13.0 CONDUCT OF OPERATIONS

This chapter of the Final Safety Analysis Report (FSAR) application provides information relating to the preparations and plans for the design, construction, and operation of the plant. The purpose of this chapter is to document the U.S Nuclear Regulatory Commission (NRC) staff's conclusions on whether the Combined License (COL) applicant establishes and maintains a staff of adequate size and technical competence and whether the operating plans to be followed by the licensee are adequate to protect public health and safety.

13.1 Organizational Structure of Applicant

13.1.1 Introduction

This section of the FSAR addresses the design, construction, preoperational, operational and maintenance responsibilities of the organization. The management and technical support organization includes a description of the corporate or home office organization, its functions and responsibilities, and the number and the qualifications of personnel. Activities of the organization include facility design, design review, design approval, construction management, testing, and operation of the plant. The descriptions of the design, construction, preoperational, operational, and maintenance responsibilities include the following:

- How these responsibilities are assigned by the headquarters staff and implemented within the organizational units.
- The responsible working- or performance-level organizational unit.
- The estimated number of persons to be assigned to each unit with responsibility for the project.
- The general education and experience requirements for identified positions or classes of positions.
- The early plans for providing technical support for the operation of the facility.
- This section also describes the structure, functions, and responsibilities of the onsite organization established to operate and maintain the plant. The applicant has renumbered Section 13.1.1 and has added other subsections in FSAR Section 13.1.

13.1.2 Summary of Application

In South Texas Project (STP) Units 3 and 4 FSAR Section 13.1, the applicant has added subsections to FSAR Section 13.1. Several of these subsections are new and differ from the structure in Section 13.1 of Regulatory Guide (RG) 1.206.

13.1.3 Regulatory Basis

The relevant requirements of the Commission regulations for the organizational structure of applicant, and the associated acceptance criteria, are in Sections 13.1.1 and 13.1.2-13.1.3 of NUREG–0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants"; the Standard Review Plan (SRP).

In particular, the applicable regulatory guidance for the organizational structure of the applicant is as follows:

- American National Standards Institute (ANSI)/American Nuclear Society (ANS)-3.1-1993, as endorsed and amended by Regulatory Guide (RG) 1.8, "Qualification and Training of Personnel for Nuclear Power Plants."

The applicable regulations and regulatory guidance for the management, technical support, and operating organizations of the applicant are as follows:

- Title 10 of the *Code of Federal Regulations* (10 CFR) 50.40(b), which requires the applicant to be technically qualified to engage in the proposed activities authorized by the license
- 10 CFR 50.54(j–m), "Conditions of Licenses"
- RG 1.33, "Quality Assurance Program Requirements (Operation)"

13.1.4 Technical Evaluation

NUREG–0800, Section 13.1.2-13.1.3, "Operating Organization," states that the applicant's operating organization should be characterized as follows:

1. The applicant is technically qualified as specified in 10 CFR 50.40(b).

2. An adequate number of licensed operators will be available at all required times to satisfy the minimum staffing requirements of 10 CFR 50.54(j–m).

3. On-shift personnel provide the initial facility response in the event of an emergency.

4. Organizational requirements for the plant manager and radiation protection manager have been satisfied.

5. Qualification requirements and qualifications of plant personnel conform to the guidance of RG 1.8.

6. Organizational requirements conform to the guidance of RG 1.33.

NRC staff compared Section 13.1 of the STP Units 3 and 4 COL FSAR to the guidance in NUREG–0800, Section 13.1.2-13.1.3. This section of the COL FSAR is not part of the certified U.S. Advanced Boiling-Water Reactor (ABWR) design certification document (DCD).

The applicant has added new sections and information to Section 13.1 related to the site-specific organizational structure and beyond the structure described in RG 1.206. The new section titles are:

13.1.1, "Management and Technical Support Organization"
13.1.2, "Operating Organization"
13.1.3, "Qualifications Requirements of Nuclear Plant Personnel"

The applicant describes the organization for the management and the means of providing technical support to the plant staff for the design, construction, and operation of the facility. The

applicant also describes plans for managing the project and utilizing the nuclear steam supply system vendor and the architect engineer. The applicant adds that this chapter provides assurance that the applicant will establish and maintain a staff of adequate size and technical competence, and that operating plans are adequate to protect public health and safety.

The applicant describes the assignment of plant operating responsibilities, the reporting chain up through the chief executive officer, the functions and responsibilities of each major plant staff group, the proposed shift crew complement for single-unit or multiple-unit operations, the qualification requirements for the plant staff, and staff qualifications. Resumes for management and principal supervisory and technical positions will be submitted upon request after position vacancies are filled.

The applicant has added text to Section 13.1.3, "Qualification of Nuclear Plant Personnel," stating that the qualifications of managers and supervisors of the technical support organization will meet the education and experience requirements described in ANSI 18.1/ANS-3.1-1993 and in RG 1.8.

The above information contributes to the judgment that the applicant is in compliance with the requirements of 10 CFR 50.40(b). That is, the applicant is technically qualified to engage in design and construction activities and to operate a nuclear power plant; and the applicant will have the necessary managerial and technical resources to support the plant staff in the event of an emergency. The applicant has identified the organizational positions responsible for fire protection-related situations and has delegated the authority of these positions to implement fire protection requirements.

13.1.5 Post Combined License Activities

There are no post COL activities related to this section.

13.1.6 Conclusion

NRC staff compared STP Units 3 and 4 FSAR Section 13.1, "Organizational Structure of Applicant," to the relevant NRC regulations; the acceptance criteria defined in NUREG–0800, Section 13.1.1-13.1.3; and other NRC RGs. The staff concluded that the applicant is in compliance with the NRC regulations.

The staff's review confirmed that the applicant has addressed the relevant information to satisfy the requirements of 10 CFR 50.40(b) and 10 CFR 50.54(j–m), and no outstanding information is expected to be addressed in the COL FSAR related to this section.

13.2 Training

13.2.1 Introduction

This section of the FSAR addresses the description and schedule of the training program for reactor operators and senior reactor operators (i.e., licensed operators). The discussion addresses the scope of licensing examinations as well as training requirements. The licensed operator training program also includes the requalification programs required in 10 CFR 50.54(i)(i-1) and 10 CFR 55.59, "Requalification." In addition, this section of the FSAR includes the description and schedule of the training program for non-licensed plant staff.

13.2.2 Summary of Application

Section 13.2 of the STP Units 3 and 4 COL FSAR incorporates by reference Nuclear Energy Institute (NEI) 06–13, "Template for an Industry Training Program Description." In addition, in FSAR Section 13.2, the applicant provides the following:

COL License Information Item

- COL License Information Item 13.1 Incorporation of Operating Experience

The applicant provides information to address COL Information Item 13.1. The applicant adds that "the results of reviews of operating experience are incorporated into training and retraining programs in accordance with the provisions of the TMI Action Item I.C.5, Appendix 1A."

13.2.3 Regulatory Basis

The relevant requirements of the Commission regulations for the training and the associated acceptance criteria are in Section 13.2 of NUREG–0800. In particular, the regulatory basis for accepting the applicant's information in Section 13.2 is in 10 CFR Parts 19, 26, 50, 52, and 55; Appendix E of 10 CFR Part 50; the guidance of RGs 1.8 and 1.149; NUREG–1021, "Operator Licensing Examination Standards for Power Reactors"; and NUREG–1220, "Training Review Criteria and Procedures." The COL License Information Item 13.1 is reviewed using the guidance in NUREG–0800 Section 13.2.1, "Reactor Operator Requalification Program; Reactor Operator Training," and Section 13.2.2, "Non-Licensed Plant Staff Training."

The Operational Program for the Non-Licensed Plant Staff Training Program is in 10 CFR 50.120 and 10 CFR 52.79(a)(33).

The Operational Program for the Reactor Operator Training Program is in 10 CFR 55.13, 55.31, 55.41, 55.43, and 55.45.

The Operational Program for the Reactor Operator Requalification Program is satisfied based on meeting the requirements of 10 CFR 52.79(a)(34), 50.54(i), and 55.59.

The relevant criteria for reviewing COL License Information Item 13.1, which relates to the incorporation of operating experience, are based on meeting the provisions of the Three Mile Island (TMI) Action Item I.C.5, Appendix 1A, "Feedback of Operating Experience." Moreover, COL License Information Item 13.1 is satisfied based on following the guidance of NUREG-0800 Section 13.2, "Training."

13.2.4 Technical Evaluation

NRC staff reviewed Section 13.2 of the STP Units 3 and 4 COL FSAR and checked the referenced ABWR DCD. This section is not part of the certified ABWR DCD.

COL License Information Item

- COL License Information Item 13.1 Incorporation of Operating Experience

The applicant provided information in Table 13.4S-1 regarding program implementation milestones. NUREG–0800 Subsection 13.2.2.I.1 and Subparts B, C, and D require numerous training programs to be implemented relative to (before) loading or receiving fuel.

Table 13.4S-1 in many cases did not accurately reflect these milestones. As a result, the staff issued request for additional information (**RAI) 13.02.02-1** requesting the applicant to clarify or modify FSAR Table 13.4S-1 to ensure that the intent of NUREG–0800 is met. The applicant's response to **RAI 13.02.02-1** dated July 21, 2009, (ML091760905) indicates that Table 13.4S-1 will be revised to state, "implementation will occur prior to the milestone indicated." The staff determined that this response is acceptable. This issue was tracked as **Confirmatory Item 13.02.02-1** in the SER with the Open items.

The staff verified that the applicant has made the proposed changes to Table 13.4S-1 in Revision 4 of the STP Units 3 and 4 COL FSAR. Therefore, the staff considers **Confirmatory Item 13.02.02-1** to be closed.

The applicant states that NEI 06–13, "Template for an Industry Training Program Description," including all subsections, is incorporated by reference. NEI 06–13A, Revision 1 was written to provide COL applicants with a generic program description for use with COL application submittals. In a letter dated December 5, 2008, the staff stated that the training template of NEI-06–13A, Revision 1, is an acceptable means for describing training programs for licensed operators and non-licensed plant staff. The staff found the applicant's incorporation of NEI 06-13A, Revision 1 acceptable because it utilizes an NRC-endorsed methodology.

The staff performed this review in accordance with the requirements of TMI Action Item I.C.5, "Feedback of Operating Experience," on the incorporation of operational experience into the training and procedure development programs. The staff used the applicable sections of the SRP and RG 1.206 and determined that the applicant's response is acceptable.

13.2.5 Post Combined License Activities

There are no post COL activities related to this section.

13.2.6 Conclusion

NRC staff compared the application to the relevant NRC regulations; the acceptance criteria in NUREG–0800 Sections 13.2.1 and 13.2.2, and other NRC regulatory guides and concluded that the applicant is in compliance with the NRC regulations. The staff also concluded that the applicant has adequately addressed COL License Information Item 13.1 regarding the incorporation of operating experience.

The staff's review confirmed that the applicant has addressed the relevant information relating to training by incorporating NEI 06–13, "Template for an Industry Training Program Description," by reference. The staff's review also confirmed that the applicant has adequately addressed the guidance in NUREG–0800, Sections 13.2.1 and 13.2.2. The information is therefore acceptable.

13.3 Emergency Planning

13.3.1 Introduction

This section addresses the plans, design features, facilities, functions, and equipment necessary for emergency planning (EP) that must be considered in a COL application. This section of the FSAR addresses both the applicant's onsite emergency plan and the State and local offsite emergency plans, which the NRC and the Federal Emergency Management Agency

(FEMA) have evaluated to determine whether the plans are adequate and that there is reasonable assurance that they can be implemented. The emergency plans express the overall concept of operation, describe the essential elements of advance planning that have been considered, and describe the provisions that have been made to cope with radiological emergency situations.

13.3.2 Summary of Application

Section 13.3 of the STP Unit 3 and 4 COL FSAR incorporates by reference Section 13.3 of the certified ABWR DCD, Revision 4 referenced in 10 CFR Part 52, Appendix A. Table 13.3-1, "ABWR Design Considerations for Emergency Planning Requirements," describes the design considerations for the technical support center (TSC), operational support center (OSC), emergency operations facility (EOF), counting room for analyzing post-accident samples, and an onsite decontamination facility.

In addition, in FSAR Section 13.3, the applicant provides the following:

COL License Information Item

- COL License Information Item 13.2 Emergency Plans

In COL FSAR Subsection 13.3.1.1, the applicant states:

> A comprehensive site Emergency Plan for STP is provided in COLA Part 5.

Onsite Emergency Plans

Part 5, "Emergency Plan," of the COL application includes the emergency plan for responding to a broad range of radiological emergencies, including hostile actions, at STP Units 3 and 4.

Offsite Emergency Plans

The Texas Radiological Emergency Management (REM) Plan is included in Section 5.6, "State of Texas Emergency Management Plan," in Part 5, "Emergency Plan," of the STP COL application. The Texas REM Plan consists of five tabs and a manual of REM procedures and is maintained under a separate cover by the Department of State Health Services (DSHS). The REM Plan assigns responsibilities to State agencies and details procedures for conducting a coordinated response to radiological emergencies. The five tabs in the REM Plan address five types of emergencies:

- Fixed nuclear facility accidents
- Production/utilization accidents
- Federal facility accidents
- Transportation accidents
- Waste storage/disposal accidents

The REM Procedures Manual consists of a series of procedures that provide guidance and ensure uniformity in the performance of selected tasks applicable to any or all of the various types of radiological emergencies. Where specific instructions are required for implementing a

given procedure, with respect to an individual facility or accident type, those instructions are incorporated in the appropriate tab of the Texas REM Plan.

The “Emergency Management Basic Plan for Matagorda County, Bay City, and Palacios,” is included as Section 5.5, “Matagorda County Emergency Management Basic Plan,” in Part 5, “Emergency Plan,” of the STP COL application. This plan provides a framework for officials of Matagorda County to use for planning and performing their respective emergency functions.

ITAAC

In COL application Part 9, Section 4.0, “Emergency Planning ITAAC,” the applicant proposes site-specific EP ITAAC in Table 4.0-1, "Emergency Planning - Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC)."

Section 2.17, "Emergency Response Facilities," of the COL FSAR incorporates by reference all tables in Section 2.17 of ABWR DCD Revision 4. Table 2.17.1, "Emergency Response Facilities," contains six EP ITAAC related to the location and size of the TSC, the location of the OSC, TSC and OSC voice communications, and plant parameter displays in the TSC.

License Condition

The applicant proposes the following license condition:

- STP Nuclear Operating Company shall submit a fully developed set of emergency action levels (EALs) to the NRC in accordance with NEI 99–01 Revision 5-endorsed EAL scheme with the exceptions noted below:

    - STP Units 3 and 4 will exclude NEI 99–01 Revision 5 Initiating Conditions (ICs) SU3, SA4, and SS6. These ICs are not applicable to the STP based on the ABWR Digital Instrumentation and Controls (DI&Cs) design.

    - STP will replace ICs SA4 and SS6 in the final Emergency Action Level Bases Document for Units 3 and 4. These ICs will be applicable to STP Units 3 and 4 DI&Cs.

    - STP Units 3 and 4 will include the addition of ICs for Cold Shutdown CU9 and CA5 in the final Emergency Action Level Bases Document for Units 3 and 4. These ICs are applicable to the STP Units 3 and 4 DI&Cs.

- These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days before initial fuel load.

13.3.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG-1503, “Final SER Related to Certification of the Advanced BWR Design,” dated July 1994 (ML080670560), and in NUREG–1503 Supplement 1, “Final Safety Evaluation Report Related to the Certification of the Advance Boiling Water Reactor Design,” dated May 1997 (ML080710134).

The applicable regulatory requirements and guidance for EP are as follows:

- 10 CFR 52.79(a)(21) and 10 CFR 52.79(a)(22)(i) require that the FSAR include emergency plans that comply with the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, and certifications from State and local government agencies with EP responsibilities. Under 10 CFR 50.47(a)(1)(ii), no initial COL under the requirements of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," will be issued unless a finding is made by the NRC that there is a reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. In addition, under 10 CFR 50.47(a)(2), the NRC will base the finding on a review of FEMA's findings and determinations as to whether State and local offsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented, and on NRC assessments as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented.

- The staff considered the applicable requirements in 10 CFR 52.77, 10 CFR 52.80, 10 CFR 50.33(g), and 10 CFR 100.21, "Non- seismic siting criteria."

- NUREG–0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," identifies NUREG–0654/FEMA-REP-1, Revision 1 (NUREG-0654/FEMA-REP-1) and other related guidance that NRC staff should consider during the review. The acceptance criteria are identified in NUREG–0800, Section 13.3.II; the applicable regulatory guidance for reviewing emergency preparedness as an operational program is established in NUREG–0800, Section 13.4.

- Section 13.3, "Emergency Planning," in NUREG–0800, "Standard Review Plan," states that if an application is for an additional reactor or reactors at an operating reactor site, and the applicant proposes to incorporate and extend elements of the existing EP program to the new reactor (included by reference), those existing elements should be considered acceptable and adequate. The reviewer should generally focus the review on the extension of the existing program to the new reactor and should determine whether the incorporated EP program information from the existing reactor site is: (1) applicable to the proposed reactor; (2) up-to-date when the application is submitted; and (3) reflects the use of the site for constructing a new reactor (or reactors) and appropriately incorporates the new reactor(s) into the existing plan. Accordingly, the applicant submitted a modification of the STP Units 1 and 2 Emergency Plan to reflect Units 3 and 4.

- In addition, Appendix A to 44 CFR Part 353, "Memorandum of Understanding (MOU) Between Federal Emergency Management Agency and Nuclear Regulatory Commission Relating to Radiological Emergency Planning and Preparedness," dated September 14, 1993, states that FEMA is responsible for the findings and determinations as to whether offsite emergency plans are adequate and can be implemented. FEMA radiological emergency preparedness (REP) documents provide guidance on various topics for use by State and local organizations responsible for radiological emergency preparedness and response. NUREG–0654/FEMA-REP-1 provides a basis for State and local governments to develop radiological emergency plans.

13.3.4 Technical Evaluation

As documented in NUREG–1503, NRC staff reviewed and approved Section 13.3 of the certified ABWR DCD. The staff reviewed Section 13.3 of the STP Units 3 and 4 COL FSAR and checked the referenced ABWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ABWR DCD appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the required information relating to the EP.

COL License Information Item

- COL License Information Item 13.2 Emergency Plans

The NRC staff's review of the EP information related to COL License Information Item 13.2 is in Attachment 13.3A, "COL Information Items, Supplemental Information Items and Departures," of this SER.

Supplemental Information

The staff's review of the information provided in the COL application that is not part of the STP Units 3 and 4 Emergency Plan is addressed in Attachment 13.3B, "Emergency Planning Information in the Application," of this SER section.

The staff reviewed the changes in the STP Units 1 and 2 Emergency Plan which were identified in the STP Units 3 and 4 Emergency Plan for conformance with the applicable standards and requirements identified in Section 13.3, "Emergency Planning," of NUREG–0800, "Standard Review Plan," dated March 2007. The results of the staff's review are in Attachment 13.3C, "Onsite Emergency Planning." The staff also reviewed the License Condition proposed by the applicant regarding the EAL scheme for STP (see Section 13.3C.4.1). In addition, the staff reviewed the radiological consequences to personnel in the TSC from postulated fission product releases and found the information acceptable.

The staff also reviewed and compared Table 4.0-1, "Emergency Planning - Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC)," in COL application Part 9, against the generic ITAAC in NUREG–0800 Section 14.3, Table 14.3.10-1. The results of the staff's review are in Section 13.3C.19, "Emergency Planning ITAAC," of this SER.

Pursuant to 10 CFR 52.79(a)(21) and 10 CFR 52.81, the staff reviewed the COL application according to the standards set out in 10 CFR Part 50, including 10 CFR 50.47 and 10 CFR Part 50, Appendix E. The results of the staff's review are in Attachments 13.3A, 13.3B, and 13.3C.

