information	Information pertaining to (1) the hazards of the material used or produced in the process, (2) the technology of the process, and (3) the equipment in the process.
Safe process conditions	The defined ranges or sets of acceptable values of one or more controlled parameters.
Safety control	A system, device, or procedure intended to regulate a device, process, or human activity to maintain a safe state. Controls may be engineered controls or administrative (procedural) controls. Controls may be preventive or mitigative. Effectively synonymous with "item relied on for safety." In the context of this SRP, use of the unmodified term "control" normally means safety control.
Simple-administrative controls	A human action that is prohibited or required to maintain safe process conditions.
Unacceptable performance deficiencies	This term is defined in 10 CFR 70.4.
Uncontrolled outcome	The sequence of events and consequences that result if no controls or barriers are available to prevent or mitigate an accident sequence. Thus the consequences of an uncontrolled outcome are, by definition, unmitigated. These consequences may also be referred to as uncontrolled consequences.
Unmitigated consequences	The consequences that result from an accident sequence when mitigative control fails or does not exist.
Worker	This term is defined in 10 CFR 70.4.

INTRODUCTION

The "Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility" provides the U.S. Nuclear Regulatory Commission (NRC) with guidance for the review and evaluation of the health, safety, and environmental protection for a license application to possess and use special nuclear material (SNM) to fabricate MOX fuel under 10 CFR Part 70. The NRC developed this Standard Review Plan (SRP) in parallel with NUREG–1520 ("Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility"). This SRP is consistent with the guidance in NUREG–1520, yet contains modifications to make this guidance facility specific. The NRC only intends to use this guidance to review an application from the consortium of Duke Cogema Stone and Webster, which is under contract with the U.S. Department of Energy to construct and operate a MOX fuel fabrication facility at the Savannah River Site in Aiken, SC.

The NRC considers the MOX fuel fabrication facility to be a plutonium processing and fuel fabrication plant as defined in 10 CFR 70.4. Since 10 CFR Part 70 requires that the NRC give the applicant construction approval as part of licensing plutonium processing facilities, this SRP provides guidance on the construction approval review in addition to the review for a license to possess and use SNM. This SRP is further applicable to the review and evaluation of proposed amendments and license renewal applications for a MOX facility. Specific filing requirements for the construction approval, the possession and use license, and the issuance of such approvals are in 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material."

Purpose

The principal purpose of the SRP is to ensure the quality and uniformity of staff reviews and to present a well-defined base from which to evaluate proposed changes in the scope, level of detail, and acceptance criteria of reviews. This SRP should be used as the basis for the license review for a MOX fuel fabrication facility, including both the construction approval review and the review for a license to possess and use SNM. Moreover, although the SRP uses the term "applicant," this SRP is also intended to apply to license renewals and amendments.

Another important purpose of the SRP is to make information about regulatory reviews related to the MOX fuel fabrication facility widely available to improve communication and understanding of the staff review process. Because the SRP describes the scope, level of detail, and acceptance criteria for reviewers, it can serve as regulatory guidance for applicants who need to determine what information should be presented in a license application for a MOX fuel fabrication facility, including the portion of the application that provides material for the NRC's construction approval review.

The staff's responsibility in the review of a new license application (including the construction approval), license renewal application, or license amendment for a MOX fuel fabrication facility is to determine that there is reasonable assurance that: the design bases of the principal structures, systems, and components (SSCs) and quality assurance program provide reasonable assurance of protection against the consequences of potential accidents and natural phenomena (construction approval); and the facility can be operated in a manner that will not be inimical to the common defense and security and will provide reasonable protection

of the health and safety of workers, the public, and the environment including that the facility was constructed consistent with the application (license to possess and use SNM). To carry out this responsibility, the staff evaluates information provided by the applicant and, through independent assessments, determines that the applicant has demonstrated a reasonable design bases (for construction approval) and a reasonable safety program (for issuing a license to possess and use SNM) that are in accordance with regulatory requirements. To facilitate carrying out this responsibility, the SRP clearly states and identifies those standards, criteria, and bases that the staff should use in reaching regulatory decisions.

