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September 2, 1999

Mr. Theodore S. Sherr
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**Reference: Comments on the June, 1999 Draft Version of NUREG-1520
'Standard Review Plan for the Review of a License Application
for a Fuel Cycle Facility': Chapter 8 - Emergency Management**

Dear Mr. Sherr:

The Nuclear Energy Institute (NEI)¹ and its industry members are undertaking detailed reviews of each chapter of the draft Standard Review Plan (SRP) released on June 2, 1999 as part of SECY-99-147. To provide effective guidance on implementation of 10 CFR 70, we believe the SRP should be concisely written and accurately reflect the 'risk-informed, performance-based' regulatory approach incorporated into the Part 70 rule revisions.

Accompanying this letter are NEI's comments on Chapter 8 ('*Emergency Management*') of the draft SRP. The review is presented in two parts: (i) general comments on the sub-chapter, and (ii) specific language (or stylistic) improvements presented on a red-lined version of the draft SRP sub-chapter. In view of the number and complexity of NEI's proposed improvements, a second copy of SRP Chapter 8 has been prepared from which the red-lined text deletions have been removed. This version of draft SRP Chapter 8 will enable you to more clearly understand the improvements which NEI is recommending.

Mr. Theodore S. Sherr

¹ NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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NEI is pleased that many improvements to the draft SRP developed in public meetings and workshops and proposed by industry have been incorporated into this latest draft of the SRP. The June, 1999 revision is markedly improved over earlier versions issued in 1998 and we compliment the staff for this accomplishment.

We look forward to working with you and your staff to make NUREG-1520 a clear and concise document that will facilitate implementation of the new provisions of 10 CFR Part 70. Please feel free to contact me should you have any questions concerning the proposed improvements in the attachment to this letter.

Sincerely,

Felix M. Killar, Jr.
Director, Material Licensees and Nuclear Insurance

c. Mr. Marvin S. Fertel
Dr. Carl J. Paperiello, Director NMSS

**COMMENTS ON THE JUNE, 1999 DRAFT VERSION OF NUREG-1520
'STANDARD REVIEW PLAN FOR THE REVIEW OF A LICENSE
APPLICATION FOR A FUEL CYCLE FACILITY'**

CHAPTER 8: EMERGENCY MANAGEMENT

I. General Comments

The June, 1999 version of draft SRP Chapter 8 generally reads well and does not require major revisions.

NEI's principal concern is the persistence of language in Chapter 8 that can still be construed to grant NRC regulatory oversight of hazardous material releases that have no impact on nuclear or radiological safety. NRC jurisdiction is limited to safeguarding against the hazards of licensed material releases and of hazardous chemicals produced from licensed material. The Emergency Management Plan required by 10 CFR 70.22(i)(1)(i) does not extend to oversight of purely hazardous chemicals that may be stored at the facility for addition to, or recovery from, processes in which licensed material is involved. The second and third principles of the 1988 NRC-OSHA Memorandum of Understanding (MOU) do not, therefore, appear to be correctly interpreted in Chapter 8. For example, in §8.4.3.2.1.1(4) the SRP requests information on "*...hazardous materials normally on site...*" and their "*...hazardous characteristics (exposure rates, pH, temperature and other characteristics important to emergency management...*". The third principle of the MOU explicitly limits NRC oversight of emergency preparedness planning to hazardous materials that could "*...[impact] plant conditions [and so] affect the safety of radioactive materials...*". The MOU must be correctly interpreted in Chapter 8.

There are several instances in which draft SRP Chapter 8 includes requirements beyond those contained in 10 CFR 70. The SRP requires the applicant to define the "*topics and general content of training programs used for training...offsite emergency response personnel...*" (§8.4.3.2(11)). The requirement in 10 CFR 70.22(I)(3)(x) for the licensee to offer "*...special instructions and orientation tours...to fire, police, medical and other emergency personnel...*" does not imply training such as that which will be offered to facility workers. Orientation and familiarization does not imply formal training. Similarly, §8.4.3.2.14(3) implies that offsite response organizations must review and comment on changes to the Emergency Management Plan. This will be very time consuming, especially since approval changes from the NRC alone now require 6-12 months. NEI supports continuation of the current policy, whereby licensees can make changes to the Emergency Management Plan that do not impair its effectiveness and that offsite response organizations only be informed of such changes. Bringing in all offsite organizations will greatly lengthen the approval process without adding to safety enhancement.

On numerous occasions the SRP prescribes detailed description of the facility and its processes, evaluation of generic types of accident sequences, mitigation of accident consequences, etc. These assessments have already been made elsewhere in the license application (e.g. *Facility and Process Description* (Chapter 1.1), *ISA Summary* (SRP Chapter 3), *Radiation Protection* (SRP Chapter 4), *Fire Safety* (SRP Chapter 7)). The applicant should only be required to reference information contained in such chapters rather than have to repeat it. As NEI has noted in its comments on other draft SRP chapters, the dependency of the Emergency Management Program on the results of the ISA must be emphasized. Grading of the Emergency Management Program in accordance with the results of the ISA has inadvertently been omitted from SRP Chapter 8 and should be included.

Concepts applicable only to nuclear reactors persist in Chapter 8. For example, reference is made in §8.5.2.2 to an SAR (*ISA Summary* should be the correct reference) and to the involvement of FEMA in evaluation of government emergency response capabilities. FEMA has no involvement in the licensing of fuel cycle facilities. These inappropriate references should be deleted.

Finally, NEI is concerned with the numerous instances in which the draft SRP either requires an analysis or directs an action that is neither specified in the Rule nor in Regulatory Guide 3.67. The SRP should emphasize consistency with Regulatory Guide 3.67 rather than promulgate requirements that either contradict those in the regulatory guide or go beyond its intended requirements.

NEI has recommended several changes to Chapter 8 language to draw attention to an applicant's **commitments** to design and implement a suitable Emergency Management Plan. The content of several sections of Chapter 8 (e.g. §8.4.3.2) has been expressed in terms of an applicant's commitments to implement a program. Some detailed prescriptive instructions have been removed from Chapter 8. The staff review should focus on achievement of a program or performance objective rather than on the detailed approach to achieve the objective.

II. Specific Comments

Specific comments are noted on the attached copy of draft SRP Chapter 8.

8.0 EMERGENCY MANAGEMENT

[Comment: NEI recommends that some additional direction be given the reviewer prior to assessment of the Emergency Management Plan. The reviewer should understand that the program is based upon the results of the ISA, and specifically processes and accident sequences whose consequences could result in an accidental release of licensed material that could result in a radiation exposure to the public exceeding the dose limits of 10 CFR 70.22(i)(1)(i). Prior consultation of the ISA Summary (SRP Chapter 3) and the Facility and Process Description (SRP Chapter 1.1), amongst others, is recommended to familiarize the reviewer with the required scope of the program assessment. The reviewer should expect the applicant to make reference to information contained in other sections of the application and to not repeat it in Chapter 8. NEI also recommends that the Introduction to Chapter 8 be clarified to convey the intent of 10 CFR 70.22(i)(1) and that the reviewer must assess either (i) the bases the applicant judges an Emergency Management Plan not to be necessary for the facility (10 CFR 70.22(i)(1)(i), or (ii) the applicant's commitment to design and implement an Emergency Management Plan.]

8.1 PURPOSE OF REVIEW

An applicant must either propose an Emergency Management Plan for responding to the radiological hazards of an accidental release of licensed material (and any associated chemical hazards) or provide justification that radiological exposures to the public would be so inconsequential that an Emergency Management Plan is not required. Chapter 8 provides guidance on the review of both Emergency Management Plans and applicant justifications for why such a plan is not needed.

Assessment of the need for an Emergency Management Plan is based upon the results of the ISA. Radiological hazards and the chemical hazards resulting from the handling of licensed material were evaluated in the ISA. The ISA evaluated credible, generic types of accident sequences at the facility, identified items relied on for safety to prevent their occurrence or to mitigate their consequences and recommended management measures to ensure their availability and reliability when required. Prior to assessing the adequacy of an Emergency Management Plan (or the justification for why one is not required), the reviewer should first consult the ISA Summary (Chapter 3) to gain familiarity with:

- (1) accident sequences potentially resulting in radiological hazards (and associated hazards from chemicals produced from licensed material)
- (2) specific items relied on for safety to prevent or mitigate such hazards
- (3) management measures recommended to ensure that items relied on for safety will be available and reliable when required

The reviewer may also wish to consult SRP Chapter 4 ('Radiation Protection') to ensure consistency of the facility's Radiation Protection Program with the Emergency Management Plan.

The review should determine if the applicant has established, before the start of operations, adequate emergency management facilities and procedures to protect the public, the workers, and the environment.

An Emergency Management Plan is required for a licensed facility from which the ~~when an evaluation shows that the~~ maximum dose to a member of the public offsite due to a release of

~~radioactive material~~ licensed materials would exceed either 1 rem (0.01 Sv) effective dose equivalent or an intake of 2 milligrams of soluble uranium. Licensed facilities requiring such an Emergency Management Plan are those ~~—This section applies to facilities~~ authorized to possess enriched uranium (U) or plutonium (Pu) for which a criticality accident alarm system is required, uranium hexafluoride (UF₆) in excess of 50 kg ~~(110 lb)~~ in a single container or 1000 kg ~~(2200 lb)~~ total, or in excess of 2 Ci of Pu in unsealed form or on foils or plated sources.

Emergency management capability is incorporated into the baseline design criteria (BDC) of 10 CFR Part 70.64(a)(8), ~~as revised~~, and is intended to ensure control of licensed material, evacuation of personnel, and availability of emergency facilities.

~~The object of the Emergency Management Plan review is, therefore, determination that the applicant has established. The review should determine if the applicant has established, before the start of operations, adequate management facilities and procedures to protect the public, the workers and the environment from radiological and associated chemical hazards or demonstration that there is no need for such a plan.~~

8.2 RESPONSIBILITY FOR REVIEW

Primary: Assigned FCLB staff

Secondary: Licensing Project Manager

Supporting: Regional Emergency Preparedness Inspector
ISA Reviewer
Fuel Facility Inspection staff

8.3 AREAS OF REVIEW

~~The reviewer will assess one of two alternatives: (i) an applicant's Emergency Management Plan, or (ii) an applicant's determination that such a plan is not required. In either case, the reviewer~~ NRC staff should review the applicant's submittal for an acceptable level of evidence of planning for emergency preparedness directed at situations involving real or potential radiological hazards. ~~The review~~ should address those design features, facilities, functions, accident sequences, mitigative measures, items relied on for safety and equipment that may affect the radiological (and associated chemical) hazards of an accidental release of licensed material. If an Emergency Management Plan is required, the reviewer must assess its adequacy and affect some aspect of emergency planning or the capability of the applicant to cope with plant emergencies. In addition, the review should address coordination with offsite emergency response organizations. ~~The staff should either review the emergency plan made in accordance with 10 CFR 70.22(i)(1)(ii) and with the guidance contained in the acceptance criteria below, or should review the applicant's evaluation that an emergency plan is not needed in accordance with 10 CFR 70.22(i)(1)(i).~~

The applicant may elect to incorporate some or all of the requested radiological, facility, process, risk analysis and chemical hazards information into the Emergency Management Plan or simply reference it from other SRP chapters (e.g. from the Facility and Process Description (SRP Chapter 1.1), ISA Summary (SRP Chapter 3), Radiation Protection (SRC Chapter 4) or Chemical

Process Safety (SRP Chapter 6)). Either approach is acceptable so long as an adequate summary is provided and the information is adequately cross-referenced.