FEMA reviewed the offsite emergency plans for the State of Texas, Matagorda County, and the incorporated cities of Bay City and Palacios. FEMA also reviewed the applicant's responses to the RAIs. On January 27, 2010, FEMA submitted to the NRC an Interim Findings Report for Reasonable Assurance (ML100350989). FEMA's review of the offsite emergency plans

[1] See *"Finality of Referenced NRC Approvals"* in SER Section 1.1.3, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

determined that the plans are adequate, and there is reasonable assurance that they can be implemented.

License Conditions

For the reasons discussed in Section 13.3C.4, the staff finds the following license condition acceptable:

- STP Nuclear Operating Company shall submit a fully developed set of EALs to the NRC, in accordance with NEI 99–01 Revision 5-endorsed EAL scheme with the exceptions noted below:

    - STP Units 3 & 4 will exclude NEI 99–01 (Revision 5) Initiating Conditions (ICs) SU3, SA4, and SS6. These ICs are not applicable to the STP based on the ABWR Digital Instrumentation and Controls (DI&Cs) design, and

    - The STP will put replacement ICs for SA4 and SS6 into the final Emergency Action Level Bases Document for Units 3 & 4. These replacement ICs will be applicable to the STP Units 3 & 4 DI&Cs. These replacement ICs are included as Enclosures 2 (SA4) and 3 (SS6) to the letter dated September 28, 2009 (ML092730445).

    - STP will add ICs for Cold Shutdown CU9 and CA5 into the final Emergency Action Level Bases Document for Units 3 & 4. These ICs are applicable to the STP Units 3 & 4 DI&Cs. These ICs are included as Enclosures 4 (CU9) and 5 (CA5) to the letter dated September 28, 2009 (ML092730445).

- These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days before initial fuel load.

13.3.5 Post Combined License Activities

The following items were identified as the responsibility of the COL license holder:

- The STP Nuclear Operating Company shall submit a fully developed set of EALs to the NRC in accordance with NEI 99–01 Revision 5-endorsed EAL scheme with the exceptions noted below:

    - STP Units 3 & 4 will exclude NEI 99–01 (Revision 5) and Initiating Conditions (ICs) SU3, SA4 and SS6. These ICs are not applicable to the STP based on the ABWR Digital Instrumentation and Controls (DI&Cs) design, and

    - STP will put replacement ICs for SA4 and SS6 in the final Emergency Action Level Bases Document for Units 3 & 4. These replacement ICs will be applicable to the STP Units 3 & 4 DI&Cs. These replacement ICs are included as Enlcosures 2 (SA4) and 3 (SS6) to the letter dated September 28, 2009 (ML092730445).

    - STP will add ICs for Cold Shutdown CU9 and CA5 into the final EAL Bases Document for Units 3 and 4. These ICs are applicable to the STP Units 3 & 4 DI&Cs. These ICs are included as Enclosures 4 (CU9) and 5 (CA5) to the letter dated September 28, 2009 (ML092730445).

- These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days before initial fuel load.

Site-specific ITAAC

The ITAAC that are applicable to the STP EP are included in the following sections of the STP COL application and are addressed in Section 13.3C.19:

- In COL application Section 4.0 of Part 9, “Emergency Planning ITAAC,” the applicant proposes site-specific EP ITAAC in Table 4.0-1, "Emergency Planning - Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC)."

- Section 2.17, "Emergency Response Facilities," of the COL FSAR incorporates by reference all tables in Section 2.17 of ABWR DCD Revision 4. Table 2.17.1, "Emergency Response Facilities," contains six EP ITAAC related to the location and size of the TSC; the location of the OSC, TSC, and OSC voice communications; and plant parameter displays in the TSC.

13.3.6 Conclusion

The NRC staff’s finding related to information incorporated by reference is in NUREG–1503. The staff reviewed the application and checked the referenced DCD. The staff’s review confirmed that the application has addressed the required information relating to the EP, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

Pursuant to 10 CFR 52.80(a), the STP COL application includes the proposed inspections, tests, and analyses that the licensee shall perform; and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that if the inspections, tests, and analyses are performed and the acceptance criteria are met, the facility has been constructed and will be operated in conformity with the license, the provisions of the Atomic Energy Act, and NRC rules and regulations.

FEMA has reviewed the emergency plans for the State of Texas and the local government plans for Matagorda County and the incorporated cities of Bay City and Palacios, in accordance with 44 CFR Part 350, and provided its Interim Findings Report (IFR) for Reasonable Assurance dated January 27, 2010 (ML100350989). FEMA has determined that the plans are adequate, and there is reasonable assurance that these plans can be implemented with no corrections needed. The NRC staff has reviewed the FEMA report and based its overall reasonable assurance finding on the FEMA findings and determinations regarding offsite EP.

Based upon the IFR and the staff’s evaluations detailed in Attachments 13.3A, 13.3B, and 13.3C of this SER, the staff finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, the staff finds that the STP Units 1 and 2 Emergency Plan as modified reflects STP Units 3 and 4. When fully implemented, the emergency plan will meet the requirements of 10 CFR 50.33(g), 10 CFR 50.34(b)(6)(v), 10 CFR 50.34(f)(2)(xxv), 10 CFR 50.47, applicable portions of Appendix E to 10 CFR Part 50, 10 CFR 50.77, 10 CFR 52.79(a)(21), 10 CFR 52.79(a)(22)(i), 10 CFR 52.80, 10 CFR 50.81, and 10 CFR 50.83.

Furthermore, in accordance with 10 CFR 50.47(a), the staff concludes that subject to the required conditions and limitations of the COL, including the license condition listed in

Section 13.3.5 of this SER, there is reasonable assurance that protective measures can and will be taken in the event of a radiological emergency at the STP site, and emergency preparedness at STP Units 3 and 4 is adequate to support full-power operations.

Attachment 13.3A – COL License Information Items, Supplemental Information Items and Departures

This section addresses the COL license information items, supplemental information items, and departures associated with EP. For the STP, there are no supplemental information items, departures, and post COL activities.

13.3A.1 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1503. The relevant requirements of the Commission regulations for the COL license information items, the supplemental information, and the associated acceptance criteria are in Section 13.3 of NUREG–0800.

13.3A.2 COL License Information Items

Technical Information in the Application

COL License Information Item

- COL License Information Item 13.2 Emergency Plans

In COL FSAR Subsection 13.3.1.1, the applicant states:

> A comprehensive site Emergency Plan for STP is provided in COLA Part 5.

Technical Evaluation

- COL License Information Item 13.2 Emergency Plans

As specified in COL License Information Item 13.2 and in FSAR Subsection 13.3.1.1, "Emergency Plans," the applicant has submitted a comprehensive site emergency plan and radiological emergency plans for the State and local government authorities with emergency planning responsibilities during emergency situations at the STP, in accordance with applicable NRC regulations.

13.3A.3 Conclusion

NRC staff compared COL License Information Item 13.2 in the application to the applicable NRC regulations and acceptance criteria in Section 13.3 of NUREG–0800. The staff's review confirmed that the applicant has addressed the relevant information, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

Attachment 13.3B – Emergency Planning Information in the Application

This section of the SER contains the NRC staff's evaluation of the EP information that is required to be in the COL application, but it does not address the applicant's plans for responding to a radiological emergency, which are evaluated in Attachment 13.3C of this SER section.

13.3B.1 Regulatory Basis[1]

The applicable regulatory requirements for EP are as follows:

- 10 CFR Part 50, Appendix E, Section I, "Introduction," describes the emergency planning zone (EPZ).

- 10 CFR Part 50, Appendix E, Section III, "The Final Safety Analysis Report," requires that the FSAR include plans for coping with emergencies.

- 10 CFR 52.79(a)(21) also requires that the FSAR include an onsite emergency plan that meets the requirements in 10 CFR 50.47 and 10 CFR Part 50, Appendix E.

- 10 CFR 50.33, "Contents of applications; general information," and 10 CFR 52.77, "Contents of applications; general information," require, in part, the submittal of State and local emergency plans.

- 10 CFR 50.33(g) requires, in part, a description of the plume exposure pathway and ingestion pathway EPZs. In addition, 10 CFR 50.47(c)(2) states that "the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80 km) in radius. The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries." And "The plans for the ingestion pathway shall focus on such actions as are appropriate to protect the food ingestion pathway."

- 10 CFR 52.79(a)(41) requires that the evaluation identify and describe all differences from the NUREG–0800 acceptance criteria in Section 13.3 and evaluate how the proposed alternatives to the NUREG–0800 criteria provide an acceptable method of complying with the Commission's regulations. Where differences exist, the evaluation should discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations or portions thereof that underlie the corresponding NUREG-0800 acceptance criteria.

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[1] The bracketed [ ], alphanumeric designations used throughout this SER section identify the corresponding NUREG–0654/FEMA-REP-1 evaluation criteria used by the staff to determine compliance with 10 CFR 50.47(b).
Braces { } identify requirements in Appendix E to 10 CFR Part 50.
Parentheses ( ) identify other applicable regulatory requirements.

- 10 CFR 52.73,"Relationship to other subparts," states that the application for a COL may reference a standard design.

- 10 CFR 52.79(a)(22)(i) requires that certifications from "the State and local government agencies with emergency planning responsibilities must state that (A) the proposed emergency plans are practicable; (B) these agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (C) these agencies are committed to executing their responsibilities under the plans in the event of an emergency."

- 10 CFR 52.81, "Standards for review of applications," states, in part, that COL applications will be reviewed according to the standards in 10 CFR Parts 50 and 100. Therefore, the requirements of 10 CFR 100, "Reactor Site Criteria," Subpart B, "Evaluation Factors for Stationary Power Reactor Site Applications on or after January 10, 1997," are applicable. 10 CFR 100.1(c) states, "Siting factors and criteria are important in assuring that radiological doses from normal operation and postulated accidents will be acceptably low, that natural phenomena and potential man-made hazards will be appropriately accounted for in the design of the plant, that site characteristics are such that adequate security measures to protect the plant can be developed, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified." 10 CFR 100.21(g) requires that "physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans must be identified."

- 10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1) contain the requirements regarding the emergency plans that need to be implemented prior to receiving, possessing and using byproduct, source and special nuclear material.

13.3B.2 FSAR and the Onsite Emergency Plan

Technical Information in the Application: {Appendix E, Section III} (10 CFR 52.79(a)(21)) Section 13.3, "Emergency Planning," of the COL FSAR states that COL application Part 5, "STP 3 & 4 Emergency Plan," contains a comprehensive onsite emergency plan.

Technical Evaluation: {Appendix E, Section III} (10 CFR 52.79(a)(21)) The comprehensive onsite emergency plan for STP Units 3 and 4 is in Part 5 of the COL application. NRC staff found that the application adequately addresses the above regulations.

13.3B.3 Submittal of State and Local Emergency Plans

Technical Information in the Application: (10 CFR 52.77) The list of State and local emergency planning documents in Part 5 of the COL application includes:

1. State of Texas Emergency Management Plan:

   Annex D: "Radiological Emergency Management"
   Tab 1: "Fixed Nuclear Facility Accident Response"
   Chapter 2: "South Texas Project Electric Generating Station"

2. Matagorda County Emergency Management Plan - Basic Plan (Matagorda County, Bay City, Palacios)

Technical Evaluation: (10 CFR 52.77) The State of Texas and Matagorda County (which includes the cities of Bay City and Palacios) are the only State and local government entities wholly or partially within the plume exposure and ingestion pathway EPZs. Their emergency plans have been submitted with the application. The results of the FEMA review and the findings and determinations related to the offsite plans for the STP Units 3 and 4 site are in Section 13.3.6 of this SER.

13.3B.4 Description of the EPZs

Technical Information in the Application: (10 CFR 50.33(g)) FSAR Section 1.1.7, "Description of Location," indicates that the facility (STP Units 3 and 4) is co-located with STP Units 1 and 2, (two existing pressurized water reactors). FSAR Figure 2.1S-1, "Surrounding Area Map," depicts the STP site and the surrounding area within 50 miles. FSAR Figure 2.1S-2, "10-Mile Radius Map," depicts the general location of the STP site and localities surrounding the site within 10 miles. Figure 2.1S-3, "Site Area Map," depicts the exclusion area boundary (EAB) and the low-population zone (LPZ) (a 3-mile radius) with respect to the existing operating Units 1 and 2 and the proposed Units 3 and 4.

Technical Evaluation: (10 CFR 50.33(g)) The proposed STP Units 3 and 4 will be co-located within the existing EAB of the currently operating Units 1 and 2. Therefore, Units 1, 2, 3, and 4 will all use the existing plume and ingestion exposure pathway EPZs, which consist of an area about 10 miles in radius and about 50 miles in radius, respectively. NRC staff found that the application adequately addresses the above regulation.

13.3B.5 Certifications from State and Local Governments

Technical Information in the Application: (10 CFR 52.79(a)(22)(i) Chapter 7, "Letters of Agreement," of the STP Units 3 and 4 Emergency Plan includes letters signed by the Radiation Program Officer of the Texas DSHS, the Matagorda County Judge, the Mayor of Bay City, and the Mayor of the City of Palacios certifying that (1) the proposed emergency plans are practicable; (2) these agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (3) these agencies are committed to executing their responsibilities under the plans in the event of an emergency.

Technical Evaluation: (10 CFR 52.79(a)(22)(i) The application contains certifications from the State of Texas and Matagorda County, including the cities of Bay City and Palacios. These entities are the only State and local government agencies with emergency planning responsibilities. NRC staff found that the application adequately addresses the above regulation.

13.3B.6 Evaluation Against the SRP

Technical Information in the Application: (10 CFR 52.79(a)(41)) Table 1.8-13, "Summary of Differences from SRP Section 13," of the ABWR DCD Tier 2 states that there are no differences with the SRP acceptance criteria in design features, analytical techniques, and procedural measures.

Technical Evaluation: (10 CFR 52.79(a)(41)) NRC staff reviewed the applicant's evaluation of the STP Emergency Plan against the applicable portions of Subsection 13.3, "Emergency Planning," of NUREG–0800, "Standard Review Plan," issued in March 2007, and the generic emergency planning ITAAC listed in Table 14.3.10-1 of NUREG–0800, "Standard Review Plan,"

also issued in March 2007. The staff found that the application adequately addresses the above regulations.

13.3B.7 Reference to a Standard Design

Technical Information in the Application: (10 CFR 52.73) Section 13.3, "Emergency Planning," of Part 2, "FSAR," of the COL application states that the information in this section of the referenced ABWR DCD, including all subsections and tables, is incorporated by reference.

Technical Evaluation: (**10 CFR 52.73)** The COL application incorporates by reference Section 13.3, "Emergency Planning," of the certified ABWR DCD. NRC staff found that the FSAR reference to the ABWR DCD is appropriate and adequate.

13.3B.8 Impediments to the Development of Emergency Plans

Technical Information in the Application: (10 CFR 52.81) (10 CFR 100.21(g)) The "South Texas Project Development of the Evacuation Time Estimates" Final Report (dated April 2008) describes the analyses undertaken and the results obtained by a study that updates the existing evacuation time estimates (ETE) for STP.

Technical Evaluation: (10 CFR 52.81) (10 CFR 100.21(g)) Because the ETE analysis did not identify any physical characteristics unique to the proposed site that could pose a significant impediment to further development of the STP Units 3 and 4 Emergency Plan, and the fact that an emergency plan already exists for the site, NRC staff found that the application has adequately addressed the above regulations. See SER Section 13.3C.18 for the staff's evaluation of the ETE analysis.

13.3B.9 Emergency Planning for Byproduct, Source, and Special Nuclear Material Licenses

Technical Information in the Application: (10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1)) In Section 1.1, "License Actions Requested," of Part 1, "General and Financial Information," of the COL application, the applicant requested applicable licenses under 10 CFR Parts 30, 40, and 70 to receive, possess, and use at any time, such quantities of source, byproduct, and special nuclear material as needed to construct and operate the utilization facility. Item 14, "Emergency Planning," in Table 13.4S-1, "Operational Programs Required by NRC Regulation and Program Implementation," identifies the milestones related to the implementation of the emergency planning program. In **RAI 13.03-74**, the staff requested additional information regarding the implementation of the emergency preparedness program, or portions of it, before the receipt, possession, or use of byproduct and source material.

In the revised response to **RAI 13.03-74** dated September 9, 2010 (ML102570060), the applicant states that provisions of 10 CFR 30.32(i) and 40.31(i) are not applicable to the operation of STP Units 3 and 4. The applicant also states that the emergency plan was not intended to be implemented before the receipt, possession, or use of byproduct and source material.

RAI 12.03-12.04-15 requested additional information regarding the criticality accident monitoring system for STP Units 3 and 4. The applicant's response proposes a revision to Subsection 12.3.7.3, "Requirements of 10 CFR 70.24," which states that the plant will meet the criticality accident monitoring requirements of 10 CFR 70.24 by meeting the requirements of

10 CFR 50.68(b), as provided for in 10 CFR 70.24(d)(1). The staff verified that the change to Subsection 12.3.7.3 was made in Revision 4 of the STP FSAR.

Technical Evaluation: (10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1)) Because the applicant stated that no byproduct material has been identified that is in an unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities in Schedule C of 10 CFR 30.72, the staff found that the STP Units 3 and 4 Emergency Plan, or any part of it, does not need to be implemented before the receipt, possession, or use of byproduct material. The staff also found that the implementation of the STP Emergency Plan, or any part of it, before the receipt, possession, or use of source material was not needed because the applicant had stated that 10 CFR 40.31(j) relates to the possession of uranium hexafluoride, which will not be received, possessed, or used at STP Units 3 and 4.

10 CFR 70.22(i)(1) states that each application to possess enriched uranium for which a criticality accident alarm system is required must contain either an evaluation showing that the maximum dose to a member of the public offsite due to a release of radioactive materials would not exceed 1 rem effective dose equivalent, or an emergency plan for responding to the radiological hazards. However, 10 CFR 70.24(d)(1) states in part that a criticality accident alarm system is not needed if the holder of a combined license meets the requirements of 10 CFR 50.68(b). The applicant has committed to meet the requirements of 10 CFR 50.68(b) in Section 12.3.7.3, "Requirements of 10 CFR 70.24," of the FSAR. Because 10 CFR 50.68(b) does not require a criticality accident alarm system, the requirements of 10 CFR 70.22(i)(1) do not apply.

Therefore, the staff determined that the applicant does not need to address implementation of the STP Units 3 and 4 Emergency Plan as it relates to 10 CFR Parts 30, 40, or 70, in Item 14 of Table 13.4S-1, because the requirements of 10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1) are not applicable to STP Units 3 and 4.

13.3B.10 Post Combined License Activities Related to Emergency Planning Information in the Application

There are no post COL license activities related to "Emergency Planning Information in the Application" in the COL application.

13.3B.11 Conclusion

NRC staff reviewed the EP information required to be in the STP COL application but not required to be part of the STP Emergency Plan in Part 5 of the COL application. The staff's review concluded that the applicant has provided adequate information in the COL application to meet the applicable requirements in 10 CFR 30.32(i), 10 CFR 40.31(j), 10 CFR 70.22(i)(1), 10 CFR 50.33(g), 10 CFR 50.47(c)(2), 10 CFR 52.73, 10 CFR 52.77, 10 CFR 52.79, 10 CFR 52.81, 10 CFR 100.1(c), 10 CFR 100.21(g), and applicable portions of Appendix E to 10 CFR Part 50 as discussed above.

Attachment 13.3C – Onsite Emergency Plan

The NRC evaluates emergency plans for nuclear power reactors to determine whether the plans are adequate and there is reasonable assurance that the plans can be implemented. This attachment to the SER provides the results of the NRC staff's review of the onsite emergency plan, which the applicant characterizes as a modification of the STP Units 1 and 2 Emergency Plan to reflect Units 3 and 4.

In accordance with the guidance in Section 13.3, "Emergency Planning," of NUREG–0800, "Standard Review Plan," the applicant has revised the existing STP Units 1 and 2 Emergency Plan by extending its applicability to the new STP Units 3 and 4. The new site emergency plan is the STP Units 3 and 4 Emergency Plan. Therefore, the staff focused the NRC review on the changes identified in the STP Units 3 and 4 Emergency Plan and applied the following guidance from NUREG–0800:

> In general, if an application is for an additional reactor at an operating reactor site, and the application proposes to incorporate and extend elements of the existing emergency planning program to the new reactor (included by reference), those existing elements should be considered acceptable and adequate. The reviewer should generally focus the review on the extension of the existing program to the new reactor, and should determine whether the incorporated emergency planning program information from the existing reactor site (1) is applicable to the proposed reactor, (2) is up-to-date when the application is submitted, and (3) reflects use of the site for the construction of a new reactor (or reactors) and appropriately incorporates the new reactor(s) into the existing plan.