This SRP provides information to assist the staff (and applicant) in understanding the underlying objective of the regulatory requirements, the relationships among NRC requirements, the licensing process, the major guidance documents that the NRC staff has prepared for licensing facilities under 10 CFR Part 70, and the details of the staff review process set out in individual SRP sections. Analyses by the staff are intended to provide regulatory confirmation of reasonable assurance of safe design and operation. A staff determination of reasonable assurance leads to a decision to provide a construction approval, issue or renew a license, or approve an amendment. In the case of a staff determination of inadequate description or commitments, the staff should inform the applicant of what is needed and the basis upon which the determination was made.

Construction Approval

Prior to constructing a plutonium processing facility such as the MOX fuel fabrication facility, the applicant must obtain the NRC's approval. The material the applicant submits to support the NRC's construction approval review is part of the license application. The NRC does not require the applicant to submit a full license application to make a determination regarding the construction approval. Applicants must submit a description of the facility site; a description and safety assessment of the design bases of the principal structures, systems, and components (SSCs) of the facility, including provisions for protection against natural phenomena; and a description of the quality assurance program to be applied to the design, fabrication, construction, testing, and operation of the facility's SSCs. For the purposes of this guidance, the NRC is defining "design bases" as the information that identifies the specific functions to be performed by an SSC of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally accepted "state-of-the-art" practices for achieving functional goals or (2) requirements derived from analysis (based on calculation and/or experiments) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals.

The safety assessment of the design bases should explain why the applicant selected particular functions or values and demonstrate how the applicant determined that the design bases will provide reasonable assurance of protection against natural phenomena and the consequences of potential accidents. Accident consequences are defined in the performance requirements of Subpart H to 10 CFR Part 70. In addition, the safety assessment should demonstrate how the requirements for new facilities identified in 10 CFR 70.64 are satisfied by the design bases. In effect, the safety assessment of the design bases should show that the design bases bounds, or at least meets, the acceptance criteria outlined in this SRP.

Prior to applying for a construction approval, the applicant should have designed and analyzed the facility in sufficient detail to allow the NRC to make a determination in accordance with 10 CFR 70.23(b). To allow this determination, the material submitted to obtain the NRC's construction approval should contain the information described in 10 CFR 70.22(f) in sufficient detail for the staff to review the safety assessment of the design bases.

Approval for a License To Possess and Use SNM

Part 70.65 requires that the applicant submit a Safety Program Description with the license application to possess and use SNM. The Safety Program Description must be sufficiently detailed to permit the staff to conclude that the design was completed and the facility constructed in accordance with the approved design bases and to obtain reasonable assurance that the facility will be operated without undue risk to the health and safety of workers or the public, i.e., meet the performance requirements of 10 CFR 70.61. To be acceptable, the license application, and therefore the Safety Program Description, should meet the acceptance criteria of this SRP.

The Safety Program Description is the principal document through which the applicant provides the information needed by the NRC staff to make a determination on the license application. When reviewed and approved by the staff, and incorporated in the NRC license by reference, the Safety Program Description, in its entirety and in its parts, is considered a binding commitment of the applicant regarding the design and operation of the licensed facility. The Safety Program Description is the safety basis on which the license is issued and may not be changed except under circumstances defined in 10 CFR 70.72.

Using the SRP

The requirements in 10 CFR Part 70 specify, in general terms, the information to be supplied in the license application, including the construction approval request. The specific information that should be submitted by the applicant and evaluated by staff is identified in this SRP. Prospective applicants should study the topic areas treated in this document (generally, chapter headings) and the subsections within each topic area, specifically the subsections titled "Areas of Review," "Acceptance Criteria," and "Review Procedures." The license application should contain a Safety Program Description that addresses all topics in the Table of Contents in the SRP. Staff should refer to each SRP chapter for specific guidance on how that topic should be addressed for the construction approval. In each case, the material should be structured in the same order as presented in this document.

The major topics addressed within the design bases (construction approval) or the Safety Program Description of a facility (possession and use) of a license application are addressed in separate SRP sections; each of those sections, or chapters, includes subsections described below.