The NRC staff reviewer should address the material presented, as described below.

8.3.1 Evaluation That No ~~Emergency Plan~~ Emergency Management Plan is Required

If the applicant submits an evaluation ~~demonstrating~~ to demonstrate that an ~~e~~Emergency ~~Management Pp~~lan is not required, the staff should review the evaluation against the requirements of 10 CFR 70.22(i)(1)(i), and NUREG-1140, "A Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees." NUREG/CR-6410, "Nuclear Fuel Cycle Facility Accident Analysis Handbook," also contains useful information. ~~Areas to be evaluated should include the following:~~

[Comment: possible factors that could prevent the dose criteria of 10 CFR 70.22(i)(1)(i) being exceeded should be listed in this section for completeness.]

The applicant should provide a detailed evaluation demonstrating that the maximum radiation exposure or intake by a member of the public during normal operations, anticipated operational occurrences and credible accidents will not exceed the limits of 10 CFR 70.22(i)(1)(i). The applicant should explain how any of the following factors were considered in this evaluation:

- (1) the licensed material is physically separated so that only a portion could be involved in an accident
- (2) the licensed material is stored or packaged so that all or part of it could not be released in an accident
- (3) in the event of a fire or explosion the chemical or physical form of the licensed material provides reasonable assurance that less than 0.1% would be released
- (4) the solubility of the license material is sufficiently low that an intake of 2 milligrams would be extremely unlikely
- (5) the facility has been designed and equipped with safety features that provide reasonable assurance that less than 0.1% of the licensed material could be released in an accident
- (6) operating procedures or restrictions would prevent an accidental release of licensed material large enough to exceed the exposure limits of 10 CFR 70.22(i)(1)(i)
- (7) other facility-specific design or operational features

[Comment: directing the reviewer to present and then "evaluate" background information on the plant that has already been assessed for its adequacy and accuracy seems redundant. Of the seven topics to be evaluated in the following list, the reviewer should only need to focus on items (5) and (6). What is of interest is the justification and demonstration of the applicant that the radiation exposure criteria of 10 CFR 70.22(i)(1)(i) will not be exceeded.]

Prior to assessing the applicant's evaluation that an Emergency Management Plan is not required, the reviewer should consult the following chapters of the license application to gain familiarity with the plant's operations, risk assessment and other features relevant to releases of licensed material:

- (i) Chapter 1.1: facility and process descriptions, types of materials used (radioactive and hazardous chemicals produced from licensed materials)
- (ii) Chapter 3: generic types of accident sequences, consequence evaluations, accident prevention and mitigation, safety controls
- (iii) Chapter 4: detection of accidents

- ~~1. A description of the facility,~~
- ~~2. Types of materials used, including both radioactive material licensed material and hazardous chemicals,~~
- ~~3. types of accidents,~~
- ~~4. Detection of accidents~~
- ~~5. Site specific information used to support the evaluation, and~~
- ~~6. An evaluation of the consequences, both onsite and offsite, of accidents including radioactive and hazardous chemicals. The evaluation shows that the maximum dose to a member of the public offsite due to a release of radioactive material licensed materials would not exceed 1 rem (0.01 Sv) effective dose equivalent or an intake of 2 milligrams of soluble uranium in accordance with 10 CFR 70.22(i)(1)(i).~~
- ~~7. The evaluation should address one or more of the factors provided in 10 CFR 70.22(i)(2).~~

The reviewer should examine the applicant's site-specific evaluation that demonstrates maximum public exposure can not reasonably be expected to exceed the radiation dose limits in 10 CFR 70.22(i)(1)(i). Those specific plant design features or operational procedures that can provide this assurance should be examined in detail. The adequacy of items relied on for safety, adherence to the double contingency principle, modeling of air emissions and other plant discharges and the efficacy of emission control devices should all be examined.

8.3.2 Emergency Plan Emergency Management Plan

If the applicant submits an ~~e~~Emergency Management Plan, the staff should evaluate it the emergency management program against the requirements of 10 CFR 70.22(i)(1)(ii) and Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities," which provides a standard format and content for an ~~e~~Emergency Management Plan. ~~Elements in the emergency plan to be reviewed should include the following:~~

Prior to assessing the applicant's Emergency Management Plan, the reviewer should consult the following chapters of the license application to gain familiarity with the plant's operations, risk assessment and other features relevant to releases of licensed material:

- (i) Chapter 1.1: facility and process descriptions, types of materials used (radioactive and hazardous chemicals produced from licensed materials)
- (ii) Chapter 3: generic types of accident sequences, types of accidents, consequence evaluations, accident prevention and mitigation, safety controls
- (iii) Chapter 4: detection of accidents

- ~~1. Facility description (including both onsite and offsite emergency facilities),~~
- ~~2. Types of accidents,~~
- ~~3. Classification of accidents,~~
- ~~4. Detection of accidents,~~
- ~~5. Mitigation of consequences (and safe shutdown),~~

Elements in the Emergency Management Plan to be reviewed should include the following:

16. Assessment of releases (both ~~radioactive material~~licensed materials and hazardous chemicals produced from licensed materials),
27. Responsibilities of licensee,
38. Notification and coordination,
49. Information to be communicated and parties to be contacted,
- ~~10. Training,~~
- ~~511.~~ Safe shutdown (recovery and plant restoration),
- ~~12. Exercises (and drills),~~
- ~~13. Hazardous chemicals inventories and locations, and~~[Comment: only of interest to the NRC if such chemicals could affect the safety of licensed materials.]
614. Responsibilities for developing and maintaining the emergency program and its procedures.

8.4 ACCEPTANCE CRITERIA

8.4.1 Regulatory Requirements

10 CFR Part 70.22(i)(1)(i) specifies when an ~~e~~Emergency Management Plan does not have to be submitted to the NRC. ~~If and, if~~ an Emergency Management plan is required to be submitted, 10 CFR Part 70.22(i)(3), contains the information that must be provided ~~included in the emergency plan~~.

10 CFR Part 70.64(a)(6) ('Baseline Design Criteria') requires ~~that~~ applicants to address the control of licensed material, evacuation of onsite personnel, and availability of emergency facilities for the design of new facilities.

8.4.2 Regulatory Guidance

Regulatory guidance for preparing an Emergency Management Plan includes:

1. Regulatory Guide 3.67, "*Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities*," January 1992.
2. NUREG-1140, "A Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Materials," January 1988.
3. NUREG/CR-6410, "Nuclear Fuel Cycle Facility Accident Analysis Handbook," 1998.

8.4.3 Regulatory Acceptance Criteria

8.4.3.1 Evaluation That No Emergency PlanEmergency Management Plan Is Required

The adequacy of the applicant's evaluation that no Emergency Management Plan is required should be assessed ~~evaluated~~ by the reviewer against the requirements in 10 CFR Part

70.22(i)(2), and the specific criteria given in the following sections of the SRP. This evaluation should be acceptable if the regulatory requirements and the following criteria are met.

[Comment: NEI recommends that the requirements outlined in §8.4.3.1.1 through §8.4.3.1.3 be deleted as such information has already been presented and evaluated in other chapters of the SRP. The key Acceptance Criterion is stated in §8.4.3.1.4 – assessment of the robustness and validity of the applicant's demonstration that the radiation exposure criteria of 10 CFR 70.22(i)(1)(i) will not be exceeded. The applicant's evaluation will, presumably, reference facility design features, operational procedures, items relied on for safety and radiation release model results to make the case that the radiation exposure limits will not be exceeded. Thus, NEI recommends that the reviewer be directed to "consult" other relevant chapters of the SRP, but neither to "evaluate" or "approve" them. Focus on what is important.]

8.4.3.1.1 — Facility Description

~~The evaluation includes a description of the facility and site, the area near the site, and the licensed activities conducted at the facility sufficient to support the evaluation. The description includes the following:~~

- ~~1. A detailed drawing of the site showing (1) onsite and near offsite (within 1 mile) structures with building numbers and labels, (2) roads and parking lots onsite and main roads near the site, (3) site boundaries, showing fences and gates, (4) major site features, (5) water bodies within approximately 1 mile, and (6) the location(s) of nearest residents.~~
- ~~2. The stack heights, typical stack flow rates, and the efficiencies of any emission control devices.~~
- ~~3. A general description of licensed and other major activities conducted at the facility, and the type, form, and quantities of radioactive and other hazardous material normally onsite.~~

8.4.3.1.2 — Types of Accidents

~~The evaluation describes each type of accident identified by the ISA that has the maximum offsite consequences exceeding the limit of 10 CFR 70.22(i)(1)(i). The description includes:~~

- ~~1. The process and physical location where it could occur,~~
- ~~2. Complicating factors and possible onsite and offsite consequences, including non-radioactive hazardous material released, [Comment: Incorrect. Only releases of hazardous chemicals produced from licensed material would need to be considered in accordance with the NRC-OSHA MOU.]~~
- ~~3. The accident sequence that has the potential for the greatest radiological and toxic chemical impact. [Comment: this statement is irrelevant. The accident sequence that has the greatest potential under normal operating conditions and credible accident scenarios to exceed either the 1 rem or 2 mg ingestion criterion is only of interest.]~~

~~8.4.3.1.3~~ ~~Detection of Accidents~~

~~The evaluation described for each type of accident identified the following:~~

- ~~1. The means of detecting the accident,~~
- ~~2. The means of detecting any release of radioactive or other hazardous material,~~
- ~~3. The means of alerting the operating staff, and~~
- ~~4. The anticipated response of the operating staff.~~

~~8.4.3.1.4~~ ~~Evaluation of Maximum Public Exposure~~

~~To~~~~in order to~~ demonstrate that no ~~E~~emergency ~~M~~anagement ~~P~~lan is required, an applicant may either:

(1) request that its total possession limit for ~~radioactive material~~licensed material be reduced below the ~~E~~emergency ~~M~~anagement ~~P~~lan threshold in 10 CFR 70.22(i)(1), or (2) perform a site specific evaluation that demonstrates maximum public exposure is less than the limits in 70.22(i)(1)(i) during normal operations, anticipated operational occurrences and credible accidents. The reviewer must assess the reliability of forecasts of radiation exposure to the public outside the controlled area (as defined in 10 CFR 70.61(f)). This assessment must examine the robustness and reliability of predictive methods and models selected by the applicant and should incorporate a review of the adequacy of items relied on for safety for mitigating or preventing accident sequences identified in the ISA Summary to have radiological and chemical exposure consequences. Demonstration that no Emergency Management Plan is needed must also address acute exposures of the public to hazardous chemicals produced from licensed materials. Exposures to hazardous chemicals originating from other sources (e.g. bulk chemicals stored at the facility to be added to, or separated from, licensed material) are not to be considered in the 10 CFR 70.22(1)(ii) Emergency Management Plan.