The existing site emergency plan for STP Units 1 and 2, which was changed to include Units 3 and 4, is considered acceptable and adequate, because the NRC performs oversight of emergency preparedness by monitoring performance indicators and through inspection. In addition, NRC inspectors perform routine inspections, observe drills and exercises, and review licensee corrective actions and emergency plan changes in accordance with the established inspection program for operating reactors. Also, licensees are required to conduct an exercise involving Federal, State, and local agencies every two years. The NRC and FEMA evaluate these exercises.

NRC staff issued **RAI 13.03-23** requesting the applicant to confirm that a 10 CFR 50.54(q) review was performed for the proposed extension of the existing site's emergency plan to ensure that the addition of new units will not decrease the effectiveness of the existing plans. The staff also asked the applicant to confirm that the plans, as changed, will continue to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50. In the response to **RAI 13.03-23** dated August 27, 2008 (ML082490086), the applicant agreed to perform the review and to provide the 10 CFR 50.54(q) evaluation checklist. The staff reviewed the checklist and found the applicant's response acceptable.

Part 2 of the COL application, "FSAR," Tier 2 Chapter 13.0, "Conduct of Operations," Subsection 13.3.1.1, "Emergency Plans," states that a comprehensive site emergency plan for STP Units 3 and 4 is provided as Part 5, "Emergency Plan," of the COL application. Part 5 contains the STP Units 3 and 4 Emergency Plan, the threshold value technical basis for EALs, the ETE analysis, letters of agreement (LOAs), and State and county EAL reviews.

Chapter 4, "Emergency Planning ITAAC," of COL application Part 9 contains the emergency planning inspections, tests, analyses, and the emergency planning ITAAC to address those aspects of the STP Units 3 and 4 Emergency Plan that cannot be completed in the COL application phase.

The following SER subsections describe the NRC staff's review of the STP Units 3 and 4 Emergency Plan, which parallels the planning standards and evaluation criteria[1] in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, which was issued in November 1980, and in the March 2002 addenda.

The staff evaluated the proposed changes in the STP Units 3 and 4 Emergency Plan against the detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1 to determine whether the proposed changes meet the applicable regulatory requirements in 10 CFR 50.47(b) and 10 CFR Part 50, Appendix E.

13.3C.1 Assignment of Responsibility (Organizational Control)

13.3C.1.1 Regulatory Basis

In determining whether the proposed changes identified in the STP Units 3 and 4 Emergency Plan met the applicable regulatory requirements in 10 CFR 50.47(b)(1), the staff evaluated the changes against the detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Assignment of Responsibility (Organizational Control)" in Appendix E to 10 CFR Part 50.

13.3C.1.2 Overall Response Organization

Technical Information in the Emergency Plan: [A.1.a] {Appendix E, Section IV.A.8}
Section B, "Assignment of Responsibility," of the STP Units 3 and 4 Emergency Plan describes the activation and responsibilities of the station emergency response organization and the various State, local, Federal, and private-sector organizations that will contribute to the emergency response effort.

In **RAI 13.03-25**, the staff asked the applicant to verify and correct, if necessary, certain statements regarding cooperation with the Matagorda County Sheriff's Office, the United States Coast Guard, and other Federal agencies. The applicant's response to **RAI 13.03-25** dated August 27, 2008 (ML082490086), states that the following changes will be made in the next revision of the STP Units 3 and 4 Emergency Plan:

(1) The last line of Section B.4.7, "Matagorda County Sheriff's Office," will be revised to be consistent with the letter of agreement (LOA).

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[1] The bracketed [ ] alphanumeric designations used throughout this SER section identify the Evaluation Criteria for each Planning Standard in NUREG–0654/FEMA-REP-1 that were used by the staff to determine compliance with 10 CFR 50.47(b).
Braces { } identify requirements in Appendix E to 10 CFR Part 50.
Parentheses ( ) identify other applicable regulatory requirements.

(2) Section B.4.8, “United States Coast Guard (Corpus Christi),” will be revised to be consistent with the LOA.

(3) Section B.4.9, “United States Coast Guard (Galveston),” will be revised to be consistent with the LOA.

(4) Section B.4.10, “Resources of Other Federal Agencies,” will be revised to reference the “National Response Framework (NRF)” instead of the “Federal National Response Plan.”

In **RAI 13.03-27,** NRC staff asked the applicant where the LOA with OXEA Chemicals was located in the Emergency Plan. The applicant’s response to **RAI 13.03-27** dated August 27, 2008, includes a copy of the LOA with OXEA Chemicals.

In **RAI 13.03-29,** NRC staff asked the applicant to clarify the title of the individual responsible for notifying the State of an emergency. The applicant’s response to **RAI 13.03-29** dated August 27, 2008, states that Section B.6.2, “State of Texas and Matagorda County,” of the STP Units 3 and 4 Emergency Plan will be revised by replacing “Station’s Emergency Director” in the second bullet of that section to read, “Station’s Unit-specific Emergency Director.”

In **RAI 13.03-33,** NRC staff asked the applicant to discuss the replacement of the “Federal Emergency Response Team” with the “National Response Plan” in Figure B-1, “Interrelationship of Emergency Response Organization.” The applicant’s response to **RAI 13.03-33** dated August 27, 2008, states that the original text, “Federal Emergency Response Team,” will be restored in the text box and the “National Response Plan” text will be removed.

In **RAI 13.03-34,** NRC staff asked the applicant to clarify the title of the person in charge at the DSHS in Table B-1, “Responsible Primary Organizations.” The applicant’s response to **RAI 13.03-34** dated August 27, 2008, states that Table B-1 will be revised to reflect the new title of “Radiation Program Officer” as the person in charge at the DSHS, and the “Bureau Chief” text will be deleted.

In addition, EP **ITAAC-1.1** in Table 4.0-1, “Emergency Planning - Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC),” in Part 9 of the STP COL application states, “The staff exists to provide 24-hour per day emergency response and manning of communications links, including continuous operations for a protracted period.”

Technical Evaluation: [A.1.a] {Appendix E, Section IV.A.8} NRC staff found the applicant’s responses to **RAIs 13.03-25, 27, 29, 33, and 34** acceptable. The staff also verified that the changes proposed by the applicant’s responses to **RAIs 13.03-25, 27, 29, 33, and 34** are in Revision 3 of the STP Units 3 and 4 Emergency Plan.

The staff reviewed the above changes to Section B, “Assignment of Responsibility,” of the STP Units 1 and 2 Emergency Plan, which was modified to reflect the inclusion of STP Units 3 and 4, and concluded that the proposed changes are: (1) applicable to the proposed reactors, (2) up-to-date when the application was submitted, and (3) reflect use of the site for the construction of new reactors and appropriately incorporate the new reactors into the existing emergency plan. The staff’s evaluation of proposed EP ITAAC 1.1 is in Section 13.3C.19 of this SER.

13.3C.1.3 Conclusion

NRC staff reviewed the proposed changes to the STP Units 3 and 4 Emergency Plan against the guidance in Planning Standard A, "Assignment of Responsibility (Organizational Control)," of NUREG–0654/FEMA-REP-1. On the basis of the review of the onsite emergency plan as described above for assignment of responsibility (organizational control), the staff concluded that the proposed changes to the STP Units 3 and 4 Emergency Plan are acceptable and meet the requirements of 10 CFR 50.47(b)(1) and Section IV.A.8 of Appendix E to 10 CFR Part 50.

13.3C.2 Onsite Emergency Organization

13.3C.2.1 Regulatory Basis

In determining whether the proposed changes to the emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(2) for onsite emergency organization, the staff evaluated the changes against the detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1.

13.3C.2.2 Emergency Organization

Technical Information in the Emergency Plan: [B.1] {Appendix E, Section IV.A.1} {Appendix E, Section IV.A.2.b} The STP Units 3 and 4 Emergency Plan contains Section C, “Organizational Control of Emergencies,” which describes the organizations required during a declared emergency as well as those required for daily operations. The applicant has proposed the following changes in the STP Units 3 and 4 Emergency Plan:

- Section C.1, “Normal Station Operating Organization,” was revised to describe a change in the daily station operating organization. Specifically, the General Managers will now report to the Group Vice Presidents for Units 1 and 2 and for Units 3 and 4, respectively.
- Subsection C.3.5, “Shift Technical Advisor,” was revised to reflect the addition and availability of a Shift Technical Advisor for the new reactor type.
- Subsection C.3.5, “Shift Technical Advisor,” was also revised to reflect the assignment of one Shift Technical Advisor per reactor type who will be available in the control room when any of the four units is above cold shutdown.
- Subsection C.3.5, the text related to the ENS [emergency notification system] Communicator was moved from this subsection, and added to Subsection C.3.6, “The ENS Communicator Duties.”

Technical Evaluation: [B.1] {Appendix E, Section IV.A.1} {Appendix E, Section IV.A.2.b} The applicant incorporates into the STP Units 3 and 4 Emergency Plan the above four changes related to the normal onsite organization with respect to their emergency assignments. NRC staff reviewed the changes to Section C, “Organization Control of Emergencies,” of the STP Units 3 and 4 Emergency Plan and concluded that the proposed changes are: (1) applicable to the proposed reactors, (2) up-to-date, and (3) reflect the use of the existing site for the construction of two additional reactor units and appropriately incorporate the new reactors into the existing plan.

13.3C.2.3 On-shift and Augmentation Emergency Response Staff

Technical Information in the Emergency Plan: [B.5] The applicant proposes a number of changes to Table C-1, "Minimum Staffing Requirements (STPEGS) (Including Capability for Additional Staffing)." These changes also include proposed staffing for STP Units 3 and 4.

In **RAI 13.03-38(1)**, NRC staff asked the applicant to discuss the time specified in the emergency plan for augmenting the on-shift staffing in the event of an emergency. The applicant's response to **RAI 13.03-38(1)** dated August 27, 2008 (ML082490086), states that the 75-minute response column will be restored, and Table C-1 will again have 60- and 75-minute response columns. In addition, because the "#" sign at the bottom of Table C-1 does not apply to any case in that table, the applicant states that the symbol will be removed. The applicant also states that the Shift Technical Advisor assigned to the on-shift response organization is trained in basic core damage analysis, has no other Emergency Response Organization (ERO) responsibilities, and can provide core and thermal hydraulic performance assistance during the early stages of an emergency.

In **RAI 13.03-31**, NRC staff asked the applicant to clarify the responsibilities of plant operators during an emergency. The applicant's response to **RAI 13.03-31** dated August 27, 2008, proposes changes to Section C.3.7, "Plant Operators," that clarify plant operator responsibilities.

In **RAI 13.03-36,** NRC staff asked the applicant to identify when the OSC Coordinator reports to the OSC, because of an apparent inconsistency in the narratives for other facilities listed under Section C.4, "Emergency Response Organization." The applicant's response to **RAI 13.03-36** dated August 27, 2008, states that Section C.4.8, "Operations Support Center Coordinator," will be revised to state that the Operations Support Center Coordinator reports to the Operations Support Center at an Alert or higher emergency classification.

In addition, the applicant's proposed **EP ITAAC 2.1** in Table 4.0-1 of Part 9 of the COL application states, "The staff exists to provide minimum and augmented on-shift staffing levels, consistent with Table B-1 of NUREG–0654/FEMA-REP-1, Rev. 1."

Technical Evaluation: [B.5] The staff verified that the changes proposed by the applicant's responses to **RAIs 13.03-31, 13.03-36, and 13.03-38(1)** are in Revision 3 of the STP Units 3 and 4 Emergency Plan.

NRC staff also reviewed the above changes to Section C, "Organization Control of Emergencies," of the STP Units 3 and 4 Emergency Plan and concluded that the content of the information in the proposed change (1) is applicable to the proposed reactors, (2) is up-to-date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan. The staff's evaluation of the proposed **EP ITAAC 2.1** is in Section 13.3C.19, "Emergency Planning ITAAC," of this SER.

13.3C.2.4 Conclusion

On the basis of its review of the proposed changes to the STP Units 3 and 4 Emergency Plan (as described above) regarding the onsite emergency organization, NRC staff concluded that the changes are acceptable because they meet the applicable requirements in 10 CFR 50.47(b)(2) and the applicable portions of Sections IV.A.1 and 2.b of Appendix E to 10 CFR Part 50.

13.3C.3 Emergency Response Support and Resources

13.3C.3.1 Regulatory Basis

In determining whether the proposed changes to the emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(3), NRC staff evaluated the plan against the detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1. The staff also evaluated the proposed changes to the emergency plan against applicable requirements related to the area of emergency support and resources in Appendix E to 10 CFR Part 50.

13.3C.3.2 Other Sources of Assistance

Technical Information in the Emergency Plan: [C.4] {Appendix E, Section III} The STP Units 3 and 4 Emergency Plan contains Section B, "Assignment of Responsibility," which addresses the activation of the station emergency response organization; and various State, local, Federal, and private sector organizations to support the response effort. The applicant proposes the following changes in Revision 2 of the COL application:

1. Information will be added to Subsection B.5.2, "ABWR Nuclear Steam Supply Services," to state that services provided by an ABWR NSSS vendor during an emergency event at STP will be obtained on a 24-hour basis under a contract between the Station and the vendor. (COM EP-1).

2. Subsection B.5.17, "Matagorda County Environmental Health," will be changed to more completely describe the support that will be provided in the event of an emergency.

Technical Evaluation: [C.4] {Appendix E, Section III} NRC staff reviewed the information and issued **RAI 13.03-26** requesting the applicant to provide additional information regarding the need for an LOA with the NSSS vendor. The applicant's response to this RAI dated August 27, 2008, states that proposed Subsection B.5.2 of the STP Units 3 and 4 Emergency Plan will be revised to be consistent with the role of Toshiba Corporation as the NSSS for STP Units 3 and 4. The applicant adds that Toshiba will provide a capability to respond on a 24-hour basis, which therefore will meet Commitment COM EP-1. The applicant will also revise STP Units 3 and 4 Emergency Plan Figure F-2, "Emergency Response Facilities Communications Pathway Typical Functional Diagram Alert, Site Area, and General Emergencies."

NRC staff found the applicant's response to **RAI 13.03-26** acceptable and verified that the changes to Sections B.5.2, B.5.17, and Figure F-2 are in Revision 3 of the STP Units 3 and 4 Emergency Plan. Therefore, the staff concluded that the proposed changes are: (1) applicable to the proposed reactors, (2) up-to-date, and (3) reflect the use of the existing site for the construction of two additional reactor units and appropriately incorporate the new reactors into the existing plan.

13.3C.3.3 Conclusion

On the basis of its review of the proposed changes to the STP Units 3 and 4 Emergency Plan as described above for emergency response support and resources, NRC staff concluded that the changes to the STP Units 3 and 4 Emergency Plan are acceptable and meet the applicable requirements of Appendix E to 10 CFR Part 50, and the planning standards of

10 CFR 50.47(b)(3), because the changes comply with the applicable guidance in Planning Standard C of NUREG–0654/FEMA-REP-1, as described above.

13.3C.4 Emergency Classification System

13.3C.4.1 Regulatory Basis

In determining whether the proposed changes to the emergency plan meet the applicable regulatory requirements in 10 CFR 50.47(b)(4), the staff evaluated the plan against the detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1. The staff also evaluated the proposed changes to the emergency plan against the applicable requirements related to the emergency classification in Appendix E to 10 CFR Part 50.

13.3C.4.2 Emergency Classification System

Technical Information in the Emergency Plan: [D.1 and D.2] {Appendix E, Section IV.B}
Section D, "Emergency Classification System," of the STP Units 3 and 4 Emergency Plan states that this section of the plan describes the emergency classification system used to categorize an event into one of four classification levels. The spectrum of possible emergency events is categorized in the following four emergency classifications based on the recommendations of NEI 99–01, Revision 5, "Unusual Event, Alert, Site Area Emergency, and General Emergency." In Table D-1, "Initiating Conditions for Emergency Classification," the applicant provides initiating conditions for entry into the four emergency classifications.

In **RAI 13.03-72**, NRC staff stated that the STP COL did not fully address certain aspects of the required EAL scheme. This is because various equipment setpoints and other information cannot be determined until the as-built information is available (e.g., head corrections, radiation shine, final technical specifications, and equipment calculations and tolerances). Consequently, the staff asked the applicant to either develop the remainder of its EAL scheme, including EALs related to digital instrumentation and control (DI&C), or propose a license condition that the applicant will create a fully developed set of EALs in accordance with the specified guidance document. These fully developed EALs must be submitted to the NRC for confirmation at least 180 days prior to fuel load. In addition, the staff stated that the EALs must be kept in a document controlled by 10 CFR 50.54(q), such as the emergency plan; or a lower tier document, such as the Emergency Plan Implementing Procedures.

The applicant's revised response to **RAI 13.03-72** dated September 28, 2009 (ML092730445), proposes the following License Condition:

- STP Nuclear Operating Company shall submit a fully developed set of EALs to the NRC in accordance with NEI 99–01 Revision 5-endorsed EAL scheme with the following exceptions:

    1. – STP Units 3 and 4 will exclude NEI 99–01 Revision 5 and ICs SU3, SA4, and SS6. These ICs are not applicable to the STP based on the ABWR DI&Cs design.

    2. – STP will replace ICs for SA4 and SS6 in the final Emergency Action Level Bases Document for Units 3 and 4. These ICs will be applicable to STP Units 3 & 4 DI&Cs.

3. – STP Units 3 and 4 will include the addition of ICs for Cold Shutdown CU9 and CA5 into the final Emergency Action Level Bases Document for Units 3 & 4. These ICs are applicable to STP Units 3 and 4 DI&Cs.

- These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days before initial fuel loading.

The response to **RAI 13.03-72** also included four enclosures. Enclosures 2 and 3 provided replacement ICs for SA4 and SS6, and enclosures 4 and 5 provided new ICs for CU9 and CA5.

Also in the response to **RAI 13.03-72,** the applicant proposes a revision to Section D.1, "Event Classification," in the STP Units 3 and 4 Emergency Plan stating that the emergency response procedure related to emergency classification will be controlled in accordance with the requirements of 10 CFR 50.54(q). In addition, the applicant proposes a change to Section 5.3, "Emergency Action Levels," in the STP Units 3 and 4 Emergency Plan to address the need to provide fully developed EALs to the NRC at least 180 days before initial fuel loading.

In response to **RAI 13.03-72**, the applicant also proposes emergency planning **ITAAC Acceptance Criterion 3.1,** which relates to the emergency classification scheme and states:

> The specified parameters are retrievable in the Control Room, TSC, and EOF, and the ranges of the displays encompass the values specified in the emergency classification and EAL scheme.
>
> The acceptance testing criteria will be in accordance with Table 2.7.1a, Item B, Tier 1 Design Certification for the ABWR. Additional data required to support the EAL scheme will be retrievable in the Control Room, TSC, and EOF.

[D.2] NRC staff issued **RAI 13.03-46** requesting the applicant to clarify the assumption that most of the "Unusual Events" listed will be quickly terminated. The applicant's response to **RAI 13.03-46** dated August 27, 2008 (ML082490086), states that the STP will revise Section D.1 of the STP Units 3 and 4 Emergency Plan by deleting the following sentence:

> It should be noted that most of the listed initiating conditions for the Unusual Event classification are events that can be expected to be terminated quickly, and therefore, the notification process may occur after the event has been corrected.

{Appendix E, Section IV.B} Letters that provide documentation of the EAL review by State and local governments are included in Section 5.8, "State and County EAL Review," of the STP Units 3 and 4 Emergency Plan. These letters state that the signature on the letter indicates that the parties have discussed and agreed with the proposed EALs.