Section 1. PURPOSE OF REVIEW

This section is a brief statement of the purpose for and objectives of reviewing the subject areas. It emphasizes the staff's evaluation of the ways the applicant can achieve identified performance objectives and ensures through the review that the applicant has used a

multidisciplinary, risk-informed, systems-oriented approach to establishing designs, controls, and procedures within individual technical areas.

Section 2. RESPONSIBILITY FOR REVIEW

This section identifies the organization and individuals by function, within the NRC, responsible for evaluating the subject or functional area covered by the SRP. If reviewers with expertise in other areas are to participate in the evaluation, they are identified by function. In general, the Project Manager has responsibility for the review product, a Safety Evaluation Report including safeguards and supporting environmental evaluations for an application. However, an identified Technical Specialist should have primary responsibility for a particular review topic, usually an SRP chapter. One or more specialists may have supporting responsibility. In some areas, the review is performed by a team of specialist reviewers, including the lead reviewer for the Integrated Safety Analysis (ISA) and the Project Manager. Although they perform their review tasks individually, the reviews are coordinated and integrated to ensure consistency in approach and risk-informed reviews. The Project Manager oversees and directs the coordination of the reviewers. The reviewers' immediate line management has the responsibility to ensure that an adequate review is performed by qualified reviewers.

Section 3. AREAS OF REVIEW

This section describes the topics, functions, systems, structures, equipment, components, analyses, data, or other information that should be reviewed as part of that particular subject area of the license application. Because the section identifies information to be reviewed in evaluating the construction approval as well as the license to possess and use SNM, it identifies the acceptable content of the license application in the areas discussed. If there is a distinction between the areas of review for the construction approval or the license to possess and use SNM, it is explicitly noted in each subject area. The areas of review identified in this section obviate the need for a separate Standard Format and Content Guide.

Topics identified in this section also set the content of the next two sections of the SRP. Both Section 4, "Acceptance Criteria," and Section 5, "Review Procedures," should address, in the same order, the topics set forth in Section 3 as areas to be reviewed. Section 3 also identifies the information needed or the review expected from other NRC individuals to permit the individual charged with primary review responsibility to complete the review.

Section 4. ACCEPTANCE CRITERIA

This section contains a statement of the applicable NRC criteria based on regulatory requirements, and the bases for determining the acceptability of the applicant's commitments relative to the design, programs, or functions within the scope of the particular SRP section. Technical bases consist of specific criteria such as NRC regulations, Regulatory Guides, NUREG reports, industry codes and standards, and Branch Technical Positions. To the extent practicable, the acceptance criteria identify, as objectively or quantitatively as is feasible, that specific criteria, and other technical bases must be bounded by the design bases or met by either the design bases (construction approval) or the Safety Program Description (license to possess and use SNM). The acceptance criteria (including Branch Technical Positions or other information) present positions and approaches that are acceptable to the staff.

The NRC's intent is to have the SRP present acceptance criteria for each technical function area (e.g., nuclear criticality safety, fire safety, and radiation safety) and for the management measures (e.g., quality assurance, maintenance, audits, and assessments) that allow the applicant to provide a level of protection commensurate with the accident risk inherent in the process activities proposed. For example, at process stations (or for an entire process or subprocess) for which the inherent risk to workers, the public, or the environment is demonstrably small, the applicant needs to provide only those design and operating controls that assure that small risk. The key element in the regulatory transaction involving presentation by the applicant, and review and approval by the NRC, is an adequate demonstration of acceptable control of risk by the applicant, which then supports a competent and informed review by NRC staff. The starting point for the applicant's demonstration of acceptable control of risk is the safety assessment of the design bases for the construction approval as followed by the ISA for the license to possess and use SNM.