The evaluation should include a description of the following information sufficient to allow for its independent verification:

1. Generic tTypes of accident sequences identified in the ISA Summary (e.g., fire, exposure, chemical release, nuclear criticality) whose consequences could exceed the exposure criteria of 10 CFR 70.22(i)(1)(i),
- ~~2.~~ Detection of accidents (and releases of licensed material and hazardous chemicals produced from licensed material)
- ~~3~~2. Location of accident,
- ~~4~~3. Maximum source term,
- ~~5~~4. Solubility of material,
- ~~6~~5. Facility design or engineered safety features (items relied on for safety) in the facility and the proposed release fraction,

- 76. Location and distance of nearest member of the public to the facility,
- 87. Dose model used and the process used to verify the reliability of the model and validity of the assumptions (including the results of air dispersion modeling of plant emissions or licensed materials and hazardous chemicals produced from licensed material),
- 98. Assumed worst case weather condition, and
- 109. Maximum calculated dose to a member of the public at the facility's controlled area boundary.

The evaluation should include a list and a description of the factors in 10 CFR 70.22(i)(2) considered in evaluating maximum dose to members of the public. The applicant should demonstrate why the factors used in the evaluation are appropriate when compared to the factors in NUREG-1140. If the factors and evaluation show that the maximum dose to a member of the public offsite due to a release of ~~radioactive material~~licensed materials could not exceed 1 rem (0.01 Sv) effective dose equivalent or ~~an the~~ intake of soluble uranium of 2 milligrams, no ~~E~~emergency Management Plan is required in accordance with 10 CFR 70.22(i)(1)(i).

8.4.3.2 ~~Emergency Plan~~Emergency Management Plan

The adequacy of the proposed ~~emergency plan~~Emergency Management Plan should be evaluated by the reviewer against the requirements in 10 CFR Part 70.22(i)(3), and the specific criteria given in the following sections of the SRP. The applicant's commitments to design and implement an emergency plan~~Emergency Management Plan~~ should be acceptable, if the regulatory requirements and the following criteria are met:

8.4.3.2.1 Facility Description

8.4.3.2.1.1 Operational Facilities

The ~~E~~emergency Management Plan should include a description of the facility and site, the area near the site, and the licensed activities conducted at the facility sufficient to support emergency management activities. The description should include or reference from SRP Chapter 1.1 ('Facility and Process Description') the following:

1. A detailed drawing of the site showing:
 - a. onsite and near offsite (within 1 mile) structures with building numbers and labels,
 - b. roads and parking lots onsite and main roads near the site,
 - c. site boundaries, showing fences and gates and the limits of the controlled area,
 - d. major site features, and
 - e. water bodies within approximately 1 mile.
2. A general area topographic map at a suitable scale and, if available, map (approximately 16.09 km [10 mile] radius), a United States Geological Survey topographical quadrangle (7 ½ minute series; including the adjacent quadrangle(s) if site is located less than 1.609 km (1 mile) from the edge of the quadrangle), and a map or aerial photographs on which are indicated ~~indicating~~ onsite and near-site structures within a one mile radius of the limits of

~~the controlled area and near-site structures (about 1.609 km [1-mile] radius).~~ The map should include the location of sensitive facilities near the site such as hospitals, schools, nursing homes, nearest residents, fire department, prisons, and environmental sampling locations, and other structures and facilities important to emergency management.

3. The stack heights, typical stack flow rates, and the efficiencies of any emission control devices.
4. [Comments: (1) requiring the applicant to identify the quantities of licensed material by location is not realistic. Such quantities and locations will constantly change (2) there is no regulatory requirement to address "other hazardous chemicals" unless they constitute a "plant condition" that could affect the safety of licensed material (third and second principles of the NRC-OSHA MOU) or are produced from licensed material. The following item (4) must be corrected to comply with the MOU.] A general description of licensed and other major activities conducted at the facility, and the type, form, and quantities of radioactive ~~and other hazardous~~ materials normally onsite, ~~by location (use and storage) and building, and hazardous characteristics (exposure rates, pH, temperature, and other characteristics) and any other factors~~ important to emergency management.
5. Certification that the applicant has met responsibilities under Emergency Planning and Community Right To Know Act of 1986, Title III, Public Law 99-499, in accordance with 10 CFR 70.22(i)(3)(xiii).[Comment: clarification should be provided to the reviewer of who issues the certification.]

8.4.3.2.2 Onsite and Offsite Emergency Facilities

The ~~E~~emergency ~~M~~Management ~~P~~Plan should include a list and description of onsite and offsite facilities ~~and services~~ that could be relied upon in the event of an emergency. The applicant's commitments to establish and maintain current such information will be considered acceptable if; description should include the following:

1. The applicant commits to compile and maintain current aA list and description of both onsite and offsite emergency facilities by location and purpose ~~of the facility.~~[Comment: The Fire Protection program required the applicant to enter into agreements (or memoranda of understanding) with offsite emergency response organizations. Should this be expected for other offsite emergency services? Is the exact location – as opposed to the availability and response time -- of the offsite service important?]
2. The applicant commits to compile and maintain current aA description of emergency monitoring equipment which is available for personnel and area monitoring ~~and, as well as that~~ for assessing the release of radioactive ~~or hazardous~~ materials or hazardous chemicals produced from licensed material to the environment.
3. The applicant commits to compile and maintain current aA description of the onsite and offsite services which support emergency response operations. The following are included:

- a. decontamination facilities,
 - b. medical treatment facilities,
 - c. first aid personnel,
 - d. fire fighters,
 - e. law enforcement assistance, and
 - f. ambulance services.
4. The applicant commits to provide or ensure the availability of~~In addition, the applicant should have~~ emergency facilities, equipment, and resources,~~which are ready~~ to support emergency response operations, including the following:
- a. Facilities of adequate size and appropriate location that are designated, equipped, and ready for emergency use,
 - b. Adequate backup facilities required by the ~~emergency plan~~Emergency Management Plan and supporting documents that are available and ready for use,
 - c. Appropriate equipment and supplies necessary to support emergency response activities that are accessible during accident conditions,
 - d. Emergency equipment that is inventoried, tested, and serviced on a periodic basis to ensure accountability and reliability,
 - e. Sufficient reliable primary and backup communications channels that are available to accommodate emergency needs,
 - ~~f. Offsite emergency resources and services that are identified, and are ready to ensure their timely mobilization and use, [Comment: repetitive of the content of Item (3) above. Delete.]~~
 - ~~fg.~~ Operational engineering information, such as current as-built drawings and procedures, that are readily available in the emergency facilities,[Comment: the applicant should not be expected to provide highly detailed drawings to offsite emergency response organizations. They would more likely confuse rather than facilitate emergency responses.]
 - ~~gh.~~ Sufficient equipment for personnel protection and monitoring, and
 - ~~hi.~~ Systems in place to alert onsite and offsite personnel in the event of an emergency.

8.4.3.2.3 Types of Accidents

[Comment: there is no need to reference **each** accident sequence identified in the ISA Summary. Such voluminous information will simply detract from identifying emergency management efforts. What should be referenced are generic **types** of accident sequences to which similar emergency response actions could be applied. Reg. Guide 3.67 allows a license applicant to describe postulated accidents by “type”, in contrast of the draft SRP’s requirement for an applicant to

describe each specific accident identified in the ISA Summary that could exceed the performance criteria of 10 CFR 70.61. This would require the applicant to develop detailed descriptions for numerous accident scenarios, since the ISA and other SRP chapters require license applicants to identify "unmitigated consequences" of accident scenarios. The result would be a very voluminous and confusing Emergency Management Plan. §8.4.3.2.3 should, presumably, focus on accident sequences having potential radiological consequences that could exceed the dose limits to the offsite public of 10 CFR 70.22(i)(1)(i).]

The Emergency Management Plan should include a description of for each generic type of accident sequence identified in the ISA Summary by the ISA that could result in a member of the public receiving a dose exceeding 1 rem or an intake of greater than 2 milligrams of soluble uranium for which protective actions may be needed. Such information may be referenced from SRP Chapter 3 ('Integrated Safety Analysis (ISA) Commitments and ISA Summary'). The description should include:

1. The process and physical location(s) where the accidents could occur,
2. Complicating factors and possible onsite and offsite consequences, including releases of non-radioactive hazardous chemicals produced from licensed material releases that could impact emergency response efforts,
3. ~~The accident sequence that has the potential for the greatest radiological and toxic chemical impact, and~~[Comment: the reviewer should be considering accident sequences for which items relied on for safety have been implemented. Is the point of this Item (3) to classify accident sequences having potential radiological consequences by the robustness of their items relied on for safety (e.g. a sequence with two administrative controls being less robust than one with two passive engineered controls)? So long as the ISA has demonstrated that items relied on for safety are adequate to ensure the performance requirements of 10 CFR 70.61 are met, which safety control(s) have been used is irrelevant.]
34. Figure(s) projecting dose and toxic substance concentration as a function of distance and time for various meteorological stability classes, including a description of how such projections were prepared (e.g. computer model, assumptions).

8.4.3.2.4 Classification of Accidents

1. The applicant commits to The emergency plan establish two Emergency Action Levels (EALs) within the Emergency Management Plan: classification system should include the following two classifications:
 - "Alert": Events that may occur, are in progress, or have occurred that could lead to a release of radioactive material licensed material or hazardous chemicals produced from licensed material incident to the process, but which the release is not expected to require a response by an offsite response organization to protect persons offsite.

- "Site area emergency": Events that may occur, are in progress, or have occurred that could lead to a significant release of ~~radioactive material~~licensed material or hazardous chemicals produced from licensed material incident to the process that could require a response by offsite emergency response organizations to protect persons offsite.
2. ~~The applicant commits to assign an EAL to For~~ each accident sequence identified in the ISA Summary that could result in an exposure to the public exceeding the dose limits of 10 CFR 70.2(i)(1)(i) in the emergency plan, the classification (alert or site area emergency) that is expected for each accident is identified.
 3. ~~The applicant commits to establish within the The emergency plan~~Emergency Management Plan should specify emergency action levels (EALs) at which an alert or site area emergency will be declared. EALs are specific conditions that require emergency response measures to be performed. The applicant's EALs ~~should be~~ are consistent with Appendix A of Regulatory Guide 3.67 and ~~should be~~ are compared with the Environmental Protection Agency's Protective Action Guides (EPA 400-R-92-001, May 1992 Revision). Transportation accidents more than 1 mile from the facility are not classified. [Comment: one mile beyond the controlled area or a facility building? Clarify.]
 4. ~~The applicant commits to The emergency plan should~~ designate ~~the~~ personnel positions within the Emergency Management Plan who will have and alternates with the responsibility for accident classification during normal ~~operations and back shift hours.~~

8.4.3.2.5 Detection of Accidents

The ~~emergency plan~~Emergency Management Plan should ~~includedescribe, or reference from~~ SRP Chapter 4 ('Radiation Protection') the following information for each generic type of accident sequence that could result in exposure to a member of the public to radiation exceeding the dose limits of 10 CFR 70.2(i)(1)(i). identified, the following:

1. The means of detecting the accident,
2. The means of detecting any release of ~~licensed radioactive or other hazardous material or~~ hazardous chemicals produced from licensed material,
3. The means of alerting the operating staff, and
4. The anticipated response of the operating staff.