Technical Evaluation: [D.1 and D.2] {Appendix E, Section IV.B} NRC staff found the exclusion of ICs SU3, SA4, and SS6, specified in NEI 99–01, Revision 5, acceptable because these ICs will not be applicable to the STP based on the ABWR DI&Cs design. In addition, the staff found the replacement ICs for SA4 and SS6, which are applicable to the power operation, startup, and hot standby/shutdown modes, are acceptable because they address control and indication systems unique to the plant design. The addition of ICs CU9 and CA5 are also acceptable because they address control and indication systems unique to the plant design

when the reactors are in the cold shutdown mode. The staff revised the proposed License Condition to clarify needed actions as reflected in Sections 13.3.4 and 13.3.5.

NRC staff also reviewed the applicant's response to **RAI 13.03-72**. The staff found the revision to Section D.1 acceptable and verified that the change is in Revision 3 of the STP Units 3 and 4 Emergency Plan. In addition, the staff found the applicant's proposal to revise Section 5.3 acceptable and confirmed that this change is also in Revision 3 of the STP Units 3 and 4 Emergency Plan. Therefore, the staff concluded that the proposed changes (1) are applicable to the proposed reactors, (2) are up-to-date, and (3) reflect the use of the existing site for the construction of two additional reactor units and appropriately incorporate the new reactors into the existing plan.

The staff's technical evaluation of emergency planning ITAAC is in Section 13.3C.19, "Emergency Planning ITAAC."

[D.2] NRC staff found the response to **RAI 13.03-46** acceptable and verified the deletion of the sentence from Section D.1 in Revision 3 of the STP Units 3 and 4 Emergency Plan. Therefore, the staff concluded that the proposed change (1) is applicable to the proposed reactors, (2) is up-to-date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan.

{Appendix E, Section IV.B} NRC staff found that the letters in Section 5.8 of the STP Units 3 and 4 Emergency Plan documenting the STP Units 3 and 4 EAL review by State and local government authorities are acceptable because they meet the requirements of 10 CFR Part 50, Appendix E, Section IV.B. Therefore, the staff concluded that the documentation (1) is applicable to the proposed reactors, (2) is up to date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan.

13.3C.4.3 Conclusion

After reviewing the changes to the STP Units 3 and 4 Emergency Plan described above for the emergency classification system, the NRC staff concludes that the information, including the proposed License Condition, meets the applicable portions of Appendix E to 10 CFR Part 50 and planning standard 10 CFR 50.47(b)(4), because the information complies with the guidance in Planning Standard D, "Emergency Classification," of NUREG–0654/FEMA-REP-1.

13.3C.5 Notification Methods and Procedures

13.3C.5.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an applicant proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on changes related to the new reactor.

13.3C.5.2 Notification Methods and Procedures

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section E, "Notification Methods and Procedures," of the STP Units 3 and 4 Emergency Plan describes the

established methods and procedures to be used by the Station to notify Federal, State, and county response organizations and to activate the Station Emergency Response Organization.

However, the applicant proposes emergency planning **ITAAC 4.1 and 4.2** in Part 9, "Inspections, Tests, Analyses, Acceptance Criteria," of the COL application to confirm that the means exist to notify responsible State and local agencies and emergency response personnel.

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes in Section E, “Notification Methods and Procedures,” of the STP Units 3 and 4 Emergency Plan.

See Section 13.3C.19, “Emergency Planning ITAAC,” of this SER section for the staff’s evaluation of EP ITAAC Acceptance Criteria 4.1 and 4.2.

13.3C.5.3 Conclusion

Because the notification methods and procedures will be the same for STP Units 3 and 4 as those for STP Units 1 and 2, the applicant is not proposing any changes to the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Unit 3 and 4 Emergency Plan acceptable because the existing emergency site plan is considered acceptable and adequate.

13.3C.6 Emergency Communications

13.3C.6.1 Regulatory Basis

Section 13.3, “Emergency Planning,” of NUREG-0800 includes guidance concerning the review and evaluation of EP information submitted in a COL application, and the determination of compliance with the applicable regulations. Related acceptance criteria are identified in Section 13.3.II, "Acceptance Criteria," of NUREG–0800.

13.3C.6.2 Emergency Response Facilities Communication

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800)
Addendum E-1, "Emergency Response Facilities Communications," of the STP Units 3 and 4 Emergency Plan describes the communications systems designed to allow contact among plant personnel and plant-to-offsite communications during normal and emergency conditions.

However, the applicant proposes the following two EP ITAAC in Part 9, "Inspections, Tests, Analyses, Acceptance Criteria," of the COL application related to emergency communications:

- EP **ITAAC 5.1** confirms that the means exists for communications among the control room, the TSC, the EOF, principal State and local emergency operation centers, and radiological field teams.
- EP **ITAAC 5.2** confirms that the means exists for communications from the control room, TSC, and EOF to the NRC headquarters and regional office emergency operations centers (EOCs) (including the establishment of the Emergency Response Data System [or its successor system] between the onsite computer system and the NRC Operations Center).

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes to Addendum E-1, "Emergency Response Facilities Communications," of the STP Units 3 and 4 Emergency Plan.

See Section 13.3C.19, “Emergency Planning ITAAC,” of this SER section for the staff’s evaluation of emergency planning ITAAC 5.1 and 5.2.

13.3C.6.3 Conclusion

Because emergency communications for STP Units 3 and 4 will be the same as those for STP Units 1 and 2, the applicant does not propose any changes for the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Unit 3 and 4 Emergency Plan acceptable because the existing emergency site plan is considered acceptable and adequate.

13.3C.7 Public Education and Information

13.3C.7.1 Regulatory Basis

Section 13.3, “Emergency Planning,” of the SRP (NUREG-0800) includes guidance concerning the review and evaluation of EP information submitted in a COL application and the determination of compliance with the applicable regulations. Related acceptance criteria are identified in Section 13.3.II, "Acceptance Criteria," of NUREG–0800.

13.3C.7.2 Media Relations

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section K, "Media Relations," of the STP Units 3 and 4 Emergency Plan describes the media relations to be developed and used for educating, notifying, and alerting the public for the purpose of emergency preparedness at the Station.

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes to Section K, “Media Relations,” of the STP Units 3 and 4 Emergency Plan.

13.3C.7.3 Conclusion

Because public education and information will be the same for all four STP Units, the applicant has not proposed any changes for the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Unit 3 and 4 Emergency Plan acceptable, because the existing site emergency plan is considered acceptable and adequate.

13.3C.8 Emergency Facilities and Equipment

13.3C.8.1 Regulatory Basis

In determining whether the proposed changes identified in the STP Units 3 and 4 Emergency Plan meet the applicable regulatory requirements in 10 CFR 50.47(b)(8) for emergency facilities and equipment, the staff evaluated the proposed changes against applicable detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1. The staff also evaluated the proposed changes against the applicable requirements related to emergency facilities and equipment in 10 CFR Part 50, Appendix E and 10 CFR 50.34(f)(2)(xxv). In addition, the staff evaluated the proposed changes

against guidance in Supplement 1 to NUREG–0737, "Clarification of TMI Action Plan Requirements."

13.3C.8.2 TSC and OSC Locations

Technical Information in the Emergency Plan: [H.1] {Appendix E, Section IV.E.8} (Section 8.2.1.b of NUREG–0737, Supplement 1) (8.3.1.b of NUREG–0737, Supplement 1) (50.34(f)(2)(xxv)) The STP Units 3 and 4 Emergency Plan contains Section G, "Emergency Response Facilities," which describes the locations of the TSC and OSC. The TSCs for STP Units 3 and 4 are located in the service building of the respective units and are within a 2-minute walk from the units' control room. The OSCs for STP Units 3 and 4 are located in the lunch room area in the service building of the respective units.

The applicant incorporates the following changes related to the locations of the TSC and OSC into the STP Units 3 and 4 Emergency Plan:

- Changes in Section G.3, "Technical Support Center," identify the location of the TSCs for each unit and their typical layout.
- Changes in Figure G-8, "Control Room Technical Support Center, and Operations Support Center Locations Units 3 and 4," identify the locations of the control room, the TSC, and the OSC for STP Units 3 and 4.

In addition, the applicant has proposed **EP ITAAC 6.1 and 6.2** to confirm that the licensee has established a TSC and an OSC.

Technical Evaluation: (Sections 8.2.1.b and 8.3.1.b of NUREG–0737, Supplement 1) (50.34(f)(2)(xxv)) After reviewing the proposed changes to Section G.3 and Figure G-8 of the STP Units 3 and 4 Emergency Plan, the staff concluded that the content of the information in the proposed changes (1) are applicable to the proposed reactors, (2) are up to date, and (3) reflect the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan.

The staff's evaluation of **EP ITAAC 6.1 and 6.2** is in Section 13.3C.19 of this SER.

13.3C.8.3 TSC Habitability

Technical Information in the Emergency Plan: (Section 8.2.1.f of NUREG–0737, Supplement 1) Because an assessment of the radiological consequences to the personnel in the TSC from the postulated fission product releases, as a result of the design-basis accidents, was not included in the ABWR DCD, the staff issued **RAI 13.03-73** requesting the applicant to provide additional information related to the habitability of the TSC. In the revised response to RAI 13.03-73 dated June 1, 2010 (ML101550064), the applicant provides the radiological consequence analysis for TSC habitability under postulated design-basis accidents. In the response to RAI 13.03-73, the applicant also proposes changes to Subsection 9.4.8.1.2, "Power Generation Design Bases," and Subsection 9.4.8.2, "System Description," in Part 2, Tier 2 of the STP COL application, which add design upgrades replacing a 95 percent efficiency filter with a 99 percent efficiency charcoal filter and automatic start of the emergency filter train.

Technical Evaluation: (Section 8.2.1.f of NUREG–0737, Supplement 1) The staff's evaluation of the applicant's consequence analysis for TSC habitability is contained in Section 15.0, "Transient and Accident Analyses," of this SER. In summary, the staff found that

all TSC radiological habitability dose calculations performed by Westinghouse for STP were in accordance with SRP Section 15.0.3 and the guidelines provided in RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." The staff's review of the applicant's response finds that the STP Units 3 and 4 Emergency Plan adequately describes radiological protection for the TSC because it complies with the applicable guidance in Supplement 1 to NUREG–0737. The staff verified that the applicant's proposed changes to FSAR Subsections 9.4.8.1.2, and 9.4.8.2 are in COL application Revision 4. **RAI 13.03-73** is therefore closed.

13.3C.8.4 TSC, OSC, and EOF Activation

Technical Information in the Emergency Plan: [H.4] Activation times for the TSC, OSC, and EOF are described in Section G.2, "Operations Support Center"; Section G.3, "Technical Support Center"; and Section G.4, "Emergency Operations Facility." The staff issued **RAI 13.03-40** requesting the applicant to explain the alignment of identified activation times for emergency response facilities. The applicant's response to **RAI 13.03-40** dated August 27, 2008 (ML082490086), states that "Activated" is intended to mean that the facility is capable of performing its intended function, including assembling the minimum staffing specified in Table C-1. The applicant will revise the Emergency Plan in Section G.2, "Operations Support Center"; Section G.3, "Technical Support Center"; and Section G.4, "Emergency Operations Facility." The revision will specify that each facility is "designed to be activated within approximately 60 minutes." These changes will eliminate the ambiguity created by the use of the term "fully activated." The changes will also eliminate a discrepancy between Emergency Plan Sections G.2, G.3, and G.4 and Table C-1, which specifies that minimum staffing requirements are achieved in approximately 60 minutes.

Technical Evaluation: [H.4] The staff finds the additional information provided in response to **RAI 13.03-40** acceptable because it conforms to the applicable guidance in NUREG-0654/FEMA-REP-1. The staff verified that the changes proposed by the applicant in response to **RAI 13.03-40** are in Revision 3 of the STP Units 3 and 4 Emergency Plan. Therefore, the staff finds that the STP Units 3 and 4 Emergency Plan adequately describes the activation of the OSC, TSC, and EOF. This information is acceptable because it conforms to the applicable guidance in NUREG–0654/FEMA-REP-1.

13.3C.8.5 EOF Size

Technical Information in the Emergency Plan: (Section 8.4.1.c of NUREG–0737, Supplement 1) The STP Units 3 and 4 Emergency Plan contains Section G, "Emergency Response Facilities," which describes the EOF. The EOF is located approximately one-half mile east of Unit 1 and is adjacent and connected to the Nuclear Training Facility. The applicant incorporates the following change related to the EOF description:

- Changes in Figure G-5, "Typical Emergency Operations Facility," identify the figure as also applicable to STP Units 3 and 4.

In addition, the applicant has proposed **EP ITAAC 6.1 and 6.2** to confirm that the licensee has established an EOF.

Technical Evaluation: (8.4.1.c) After reviewing the proposed change to Figure G-5, "Typical Emergency Operations Facility," of the STP Units 3 and 4 Emergency Plan, the staff concluded that the content of the information in the proposed change (1) is applicable to the proposed

reactors, (2) is up to date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan.

The staff's evaluation of **EP ITAAC 6.1 and 6.2** is in Section 13.3C.19 of this SER.

13.3C.8.6 OSC Capacity and Supplies

Technical Information in the Emergency Plan: [H.9] The STP Units 3 and 4 Emergency Plan contains Section G, "Emergency Response Facilities," which describes the location of equipment and facilities for use in the event of an emergency. The applicant incorporates the following changes related to emergency response facilities into the STP Units 3 and 4 Emergency Plan:

- Changes in Section G.2, "Operations Support Center," reflect the inclusion of Figure G-6 to provide a typical layout of each Unit 3 and 4 OSC.

Technical Evaluation: [H.9] After reviewing the proposed changes to Section G-2 of the STP Units 3 and 4 Emergency Plan, the staff concluded that the content of the information in the proposed change (1) is applicable to the proposed reactors, (2) is up to date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan.

13.3C.8.7 Provisions to Acquire Data from Offsite Sources

Technical Information in the Emergency Plan: [H.6.c] In the STP Units 3 and 4 Emergency Plan, Section G, "Emergency Response Facilities," describes the location of equipment and facilities that are maintained for use in an emergency at the site.

In **RAI 13.03-45**, NRC staff asked the applicant to provide additional information related to radiological laboratory capabilities of STP Units 3 and 4 and the mobile laboratory. The applicant's response to **RAI 13.03-45** dated August 27, 2008 (ML082490086), refers to Section G.9, "Laboratory Facilities," of the STP Units 3 and 4 Emergency Plan, which states that the Station will have radiological and radiochemistry laboratories located in each unit. These laboratories will be located in all four STP units. The physical separation of the units will allow the facilities in the unaffected unit to be used as a backup. Additionally, the station radiological and radiochemical laboratory facilities may be supplemented by the following:

- A mobile radiological laboratory set up at the staging area at the Bay City Civic Center and operated by the Department of State Health Services
- The laboratory facilities of neighboring nuclear facilities coordinated by the Institute of Nuclear Power Operations
- AREVA NP, Inc.
- TXU Power (Letter of Agreement)

The applicant also states that the mobile radiological laboratory in G.9 refers to the mobile laboratory provided by the State of Texas, which is capable of providing gamma spectroscopy, alpha spectroscopy, and alpha and beta liquid scintillation counting.

Technical Evaluation: [H.6.c] NRC staff found the applicant's response to **RAI 13.03-45** acceptable. The staff verified that the proposed revisions to Section G.9 are in Revision 2 of the STP Units 3 and 4 Emergency Plan.

After reviewing the proposed changes to Section G.9, "Laboratory Facilities," of the STP Units 3 and 4 Emergency Plan, the staff concluded that the content of the information in the proposed change: (1) is applicable to the proposed reactors, (2) is up to date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan.

13.3C.8.8 Conclusion

NRC staff finds that the proposed changes to the STP Units 3 and 4 Emergency Plan related to emergency facilities and equipment are acceptable because they meet applicable regulatory requirements in 10 CFR 50.47(b)(8) for emergency facilities and equipment, applicable detailed evaluation criteria in NUREG–0654/FEMA-REP-1, applicable requirements related to emergency facilities and equipment in Appendix E to 10 CFR Part 50 and 10 CFR 50.34(f)(2)(xxv), and applicable guidance in Supplement 1 to NUREG–0737.

13.3C.9 Accident Assessment

13.3C.9.1 Regulatory Basis

In determining whether the proposed changes to the emergency plan meet applicable requirements in 10 CFR 50.47(b)(9) for accident assessments, the staff evaluated the requirements against the detailed evaluation criteria[1] in NUREG-0654/FEMA-REP-1.

13.3C.9.2 Initiating Conditions for Emergency Classes

Technical Information in the Emergency Plan: [I.1] The STP Units 3 and 4 Emergency Plan contains Section H, "Accident Assessment," which describes the techniques, methods, and procedures for initial and long-term assessments of an emergency. The applicant incorporates the following changes into the STP Units 3 and 4 Emergency Plan related to accident assessments:

- Section H.1.2, "Seismic Monitoring," was changed to reflect the substitution of a digital triaxial seismograph with a triaxial time history accelerometer and the description of the location of the seismic instrumentation.
- Section H.1.3, "Plant Process Instrumentation," was changed to include a reference to the Plant Information and Control System (PICS) for STP Units 3 and 4.
- Table H-1, "Assessment Instrumentation," was changed to reflect (a) the replacement of a digital triaxial seismograph with a triaxial accelerometer and its location; and (b) the inclusion of a Fire Protection System Display in the STP Units 3 and 4 main control room.

In addition, the applicant has proposed **EP ITAAC 7.1 through 7.7** in Part 9, "Inspections, Tests, Analyses, Acceptance Criteria," of the COL application to confirm the following:

- The means to provide initial and continuing radiological assessments throughout the course of an accident [I.2]
- The means to determine the source term of releases of radioactive material within plant systems and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors [I.3]
- The means to continuously assess the impact of the release of radioactive materials into the environment, accounting for the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions [I.4]
- The means to acquire and evaluate meteorological information [I.5]
- The means to determine the release rate and projected doses if the instrumentation used for assessment is off scale or inoperable [I.6]
- The means to make rapid assessments of actual or potential magnitudes and locations of any radiological hazards through liquid or gaseous release pathways, including activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times [I.8]

Technical Evaluation: [I.1] NRC staff verified that the proposed changes accurately describe instrumentation changes related to STP Units 3 and 4 in Revision 2 of the STP Units 3 and 4 Emergency Plan. See Section 13.3C.19, “Emergency Planning ITAAC,” of this SER for the staff’s evaluation of **EP ITAAC 7.1 through 7.7**. Therefore, the staff concluded that the proposed changes (1) are applicable to the proposed reactors, (2) are up to date, and (3) reflect the use of the existing site for the construction of two additional reactor units and appropriately incorporate the new reactors into the existing plan.

13.3C.9.3 Conclusion

After reviewing the proposed changes related to accident assessment, the staff concluded that the changes are acceptable and meet the applicable requirements of 10 CFR 50.47(b)(9), as cited above, because they comply with the applicable guidance in Planning Standard I of NUREG–0654/FEMA-REP-1.

13.3C.10 Protective Response

13.3C.10.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an application proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on the changes related to the new reactor.

13.3C.10.2 Protective Response

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section I, "Protective Response," of the STP Units 3 and 4 Emergency Plan describes the protective response actions for protecting onsite and offsite personnel in the plume exposure pathway EPZ.

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes to Section I, "Protective Response," of the STP Units 3 and 4 Emergency Plan.

13.3C.10.3 Conclusion

Because the protective response actions will be the same for all four STP Units, the applicant is not proposing any changes in the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Unit 3 and 4 Emergency Plan acceptable because the existing site emergency plan is considered acceptable and adequate.

13.3C.11 Radiological Exposure Control

13.3C.11.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an application proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on changes related to the new reactor. However, the applicant does not propose any changes to Section J, "Radiation Exposure Control," of the STP Units 3 and 4 Emergency Plan.

13.3C.11.2 Radiological Exposure Control

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section J, "Radiation Exposure Control," describes applicable radiation control measures such as personnel exposure monitoring, contamination control, radiological surveys, and personnel decontamination.

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes to Section J, "Radiation Exposure Control," of the STP Units 3 and 4 Emergency Plan.