The applicant's safety assessment of the design bases and ISA Summary (described in and reviewed in Chapter 5.0 of this SRP) are the primary supporting rationale for the safety level of design and operational features. There are, however, design and operational features and management measures that may be required independent of the ISA results presented by the applicant. This is to meet the requirements of 10 CFR 70.64 for new facilities or new processes at existing facilities or, for all facilities, other NRC requirements such as 10 CFR Parts 20 and 51. The level of detail presented in the ISA Summary and in other parts of the application represents the safety basis committed to by the applicant. That basis is subject to the provisions of 10 CFR Part 70 regarding changes that a licensee may make to the facility without prior NRC approval.

If the MOX facility is licensed and the licensee renews or amends the license, in responding to the requirements of 10 CFR Part 70, the licensee may propose items relied on for safety (IROFS) or supporting management measures that meet less stringent acceptance criteria than described in the SRP based on supporting analyses from the ISA. The ISA may be used to justify a reduced level of assurance for particular IROFS that are associated with lesser risk accident sequences, as defined by the applicant's analysis of likelihood and consequences pursuant to 10 CFR Part 70. The SRP criteria shown in this SRP apply to those IROFS and associated management measures that are involved in the higher risk accident sequences as defined in 10 CFR 70.61.

For construction approval of the MOX fuel fabrication facility, the acceptance criteria described in the SRP should be bounded by the applicant's safety assessment design bases. There is an additional requirement to comply with the baseline design criteria (BDC) of 10 CFR 70.64. The BDC are consistent with risk-informed regulation, in that, for new processes or new facilities, the NRC recognizes that good engineering practice dictates that certain minimum requirements be applied as design and safety considerations, generally independent of the risk-based information ultimately obtained through the ISA. However, the applicant may later use the license application to justify reduced criteria for some IROFS consistent with the ISA Summary for the final facility design. Proposed reductions in the level of assurance should be considered by the NRC staff and, if accepted, should also constitute compliance with the BDC.

The "Acceptance Criteria" are intended to communicate the underlying objectives but not to represent the only means of satisfying that objective. The applicant should tailor its safety program to the features of its particular facility. If approaches different from the SRP are

chosen, the applicant should identify the portions of its application that differ from the design approaches and acceptance criteria of the SRP and evaluate how the proposed alternatives provide an acceptable method of complying with the Commission's regulations. The staff retains the responsibility to make an independent determination of the adequacy of what is proposed.

The applicant should recognize that substantial time and effort on the part of the staff have gone into the development of the acceptance criteria and may be required to review and accept proposals that depart from the standard application described in the SRP. Thus, applicants resolving safety issues or safety-related design areas in ways other than those described in the SRP should plan for longer review times and more extensive questioning in these areas.

Section 5. REVIEW PROCEDURES

This section describes how the review should be performed and delineates differences between the construction approval review and the review for the license to possess and use SNM. It describes procedures that the reviewer should follow to achieve an acceptable scope and depth of review and to obtain reasonable assurance that the applicant has provided appropriate commitments to ensure that it will construct or operate the facility safely and securely. This includes identifying commitments the reviewer should verify and could include directing the reviewer to coordinate with others having review responsibilities for other portions of the application than those assigned to the reviewer. This section should provide whatever procedural guidance is necessary to evaluate the applicant's level of achievement of the acceptance criteria for the construction approval, the license, and license amendments.

Section 6. EVALUATION FINDINGS

This section presents the type of positive conclusion that is sought for the particular review area to support a decision to grant the construction approval or license. The review must be adequate to permit the reviewer to support this conclusion. For each section, a conclusion of this type should be included in the staff's Safety Evaluation Report (SER) in which the staff publishes the results of its review. The SER should also contain a description of the review, including aspects of the review that received special emphasis; matters that were modified by the applicant during the review; matters that require additional information or will be resolved in the future; aspects where the facility's design or the applicant's proposals deviate from the criteria in the SRP; and the bases for any deviations from the SRP or proposed exemptions from the regulations. Staff reviews may be documented in the form of draft SERs that identify open issues requiring resolution before the staff can make a positive finding in favor of the license issuance or amendment.

Section 7. REFERENCES

This section lists references that should be consulted in the review process. However, the references may not always be relevant to the review, depending on the action and approaches proposed by the applicant.