8.4.3.2.6 Mitigation of Consequences

1. ~~The applicant commits to establish and maintain The emergency plan should describe~~ for each generic type of accident sequence identified in the ISA Summary that could result in exposure of a member of the public to a radiation dose exceeding the limits of 10 CFR 70.2(i)(1)(i), adequate measures and equipment for safe shutdown of a single process or of the entire facility and for mitigating the consequences to workers onsite and offsite as

well as to the public offsite. This information may be referenced from SRP Chapter 3 ('Integrated Safety Analysis (ISA) Commitments and ISA Summary'). [Comment see earlier comment for §8.4.3.2.3) regarding "types" of accident sequences.]

2. ~~For impending danger from an accident initiator, the~~ The applicant commits to specify, compile and maintain current application should describe the following:
 - a. The criteria that will be used to determine whether a single process or the entire facility will be shut down,
 - b. The steps that will be taken to ensure a safe orderly shutdown of a single process or the entire facility,
 - c. The approximate time required to accomplish a safe shutdown of processes, and
 - d. The compensatory measures required for safety during the shutdown period following an accident.

8.4.3.2.7 Assessment of Releases

1. ~~The applicant commits to compile and maintain current in the~~ The emergency plan ~~Emergency Management Plan should describe the applicant's~~ procedures to be used to promptly and effectively assess the release of ~~radioactive material~~ licensed material or hazardous chemicals produced from associated with the processing of radioactive licensed material. ~~The applicant commits to include in this description the following information;~~ description includes:
 - a. The procedures for estimating or measuring the release rate or source term,
 - b. Valid computer codes used to project doses or concentrations to the public or environment and associated assumptions, along with adequate justifications to show the validity of the assumptions,
 - c. The types, methods, frequencies, implementation time, and other details of onsite and offsite sampling and monitoring that will be performed to assess a release of ~~radioactive-licensed~~ material or hazardous chemicals produced from licensed material, and
 - d. Method for assessing collateral damage to the facility, especially items relied on for safety ~~safety controls~~. [Comment: consistency in terminology is required.]
2. ~~The applicant commits to present and maintain current in the~~ The emergency plan ~~Emergency Management Plan descriptions of should describe the applicant's~~ procedures for validating any code used to assess releases of ~~radioactive material~~ licensed material or hazardous chemicals produced from licensed material.

8.4.3.2.8 Responsibilities

The ~~emergency plan~~ Emergency Management Plan should describe the emergency response organization and administration that will ensure which ensures effective planning, implementation, and control of emergency preparedness activities, ~~and meet the following criteria.~~ The Emergency Management Plan should be consistent with the fire protection plan outlined in SRP Chapter 7. An applicant's commitments for organization and administration of the Emergency Management Plan shall be considered acceptable if:

1. The applicant commits to establish and maintain an organization responsible for direction of the Emergency Management Plan~~The organizational structure and chain of command are clearly defined,~~
2. The applicant commits to appoint staff to the Emergency Management Plan with suitably experienced personnel to be responsible for emergency preparedness, to establish organizational relations amongst the individual positions and to commit sufficient Staffing and resources ~~are sufficient to enable the plan's tasks to be carried out accomplish assigned tasks,~~
3. The applicant commits to clearly define the r~~Responsibilities and authority for each management, supervisory, and professional position. are clearly defined.~~ Responsibility is assigned to coordinate for the coordination of onsite and offsite radiation/hazardous material emergency response preparedness,
4. The applicant commits to establish i~~Interfaces with supporting groups, both onsite and offsite, are clearly defined,~~
5. The applicant commits to enter into formal agreements (or memoranda of understanding) that document the assistance and services to be provided by offsite organizations~~Mutual cooperation agreements exist with local agencies~~ such as fire, police, ambulance/rescue, and medical units,
6. The applicant commits to review, Plant management measures include ~~audit, and assessment and revise, when appropriate, (SRP Section 11.5) of~~ emergency preparedness plans to ensure site readiness to handle emergencies and to identify and correct problems,
7. The applicant commits to ensure that the~~The~~ onsite emergency response organization as described provides reasonable assurance of effective command and control of the site during the assessment, mitigation, and recovery phase of an accident,
8. The applicant commits to~~The emergency public information staff~~ provides advance and ongoing information to the media and public on subjects that would be discussed during an emergency, such as radiation hazards, chemical hazards, site operation, and site E~~emergency~~ Management P~~plans,~~ and

9. ~~The applicant commits to ensure that The schedule of~~ emergency preparedness procedures ~~development provides for~~ will be developed ~~availability of procedures~~ to support start-up and operation of new processes/facilities onsite.

8.4.3.2.9 Notification and Coordination

1. ~~The applicant commits to establish The emergency plan should provide reasonable assurance that~~ emergency notification procedures ~~to will~~ enable the emergency organization to correctly classify emergencies, ~~to~~ notify emergency response personnel and to initiate or recommend appropriate actions in a timely manner. ~~The applicant's commitments pertaining to notification and coordination will be considered acceptable if;~~ based on the following:
- a. ~~The applicant commits to assign an EAL to each Classification of~~ emergency events are based on the current emergency plan.
 - b. ~~The applicant commits to promptly notify Notification procedures minimize distractions of shift operating personnel of an emergency event and to issue and include concise, preformatted messages. A~~ appropriate follow-up messages to offsite authorities are issued in a timely manner.
 - c. ~~The applicant commits to ensure that~~ information on the nature and magnitude of the hazards ~~is are~~ made available to appropriate emergency response personnel.
 - d. ~~The applicant commits to ensure that Radiological and chemical~~ source term data ~~for licensed material and hazardous chemicals produced from license material~~ are available to the command post, technical support center, emergency operation center, and appropriate State personnel, in cooperation with NRC.
 - e. ~~The applicant commits that, w~~When available, offsite field monitoring data are logged, compared with source term data, and used in the protective action recommendation process.
 - f. ~~The applicant commits to make available~~ Protective Action Guides ~~for use are available and used~~ by appropriate personnel in a timely manner. ~~[Comment: definition of "Protective Action Guide" is required. Otherwise, use a generic term.]~~
 - g. ~~The applicant commits to use an The~~ emergency public information program ~~for ensures~~ timely dissemination of accurate, reliable, and understandable information.
 - h. ~~The applicant commits to design and implement, if required, s~~Systems ~~are in place, if required,~~ to alert, notify, and mobilize onsite and offsite response personnel in the event of an emergency.
 - i. ~~The applicant commits to notify and coordinate Notification and coordination~~ with responsible parties when some personnel, equipment, and facility components are not

available. [Comment: note the ISA requires such equipment on-site to always be reliable and available. Inconsistent.]

2. The applicant commits to identify in the ~~The emergency plan~~Emergency Management Plan the individuals and procedures to promptly implement the following actions~~should describe how and by whom the following actions will promptly and effectively be taken:~~
 - a. Decision to declare an alert or site area emergency,
 - b. Activation of onsite emergency response organization during all shifts,
 - c. Prompt notification of offsite response authorities that an alert or site area emergency has been declared, including the licensee's initial recommendation for offsite protective actions (normally within 15 minutes),
 - d. Notification to the NRC Operations Center (as soon as possible and, in any case, no later than one hour after a declared emergency),
 - e. Decision on what onsite protective actions to initiate,
 - f. Decision on what offsite protective actions to recommend,
 - g. Decision to request support from offsite organizations, and
 - h. Decision to terminate the emergency or enter recovery mode.

8.4.3.2.10 Information To Be Communicated

The applicant commits to include within the ~~emergency plan~~Emergency Management Plan should describe the information that should ~~to~~ be communicated during an emergency including the following:

1. A standard reporting checklist to facilitate timely notification,
2. The types of information to be provided concerning facility status, releases of licensed material or hazardous chemicals produced from licensed material ~~radioactive or hazardous chemical releases~~, and protective action recommendations,
3. A description of preplanned protective action recommendations to be made to each appropriate offsite organization,
4. The offsite officials to be notified, as a function of the classification of the event,
5. The recommended actions to be implemented by offsite organizations for each accident treated in the Emergency Management Plan.

8.4.3.2.11 Training

[Comment: 10 CFR 70 does not require training of offsite personnel. The requirement in 10 CFR 70.22(l)(3)(x) for the licensee to offer "...special instructions and orientation tours...to fire, police, medical and other emergency personnel..." does not imply training such as that which will be offered to facility workers. Orientation and familiarization does not imply formal training. Delete this requirement.]

The applicant commits to design and implement under the auspices of the ~~The emergency plan~~ Emergency Management Plan ~~should include~~ an adequate training program for onsite ~~and offsite~~ emergency response personnel to ensure knowledge of the ~~E~~emergency ~~Management P~~plan, assigned duties, and ~~to enable an effectively response respond~~ to an actual emergency. ~~The scope of the training program will depend upon the results of the ISA for different processes and plant operations. The applicant's commitment to the training program will be considered acceptable if: description includes:~~

1. The topics and general content of training programs used for training the onsite ~~and offsite~~ emergency response personnel ~~to~~ satisfy the objectives described above,
2. The administration of the training program, including responsibility for training, the positions to be trained, the schedules for training, ~~the frequency of retraining,~~ use of team training and the estimated number of hours of initial training ~~are specified and retraining,~~
3. ~~The t~~training ~~is to be~~ provided on the use of protective equipment such as respirators, protective clothing, monitoring devices, and other equipment used in emergency response,
4. ~~The t~~training ~~extends to program for~~ onsite personnel who are not members of the emergency response staff, and
5. The instructions and orientation tours that will be offered to fire, police, medical, and other emergency personnel ~~are designed to be to the extent necessary~~ commensurate with the results of the ISA.