13.3C.11.3 Conclusion

Because radiological exposure control will be the same for all four STP Units, the applicant is not proposing any changes in the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Units 3 and 4 Emergency Plan acceptable because the existing site emergency plan is considered acceptable and adequate.

13.3C.12 Medical and Public Health Support

13.3C.12.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an application proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on changes related to the new reactor. However, the applicant does not propose any changes related to the description of arrangements for medical services for contaminated and injured individuals in the STP Units 3 and 4 Emergency Plan.

13.3C.12.2 Medical and Public Health Support

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) The applicant is not proposing any changes to the following sections of the STP Units 3 and 4 Emergency Plan that are related to medical and public health support:

- Section J.5, "Radiological Considerations"
- Section 5.7, "Letters of Agreement," which contains LOAs with the Matagorda County Emergency Medical Services, Matagorda County Hospital District, and Memorial Hermann Texas Medical Center.
- Section G.11, "First Aid"

Technical Evaluation: (Section 13.3 of NUREG–0800) Because the applicant is not proposing any changes to Section J.5, Section 5.7, and Section G of the STP Units 3 and 4 Emergency Plan, the existing emergency plan is considered acceptable and adequate.

13.3C.12.3 Conclusion

Because medical and public health support will be the same for all four STP Units, the applicant is not proposing any changes in the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found the above sections of the STP Units 3 and 4 Emergency Plan acceptable because the existing site emergency plan is considered acceptable and adequate.

13.3C.13 Recovery and Reentry Planning and Post-accident Operations

13.3C.13.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an application proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on changes related to the new reactor.

13.3C.13.2 Plans and Procedures for Recovery and Reentry

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section L, "Recovery and Re-entry," of the STP Units 3 and 4 Emergency Plan describes the requirements for recovery and re-entry into evacuated areas of the Station following an emergency.

Technical Evaluation: (Section 13.3 of NUREG–0800) Because the applicant is not proposing any changes to Section L of the STP Units 3 and 4 Emergency Plan, the existing emergency plan is considered acceptable and adequate.

13.3C.13.3 Conclusion

Because Section L, "Recovery and Reentry," is the same for all four STP Units, the applicant is not proposing any changes in the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Units 3 and 4 Emergency Plan acceptable because the existing site emergency plan is considered acceptable and adequate.

13.3C.14 Exercises and Drills

13.3C.14.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an application proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on changes related to the new reactor.

13.3C.14.2 Exercises and Drills

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section N, "Exercises and Drills," describes the drill and exercise program that will be used for the site to maintain emergency preparedness.

The applicant is proposing **EP ITAAC 8.1** in Part 9, "Inspections, Tests, Analyses, Acceptance Criteria," of the COL application to confirm that the licensee conducts a full-participation exercise to evaluate major portions of emergency response capabilities, which include participation by each State and local agency in the plume exposure pathway EPZ and each State in the ingestion EPZ.

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes to Section N of the STP Units 3 and 4 Emergency Plan.

See Section 13.3C.19, "Emergency Planning ITAAC," of this SER section for the staff's evaluation of **EP ITAAC 8.1**.

13.3C.14.3 Conclusion

Because Section N, "Exercises and Drills," will be the same for all four STP Units, the applicant is not proposing any changes in the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Units 3 and 4 Emergency Plan acceptable because the existing site emergency plan is considered acceptable and adequate.

13.3C.15 Radiological Emergency Training

13.3C.15.1 Regulatory Basis

10 CFR 50.47(b)(15) requires that radiological emergency response training should be provided to those who may be called on to assist in an emergency. To determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(15), NRC staff evaluated the plan against the detailed evaluation criteria[1] in NUREG–0654/FEMA-REP-1.

13.3C.15.2 Onsite Emergency Response Organization Training

Technical Information in the Emergency Plan: [O.2] Section M, "Emergency Preparedness Training," of the STP Units 3 and 4 Emergency Plan describes the emergency preparedness training program for onsite and offsite emergency response personnel to maintain a state of emergency preparedness for the STP site. The applicant is proposing the following change in the STP Units 3 and 4 Emergency Plan:

- Plant Information & Control System (PICS) operation training was added to Subsection M.4.1, “Specialized training shall be conducted to cover the following topics,” for STP Units 3 and 4.

[O.1] In addition, the application is proposing **EP ITAAC-9.1** in Part 9, "Inspections, Tests, Analyses, Acceptance Criteria," of the COL application stating that site-specific emergency response training was provided for those who may be called upon to provide assistance in the event of an emergency.

Technical Evaluation: [O.2] After reviewing the above change to Section M, “Emergency Preparedness Training,” of the STP Units 3 and 4 Emergency Plan, NRC staff concluded that the proposed change is: (1) applicable to the proposed reactors, (2) up-to-date, and (3) reflects the use of the existing site for the construction of two additional reactor units and appropriately incorporates the new reactors into the existing plan. The staff also verified that the proposed change to Subsection M.4.1 is in Revision 2 of the STP Units 3 and 4 Emergency Plan. The proposed change is acceptable because it conforms to the applicable guidance in NUREG-0654/FEMA-REP-1.

[O.1] See Section 13.3C.19, “Emergency Planning ITAAC,” of this SER for the staff’s evaluation of **EP ITAAC 9.1**.

13.3C.15.3 Conclusion

NRC staff reviewed the proposed change to the STP Units 3 and 4 Emergency Plan against Planning Standard O, "Radiological Emergency Response Training," of NUREG-0654/FEMA-REP-1. The NRC found the proposed change acceptable because it is consistent with the standards of 10 CFR 50.47(b)(15), as described above.

13.3C.16 Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

13.3C.16.1 Regulatory Basis

As discussed in Section 13.3 of NUREG–0800, if an application proposes to extend an existing site emergency plan to the new reactor, the existing emergency plan should be considered acceptable and adequate, and NRC staff should focus the review on changes related to the new reactor.

13.3C.16.2 Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) Section O, “Emergency Preparedness,” describes the actions required for emergency plan development and review and for distribution and maintenance of the Station’s emergency plan to maintain a state of emergency preparedness.

Technical Evaluation: (Section 13.3 of NUREG–0800) The applicant does not propose any changes to Section O of the STP Units 3 and 4 Emergency Plan.

13.3C.16.3 Conclusion

Because Section O, “Emergency Preparedness,” is the same for all four STP Units, the applicant is not proposing any changes in the STP Units 3 and 4 Emergency Plan. Therefore, NRC staff found this section of the STP Units 3 and 4 Emergency Plan acceptable because the existing site emergency plan is considered acceptable and adequate.

13.3C.17 Security-Based Event Considerations

13.3C.17.1 Regulatory Basis

RG 1.206, Section C.I.13.3.3 specifies that applicants for a combined license need to address the Commission Order issued on February 25, 2002. The following item relates to the EALs for STP Units 3 and 4:

- Provide EALs that ensure that a security event results in an emergency classification declaration of at least a notification of unusual event. The classification scheme should also reflect the strategy for escalation to a higher-level event classification.

13.3C.17.2 Security-Based Emergency Classification and EALs

Technical Information in the Emergency Plan: (Section 13.3 of NUREG–0800) The applicant’s response to **RAI 13.03-72** proposes a License Condition to submit a fully developed set of EALs to the NRC at least 180 days before initial fuel loading, in accordance with the NEI 99–01 Revision 5-endorsed EAL scheme, with three exceptions. The emergency classification scheme in NEI 99-01 Revision 5 includes initiating conditions for hostile actions for each emergency class. Additional information related to the applicant's response to **RAI 13.03-72** is in Section 13.3C.4 of this SER.

Technical Evaluation: (Section 13.3 NUREG–0800) The applicant proposes a License Condition to ensure that the STP Units 3 and 4 Emergency Plan will contain EALs so that a security-based event results in an emergency classification. The classification scheme also reflects the strategy for escalation to a higher level of event classifications. NRC staff found this proposed License Condition acceptable because it meets the guidance in Section 13.3 of NUREG–0800.

13.3C.17.3 Conclusion

After reviewing the onsite emergency plan described above, NRC staff concluded that the information in the STP Units 3 and 4 Emergency Plan is consistent with the EAL portion of Section 13.3 of NUREG–0800 related to considerations based on hostile actions. Therefore, the EAL information for responding to hostile actions is acceptable.

13.3C.18 Evacuation Time Estimate (ETE) Analysis

The STP Units 3 and 4 Emergency Plan includes an analysis of the time required to evacuate the plume exposure pathway EPZ. The ETE report, "South Texas Project Development of Evacuation Time Estimates," dated September 2007, is included as a separate document in the COL application but is considered part of the STP Units 3 and 4 Emergency Plan. The Pacific Northwest National Laboratory and Sandia National Laboratory assisted the staff in performing

the technical review of the ETE report. The ETE report is incorporated into the STP Units 3 and 4 Emergency Plan as Chapter 4, "Evacuation Time Estimate." The ETE report includes analyses and responses to RAIs that provide the basis for the NRC staff's conclusions as to the adequacy of its content and conformity with Appendix 4, "Evacuation Time Estimates within the Plume Exposure Pathway Emergency Planning Zone," of NUREG–0654/FEMA-REP-1.

13.3C.18.1 Regulatory Basis for the ETE Analysis

NRC staff reviewed the ETE analysis and considered the following regulatory requirements and guidance:

> 10 CFR 52.79(a)(21) refers to Appendix E to 10 CFR Part 50, Section IV, "Content of Emergency Plans," which requires the nuclear power reactor operating license applicant to provide an analysis of the time required to evacuate and take other protective actions for various sectors and distances within the plume exposure pathway EPZ, for transient and permanent populations.

The ETE report was evaluated against Appendix 4 to NUREG–0654/FEMA-REP-1. Appendix 4 contains detailed guidance that the staff used to determine whether the ETE analysis met the applicable regulatory requirements in Appendix E to 10 CFR Part 50.

13.3C.18.2 Introductory Materials Related to the ETE Report

Technical Information in the ETE Report: [Section I of Appendix 4] Section 1, "Introduction," of the ETE report provides a basic description of the process used to estimate the ETEs. The report includes a description and a map (Figure 1-1, "Location of the South Texas Project") of the EPZ and surrounding area. NRC staff issued **RAI 13.03-3** requesting the applicant to provide additional information regarding the lack of political boundaries on the map. The applicant's response to **RAI 13.03-3** dated August 27, 2008 (ML082490086), explains that the entire STP plume exposure pathway EPZ is within Matagorda County. The staff issued **RAI 13.03-2** requesting the applicant to provide additional information regarding communities that are not identified on the map. The applicant's response to **RAI 13.03-2** dated August 27, 2008, revises and labels Figure 1-1 to reflect the region surrounding the site out to metropolitan Houston and the cities of Matagorda, Palacios, and Bay City.

The major assumptions of the ETE report are in Section 2, "Study Estimates and Assumptions." Population estimates are based on the year 2000 census data and are projected to the year 2007. County-specific projections are based on growth rates that were estimated by comparing the 2000 census data with 2005 census estimates. Estimates of employees who commute into the EPZ to work are based on employment data obtained from county emergency management officials. Population estimates at special facilities are based on available data from county emergency management offices. Roadway capacity estimates are based on field surveys and the application of the *Highway Capacity Manual* (HCM 2000, Transportation Research Board, National Research Council, 2000). Population mobilization times are based on a statistical analysis of data acquired from a telephone survey, as is the relationship between the resident population and evacuating vehicles (occupancy factors). The transport of residents without access to private vehicles is assumed to be on buses. The effect of a voluntary (shadow) evacuation out to 15 miles is considered in the evacuation time calculation. The Matagorda Beach area (just south of the plume exposure pathway EPZ) has only one access road (FM 2031) that cuts through the plume exposure pathway EPZ.

An outline of the approach for estimating the time to evacuate is in a link-node map (Figure 1-2, "Link-Node Network") of the evacuation routes developed for the analyses. Further details on the methodology are described in Section 3, "Demand Estimation"; Section 4, "Estimates of Highway Capacity"; Section 5, "Estimation of Trip Generation Time"; and Section 6, "Demand Estimation for Evacuation Scenarios"; as well as in Appendix C, "Traffic Simulation Model: IDYNEV"; and Appendix D, "Detailed Description of Study Procedures."

Considerations include a total of 12 "Scenarios" representing different seasons, times of day, days of the week, and weather conditions. There are studies of two special event scenarios: (1) the construction period of a new nuclear plant, and (2) the assumed evacuation of an extra 5,000 people on Matagorda Beach during a holiday weekend. Additional assumptions reflected in the development of population estimates include pass-through populations and regional employees, which are discussed in Section 3 and Appendix E, "Special Facility Data." Section 8, "Transit-Dependent and Special Facility Evacuation Time Estimates," discusses the assumptions regarding transit-dependent and special populations. Section 5 of the ETE report describes the development of trip-generation times taken from survey responses.

Technical Evaluation: [Section I of Appendix 4] The ETE report includes a map showing the proposed site, plume exposure pathway EPZ, transportation networks, topographical features, and political boundaries. The boundaries of the EPZ, in addition to the evacuation subareas within the EPZ, are based on factors such as current and projected demography, topography, land characteristics, access routes, and jurisdictional boundaries.

The ETE report describes the method of analyzing the evacuation times and includes a general description of the IDYNEV modeling system with the assumptions used in the ETE analysis. The IDYNEV system consists of several submodels: a macroscopic traffic simulation model; an intersection capacity model; and a dynamic, node-centric routing model that adjusts the "base" routing in the event of an imbalance in the levels of congestion on the outbound links. Another model of the IDYNEV system is the traffic assignment and distribution model, which integrates an equilibrium assignment model with a trip distribution algorithm to compute origin-destination volumes and paths of travel designed to minimize travel time. NRC staff found the clarifications acceptable in the applicant's responses to **RAI 13.03-2** and **RAI 13.03-3** regarding political boundaries and communities. The staff also confirmed that revised Figure 1-1, "Location of South Texas Project," is included in Revision 2 of the ETE report. Therefore, the staff found that the description of the process used to estimate evacuation times conforms to the guidance in Section I of Appendix 4 to NUREG–0654/FEMA-REP-1 and is thus acceptable.

13.3C.18.3 Demand Estimation

Technical Information in the ETE Report: [Section II of Appendix 4] Section 3, "Demand Estimation," of the ETE report estimates the number of people who may need to be evacuated (the "demand estimation"). Population estimates in the ETE report are based on the 2000 Census. The ETE report states that census data show a slightly decreased (0.3 percent) local population between the years 2000 and 2005. The report then conservatively assumes the earlier, larger population for the analyses. NRC staff issued **RAI 13.03-1** requesting the applicant to provide additional information regarding differences in the assumptions between the FSAR and the ETE report. The applicant's response to **RAI 13.03-1** dated August 27, 2008 (ML082490086), notes that the estimates were prepared by separate contractors for areas with slightly different definitions that corresponded within approximately 2 percent, thus providing confidence in the results. Therefore, the staff found this response to **RAI 13.03-1** acceptable.

A separate analysis for people without personal vehicles is in Section 8 of the ETE report, which discusses permanent residents as well as transient populations, including the employees of two local chemical companies. The report assumes that employees who work within the plume exposure pathway EPZ but live outside of the EPZ and commute to jobs within the plume exposure pathway EPZ-will be evacuated with the permanent resident population. The staff issued **RAI 13.03-4(1)** requesting the applicant to clarify the inconsistent use of the percentages of households with commuters. The applicant's response to **RAI 13.03- 4(1)** dated August 27, 2008, includes a revision to Subsection 2.3.3.b of Section 2.3, "Study Assumptions," of the ETE report that states:

> 70 percent of those households in the EPZ with commuters will await the return of a commuter before beginning their evacuation trip, based upon the telephone survey results.

The staff confirmed that the clarification in the applicant's response to **RAI 13.03-4(1)** is included in the July 2009 revision of the ETE report.

Other transient groups include visitors to local recreational areas such as beaches and parks. There are only a limited number of "special populations" (i.e., there are only three schools and no hospitals or jails within the plume exposure pathway EPZ). Section 8 includes descriptions of evacuation routes and time estimates for transit-dependent and special facilities. The analyses assume that vehicles traveling through the plume exposure pathway EPZ (external-external trips) at the time of an accident will continue to enter the plume exposure pathway EPZ during the first 60 minutes. Thereafter, the analysis assumes that no more vehicles will enter, and those that remain will also evacuate with the residents and other transients.

The ETE report includes the following six figures that summarize the various population groups. The figures are in the format suggested in Appendix 4 of NUREG–0654/FEMA-REP-1:

- - Figure 3-2, "Permanent Residents by Sector"
- - Figure 3-3, "Permanent Resident Vehicles by Sector"
- - Figure 3-4, "Transient Population by Sector"
- - Figure 3-5, "Transient Vehicles by Sector"
- - Figure 3-6, "Non-resident Employee Population by Sector"
- - Figure 3-7, "Non-resident Employee Vehicles by Sector"

The staff issued **RAI 13.03-10** requesting the applicant to provide additional information on subarea descriptions, the allocation of evacuees by scenario, the use of school buses in the summer, the use of "shelter in place," and the application of shadow evacuations. The applicant's response to **RAI 13.03-10** dated August 27, 2008, removes the column labeled "Affected Downwind Sectors" in Table 6-1, "Definition of Evacuation Regions," which clarifies the discussion regarding the allocation of evacuees by scenario and the assumptions regarding the number of vehicles (including summer school buses). The applicant also revises the statement regarding "shelter in place" and "shadow populations" to state, "Both voluntary and shadow evacuations are assumed to take place over the same time frame from within the impacted area." The staff found this response to **RAI 13.03-10** acceptable.

Technical Evaluation: [Section II of Appendix 4] The ETE report estimates the number of people who may need to be evacuated. The three population segments considered are permanent residents, transients, and persons in special facilities. The size of the permanent

population is adjusted for growth. The population data are translated into two groups: those using automobiles and those without automobiles. The estimated number of vehicles used by permanent residents is based on an appropriate automobile occupancy factor. In addition, the report determined time estimates for the simultaneous evacuation of the entire plume exposure pathway EPZ.

Estimates of transient populations are based on local data, including peak tourist volumes and employment data. There are also estimates for special facility populations (three schools). The subareas in the ETEs encompass the entire area within the plume exposure EPZ. The maps are generally adequate for that purpose, and the level of detail is approximately the same as the USGS quadrant maps. The evacuation assumptions are based on the simultaneous evacuation of inner and outer sectors.

NRC staff found the clarifications and ETE report revisions in the applicant's responses to **RAIs 13.03-1, 13.03-4(1), and 13.03-10** acceptable. Therefore, the staff found that the description of the estimated number of people who may need to be evacuated conforms to the guidance in Section II of Appendix 4 to NUREG–0654/FEMA-REP-1 and is thus acceptable.

13.3C.18.4 Traffic Capacity

Technical Information in the ETE Report: [Section III of Appendix 4] Section 4 describes highway capacity estimates. The methods used are generally from the *Highway Capacity Manual*. Appendix K, "Evacuation Roadway Network Characteristics," identifies all evacuation route segments and their characteristics, including capacity. NRC staff issued **RAIs 13.03-13 and 13.03-14** requesting the applicant to provide additional descriptions of the road network used for evacuation routes. Specifically, **RAI 13.03-13** requested the applicant to clarify the routes shown in the State of Texas Emergency Management Plan (EMP) and to provide a complete link-node map. **RAI 13.03-14** requested the application to provide information on highway lane widths. The applicant's response to **RAI 13.03-13** dated August 27, 2008, includes a scalable electronic link-node map that corrected information regarding the highway network. The applicant's response to **RAI 13.03-14** dated August 27, 2008, clarifies the locations of adverse highway geometries that could lead to reduced highway capacity and speed. The staff issued **RAI 13.03-5** requesting the applicant to clarify the description of the evacuation process in Section 7.3, "Evacuation Rates." The applicant's response to **RAI 13.03-5** dated August 27, 2008, replaces the first two sentences of Section 7.3 with

> While all routes remain available for evacuees, only a few of these routes will be needed towards the end of the evacuation.

The staff verified that the changes proposed in response to **RAI 13.03-5** are included in the July 2009 revision of the STP Units 3 and 4 ETE report.