8.4.3.2.12 Safe Shutdown (recovery and plant restoration)

The applicant commits to develop within the auspices of the ~~The emergency plan~~ Emergency Management Plan ~~procedures should describe the plans~~ for adequately restoring the facility to a safe status after an accident and recovery after an emergency. The description should be considered acceptable if~~include:~~

1. The applicant commits to describe and use aAppropriate methods and personnel responsibilities for assessing the damage to, and the status of, the facility's capabilities to safely control ~~radioactive material~~licensed material or hazardous chemicals produced from licensed material associated with the process,
2. The applicant commits to use suitable pProcedures for promptly determining the actions necessary to reduce any ongoing releases of radioactive or other hazardous chemicals produced from licensed material and to prevent further incidents,

3. The applicant commits to develop and implement pProvisions for promptly and effectively accomplishing required restoration action, and
4. The applicant commits to describe~~Describing~~ the key positions in the recovery organization.

8.4.3.2.13 Exercises and Drills

The ~~emergency plan~~Emergency Management Plan should include an applicant's commitment to conducting exercises and drills in a manner that demonstrates the capability of the organization to plan and perform an effective response to an emergency. An adequate plan should demonstrate the following: [Comment: a "plan" cannot conduct exercises.]

1. The applicant commits to have~~Task-related knowledge is demonstrated through periodic participation by~~ all qualified individuals periodically participate for in each position in the emergency response organization,
2. The applicant commits to conduct emergency drills with ~~Drill performance is assessed against~~-specific scenario objectives, using postulated accidents to,~~that adequately~~ test personnel, equipment, and resources, including previously identified weaknesses,
3. The applicant commits to conduct e~~Effective~~ player, controller, evaluator, and observer pre-drill briefings ~~are conducted,~~
4. The applicant commits to ensure that s~~S~~Scenario data and exercise messages provided by the controllers effectively maintain the time line and do not interfere with the emergency organization's response to exercise scenario events, except where safety considerations are involved,
5. The applicant commits to use t~~r~~ained evaluators ~~are used~~ to identify and record participant performance, scenario strengths and deficiencies, and equipment ~~p~~roblems,
6. The applicant commits to realistically test the activation and staffing of emergency facilities with a minimum of p~~Pre~~-staging of equipment and personnel ~~is minimized to realistically test the activation and staffing of emergency facilities,~~
7. The applicant commits to conduct c~~C~~ritiques ~~are conducted~~ in a timely manner and to include a follow-up plan for correcting identified weaknesses and for improving training effectiveness,
8. The applicant commits to use e~~E~~mergency drills to demonstrate that resources are effectively used to control the site, to mitigate further damage, and to control releases of licensed material and hazardous chemicals produced from licensed material~~radiological/chemical releases. The applicant also commits~~; to perform required onsite activities under simulated radiation/airborne and other emergency conditions, to provide accurate assessments and status during an accident, and to initiate recovery,

9. ~~The applicant commits to demonstrate through e~~Emergency drills ~~that demonstrate~~ personnel protection measures ~~are effective for~~, ~~including~~ controlling and minimizing hazards to individuals during events such as fires, medical emergencies, mitigation activities, search and rescue, and other similar events,
10. ~~The applicant commits to use The~~ emergency drills ~~s to~~ demonstrates that onsite communications effectively support emergency response activities,
11. ~~The applicant commits to use The~~ emergency drills ~~s to~~ demonstrates that the emergency public information organization disseminates accurate, reliable, timely, and understandable information,
12. ~~The applicant commits to implement p~~Provisions ~~are made~~ for conducting ~~periodic quarterly~~ communications checks with offsite response organizations, and
13. ~~The applicant commits that o~~Offsite organizations are invited to participate in the biennial onsite exercise that tests the major elements of the ~~emergency plan~~Emergency Management Plan and response organizations.

8.4.3.2.14 Responsibilities for Developing and Maintaining Current the Emergency Program and Its Procedures

[Comment: This paragraph implies that the Emergency Management Plan and its implementing procedures must be kept current within 30 days. Reg. Guide 3.67 does not contain this requirement. Item (3) implies that offsite emergency response organizations must review and comment on plan changes. Currently licensees may make changes to the plan without prior review and approval if the change does not adversely impact the effectiveness of the plan. Seeking the input of offsite organizations will be time-consuming and turn approvals into a multiple year process.]

The ~~emergency plan~~Emergency Management Plan should describe the responsibilities for developing and maintaining the emergency program and its procedures. The ~~applicant's commitments to develop and maintain the plan should be considered acceptable if~~description should include:

1. ~~The applicant commits to periodically revise and update The means for ensuring that the revisions to the emergency plan~~Emergency Management Plan and ~~its implementation procedures the procedures which implement the emergency plan are adequately prepared, kept up to date normally (within 30 days of any changes), and to distributed such revisions~~ to all affected parties including the NRC, and
2. ~~The applicant commits to develop procedures to approve and implement The provisions for approval of the implementing~~ emergency procedures, ~~to distribute making and distributing~~ changes to the procedures, and ~~to ensure ensuring~~ that each person responsible for an emergency response function has immediate access to a current copy of emergency procedures. ~~The applicant commits to ensure that provisions~~ for approval of

changes to the ~~emergency plan~~Emergency Management Plan and the procedures and those individuals authorized to make these changes are clearly stated.

3. ~~Procedures for allowing offsite response organizations 60 days to comment on the emergency plan before submitting it to the NRC, and to provide NRC any comments received within 60 days along with the plan.~~
34. ~~The applicant commits to ensure that p~~Procedures for modifying the Eemergency Management Pplan are in accordance with 10 CFR 70.32(i).

8.5 REVIEW PROCEDURES

8.5.1 Acceptance Review

The primary reviewer should evaluate the application to determine whether it addresses the “Areas of Review” discussed in Section 8.3 ~~above~~. If significant deficiencies are identified, the applicant should be requested to submit additional material before the start of the safety evaluation.

8.5.2 Safety Evaluation

After determining that the application is acceptable for review in accordance with Section 8.5.1, ~~above~~, the primary reviewer should perform a safety evaluation against the acceptance criteria described in Section 8.4. If, during the course of the safety evaluation, the primary reviewer determines the need for additional information, the primary reviewer should coordinate a request for additional information with the licensing project manager.

8.5.2.1 Evaluation That No ~~Emergency Plan~~Emergency Management Plan Is Required

The primary reviewer should verify that the evaluation is consistent with the potential accident sequences described in the ISA Summary whose consequences could result in a member of the public receiving a radiation dose exceeding the limits of 10 CFR 70.22(i)(1)(i). ~~The ISA reviewer and the primary reviewer should coordinate to assure the resolution of any issues concerning the evaluation relative to ISA information. The final step for the~~ primary reviewer should ~~be to~~ prepare a safety evaluation report (SER) in accordance with Section 8.6 which either agrees with the applicant’s conclusion that no ~~E~~emergency Management Pplan is required or indicates that the staff does not accept the applicant’s evaluation and recommends that an ~~E~~emergency Management Pplan be required by the applicant.

8.5.2.2 ~~Emergency Plan~~Emergency Management Plan

~~The~~After it is determined that an acceptable application containing an emergency plan has been received from the applicant, the primary reviewer should conduct a complete review of the applicant’s Emergency Management Plan and determine its acceptability in accordance with the Acceptance Criteria of Section 8.4.3.2. The reviewer should verify that emergency planning is consistent with the potential accident sequences described in the ISA Summary that could result in a member of the public receiving a radiation dose exceeding the limits of 10 CFR 70.22(i)(1)(i).

~~The ISA reviewer and emergency plan reviewer should coordinate to assure the resolution of any issues concerning the emergency plan relative to ISA information.~~

~~The review should be conducted after the reviewers have consulted other sections of the application to gain familiarity with topics such as: Although the bulk of this information should be found in the Emergency Management program section of the licensee's submittal, the primary and secondary reviewers should gain familiarity with the site description, including the emergency planning zones, demography, land use, plant design and layout, and major accidents postulated by the applicant presented in relevant sections of the ISA Summary SAR. [Comment: erroneous use of a nuclear reactor term (SAR) instead of ISA Summary.] The primary and secondary reviewers should also gain familiarity with proposed radiation protection activities and other operational matters that interface with Emergency Management Plans, particularly the programs reviewed against SRP Chapters 4 and 11. If required to be performed, draft and final environmental statements for the proposed facility should be consulted. [Comment: site visits and consultation of supporting information retained at the facility site are possible, but not required. Erroneous use of a nuclear power reactor licensing term (FEMA); FEMA plays no role in the licensing of fuel cycle facilities. Delete this term.] This information may be supplemented by a personal visit to the site by the reviewer and meetings with the applicant. Consultation with FEMA with respect to the relevant state and local government emergency response capabilities may also be necessary.~~

~~The primary reviewer will prepare an SER for the Licensing Project Manager in support of the licensing action. final step for the primary reviewer should be to prepare an SER in accordance with Section 8.6, "Evaluation Findings."~~

8.6 EVALUATION FINDINGS

The primary reviewer writes an SER section addressing each topic reviewed under this SRP Chapter and explains why the NRC staff has reasonable assurance that the emergency management part of the application is acceptable. License conditions may be proposed to impose requirements where the application is deficient. The SER should report includes a summary statement of what was evaluated and ~~the bases for the reviewer's conclusions. why the reviewer finds the submittal acceptable.~~

The staff can document the evaluation as follows:

The staff has evaluated [Insert a summary statement of what was evaluated and why the reviewer finds the submittal acceptable.] In accordance with 10 CFR 70.22(i), the licensee commits to maintaining and executing an Emergency Management Plan for responding to the radiological hazards resulting from a release of ~~radioactive material~~ licensed material and to any associated hazards from chemicals produced from licensed material. The NRC staff reviewed the ~~emergency plan~~ Emergency Management Plan with respect to 10 CFR 70.22(i) and the acceptance criteria in section 8.4.3 of the SRP. NRC staff determined that the applicant's ~~emergency plan~~ Emergency Management Plan is adequate to demonstrate compliance with 10 CFR 70.22(i), including: (1) the plant is properly configured to limit releases of ~~radioactive material~~ licensed materials in the event of an accident, (2) a capability exists for measuring and assessing the significance of accidental releases of ~~radioactive material~~ licensed materials, (3) appropriate emergency equipment and procedures are provided onsite to protect workers against radiation and other chemical hazards ~~resulting from licensed material~~ that might ~~affect the safety of~~

licensed material and that might be encountered following an accident, (4) a notification system has been established for notifying Federal, State, and local government agencies and recommending appropriate protective actions to protect members of the public, and (5) necessary recovery actions are established for returning the plant to a safe condition following an accident.

The requirements of the ~~emergency plan~~Emergency Management Plan are implemented through approved written procedures. Changes which decrease the effectiveness of the ~~E~~Emergency Management Plan may not be made without NRC approval. The NRC will be notified of other changes which do not decrease the effectiveness of the ~~E~~Emergency Management Plan within six months of the changes.

8.7 REFERENCES

1. U.S. Nuclear Regulatory Commission, *Part 30 Statements of Consideration and Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees*, Federal Register 54, 14051, 1989.
2. NUREG/CR-6410, *Nuclear Fuel Cycle Accident Analysis Handbook*, U.S. Nuclear Regulatory Commission, 1998.
3. NUREG/BR-0150, Vol. 1, Rev. 4, *RTM-96 Response Technical Manual*, U.S. Nuclear Regulatory Commission, 1996.
4. EPA 400-R-92-001, *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*, Environmental Protection Agency, May 1992.
5. NUREG-1140, A Regulatory Analysis of Emergency preparedness for Fuel Cycle and other Radioactive Materials, January, 1988

**PROPOSED REVISION OF SRP (NUREG-1520) CHAPTER 8
INCORPORATING RECOMMENDATIONS
OF THE
NUCEAR ENERGY INSTITUTE
(AUGUST, 1999)**

8.0 EMERGENCY MANAGEMENT

8.1 PURPOSE OF REVIEW

An applicant must either propose an Emergency Management Plan for responding to the radiological hazards of an accidental release of licensed material (and any associated chemical hazards) or provide justification that radiological exposures to the public would be so inconsequential that an Emergency Management Plan is not required. Chapter 8 provides guidance on the review of both Emergency Management Plans and applicant justifications for why such a plan is not needed.

Assessment of the need for an Emergency Management Plan is based upon the results of the ISA. Radiological hazards and the chemical hazards resulting from the handling of licensed material were evaluated in the ISA. The ISA evaluated credible, generic types of accident sequences at the facility, identified items relied on for safety to prevent their occurrence or to mitigate their consequences and recommended management measures to ensure their availability and reliability when required. Prior to assessing the adequacy of an Emergency Management Plan (or the justification for why one is not required), the reviewer should first consult the ISA Summary (Chapter 3) to gain familiarity with:

- (4) accident sequences potentially resulting in radiological hazards (and associated hazards from chemicals produced from licensed material)
- (5) specific items relied on for safety to prevent or mitigate such hazards
- (6) management measures recommended to ensure that items relied on for safety will be available and reliable when required

The reviewer may also wish to consult SRP Chapter 4 (*'Radiation Protection'*) to ensure consistency of the facility's Radiation Protection Program with the Emergency Management Plan.

An Emergency Management Plan is required for a licensed facility from which the maximum dose to a member of the public offsite due to a release of licensed materials would exceed either 1 rem (0.01 Sv) effective dose equivalent or an intake of 2 milligrams of soluble uranium. Licensed facilities requiring such an Emergency Management Plan are those authorized to possess enriched uranium (U) or plutonium (Pu) for which a criticality accident alarm system is required, uranium hexafluoride (UF₆) in excess of 50 kg in a single container or 1000 kg total, or in excess of 2 Ci of Pu in unsealed form or on foils or plated sources.

Emergency management capability is incorporated into the baseline design criteria (BDC) of 10 CFR Part 70.64(a)(8) and is intended to ensure control of licensed material, evacuation of personnel, and availability of emergency facilities.

The object of the Emergency Management Plan review is, therefore, determination that the applicant has established adequate procedures to protect the public, the workers and the environment from radiological and associated chemical hazards or demonstration that there is no need for such a plan.

8.2 RESPONSIBILITY FOR REVIEW

Primary: Assigned FCLB staff

Secondary: Licensing Project Manager

Supporting: Regional Emergency Preparedness Inspector
ISA Reviewer
Fuel Facility Inspection staff

8.3 AREAS OF REVIEW

The reviewer will assess one of two alternatives: (i) an applicant's Emergency Management Plan, or (ii) an applicant's determination that such a plan is not required. In either case, the reviewer should address those design features, facilities, functions, accident sequences, mitigative measures, items relied on for safety and equipment that may affect the radiological (and associated chemical) hazards of an accidental release of licensed material. If an Emergency Management Plan is required, the reviewer must assess its adequacy and the capability of the applicant to cope with plant emergencies. In addition, the review should address coordination with offsite emergency response organizations.

The applicant may elect to incorporate some or all of the requested radiological, facility, process, risk analysis and chemical hazards information into the Emergency Management Plan or simply reference it from other SRP chapters (e.g. from the Facility and Process Description (SRP Chapter 1.1), ISA Summary (SRP Chapter 3), Radiation Protection (SRP Chapter 4) or Chemical Process Safety (SRP Chapter 6)). Either approach is acceptable so long as an adequate summary is provided and the information is adequately cross-referenced.

The NRC staff reviewer should address the material presented, as described below.

8.3.1 Evaluation That No Emergency Management Plan is Required

If the applicant submits an evaluation demonstrating that an Emergency Management Plan is not required, the staff should review the evaluation against the requirements of 10 CFR 70.22(i)(1)(i), and NUREG-1140, "*A Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees.*" NUREG/CR-6410, "Nuclear Fuel Cycle Facility Accident Analysis Handbook," also contains useful information

The applicant should provide a detailed evaluation demonstrating that the maximum radiation exposure or intake by a member of the public during normal operations, anticipated operational occurrences and credible accidents will not exceed the limits of 10 CFR 70.22(i)(1)(i). The applicant should explain how any of the following factors were considered in this evaluation:

- (8) the licensed material is physically separated so that only a portion could be involved in an accident
- (9) the licensed material is stored or packaged so that all or part of it could not be released in an accident
- (10) in the event of a fire or explosion the chemical or physical form of the licensed material provides reasonable assurance that less than 0.1% would be released
- (11) the solubility of the license material is sufficiently low that an intake of 2 milligrams would be extremely unlikely
- (12) the facility has been designed and equipped with safety features that provide reasonable assurance that less than 0.1% of the licensed material could be released in an accident
- (13) operating procedures or restrictions would prevent an accidental release of licensed material large enough to exceed the exposure limits of 10 CFR 70.22(i)(1)(i)
- (14) other facility-specific design or operational features

Prior to assessing the applicant's evaluation that an Emergency Management Plan is not required, the reviewer should consult the following chapters of the license application to gain familiarity with the plant's operations, risk assessment and other features relevant to releases of licensed material:

- (iv) Chapter 1.1: facility and process descriptions, types of materials used (radioactive and hazardous chemicals produced from licensed materials)
- (v) Chapter 3: generic types of accident sequences, consequence evaluations, accident prevention and mitigation, safety controls
- (vi) Chapter 4: detection of accidents

The reviewer should examine the applicant's site-specific evaluation that demonstrates maximum public exposure can not reasonably be expected to exceed the radiation dose limits in 10 CFR 70.22(i)(1)(i). Those specific plant design features or operational procedures that can provide this assurance should be examined in detail. The adequacy of items relied on for safety, adherence to the double contingency principle, modeling of air emissions and other plant discharges and the efficacy of emission control devices should all be examined.

8.3.2 Emergency Management Plan

If the applicant submits an Emergency Management Plan, the staff should evaluate it against the requirements of 10 CFR 70.22(i)(1)(ii) and Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities," which provides a standard format and content for an Emergency Management Plan.

Prior to assessing the applicant's Emergency Management Plan, the reviewer should consult the following chapters of the license application to gain familiarity with the plant's operations, risk assessment and other features relevant to releases of licensed material:

- (iv) Chapter 1.1: facility and process descriptions, types of materials used (radioactive and hazardous chemicals produced from licensed materials)

- (v) Chapter 3: generic types of accident sequences, types of accidents, consequence evaluations, accident prevention and mitigation, safety controls
- (vi) Chapter 4: detection of accidents

Elements in the Emergency Management Plan to be reviewed should include the following:

1. Assessment of releases (both licensed materials and hazardous chemicals produced from licensed materials),
2. Responsibilities of licensee,
3. Notification and coordination,
4. Information to be communicated and parties to be contacted,
5. Safe shutdown (recovery and plant restoration),
6. Responsibilities for developing and maintaining the emergency program and its procedures.

8.4 ACCEPTANCE CRITERIA

8.4.1 Regulatory Requirements

10 CFR Part 70.22(i)(1)(i) specifies when an Emergency Management Plan does not have to be submitted to the NRC. If an Emergency Management Plan is required to be submitted, 10 CFR Part 70.22(i)(3) contains the information that must be provided.

10 CFR Part 70.64(a)(6) (*'Baseline Design Criteria'*) requires applicants to address the control of licensed material, evacuation of onsite personnel, and availability of emergency facilities for the design of new facilities.

8.4.2 Regulatory Guidance

Regulatory guidance for preparing an Emergency Management Plan includes:

1. Regulatory Guide 3.67, "*Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities*," January 1992.
2. NUREG-1140, "A Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Materials," January 1988.
3. NUREG/CR-6410, "Nuclear Fuel Cycle Facility Accident Analysis Handbook," 1998.

8.4.3 Regulatory Acceptance Criteria

8.4.3.1 Evaluation That No Emergency Management Plan Is Required

The adequacy of the applicant's evaluation that no Emergency Management Plan is required should be assessed by the reviewer against the requirements in 10 CFR Part 70.22(i)(2), and the

specific criteria given in the following sections of the SRP. This evaluation should be acceptable if the regulatory requirements and the following criteria are met.

To demonstrate that no Emergency Management Plan is required, an applicant may either:

(1) request that its total possession limit for licensed material be reduced below the Emergency Management Plan threshold in 10 CFR 70.22(i)(1), or (2) perform a site specific evaluation that demonstrates maximum public exposure is less than the limits in 70.22(i)(1)(i) during normal operations, anticipated operational occurrences and credible accidents. The reviewer must assess the reliability of forecasts of radiation exposure to the public outside the controlled area (as defined in 10 CFR 70.61(f)). This assessment must examine the robustness and reliability of predictive methods and models selected by the applicant and should incorporate a review of the adequacy of items relied on for safety for mitigating or preventing accident sequences identified in the ISA Summary to have radiological and chemical exposure consequences. Demonstration that no Emergency Management Plan is needed must also address acute exposures of the public to hazardous chemicals produced from licensed materials. Exposures to hazardous chemicals originating from other sources (e.g. bulk chemicals stored at the facility to be added to, or separated from, licensed material) are not to be considered in the 10 CFR 70.22(1)(ii) Emergency Management Plan.

The evaluation should include a description of the following information sufficient to allow for its independent verification:

1. Generic types of accident sequences identified in the ISA Summary (e.g., fire, exposure, chemical release, nuclear criticality) whose consequences could exceed the exposure criteria of 10 CFR 70.22(i)(1)(i),
2. Detection of accidents (and releases of licensed material and hazardous chemicals produced from licensed material)
3. Location of accident,
4. Maximum source term,
5. Solubility of material,
6. Facility design or engineered safety features (items relied on for safety) in the facility and the proposed release fraction,
7. Location and distance of nearest member of the public to the facility,
8. Dose model used and the process used to verify the reliability of the model and validity of the assumptions (including the results of air dispersion modeling of plant emissions or licensed materials and hazardous chemicals produced from licensed material),
9. Assumed worst case weather condition, and
10. Maximum calculated dose to a member of the public at the facility's controlled area boundary.