The staff issued **RAI 13.03-12**, requesting the applicant to provide additional information regarding the efficacy of using traffic and access control points to determine evacuation times. The applicant's response to **RAI 13.03-12** dated August 27, 2008, notes that although these concepts were discussed, they were not applied to the modeling, so any efforts at traffic control will shorten the estimated evacuation time. However, the applicant also states in the response that the following text will be added to the first paragraph of Section 7.3:

> Figure 7.5 indicates that evacuation is a continuous, dynamic process.

The applicant's response to **RAI 13.03-12** also states that the annotations of delay times in congested areas shown in Figures 7-3, "Traffic Congestion at 45 Minutes after the Advisory to Evacuate," and 7-4, "Traffic Congestion at 1 Hour and 15 Minutes after the Advisory to Evacuate" will be added to the next revision of the ETE report. The staff confirmed that the proposed changes to the text and to Figures 7-3 and 7-4 in response to **RAI 13.03-12** are in the July 2009 revision of the ETE report.

Section 9, "Traffic Management Strategy," presents a traffic control and management strategy that is designed to expedite the movement of evacuating traffic. The traffic management strategy is based on a field survey of critical locations and consultations with emergency management and enforcement personnel.

Section 10, "Evacuation Routes," illustrates the emergency evacuation routes. Details of the link-node map are in Appendix K, "Evacuation Roadway Network Characteristics." The staff issued **RAI 13.03-13** requesting the applicant to provide additional information regarding the transport network. The request included the following:

- Clarification of differences in the evacuation routes between the ETE report and the State of Texas EMP
- A map (or maps) including the nodes identified in Appendix K
- A roadway map with the sector and quadrant boundaries
- Verification of the map with the node network in Figure 1.2 (that appeared to be missing a segment south and east of the plant and represented a node with inputs from two directions and no output segments)
- Investigation of whether the link-node map used for the routes included the connection at the southeast corner of the main cooling reservoir
- Confirmation of selected routes
- Clarification of the width used for a "Full Lane" and whether lane widths vary within the EPZ

The applicant's response to **RAI 13.03-13** dated August 27, 2008, explains that the evacuation routes in the ETE report are somewhat enhanced compared with those in the current Texas EMP. The applicant provides a new scalable electronic map with annotations of sector boundaries, nodes, and links used in the ETE analyses and corrections of omissions and inappropriate directional indications that reflect the evacuation network as modeled.

Technical Evaluation: [Section III of Appendix 4] The ETE report provides a complete review of the evacuation road networks that are slightly enhanced compared with those in the older ETE report for STP Units 1 and 2. The report includes analyses of travel times and potential locations for congestion. The ETEs are not dependent on the establishment of traffic and access control points. Therefore, manpower and equipment shortages have no effect on the ETE calculations. The report also describes all evacuation route segments and their characteristics, including capacity, and a traffic control and management strategy that is designed to expedite the evacuation. The traffic management strategy is based on a field

survey of critical locations and consultations with emergency management and enforcement personnel.

The ETE report includes assumptions for determining the number of vehicles needed, as well as the methodology for determining the transport-dependent population. The applicant also analyzes travel times and potential locations for serious congestion along the evacuation routes. NRC staff found the revisions to the ETE report in response to **RAIs 13.03-11, 13.03-13, and 13.03-14** acceptable. Therefore, the staff found that the description of the highway capacity estimates conforms to the guidance in Section III of Appendix 4 to NUREG-0654/FEMA-REP-1 and is thus acceptable.

13.3C.18.5 Analysis of Evacuation Times

Technical Information in the ETE Report: [Section IV to Appendix 4] Sections 4, 5, and 6 of the ETE report describe the methods used to estimate the evacuation times. Section 4 describes estimates of highway capacity that are discussed in detail in Section 13.3C.18.4. Section 5 provides estimates of the distributions of elapsed times associated with mobilization activities undertaken by the public to prepare for the evacuation trip (the "trip generation time").

Section 6 defines the various evacuation cases used in the time estimates. A case is defined as a combination of a scenario and a region. A scenario is defined as a combination of circumstances that include the time of day, day of the week, season, and weather conditions. Scenarios define the number of people in each affected population group and the respective mobilization time distributions. A region is defined as a grouping of contiguous evacuation zones that forms either a "keyhole" sector-based area or a circular area within the plume exposure pathway EPZ that is evacuated in response to a radiological emergency. The STP plume exposure pathway EPZ is defined as containing 11 separate evacuation zones that may be combined into regions, with boundaries along major roads or rivers. The boundary definitions are in Appendix L, "Zone Boundaries," of the ETE report. These boundaries do not bisect any population centers. In addition, these regions approximate (by radius and area) 2 miles and four 90-degree sectors, 5 miles and four 90-degree sectors, 10 miles and four 90-degree sectors, and 10 miles with an entire plume exposure pathway EPZ.

Separate maps in Appendix E, "Special Facility Data," indicate recreational areas, schools, and major employers. Information also includes population information by permanent resident, transient, and employee and the respective estimated number of vehicles for each population. Reception centers are shown on maps in Section 10, "Evacuation Routes." NRC staff issued **RAI 13.03-11** requesting the applicant to provide additional information regarding relocation facilities. The applicant's response to **RAI 13.03-11** dated August 27, 2008 (ML082460086), provides a corrected version of Figure 10-2, "Evacuation Route Map (All Zones)," which eliminates the confusion regarding the reception centers. A summary of the ETEs is in Section 7, "General Population Evacuation Time Estimates," of the ETE report. These results cover 22 regions within the STP EPZ and the 12 evacuation scenarios discussed in Section 6. There are evacuation times for 22 evacuation regions and 12 scenarios in Appendix J, "Evacuation Time Estimates for All Evacuation Regions and Evacuation Time Graphs for Region 3 (R3), for All Scenarios." Results are for 50 percent, 90 percent, 95 percent, and 100 percent of the vehicles and for good and adverse (rainy) weather conditions. There are maximal evacuation times as well as the times that achieve lower percentages. Evacuation times are reported separately for the general population (Section 7 and Appendix J), schools (Section 8), and the transit-dependent population (Section 8). The general population includes both permanent residents and transients. Figures J-1 through 12, "Evacuation Time

Estimates—Scenario 1 [through 12] for Region 3 (the entire EPZ)," describe the time distributions for evacuating vehicles. The ETE report uses Figures 7-3, 7-4, and 7-5 to illustrate the patterns of traffic congestion that arise for the case when the entire plume exposure pathway EPZ (Region R3) is advised to evacuate during the summer, weekend, and midday periods under good weather conditions (a case with the maximum number of evacuees because of assumed crowds on the Matagorda Island beaches). The staff issued **RAIs 13.03-12 and 13.03-17(2)** requesting the applicant to provide additional information regarding travel times and delay durations. The applicant's responses to **RAIs 13.03-12 and 13.03-17(2)** dated August 27, 2008, explain that the scenario for evacuating the full EPZ during good weather leads to the most traffic congestion, which dissipates after approximately 1.5 hours. The applicant also revises the text in Section 7.3, "Evacuation Rates," to indicate that an evacuation is a continuous and dynamic process. The applicant has annotated Figure 7-3, "Traffic Congestion at 45 Minutes after the Advisory to Evacuate," and Figure 7-4, "Traffic Congestion at 1.5 Hours after the Advisory to Evacuate," with the delay times along congested areas.

Appendix I, "Evacuation Sensitivity Studies," contains a series of sensitivity tests of the results to trip generation time (directly related to time-dependent traffic loading) and the amount of shadow evacuations. The staff issued **RAI 13.03-15** requesting the applicant to provide additional information concerning the possible impacts on evacuation time caused by alternative adverse weather conditions (e.g., fog, flooding, etc.). The applicant's response to **RAI 13.03-15** dated August 27, 2008, states that speed reductions due to fog are approximately the same as those for heavy rain; and speed reductions due to rain were so small, they insignificantly impacted the ETEs rounded to the nearest 5 minutes. The applicant also explains that because highways have been reconstructed to minimize flood hazards, floods are no longer a limiting hazard. In addition, the applicant corrects the information regarding the reduction in evacuation time between normal conditions and adverse conditions for summer weekends at midday in Table 7-1 C, "Time to Clear the Indicated Area of 95 percent of the Affected Population." Thus, the staff found the response to **RAI 13.03-15** acceptable.

The staff issued **RAI 13.03-16** requesting the applicant to clarify the assumptions regarding "shadow evacuation," STP plant personnel evacuation, and behavior of commuters. The applicant's response to **RAI 13.03-16** dated August 27, 2008, clarifies these assumptions and also states that Subsection 2.3.3.b of Section 2.3, "Study Assumptions," will be revised as described in the applicant's response to **RAI 13.03-4(1)**, which is discussed in Section 13.3C.18.3 of this SER. Section 8, "Transit-Dependent and Special Facility Evacuation Time Estimates," of the ETE report includes separate calculations for special populations of schoolchildren and transit-dependent individuals. Telephone survey results (reported in Appendix F, "Telephone Survey") were used to estimate the portion of the population requiring transit service, including persons in households who do and do not have a vehicle available at the time the evacuation is ordered. The ETE report assumes that half of these people will ride-share with others, but a residual 89 persons will require approximately 3 buses. Section 8 describes the operations for these buses. The staff issued **RAI 13.03-9** requesting the applicant to clarify bus boarding and unloading times. The applicant's response to **RAI 13.03-9** dated August 27, 2008, describes additional available data indicating that the times selected are conservative. Thus, the staff found the response to **RAI 13.03-9** acceptable.

Section 8 also describes proposed routes for transient-dependent and special facility populations. The staff issued **RAIs 13.03-6, 13.03-7, and 13.03-8** requesting the applicant to describe assumptions regarding transients and persons in special facilities, including those confined to institutions such as hospitals, nursing homes, and prisons. Specifically, the RAIs requested the applicant to clarify the development of estimates for transient populations,

employee and special facility populations, persons requiring public transit, and peak holiday populations. The applicant's response to **RAI 13.03-6** dated August 27, 2008, states the intent to delete the data for Zone 12 in Table 3-4, "Summary of Non-EPZ Employees by Zone," because there are only 11 zones. The staff verified that the correction described in **RAI 13.03-6** is included in the July 2009 revision of the ETE report. The applicant's response to **RAI 13.03-7** explains the assumptions for ambulatory transit-dependent individuals who will walk to designated pickup points. There are separate ETE distributions for auto-owning households, school populations, and transit-dependent populations in Sections 7 and 8. Section 8 also includes the development of an estimated time required to evacuate a particular segment of the non-auto-owning population dependent on public transportation, in a manner similar to that used for the auto-owning population.

Also in **RAI 13.03-7,** the staff requested the applicant to describe the assumptions underlying the means to be utilized for accommodating special populations with no access to private transport. The applicant's response to **RAI 13.03-7** dated August 27, 2008, indicates that sufficient time is included in the ETEs for those populations to walk to transit bus stops. Accordingly, the staff found the response to **RAI 13.03-7** acceptable.

The applicant's response to **RAI 13.03-8** dated August 27, 2008, clarifies the numbers of park and beach users assumed for various scenarios, justifies the small numbers of users of minor recreational areas, clarifies estimates of the number of seasonal residents, explains how resident and non-EPZ-resident employees are treated, and explains the assumptions related to "shadow" populations. Accordingly, the staff found the response to **RAI 13.03-8** acceptable.

Technical Evaluation: [Section IV to Appendix 4]: A total of 264 ETEs were computed for the evacuation of the general public. Each ETE quantifies the aggregate evacuation time estimated for the population within one of the 22 Evacuation Regions to completely evacuate from that region, under the circumstances defined for 1 of 12 Evacuation Scenarios (22 x 12 = 264). There are separate ETEs calculated for transit-dependent evacuees, including schoolchildren. An acceptable variant of the NUREG–0654 format is used for the presentation of the evacuation times in Appendix J.

Distribution functions for notification of the various categories of evacuees were developed. The distribution functions for the action stages after notification predict what fraction of the population will complete a particular action within a given span of time. There are separate distributions for auto-owning households, school populations, and transit-dependent populations. These times are combined to form the trip-generation distributions. There are separate distributions for auto-owning households, school populations, and transit-dependent populations; there are also calculations for on-road travel and delay times. The process for developing an estimate of the time required to evacuate a particular segment of the non-auto-owning population dependent upon public transportation is similar to that used for the auto-owning population.

The applicant has added clarifying information in responses to the following **RAIs: 13.03-6(1); 13.03-7; 13.03-8(1)(a, c, and d); 13.03-8(2); 13.03-9; 13.03-12(2); 13.03-12(4); 13.03-12(5); 13.03-15(2)(b); 13.03-16(a, b, and d); 13.03-17(2)(a); 13.03-17(3); 13.03-17(4); 13.03-17(5); 13.03-17(6); and 13.03-17(7)**. The staff found these clarifications acceptable. The applicant also provided additional information in response to **RAIs 13.03-8(1)(b), 13.03-11, 13.03-15(1), 13.03-17(2)(a), 13.03-17(3), 13.03-17(4), and 13.03-17(6)(e)**. The staff found the additional data and information from the applicant in response to these RAIs acceptable. In addition, the applicant clarified and added textual revisions to the ETE report in response to

RAIs 13.03-16(c), 13.03-17(4), and 13.03-17(5). The staff found these clarifications and revisions acceptable. The applicant also corrected and revised the ETE report in response to **RAIs 13.03-12(3), 13.013-15(2)(a), 13.03-12(1), 13.03-17(1), and 13.03-17(2)(b)**. The staff found these revisions acceptable. Therefore, the staff found that the description of the methods used to estimate the evacuation times conforms to the guidance in Section IV of Appendix 4 to NUREG–0654/FEMA-REP-1 and is thus acceptable.

13.3C.18.6 Other Requirements

Technical Information in the ETE Report: [Section V of Appendix 4] Section 12, "Confirmation Times," of the ETE report suggests a procedure to confirm that the evacuation process is effective, in the sense that the public is complying with the advisory to evacuate. The suggested procedure employs a stratified random sample and a telephone survey. Estimates indicate that this process could be completed within approximately 3 to 4 hours of the advisory to evacuate.

The development of the ETE report was coordinated with emergency planners from the State of Texas and Matagorda County who are involved in the emergency response for the site. NRC staff issued **RAI 13.03-18(2)** requesting the applicant to address the review of the ETE report by state and local organizations involved with the emergency response and to indicate whether their comments are included in the ETE report. The applicant's response to **RAI 13.03-18(2)** dated August 27, 2008, states that local organizations involved with the emergency planning effort in Matagorda County have reviewed and commented on the entire ETE report. Their comments that are incorporated into the ETE report were agreed to by the STP, the contractor responsible for preparing the ETE report, and the County Emergency Coordinator.

Technical Evaluation: [Section V of Appendix 4] The applicant estimated the time required to confirm the evacuation. In addition, the applicant coordinated the development of the ETE report with the emergency planners from the State of Texas and Matagorda County who are involved in responding to an emergency on the site. The applicant's response to **RAI 13.03 18(2)** clarifies confirmation times and the involvement of State and local officials to implement the confirmation process. The staff found the applicant's clarifications in response to this RAI acceptable. Therefore, the staff found that the description of the time and procedure to confirm the evacuation is acceptable because it conforms to the guidance in Section V of Appendix 4 to NUREG–0654/FEMA-REP-1.

13.3C.18.7 Conclusion

On the basis of the evaluation of the ETE Report, “South Texas Project Development of Evacuation Time Estimates,” dated July 2009 and as described above, NRC staff concluded that the ETE report is consistent with the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. Therefore, the ETE report is acceptable and meets the applicable requirements of 10 CFR Part 50, Appendix E.IV.

13.3C.19 Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria (EP ITAAC)

The applicant is proposing EP ITAAC to address those elements of the STP Units 3 and 4 Emergency Plan that cannot be reasonably addressed before construction of the plant.

13.3C.19.1 Regulatory Basis

NRC staff considered the following regulatory requirement and guidance in the evaluation of the information in the COL application related to the EP ITAAC:

- 10 CFR 52.80(a) requires a COL application to include those inspections, tests, and analyses applicable to EP that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that if the inspections, tests, analyses are performed, and the acceptance criteria are met, the facility has been constructed and will be operated in conformity with the COL, the provisions of the Atomic Emergency Act, and the Commission rules and regulations.
- NUREG–0800 Section 14.3, Table 14.3.10-1, “Emergency Planning Generic Inspections, Tests, and Acceptance Criteria).”

13.3C.19.2 EP ITAAC

Technical Information in the Application

Section 2.17, "Emergency Response Facilities," of Part 2, "FSAR," of the COL application incorporates by reference all tables in Section 2.17, "Emergency Response Facilities," of the certified ABWR DCD, Revision 4, referenced in 10 CFR Part 52, Appendix A. Table 2.17.1, "Emergency Response Facilities," contains five EP ITAAC related to the location and size of the TSC; the location of the OSC, TSC, and OSC voice communications; and plant parameter displays in the TSC.

Additional emergency planning ITAAC proposed for STP Units 3 and 4 are in Chapter 4, “Emergency Planning ITAAC,” in Part 9, “Inspection, Tests, Analyses and Acceptance Criteria (ITAAC),” of the STP COL application. Table 4.0-1, “Emergency Planning - Inspection, Test, Analysis, and Acceptance Criteria (EP-ITAAC),” in Chapter 4, “Emergency Planning ITAAC,” contains the emergency planning ITAAC for certain planning standards (Items 1 through 9 below) in 10 CFR 50.47(b) and requirements in 10 CFR Part 50, Appendix E, Section V (Item 10 below):

1. Assignment of Responsibility - Organizational Control
2. Onsite Emergency Response Organization
3. Emergency Classification System
4. Notification Methods and Procedures
5. Emergency Communications
6. Emergency Facilities and Equipment
7. Accident Assessment
8. Exercises and Drills
9. Radiological Emergency Response Training
10. Implementing Procedures

NRC staff issued **RAIs 14.03.10-1 through 13** requesting the applicant to discuss deviations in Table 4.0-1 from the guidance in Table C.II.1-B1 of Appendix B to RG 1.206.

Technical Evaluation

The applicant has submitted the EP ITAAC, as required by 10 CFR 52.80(a). The applicant’s responses to RAIs 14.03.10-1 through 13 dated October 13, 2008 (ML082900742), propose

revisions to Table 4.0-1 so that it is consistent with the guidance in Table 14.3.10-1, "Emergency Planning - Generic Inspections, Tests, and Acceptance Criteria (EP-ITAAC)," in NUREG–0800. Section 2.17, "Emergency Response Facilities," of Part 2, "FSAR," of the COL application, incorporates by reference all tables in Section 2.17, "Emergency Response Facilities," of the ABWR DCD. Table 2.17.1, "Emergency Response Facilities," contains six EP ITAAC related to the location and size of the TSC; the location of the OSC, TSC, and OSC voice communications; and plant parameter displays in the TSC.

NRC staff found the responses to **RAIs 14.03.10-1 through 13** acceptable because they are consistent with the guidance in Table 14.3.10-1. The staff verified that the applicant has updated Table 4.0-1 in Chapter 4 of Part 9 of the COL application with the information in the responses to RAIs 14.03.10-1 through 13.

13.3C.19.3 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG-1503. NRC staff reviewed the COL application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information related to the EP ITAAC, and no outstanding information is expected to be addressed in the STP COL application related to this section.

As required by 10 CFR 52.80(a), the EP ITAAC in SER Table 4.0-1 include the proposed inspections, tests, and analyses that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that if the inspections, tests, and analyses are performed and the acceptance criteria are met, the facility has been constructed and will be operated in conformity with the license, the provisions of the Atomic Energy Act, and NRC's rules and regulations.

13.4 Review and Audit

13.4.1 Introduction

This section of the FSAR addresses the provisions for conducting an independent review of plant operations.