The evaluation should include a list and a description of the factors in 10 CFR 70.22(i)(2) considered in evaluating maximum dose to members of the public. The applicant should demonstrate why the factors used in the evaluation are appropriate when compared to the factors in NUREG-1140. If the factors and evaluation show that the maximum dose to a member of the public offsite due to a release of licensed materials could not exceed 1 rem (0.01 Sv) effective dose equivalent or an intake of soluble uranium of 2 milligrams, no Emergency Management Plan is required in accordance with 10 CFR 70.22(i)(1)(i).

8.4.3.2 Emergency Management Plan

The adequacy of the proposed Emergency Management Plan should be evaluated by the reviewer against the requirements in 10 CFR Part 70.22(i)(3), and the specific criteria given in the following sections of the SRP. The applicant's commitments to design and implement an Emergency Management Plan should be acceptable if the regulatory requirements and the following criteria are met:

8.4.3.2.1 Facility Description

8.4.3.2.1.1 Operational Facilities

The Emergency Management Plan should include a description of the facility and site, the area near the site, and the licensed activities conducted at the facility sufficient to support emergency management activities. The description should include or reference from SRP Chapter 1.1 (*'Facility and Process Description'*) the following:

1. A detailed drawing of the site showing:
 - a. onsite and near offsite (within 1 mile) structures with building numbers and labels,
 - b. roads and parking lots onsite and main roads near the site,
 - c. site boundaries, showing fences and gates and the limits of the controlled area,
 - d. major site features, and
 - e. water bodies within approximately 1 mile.
2. A general area topographic map at a suitable scale and, if available, aerial photographs on which are indicated onsite and near-site structures within a one mile radius of the limits of the controlled area. The map should include the location of sensitive facilities near the site such as hospitals, schools, nursing homes, nearest residents, fire department, prisons, and environmental sampling locations, and other structures and facilities important to emergency management.
3. The stack heights, typical stack flow rates, and the efficiencies of any emission control devices.
4. A general description of licensed and other major activities conducted at the facility, and the type, form, and quantities of radioactive materials normally onsite, and any other factors important to emergency management.
5. Certification that the applicant has met responsibilities under Emergency Planning and Community Right To Know Act of 1986, Title III, Public Law 99-499, in accordance with 10 CFR 70.22(i)(3)(xiii).

8.4.3.2.2 Onsite and Offsite Emergency Facilities

The Emergency Management Plan should include a list and description of onsite and offsite facilities and services that could be relied upon in the event of an emergency. The applicant's commitments to establish and maintain current such information will be considered acceptable if:

1. The applicant commits to compile and maintain current a list and description of both onsite and offsite emergency facilities by location and purpose .
2. The applicant commits to compile and maintain current a description of emergency monitoring equipment which is available for personnel and area monitoring and for assessing the release of radioactive materials or hazardous chemicals produced from licensed material to the environment.
3. The applicant commits to compile and maintain current a description of the onsite and offsite services which support emergency response operations. The following are included:
 - a. decontamination facilities,
 - b. medical treatment facilities,
 - c. first aid personnel,
 - d. fire fighters,
 - e. law enforcement assistance, and
 - f. ambulance services.
4. The applicant commits to provide or ensure the availability of emergency facilities, equipment, and resources to support emergency response operations, including the following:
 - a. Facilities of adequate size and appropriate location that are designated, equipped, and ready for emergency use,
 - b. Adequate backup facilities required by the Emergency Management Plan and supporting documents that are available and ready for use,
 - c. Appropriate equipment and supplies necessary to support emergency response activities that are accessible during accident conditions,
 - d. Emergency equipment that is inventoried, tested, and serviced on a periodic basis to ensure accountability and reliability,
 - e. Sufficient reliable primary and backup communications channels that are available to accommodate emergency needs,
 - f. Operational engineering information, such as current as-built drawings and procedures, that are readily available in the emergency facilities,
 - g. Sufficient equipment for personnel protection and monitoring, and
 - h. Systems in place to alert onsite and offsite personnel in the event of an emergency.

8.4.3.2.3 Types of Accidents

The Emergency Management Plan should include a description of each generic type of accident sequence identified in the ISA Summary that could result in a member of the public receiving a dose exceeding 1 rem or an intake of greater than 2 milligrams of soluble uranium. Such information may be referenced from SRP Chapter 3 (*'Integrated Safety Analysis (ISA) Commitments and ISA Summary'*). The description should include:

1. The process and physical location(s) where the accidents could occur,
2. Complicating factors and possible onsite and offsite consequences, including releases of non-radioactive hazardous chemicals produced from licensed material that could impact emergency response efforts,
3. Figure(s) projecting dose and toxic substance concentration as a function of distance and time for various meteorological stability classes, including a description of how such projections were prepared (e.g. computer model, assumptions).

8.4.3.2.4 Classification of Accidents

1. The applicant commits to establish two Emergency Action Levels (EALs) within the Emergency Management Plan:
 - "Alert": Events that may occur, are in progress, or have occurred that could lead to a release of licensed material or hazardous chemicals produced from licensed material, but which release is not expected to require a response by an offsite response organization to protect persons offsite.
 - "Site area emergency": Events that may occur, are in progress, or have occurred that could lead to a significant release of licensed material or hazardous chemicals produced from licensed material that could require a response by offsite emergency response organizations to protect persons offsite.
2. The applicant commits to assign an EAL to each accident sequence identified in the ISA Summary that could result in an exposure to the public exceeding the dose limits of 10 CFR 70.2(i)(1)(i)
3. The applicant commits to establish within the Emergency Management Plan EALs at which an alert or site area emergency will be declared. EALs are specific conditions that require emergency response measures to be performed. The applicant's EALs should be consistent with Appendix A of Regulatory Guide 3.67 and should be compared with the Environmental Protection Agency's Protective Action Guides (EPA 400-R-92-001, May 1992 Revision). Transportation accidents more than 1 mile from the facility are not classified.
4. The applicant commits to designate personnel within the Emergency Management Plan who will have responsibility for accident classification during normal operations.

8.4.3.2.5 Detection of Accidents

The Emergency Management Plan should include or reference information from SRP Chapter 4 (*'Radiation Protection'*) the following information for each generic type of accident sequence that could result in exposure to a member of the public to radiation exceeding the dose limits of 10 CFR 70.2(i)(1)(i).

1. The means of detecting the accident,
2. The means of detecting any release of licensed material or hazardous chemicals produced from licensed material,
3. The means of alerting the operating staff, and
4. The anticipated response of the operating staff.

8.4.3.2.6 Mitigation of Consequences

1. The applicant commits to establish and maintain for each generic type of accident sequence identified in the ISA Summary that could result in exposure of a member of the public to a radiation dose exceeding the limits of 10 CFR 70.2(i)(1)(i), adequate measures and equipment for safe shutdown of a single process or of the entire facility and for mitigating the consequences to workers onsite and offsite as well as to the public offsite. This information may be referenced from SRP Chapter 3 (*'Integrated Safety Analysis (ISA) Commitments and ISA Summary'*).
2. The applicant commits to specify, compile and maintain current the following:
 - a. The criteria that will be used to determine whether a single process or the entire facility will be shut down,
 - b. The steps that will be taken to ensure a safe orderly shutdown of a single process or the entire facility,
 - c. The approximate time required to accomplish a safe shutdown of processes, and
 - d. The compensatory measures required for safety during the shutdown period following an accident.

8.4.3.2.7 Assessment of Releases

1. The applicant commits to compile and maintain current in the Emergency Management Plan procedures to assess the release of licensed material or hazardous chemicals

produced from licensed material. The applicant commits to include in this description the following information:

- a. The procedures for estimating or measuring the release rate or source term,
 - b. Valid computer codes used to project doses or concentrations to the public or environment and associated assumptions, along with adequate justifications to show the validity of the assumptions,
 - c. The types, methods, frequencies, implementation time, and other details of onsite and offsite sampling and monitoring that will be performed to assess a release of licensed material or hazardous chemicals produced from licensed material, and
 - d. Method for assessing collateral damage to the facility, especially items relied on for safety .
2. The applicant commits to present and maintain current in the Emergency Management Plan descriptions of procedures for validating any code used to assess releases of licensed material or hazardous chemicals produced from licensed material.

8.4.3.2.8 Responsibilities

The Emergency Management Plan should describe the emergency response organization and administration that will ensure effective planning, implementation, and control of emergency preparedness activities. The Emergency Management Plan should be consistent with the fire protection plan outlined in SRP Chapter 7. An applicant's commitments for organization and administration of the Emergency Management Plan shall be considered acceptable if:

1. The applicant commits to establish and maintain an organization responsible for direction of the Emergency Management Plan,
2. The applicant commits to appoint staff to the Emergency Management Plan with suitably experienced personnel to be responsible for emergency preparedness, to establish organizational relations amongst the individual positions and to commit sufficient resources to enable the plan's tasks to be carried out,
3. The applicant commits to clearly define the responsibilities and authority for each management, supervisory, and professional position. Responsibility is assigned to coordinate onsite and offsite radiation/hazardous material emergency response preparedness,
4. The applicant commits to establish interfaces with supporting groups, both onsite and offsite,
5. The applicant commits to enter into formal agreements (or memoranda of understanding) that document the assistance and services to be provided by offsite organizations such as fire, police, ambulance/rescue, and medical units,

6. The applicant commits to review, audit, assess and revise, when appropriate, emergency preparedness plans to ensure site readiness to handle emergencies and to identify and correct problems,
7. The applicant commits to ensure that the onsite emergency response organization provides reasonable assurance of effective command and control of the site during the assessment, mitigation, and recovery phase of an accident,
8. The applicant commits to provide advance and ongoing information to the media and public on subjects that would be discussed during an emergency, such as radiation hazards, chemical hazards, site operation, and site Emergency Management Plans,
9. The applicant commits to ensure that emergency preparedness procedures will be developed to support start-up and operation of new processes/facilities onsite.

8.4.3.2.9 Notification and Coordination

1. The applicant commits to establish emergency notification procedures to enable the emergency organization to correctly classify emergencies, to notify emergency response personnel and to initiate or recommend appropriate actions in a timely manner. The applicant's commitments pertaining to notification and coordination will be considered acceptable if:
 - a. The applicant commits to assign an EAL to each emergency event
 - b. The applicant commits to promptly notify operating personnel of an emergency event and to issue appropriate follow-up messages to offsite authorities in a timely manner.
 - c. The applicant commits to ensure that information on the nature and magnitude of the hazards is made available to appropriate emergency response personnel.
 - d. The applicant commits to ensure that source term data for licensed material and hazardous chemicals produced from license material are available to the command post, technical support center, emergency operation center, and appropriate State personnel, in cooperation with NRC.
 - e. The applicant commits that, when available, offsite field monitoring data are logged, compared with source term data, and used in the protective action recommendation process.
 - f. The applicant commits to make available Protective Action Guides for use by appropriate personnel in a timely manner.
 - g. The applicant commits to use an emergency public information program for timely dissemination of accurate, reliable, and understandable information.
 - h. The applicant commits to design and implement, if required, systems to alert, notify, and mobilize onsite and offsite response personnel in the event of an emergency.

- i. The applicant commits to notify and coordinate with responsible parties when some personnel, equipment, and facility components are not available.
2. The applicant commits to identify in the Emergency Management Plan the individuals and procedures to promptly implement the following actions:
 - a. Decision to declare an alert or site area emergency,
 - b. Activation of onsite emergency response organization during all shifts,
 - c. Prompt notification of offsite response authorities that an alert or site area emergency has been declared, including the licensee's initial recommendation for offsite protective actions (normally within 15 minutes),
 - d. Notification to the NRC Operations Center (as soon as possible and, in any case, no later than one hour after a declared emergency),
 - e. Decision on what onsite protective actions to initiate,
 - f. Decision on what offsite protective actions to recommend,
 - g. Decision to request support from offsite organizations, and
 - h. Decision to terminate the emergency or enter recovery mode.

8.4.3.2.10 Information To Be Communicated

The applicant commits to include within the Emergency Management Plan the information that should be communicated during an emergency including the following:

1. A standard reporting checklist to facilitate timely notification,
2. The types of information to be provided concerning facility status, releases of licensed material or hazardous chemicals produced from licensed material, and protective action recommendations,
3. A description of preplanned protective action recommendations to be made to each appropriate offsite organization,
4. The offsite officials to be notified, as a function of the classification of the event,
5. The recommended actions to be implemented by offsite organizations for each accident treated in the Emergency Management Plan.

8.4.3.2.11 Training

The applicant commits to design and implement under the auspices of the Emergency Management Plan an adequate training program for onsite emergency response personnel to ensure knowledge of the Emergency Management Plan, assigned duties, and to enable an effective response to an actual emergency. The scope of the training program will depend upon the results of the ISA for different processes and plant operations. The applicant's commitment to the training program will be considered acceptable if:

1. The topics and general content of training programs used for training the onsite emergency response personnel satisfy the objectives described above,
2. The administration of the training program, including responsibility for training, the positions to be trained, the schedules for training, use of team training and the estimated number of hours of initial training are specified,
3. Training is provided on the use of protective equipment such as respirators, protective clothing, monitoring devices, and other equipment used in emergency response,
4. Training extends to onsite personnel who are not members of the emergency response staff, and
5. The instructions and orientation tours that will be offered to fire, police, medical, and other emergency personnel are designed to be commensurate with the results of the ISA.

8.4.3.2.12 Safe Shutdown (recovery and plant restoration)

The applicant commits to develop within the auspices of the Emergency Management Plan procedures for adequately restoring the facility to a safe status after an accident and recovery after an emergency. The description should be considered acceptable if:

1. The applicant commits to describe and use appropriate methods and personnel for assessing the damage to, and the status of, the facility's capabilities to safely control licensed material or hazardous chemicals produced from licensed material ,
2. The applicant commits to use suitable procedures for promptly determining the actions necessary to reduce any ongoing releases of radioactive or other hazardous chemicals produced from licensed material and to prevent further incidents,
3. The applicant commits to develop and implement provisions for promptly and effectively accomplishing required restoration action, and
4. The applicant commits to describe the key positions in the recovery organization.

8.4.3.2.13 Exercises and Drills

The Emergency Management Plan should include an applicant's commitment to conduct exercises and drills in a manner that demonstrates the capability of the organization to plan and perform an effective response to an emergency. An adequate plan should demonstrate the following:

1. The applicant commits to have all qualified individuals periodically participate in each position in the emergency response organization,
2. The applicant commits to conduct emergency drills with specific scenario objectives, using postulated accidents to test personnel, equipment, and resources, including previously identified weaknesses,
3. The applicant commits to conduct effective player, controller, evaluator, and observer pre-drill briefings,
4. The applicant commits to ensure that scenario data and exercise messages provided by the controllers effectively maintain the time line and do not interfere with the emergency organization's response to exercise scenario events, except where safety considerations are involved,
5. The applicant commits to use trained evaluators to identify and record participant performance, scenario strengths and deficiencies, and equipment problems,
6. The applicant commits to realistically test the activation and staffing of emergency facilities with a minimum of pre-staging of equipment and personnel,
7. The applicant commits to conduct critiques in a timely manner and to include a follow-up plan for correcting identified weaknesses and for improving training effectiveness,
8. The applicant commits to use emergency drills to demonstrate that resources are effectively used to control the site, to mitigate further damage, and to control releases of licensed material and hazardous chemicals produced from licensed material. The applicant also commits to perform required onsite activities under simulated radiation/airborne and other emergency conditions, to provide accurate assessments and status during an accident, and to initiate recovery,
9. The applicant commits to demonstrate through emergency drills that personnel protection measures are effective for controlling and minimizing hazards to individuals during events such as fires, medical emergencies, mitigation activities, search and rescue, and other similar events,
10. The applicant commits to use emergency drills to demonstrate that onsite communications effectively support emergency response activities,
11. The applicant commits to use emergency drills to demonstrate that the emergency public information organization disseminates accurate, reliable, timely, and understandable information,
12. The applicant commits to implement provisions for conducting periodic communications checks with offsite response organizations, and

13. The applicant commits that offsite organizations are invited to participate in the biennial onsite exercise that tests the major elements of the Emergency Management Plan and response organizations.

8.4.3.2.14 Responsibilities for Developing and Maintaining Current the Emergency Program and Its Procedures

The Emergency Management Plan should describe the responsibilities for developing and maintaining the emergency program and its procedures. The applicant's commitments to develop and maintain the plan should be considered acceptable if:

1. The applicant commits to periodically revise and update the Emergency Management Plan and its implementation procedures , and to distribute such revisions to all affected parties including the NRC, and
2. The applicant commits to develop procedures to approve and implement emergency procedures, to distribute changes to the procedures, and to ensure that each person responsible for an emergency response function has immediate access to a current copy of emergency procedures. The applicant commits to ensure that provisions for approval of changes to the Emergency Management Plan and the procedures and those individuals authorized to make these changes are clearly stated.
3. The applicant commits to ensure that procedures for modifying the Emergency Management Plan are in accordance with 10 CFR 70.32(i).

8.5 REVIEW PROCEDURES

8.5.1 Acceptance Review

The primary reviewer should evaluate the application to determine whether it addresses the "Areas of Review" discussed in Section 8.3 . If significant deficiencies are identified, the applicant should be requested to submit additional material before the start of the safety evaluation.

8.5.2 Safety Evaluation

After determining that the application is acceptable for review in accordance with Section 8.5.1, the primary reviewer should perform a safety evaluation against the acceptance criteria described in Section 8.4. If, during the course of the safety evaluation, the primary reviewer determines the need for additional information, the primary reviewer should coordinate a request for additional information with the licensing project manager.

8.5.2.1 Evaluation That No Emergency Management Plan Is Required

The primary reviewer should verify that the evaluation is consistent with the potential accident sequences described in the ISA Summary whose consequences could result in a member of the

public receiving a radiation dose exceeding the limits of 10 CFR 70.22(i)(1)(i). The primary reviewer should prepare a safety evaluation report (SER) in accordance with Section 8.6 which either agrees with the applicant's conclusion that no Emergency Management Plan is required or indicates that the staff does not accept the applicant's evaluation and recommends that an Emergency Management Plan be required by the applicant.

8.5.2.2 Emergency Management Plan

The primary reviewer should conduct a complete review of the applicant's Emergency Management Plan and determine its acceptability in accordance with the Acceptance Criteria of Section 8.4.3.2. The reviewer should verify that emergency planning is consistent with the potential accident sequences described in the ISA Summary that could result in a member of the public receiving a radiation dose exceeding the limits of 10 CFR 70.22(i)(1)(i).

The review should be conducted after the reviewers have consulted other sections of the application to gain familiarity with topics such as: site description, including the emergency planning zones, demography, land use, plant design and layout, and major accidents postulated by the applicant presented in relevant sections of the ISA Summary. The primary and secondary reviewers should also gain familiarity with proposed radiation protection activities and other operational matters that interface with Emergency Management Plans, particularly the programs reviewed against SRP Chapters 4 and 11. If required to be prepared, draft and final environmental statements for the proposed facility should be consulted.

The primary reviewer will prepare an SER for the Licensing Project Manager in support of the licensing action.

8.6 EVALUATION FINDINGS

The primary reviewer writes an SER section addressing each topic reviewed under this SRP Chapter and explains why the NRC staff has reasonable assurance that the emergency management part of the application is acceptable. License conditions may be proposed to impose requirements where the application is deficient. The SER should include a summary statement of what was evaluated and the bases for the reviewer's conclusions.

The staff can document the evaluation as follows:

The staff has evaluated [Insert a summary statement of what was evaluated and why the reviewer finds the submittal acceptable.] In accordance with 10 CFR 70.22(i), the licensee commits to maintaining and executing an Emergency Management Plan for responding to the radiological hazards resulting from a release of licensed material and to any associated hazards from chemicals produced from licensed material. The NRC staff reviewed the Emergency Management Plan with respect to 10 CFR 70.22(i) and the acceptance criteria in section 8.4.3 of the SRP. NRC staff determined that the applicant's Emergency Management Plan is adequate to demonstrate compliance with 10 CFR 70.22(i), including: (1) the plant is properly configured to limit releases of licensed materials in the event of an accident, (2) a capability exists for measuring and assessing the significance of accidental releases of licensed materials, (3) appropriate emergency equipment and procedures are provided onsite to protect workers against radiation and other chemical hazards resulting from licensed material that might affect the safety of licensed material and that might be encountered following an accident, (4) a notification system has been established for notifying Federal, State, and local government agencies and recommending

appropriate protective actions to protect members of the public, and (5) necessary recovery actions are established for returning the plant to a safe condition following an accident.

The requirements of the Emergency Management Plan are implemented through approved written procedures. Changes which decrease the effectiveness of the Emergency Management Plan may not be made without NRC approval. The NRC will be notified of other changes which do not decrease the effectiveness of the Emergency Management Plan within six months of the changes.

8.7 REFERENCES

1. U.S. Nuclear Regulatory Commission, *Part 30 Statements of Consideration and Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees*, Federal Register 54, 14051, 1989.
2. NUREG/CR-6410, *Nuclear Fuel Cycle Accident Analysis Handbook*, U.S. Nuclear Regulatory Commission, 1998.
3. NUREG/BR-0150, Vol. 1, Rev. 4, *RTM-96 Response Technical Manual*, U.S. Nuclear Regulatory Commission, 1996.
4. EPA 400-R-92-001, *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*, Environmental Protection Agency, May 1992.
5. NUREG-1140, *A Regulatory Analysis of Emergency preparedness for Fuel Cycle and Other Radioactive Materials*, January, 1988