13.4.2 Summary of Application

Section 13.4 of the STP Units 3 and 4 COL FSAR states that it incorporates by reference Section 13.4 of the ABWR DCD, Revision 4, referenced in 10 CFR Part 52, Appendix A. In addition, in FSAR Section 13.4, the applicant provides the following:

COL License Information Item

- COL License Information Item 13.2a Review and Audit

This COL license information item directs the applicant to provide a plan for conducting independent reviews of plant operations, and for the independent assessment of activities for safety enhancement in accordance with TMI Action Item I.B1.2, and 10 CFR 50.40(b) as it relates to technical qualification requirements. The applicant states that Appendix B to NUREG–0933 indicates that TMI Action Item I.B.1.2, which relates to an independent safety engineering group, is not a residual generic safety issue that is applicable to operating and

future reactor plants. The applicant adds that it does not maintain an independent safety engineering group.

13.4.3 Regulatory Basis

The relevant requirements of the Commission regulations for an independent review and audit, and the associated acceptance criteria, are in accordance with 10 CFR 50.40(b) as it relates to the technical qualification requirements and TMI Action Item I.B.1.2.

13.4.4 Technical Evaluation

As documented in NUREG–1503, NRC staff determined that review and audit information are outside the scope of the ABWR standard plant design. No information is provided in Section 13.4 of the DCD other than a COL information item, and the staff concluded that the proposed COL information item is acceptable. The staff reviewed Section 13.4 of the STP Units 3 and 4 COL FSAR and checked the referenced ABWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ABWR DCD appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application addresses the required information relating to the review and audit.

The staff reviewed the information in the COL FSAR:

COL License Information Item

- COL License Information Item 13.2a Review and Audit

The applicant states that Appendix B to NUREG–0933 indicates that TMI Action Item I.B.1.2—regarding an independent safety engineering group—is not a residual generic safety issue that is applicable to operating and future reactor plants and the applicant does not maintain an independent safety engineering group.

Appendix B to NUREG–0933 does not list TMI Action Item I.B as a required generic safety issue item applicable to operating or future plants. In addition, as evaluated in Section 13.1 of this SER, the applicant has provided acceptable information regarding technical qualification requirements as specified in 10 CFR 50.40(b). Therefore, NRC staff found the applicant's response consistent with the guidance in NUREG–0933 and 10 CFR 50.40(b). COL License Information Item 13.2a is therefore resolved.

13.4.5 Post Combined License Activities

There are no post COL activities related to this section.

13.4.6 Conclusion

NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. The staff's

[1] See *"Finality of Referenced NRC Approvals"* in SER Section 1.1.3, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

review confirmed that the applicant has adequately addressed the COL license information in accordance with the guidance in NUREG–0933.

13.4S Operational Program Implementation

13.4S.1 Introduction

This section of the FSAR addresses the operational programs described in NRC guidance SECY-05-0197. The section includes a description of the programs and the proposed implementation milestones for each program.

13.4S.2 Summary of Application

Section 13.4S of the STP Units 3 and 4 COL FSAR provides a description of and the proposed implementation milestones for each operational program, in compliance with the guidance of RG 1.206, Section C.I.13.4. The applicant provides this information in FSAR Table 13.4S-1, which lists each operational program, the regulatory requirement for the program, the associated implementation milestone(s), and the section of the FSAR that describes the operational program.

13.4S.3 Regulatory Basis

The relevant requirements of the Commission regulations for the operational program implementation, and the associated acceptance criteria, are in Section 13.4 of NUREG-0800.

The regulatory basis of the operational programs described in Section 13.4S of this application is identified in the individual chapters of this SER that address the evaluations of the specific operational programs, as clarified by the regulatory guidance in SECY-05-0197 and RG 1.206.

13.4S.4 Technical Evaluation

NRC staff reviewed Section 13.4S of the STP Units 3 and 4 COL FSAR to ensure that the information in the COL FSAR appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application addresses the required information relating to the implementation of operational programs.

The staff reviewed FSAR Table 13.4S-1 and determined that the applicant has identified the operational programs required by NRC regulations and has provided a description of the proposed implementation milestones for each program. The technical evaluation of the operational programs ensures that the applicant has fully described the programs and their associated implementation milestones. Each program is evaluated in the respective section of this SER.

13.4S.5 Post Combined License Activities

In FSAR Table 13.4S-1, the applicant identifies the implementation milestones for each operational program. These implementation milestones specify the activities to be completed

[1] See *"Finality of Referenced NRC Approvals"* in SER Section 1.1.3, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

following the issuance of the COL. The implementation of each operational program will be evaluated by NRC staff according to the respective implementation milestone.

13.4S.6 Conclusion

NRC staff reviewed Section 13.4S of the STP Unit 3 and 4 COL FSAR and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the relevant information, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

13.5 Plant Procedures

13.5.1 Introduction

This section of the FSAR addresses the administrative and operating procedures the applicant uses to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner. This section briefly describes the nature and content of the plant procedures and includes a schedule for preparing administrative and operating procedures. This description of the procedures delineates the functional position for revising and approving procedures before their implementation. The procedures will be inspected as part of the construction inspection program.

13.5.2 Summary of Application

Section 13.5 of the STP Units 3 and 4 COL FSAR states that it incorporates by reference Section 13.5 of the certified ABWR DCD, Revision 4, referenced in 10 CFR Part 52, Appendix A.

In addition, in FSAR Section13.5, the applicant provides the following:

COL License Information Item

- COL License Information Item 13.3 Plant Operating Procedures Development Plan

The applicant provides supplemental information to address the plant operating procedures development plan.

- COL License Information Item 13.4 Emergency Procedures Development

The applicant provides supplemental information to address the emergency procedures development plan.

- COL License Information Item 13.5 Implementation of the Plan

The applicant provides supplemental information to address the implementation of the plan.

- COL License Information Item 13.6 Procedures Included in Scope Plan

The applicant provides supplemental information to address the procedures included in the scope plan.

13.5.3 Regulatory Basis

The relevant requirements of the Commission regulations for the plant procedures and the associated acceptance criteria are in Section 13.5.1, "Administrative Procedures," and Subsection 13.5.2.1, "Operating and Emergency Operating Procedures," of NUREG–0800.

The relevant requirements for reviewing COL License Information Item 13.3 regarding plant operating procedures are based on (1) meeting the requirements of methods and criteria described in 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and in TMI Action Plan Items I.C.1 and I.C.9; and (2) meeting the guidance of NUREG–0800, Subsection 13.5.2.1. The review of COL License Information Item 13.4 relating to the development of emergency procedures is based on meeting the requirements of 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and the guidance of NUREG–0800, Subsection 13.5.2.1.

The relevant requirements for reviewing COL License Information Item 13.5 related to implementation of the plan are based on the following:

- Meeting the requirements of 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34)
- Meeting the TMI Action Plan requirements described in NUREG–0737 and Supplement 1 to NUREG–0737
- The elements described in ANSI 18.7/ANS-3.2 or a subsequent NRC-approved version of ANSI/ANS-3.2
- The procedures specified in the Human Factors Verification and Validation (V&V) Implementation Plan described in Article VII of Table 18E-1
- The plant procedures in accordance with the provisions of TMI Action Plan item I.C.5
- The guidance of NUREG–0800, Subsections 13.5.1.1 and 13.5.2.1

The relevant requirements for reviewing COL License Information Item 13.6 related to the procedures included in the scope of the plan are based on (1) meeting the requirements of the procedures in Section A3, Section A5, and Section A10 of ANSI/ANS-3.2; and (2) meeting the guidance of NUREG–0800, Subsections 13.5.1.1 and 13.5.2.1.

13.5.4 Technical Evaluation

NRC staff reviewed Section 13.5 of the STP Units 3 and 4 COL FSAR and checked the referenced ABWR DCD. This section of the ABWR DCD contains detailed COL information items.

The staff performed the review in accordance with the requirements established in 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and the guidance in Section 13.5 of NUREG–0800.

The staff reviewed the information in the COL FSAR:

COL License Information Items

- COL License Information Item 13.3 Plant Operating Procedures Development Plan

As specified in COL License Information Item 13.3 and in FSAR Subsection 13.5.3.1, "Plant Operating Procedures Development Plan," the applicant describes the content of and the

process for the development of plant operating procedures, which are to be in accordance with TMI Items I.C.1 and I.C.9. In NUREG–0800, Subsection 13.5.2.1 states that the applicant is to provide descriptions of the content and the development process for operating procedures, which include meeting the requirements of TMI Action Plan Items I.C.1 and I.C.9 to control the implementation, maintenance, and revision of plant operating procedures.

The staff compared COL License Information Item 13.3 in the application to the applicable NRC regulations and acceptance criteria in Subsection 13.5.2.1 of NUREG–0800. The staff's review confirmed that the applicant has addressed the relevant information, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

- COL License Information Item 13.4 Emergency Procedures Development Plan

As specified in COL License Information Item 13.4 and in FSAR Subsection 13.5.3.2, "Emergency Operating Procedures," the applicant describes the content and the process of an emergency operating procedures (EOP) program, which will include a writer's guide, plant-specific technical guidelines (P-STGs), and the EOP training program description for the development of EOP's. The applicant stated that it would follow the NUREG–0800 criteria applicable to these items. In NUREG–0800, Subsection 13.5.2.1 states that the applicant is to provide descriptions of the content and the development process for EOPs including P-STGs, a writer's guide, and the EOP training program description.

The staff compared COL License Information Item 13.4 in the application to the applicable NRC regulations and acceptance criteria in Subsection 13.5.2.1 of NUREG–0800. The staff's review confirmed that the applicant has addressed the relevant information, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

- COL License Information Item 13.5 Implementation of the Plan

As specified in COL License Information Item 13.5 and in FSAR Subsection 13.5.3.3, "Implementation of the Plan," the applicant identifies and describes the classifications of operating procedures. The applicant stated that it would follow the NUREG–0800 criteria applicable to the nature and content of these items. In NUREG–0800, Subsection 13.5.2.1 states that the applicant is to identify the classifications of operating procedures that may be used in the implementation of the operating procedures development plan.

Subsection 13.5.1.1.I of NUREG–0800 states, "the application should describe the nature and content of the procedures." STP Units 3 and 4 FSAR Subsection 13.5.3.4.1 lists the required administrative procedures per NUREG–0800. However, FSAR Subsections 13.5.3.3.1(3) and (4) state that a review of existing STP procedures will be conducted and any necessary changes will be made to the existing procedures. NRC staff did not find these discussions clear as to what is needed and when; simply stating that the changes will be made in the FSAR does not meet the intent of NUREG–0800. Therefore, the staff issued RAI 13.05.01.01-1 requesting the applicant to clarify, revise, or explain how these FSAR subsections meet the intent in NUREG–0800, Subsection 13.5.1.1. In response to this RAI dated July 21, 2009 (ML092050075), the applicant concurs with the staff and commits to revise FSAR Subsections 13.5.3.3.1(3), (4), and (5) to clarify the development of the administrative procedures by stating that administrative procedures will be developed based on experience, and that these procedures will be consistent with NUREG–0800 guidelines. The staff found the response acceptable. This RAI was tracked as **Confirmatory Item 13.05.01.01-1** in the SER with open items.

The staff confirmed that the applicant's proposed changes are in Revision 4 of the STP COL FSAR. Therefore, Confirmatory Item 13.05.01.01-1 is closed. The staff compared COL License Information Item 13.5 in the application to the applicable NRC regulations and acceptance criteria in Section 13.5.2.1 of NUREG–0800. The staff's review confirmed that the applicant has addressed the relevant information, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

- COL License Information Item 13.6 Procedures Included in Scope Plan

As specified in COL License Information Item 13.6 and in FSAR Subsection 13.5.3.4, "Procedures Included in the Scope of Plan," the applicant describes the scope of operating procedures that will extend to include the following: Administrative Procedures; Maintenance and Operating Procedures; Radiation Control Procedures; General Plant Procedures; System Operating Procedures; Alarm Response Procedures; Abnormal Operating Procedures; Calibration, Inspection, and Test Procedures; and Emergency Operating procedures. In NUREG-0800, Subsection 13.5.2.1 states that the applicant is to identify the scope of operating procedures that may be used in the implementation of the operating procedures development plan.

NRC staff compared COL License Information Item 13.6 in the application to the applicable NRC regulations and acceptance criteria in Subsection 13.5.2.1 of NUREG–0800. The staff's review confirmed that the applicant has addressed the relevant information, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

13.5.5 Post Combined License Activities

There are no post COL activities related to this section.

13.5.6 Conclusion

NRC staff compared STP Units 3 and 4 FSAR Section 13.5, "Plant Procedures," to the relevant NRC regulations; the acceptance criteria defined in NUREG–0800, Subsections 13.5.1.1 and 13.5.2.1; and other NRC RGs. The staff concluded that the applicant is in compliance with the NRC regulations. The staff also concluded that the applicant has adequately addressed COL License Information Items 13.3, 13.4, 13.5, and 13.6, and the information is therefore acceptable.

The staff's review confirmed that the applicant has addressed the relevant information to satisfy the requirements of 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), as applicable, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

13.6 Physical Security

13.6.1 Introduction

The combined license application for the STP Units 3 and 4 describes the COL applicant's Physical Protection Program, which is intended to meet the NRC regulations for protection against the design-basis threat (DBT) of radiological sabotage, as stated in 10 CFR 73.1. This program will provide a high assurance that activities involving special nuclear material are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety.

The Physical Protection Program includes the design of a physical protection system, which ensures that the capabilities to detect, assess, interdict, and neutralize threats of radiological sabotage are maintained at all times. The applicant incorporates by reference the standard ABWR design. The General Electric (GE) nuclear energy design certification document for the ABWR standard design Tier 1 and Tier 2 information includes Part 8 of the COL application consists of the STP Units 3 and 4 Physical Security Plan (PSP), Training and Qualification Plan (T&QP), Safeguards Contingency Plan (SCP) and an Interdiction Capability Evaluation (ICE). Section 13.6 of the STP Units 3 and 4 COL FSAR describes the Physical Protection Program and the physical protection systems that are not addressed within the scope of the standard ABWR design, for meeting the NRC performance and prescriptive requirements for physical protection stated in 10 CFR Part 73, "Physical Protection of Plants and Material." Those persons with the correct access authorization and a need to know may view the safeguards information (SGI) version of the STP COL application, Section 13.6 of this SER, which is located in the NRC's Secure Local Area Network, document number ESXXXXXXXXXX.

13.6.2 Summary of Application

Section 13.6 of the STP COL FSAR, Revision 4, incorporates by reference Section 13.6 of the certified ABWR DCD, Revision 4, Site Safety Analysis Report (SSAR) Chapter 13, Amendment 33; and SSAR Appendices 19C and 13.6.3.

Part 8, Safeguards/Security Plans

Part 8 of the application the security plans which consists of four parts—the PSP, T&QP, and SCP—dated December 9, 2010, Revision 3. The cyber security plan is also considered as a part of the security plans which is discussed in section 13.7.The ICE, Revision 1 was provided by applicant to address COL information item 13.6.3-3.

Part 10, Proposed License Conditions (Including ITAAC)

The STP Units 3 and 4 application identifies three proposed license conditions that relate to physical security: (1) the license condition proposed for the implementation of the Operational Program milestones; (2) the license condition proposed for the maintenance of the PSP, T&QP, and SCP, while nuclear fuel remains onsite (in the protected area [PA]); and (3) the license condition proposed for the implementation of an Operational Program milestone for completing the protective strategy procedure.

13.6.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG-1503 and its supplements. In addition, the relevant requirements of the Commission regulations for the physical security, and the associated acceptance criteria, are in Section 13.6.1 of NUREG-0800.

The applicable regulatory requirements for physical protection are as follows:

- 10 CFR 52.79(a)(35)(i) and (ii) require that information submitted for a COL describe how the applicant will meet the requirements of 10 CFR Part 73, "Physical Protection of Plants and Materials" and provide a description of the implementation of the PSP. In 10 CFR 52.79(a)(36)(i) through (iv), the application is required to include an SCP in accordance with the criteria set forth in Appendix C to 10 CFR Part 73; the application is also required to include a T&QP in accordance with Appendix B of 10 CFR Part 73; the

applicant is required to provide a description of the implementation of the SCP and the T&QP; and the applicant is required to protect the PSP, SCP, and T&QP in accordance with the requirements of 10 CFR 73.21.

- 10 CFR Part 73 includes performance-based and prescriptive regulatory requirements that when adequately met and implemented, provide a high assurance that activities involving special nuclear material are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety. A COL applicant must describe how the regulatory requirements of 10 CFR Part 73 that are applicable to nuclear power plants will be met.
- 10 CFR 52.79(a)(41) requires an evaluation of the facility against the SRP in effect 6 months before the docket date of the application. The evaluation required by this section shall include an identification and description of all differences in design features, analytical techniques, and procedural measures proposed for a facility and those corresponding features, techniques, and measures given in the SRP acceptance criteria. Where a difference exists, the evaluation shall discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations, or portions thereof, that underlie the corresponding SRP acceptance criteria. The SRP is not a substitute for the regulations, and compliance is not a requirement.

NRC staff used Section 13.6.1 of NUREG–0800, Revision 1 to complete the physical security combined license review.

Regulatory guidance documents, technical reports (TRs), and accepted industry codes and standards that an applicant may apply to meet regulatory requirements include, but are not limited to, the following:

- RG 5.7, Revision 1, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas," May 1980.
- RG 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials," November 1973.
- RG 5.44, Revision 3, "Perimeter Intrusion Alarm Systems," October 1997.
- RG 5.62, Revision 1, "Reporting of Safeguards Events," November 1987.
- RG 5.65, "Vital Area Access Controls, Protection of Physical Protection System Equipment and Key and Lock Controls," September 1986.
- RG 5.66, Revision 1, "Access Authorization Programs For Nuclear Power Plants," July 2009.
- RG 5.68, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants," August 1994.
- RG 5.74, "Managing the Safety/Security Interface," March 2009.
- RG 5.75, "Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities," June 2009.
- RG 5.77, "Insider Mitigation Program," March 2009.
- NRC letter dated April 9, 2009, "NRC Staff Review of Nuclear EI 03–12, 'Template for Security Plan', Training and Qualification, Safeguards Contingency Plan, [and Independent Spent Fuel Storage Installation Security Program], (Revision 6)" (ML090920528).

- SECY–05–0197, “Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria,” October 28, 2005.

The following documents contain security-related or safeguard information and are not publicly available:

- RG 5.69, “Guidance for the Application of Radiological Sabotage Design Basis Threat in the Design, Development, and Implementation of a Physical Security Protection Program that Meets 10 CFR 73.55 Requirements,” June 2006.
- RG 5.76, “Physical Protection Programs at Nuclear Power Reactors,” July 2009.
- NEI 03–12, Revision 6, “Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, [and Independent Spent Fuel Installation Security Program].”
- NUREG/CR–6190, “Update of NUREG/CR–6190 Material to Reflect Postulated Threat Requirements,” March 27, 2003.

13.6.4 Technical Evaluation

As documented in NUREG–1503, NRC staff reviewed and approved Section 13.6 of the certified ABWR DCD. The staff reviewed Section 13.6 of the STP COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The staff’s review confirmed that the information in the application and the information incorporated by reference address the required information relating to physical security.

The staff reviewed the information in the COL application:

13.6.4.1 *Physical Security Plan*

In Part 8 of the COL application for STP Units 3 and 4, the applicant has submitted a PSP, a T&QP, and an SCP that meet the requirements of 10 CFR 52.79(a)(35), (36), and (44). Part 2 of FSAR Chapter 13, Section 13.6, references Part 8 of the COL application, which consists of the STP Units 3 and 4 PSP, T&QP, and SCP with descriptions of the licensing basis for establishing a Physical Protection Program; the design for a physical protection system; and a security organization that will have as its objective to provide a high assurance that activities involving special nuclear materials are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety. The STP submitted PSP references 10 CFR 50.34(c)(2) and (d)(2). The correct references should be 10 CFR 52.79(a)(35) and (36). It is noted that this is a template error and both references require that the same criteria be met.

Security plans must describe how the applicant will implement Commission requirements and those site-specific conditions that affect implementation, as required by 10 CFR 73.55(c)(1)(i).

The provisions of 10 CFR 73.55(c) and (d) establish, maintain, and implement a PSP to meet the requirements of 10 CFR 73.55 and 10 CFR Part 73, Appendices B and C. The applicant

[1] See *“Finality of Referenced NRC Approvals”* in SER Section 1.1.3, for a discussion on the staff’s review related to verification of the scope of information to be included in a COL application that references a design certification.

must show the establishment and maintenance of a security organization, the use of security equipment and technology, the training and qualification of security personnel, the implementation of predetermined response plans and strategies, and the protection of digital computer and communication systems and networks. The applicant must have a management system for the development, implementation, revision, and oversight of procedures for implementing security. The approval process for implementing security procedures will be documented.

NRC staff reviewed the applicant's description in PSP Section 1 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(c) and (d) and is therefore acceptable.

13.6.4.1.1 Introduction and Physical Facility Layout

The provisions of 10 CFR 73.55(c)(2) establish the requirements for ensuring the protection of SGI against an unauthorized disclosure, in accordance with 10 CFR 73.21. The applicant's submittal acknowledges that the PSP, T&QP, and SCP discuss specific features of the physical security system or response procedures and are considered SGI.

Section 1 of the PSP describes the licensee's commitment to satisfying 10 CFR 50.34(c) and (d) and 10 CFR Part 73 by submitting a PSP and by controlling the PSP and appendices as SGI, in accordance with 10 CFR 73.21.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3(b) require a description of the physical layout of the site.

Section 1.1 of the PSP describes the location, site layout, and facility configuration. The PSP describes the physical structures and their locations on the site; the PA; and the site in relation to nearby towns, roads, and other environmental features important to the coordination of response operations. The plant layout includes the identification of main and alternate entry routes for law enforcement assistance forces and the location of control points for marshalling and coordinating response activities.

The staff issued **RAI 13.06.01-3** asking the applicant to describe how features such as railroad/spur, airports, hazardous material facilities, and environmental features (e.g., topography) were considered in developing the defensive strategy.

The applicant's response provides clarification of configuration considerations if a credible threat could have an effect on the site, and for the coordination of response activities if requested by the site.

NRC staff reviewed the technical information, and found the applicant's response to RAI 13.06-3 acceptable, because it sufficiently clarifies the staff's concern, and the description in the security plan meets the requirements of 10 CFR Part 73 Appendix C, Section II.B.3.b.

In **RAI 13.06.01-6**, the staff requested the applicant to provide larger scale drawings with details of specific features and other nonsecurity features located in the vicinity of the site to address the requirements of 10 CFR 73.55, Appendix C, Section II, Paragraph B.3.b.

In the response to this RAI, the applicant states that the revised drawings will be submitted in a revised PSP. The staff reviewed the applicant's response to RAI 13.06.01-6 which included the maps and the additional details concerning features located on and adjacent to the site and found that the provided information meets the requirements of 10 CFR 73.55, Appendix C, Section II, Paragraph B.3.b, and is therefore acceptable. The staff will confirm that the changes to the PSP that were captured in the RAI response are incorporated into the proposed revision to the PSP in the next FSAR revision. This PSP change is being tracked as **Confirmatory Item 13.06.01-6**.

In addition, in FSAR, Section 2.0S the applicant includes a site area map and general plant and site descriptions, including details of the 10- to 50-mile radius of the geographical area of the STP Units 3 and 4 site. FSAR Chapter 1 FSAR references the ABWR design certification for the principal design and operating characteristics of the STP Units 3 and 4 design and construction. Part 1, "General Information," of the COL application identifies the name of the applicant and principal business locations.

NRC staff reviewed the physical layout of the facility in Section 1.1 of the PSP and supplemented by the information in the COL FSAR. The staff determined that the applicant has described site-specific conditions that affect the applicant's capability to satisfy the requirements of a comprehensive PSP. The applicant has also adequately described the physical structures and their locations on the site and the relation of the site to nearby towns, roads, and other environmental features important to the effective coordination of response operations. The applicant describes the main and alternate entry routes for law enforcement assistance forces and the location of control points for marshaling and coordinating response activities in the site-specific law enforcement response plan. The staff concluded that the applicant's security plan has met the requirements for the content of a PSP, as stated above. Therefore, the staff found the physical layout described in the PSP and the STP COL FSAR adequate.

13.6.4.1.2 Performance Objectives

The provisions of 10 CFR 73.55(b)(1) require, in part, that the licensee shall establish and maintain a Physical Protection Program with an objective to provide "high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety." 10 CFR 73.55(b)(2) establishes, in part, the requirement to protect a nuclear power reactor against the DBT of radiological sabotage, as described in 10 CFR 73.1. The provisions of 10 CFR 73.55(b)(3)(i) and 10 CFR 73.55(b)(3)(ii) require the applicant to establish a Physical Protection Program designed to ensure the capabilities to detect, assess, interdict, and neutralize threats up to and including the DBT of radiological sabotage, as stated in 10 CFR 73.1, are maintained at all times; and provide defense-in-depth, supporting processes, and implementing procedures that ensure the effectiveness of the Physical Protection Program.

Section 2 of the PSP outlines the requirements for the establishment and maintenance of an onsite physical protection system, security organization, and integrated response capability. As part of the objective, the security program design shall incorporate supporting processes such that no single event can disable the security response capability because of defense-in-depth principles, including diversity and redundancy. The physical protection systems and programs described herein are designed to protect against the DBT of radiological sabotage, in accordance with the requirements of 10 CFR 73.55(a) through (r) or equivalent measures that meet the same high assurance objectives provided by paragraphs (a) through (r).

STP Units 3 and 4 use the Corrective Action Program to track, trend, correct, and prevent the recurrence of failures and deficiencies in the Physical Protection Program.

NRC staff reviewed the applicant's description in PSP Section 2 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(b) and is therefore acceptable.

13.6.4.1.3 Performance Evaluation Program

Requirements in 10 CFR 73.55(b)(4) through (b)(11) state that the applicant shall analyze and identify site-specific conditions and establish programs, plans, and procedures that address performance evaluations, access authorization, cyber security, insider mitigation, fitness for duty (FFD), corrective actions, and operating procedures. Requirements in 10 CFR 73.55(b)(6) specifically prescribe the applicant to establish, maintain, and implement a Performance Evaluation Program in accordance with 10 CFR Part 73 Appendix B, for implementation of the plant's protective strategy.

As discussed in the T&QP, Section 3 of the PSP describes the drills and exercises that will be used to assess the effectiveness of the contingency response plan and the effectiveness of the applicant's response strategy. Other assessment methods include formal and informal exercises or drills, self-assessments, and internal and external audits and evaluations.

The performance evaluation processes and criteria that assess the effectiveness of the security program, including adequate protection against radiological sabotage, will be established in the facility procedures and the deficiencies identified will be managed through the Corrective Action Program.

Section 3 of the PSP references Section 4 of the T&QP, which provides additional details related to the performance evaluation of security personnel in accordance with 10 CFR Part 73, Appendix B, Section VI. Section 4 of the T&QP includes the requirements to conduct security force tactical drills and force-on-force exercises to evaluate the effectiveness of the security systems and the response performances of security personnel. In addition, Section 17 of the PSP describes additional details regarding the applicant's processes for reviews, evaluations, and audits that will complement the Performance Evaluation Program.

NRC staff reviewed the applicant's description in PSP Section 3 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(b)(4) through (b)(11) and is therefore acceptable.

13.6.4.1.4 Establishment of a Security Organization

The provisions of 10 CFR 73.55(d) establish requirements to describe a security organization, including the management system for oversight of the Physical Protection Program. The security organization must be designed, staffed, trained, qualified, and equipped to implement the Physical Protection Program as required by 10 CFR 73.55(b) and 10 CFR Part 73, Appendices B and C.

Section 4 of the PSP describes how the applicant will meet the requirements of 10 CFR 73.55(d)(1).

Security Organization Management

Section 4.1 of the PSP describes the organization's management structure. The PSP establishes that the security organization is a critical component of the Physical Protection Program and is responsible for the effective application of engineered systems, technologies, programs, equipment, procedures, and personnel necessary to detect, assess, interdict, and neutralize threats up to and including the DBT of radiological sabotage. The security organization may be proprietary, contracted, or other qualified personnel.

The PSP states that the security organization will be staffed with appropriately trained and equipped personnel, in a command structure with administrative controls and procedures to provide a comprehensive response. Section 4.1 of the PSP also describes the roles and responsibilities of the security organization. The PSP states that at least one full-time member of the security management has the authority for command and control of all security operations and is onsite at all times. In addition, the security force implementing the security functions described in this section of the plan will meet the training qualification requirements that are described in the T&QP.

NRC staff issued **RAI 13.06.01-4** requesting the applicant to address the requirements of 10 CFR 73.55(q)(3) regarding a contracted security force.

The applicant's response to this RAI states that the PSP will be revised to indicate that a contracted security force will be used onsite, and a written record of this contract will be retained at the site.

The staff reviewed the applicant's response and found that it meets the requirements of 10 CFR 73.55(q)(3). Verification that this change is incorporated in a future revision to the FSAR is being tracked as **Confirmatory Item 13.06.01-4.**

NRC staff issued **RAI 13.06.01-5** requesting the applicant to address the requirements of 10 CFR Part 73, Appendix B, Section VI, paragraph B.1.(b), for the job duties and responsibilities of the security training supervisor to ensure that security personnel are trained and qualified in accordance with the T&QP.

The applicant's response to RAI 13.06.01-5 provides specific information regarding the duties and responsibilities of a security training supervisor. The staff reviewed the applicant's response to RAI 13.06.01-5 and found that the description of the qualifications for a security training supervisor ensured that the requirements of 10 CFR Part 73 Appendix B, Section VI paragraph B.1.(b) are met. The response is therefore acceptable.

The staff reviewed the applicant's description in PSP Sections 4 and 4.1 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description meets the requirements of 10 CFR 73.55(d) and is therefore acceptable.

13.6.4.1.5 Qualification for Employment in Security

The requirements of 10 CFR 73.55(d)(3) state, in part, that the licensee may not permit any individual to implement any part of the Physical Protection Program unless the individual has been trained, equipped, and qualified to perform assigned duties and responsibilities in accordance with Appendix B to 10 CFR Part 73 and the licensee's T&QP.

Section 5 of the PSP states that employment qualifications for members of the security force are delineated in the T&QP.

NRC staff reviewed the applicant's description in PSP Section 5 of the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(d)(3) and is therefore acceptable.

13.6.4.1.6 Training of Facility Personnel

Consistent with the requirements in 10 CFR 73.55(d)(3),10 CFR 73.56, and 10 CFR Part 73, Appendix B, Section VI.C.1, all personnel who are authorized to have unescorted access to the licensee's PA receive training, in part to ensure that they understand their role in security and their responsibilities in the event of a security incident. Individuals assigned to perform security-related duties or responsibilities such as, but not limited to, material searches and vehicle escorts are trained and qualified in accordance with the T&QP to perform these duties and responsibilities. The training ensures that each individual has the minimum knowledge, skills, and abilities required for the effective performance of assigned duties and responsibilities.

Section 6 of the PSP describes the training provided for all personnel with unescorted access to the applicant's PA.

NRC staff reviewed the applicant's description in PSP Section 6 of the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.56 and 10 CFR Part 73, Appendix B, and is therefore acceptable.

13.6.4.1.7 Security Personnel Training

The provisions of 10 CFR 73.55(d) require all security personnel to be trained and qualified in accordance with 10 CFR Part 73, Appendix B, Section VI. before performing their duties.

Section 7 of the PSP states that all security personnel are trained and qualified to perform tasks at levels that are specific for their assignments, in accordance with the licensee's T&QP.

NRC staff reviewed the applicant's description in PSP Section 7 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the

description in the PSP meets the requirements of 10 CFR 73.55(d) and is therefore acceptable. The staff's review of the licensee's T&QP is in Subsection 13.6.4.2 of this SER.

13.6.4.1.8 Local Law Enforcement Liaison

The following requirement is stated in 10 CFR 73.55(k)(9): "To the extent practicable, licensees shall document and maintain current agreements with applicable law enforcement agencies to include estimated response times and capabilities." In addition, 10 CFR 73.55(m)(2) requires, in part, that an evaluation of the effectiveness of the physical protection system include an audit of response commitments by local, State, and Federal law enforcement authorities.

Section 8 of the PSP provides a detailed discussion of the ongoing relationship with local law enforcement agencies (LLEAs). The plans addressing responses, communication methodologies and protocols, command and control structures and marshaling locations are in the operations procedures, the emergency plan procedures, and the site-specific law enforcement response plan. The law enforcement response plan is reviewed biennially, concurrent with the PSP effectiveness review.

NRC staff reviewed the applicant's description in PSP Section 8 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR 73.55(m)(2) and is therefore acceptable.

13.6.4.1.9 Security Personnel Equipment

The requirements of 10 CFR 73.55(d)(3) state, in part, that the licensee may not permit any individual to implement any part of the Physical Protection Program unless the individual has been trained, equipped, and qualified in accordance with 10 CFR Part 73, Appendix B and the T&QP. The provisions in 10 CFR Part 73, Appendix B, Section VI.G.2.(a) state, in part, that the applicant must ensure that each individual is equipped with or has ready access to all personal equipment or devices required for the effective implementation of the NRC-approved security plans, the applicant's protective strategy, and implementing procedures. Sections VI.G.2.(b) and VI.G.2.(c) of 10 CFR Part 73, Appendix B delineate the minimum equipment requirements for security personnel and armed response personnel.

Section 9 of the PSP describes the equipment including armament, ammunition, and communication equipment provided to security personnel, in order to ensure that security personnel are capable of performing the function stated in the Commission-approved security plans, in the applicant's protective strategy, and in the implementing procedures.

NRC staff reviewed Section 9 of the PSP and found that it meets the requirements of 10 CFR 73.55(d)(3) and Appendix B, Section VI.G.2, and is therefore acceptable.

13.6.4.1.10 Work Hour Controls

The provisions of 10 CFR Part 26, "Fitness for Duty Programs," Subpart I, "Managing Fatigue," establish the requirements for managing fatigue. The provisions of 10 CFR 26.205 establish requirements for work hours. The provisions of 10 CFR 26.205(a) require that any individual

who performs duties identified in 10 CFR 26.4(a)(1) through (a)(5) shall be subject to the requirements of this section.

Section 10 of the PSP states that the site will implement work hour controls consistent with 10 CFR Part 26, Subpart I, "Managing Fatigue," and the site procedures shall describe performance objectives and implementing procedures.

The NRC staff's review of the FFD is in Section 13.7 of this SER.

13.6.4.1.11 Physical Barriers

The following requirements are established in 10 CFR 73.55(e):

> Each licensee shall identify and analyze site-specific conditions to determine the specific use, type, function, and placement of physical barriers needed to satisfy the physical protection program design requirements of 10 CFR 73.55(b).
>
> (1) The licensee shall:
>
> (i) "Design, construct, install and maintain physical barriers as necessary to control access into facility areas for which access must be controlled or denied to satisfy the physical protection program design requirements of paragraph (b) of this section."

10 CFR 73.55(b) states, "Provide defense-in-depth through the integrations of systems, technologies, programs, equipment, supporting processes, and implementing procedures as needed to ensure the effectiveness of the physical protection program."

Section 11 of the PSP describes how the applicant will implement the program for physical barriers, in accordance with the performance objectives and requirements of 10 CFR 73.55(b).

Vehicle Barriers

PSP Sections 11.2.1 and 11.2.2 establish and maintain vehicle control measures, as necessary, to protect against the DBT of radiological sabotage. These measures are consistent with the Physical Protection Program design requirements of 10 CFR 73.55(b)(3)(ii) and 10 CFR 73.55(e)(10)(i), and are in accordance with the site-specific analysis. The PSP identifies measures taken to provide a high assurance that such an event can be defended. The applicant's PSP also states that requirements for the inspection, monitoring, and maintenance of the vehicle barrier system are in the facility procedures.

NRC staff issued **RAI 13.06-01-7** requesting the applicant to provide further information with regard to the content and substance of the descriptions of natural terrain and the vehicle barrier system (VBS) and to validate proposed stand-off distances.

The applicant's response provides additional information and a rationale concerning the descriptions of the use of natural terrain and the VBS to validate proposed stand-off distances.

The staff reviewed the applicant's additional technical information concerning the VBS at the facility. The staff found that the applicant's response to RAI 13.06-01-7 meets the requirements of 10 CFR 73.55(e)(10)(A) and is therefore acceptable.

The staff issued **RAI 13.06.01-8** requesting the applicant to address the requirements of 10 CFR 73.55(e)(10)(A) concerning the VBS design and the accepted guidance that was used to protect the site against the use of an explosive-laden vehicle.

The applicant's response to this RAI indicates that this specific guidance does not apply to the design features used to protect the site. The staff reviewed the technical information in the applicant's response to **RAI 13.06.01-8** and found that the response meets the requirements of 10 CFR 73.55(e)(10)(A) and is therefore acceptable.

The staff issued **RAI 13.06.01-9** requesting the applicant to provide additional information concerning the operation capability of the active barrier.

The applicant's response to **RAI 13.06.01-9** provides additional information concerning the operational capability of the active barrier and states that the PSP will be revised to more clearly define the operation of the active vehicle barrier. The staff reviewed the technical information in the applicant's response to **RAI 13.06.01-9** and found that the response meets the requirements of 10 CFR 73.55(e)(10)(A) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-9.**

Waterborne Threat Measures

The provisions of 10 CFR 73.55(e)(10)(ii) require the licensee to "Identify areas from which a waterborne vehicle must be restricted, and where possible, in coordination with local, State, and Federal agencies having jurisdiction over waterway approaches, deploy buoys, markers, or other equipment. In accordance with the site-specific analysis, provide periodic surveillance and observation of waterway approaches and adjacent areas."

NRC staff issued **RAI 13.06.01-10** requesting the applicant to address why the requirements in 10 CFR 73.55(e)(10) do not apply to the STP Units 3 and 4 site.

The applicant's response to **RAI 13.06.01-10** states the intent to revise the PSP to provide clarification. The staff reviewed the applicant's response to **RAI 13.06.01-10** which included justification and a PSP description of why the requirement of 10 CFR 73.55(e)(10) does not apply to STP Units 3 and 4. The staff found the response acceptable and meet the requirements of 10 CFR 73.55(e)(10). The staff will confirm the changes to the PSP that were captured in the RAI response are incorporated into the proposed revision to the PSP in the next FSAR revision. This PSP change is being tracked as **Confirmatory Item 13.06.01-10**.

Protected Area Barriers

The provisions of 10 CFR 10 CFR 73.55(e)(8)(i) require that the PA perimeter must be protected by physical barriers that are designed and constructed to (1) limit access to only those personnel, vehicles, and materials required to perform official duties; (2) channel personnel, vehicles, and materials to designated access control portals; and (3) be separated from any other barrier designated as a vital area physical barrier, unless otherwise identified in the PSP.

The descriptions of the PA barrier are in Section 11.3 of the PSP. These descriptions meet the definitions of physical barriers and a protected area in 10 CFR 73.2 and the requirements of 10 CFR 73.55(e)(8).

Section 11.3 of the PSP describes the extent to which the protected area barrier at the perimeter is separated from a vital area/island barrier. The security plan identifies where the PA barrier is not separated from a vital area barrier, which is consistent with 10 CFR 73.55(e)(8)(i)(c).

Section 11.3 of the PSP describes isolation zones. As required in 10 CFR 73.55(e)(7), the isolation zone is maintained in outdoor areas adjacent to the PA perimeter barrier and is designed to ensure the ability to observe and assess activities on either side of the PA perimeter.

NRC staff issued **RAI 13.06.01-11** requesting the applicant to revise the PSP in accordance with the requirements in 10 CFR 73.55(e)(7)(B).

The applicant's response to **RAI 13.06.01-11** states that the PSP will be revised to meet the regulatory criteria. The RAI response included a PSP description to address the requirements of 10 CFR 73.55(e)(7)(B). The staff reviewed the applicant's response and found that it meets the requirements of 10 CFR 73.55(e)(7)(B) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-11**.

The staff issued **RAI 13.06.01-12** requesting the applicant to address the requirement in 10 CFR 73.55(e)(10)(i)(D) for rail access to the site.

The applicant's response to **RAI 13.06.01-12** states that this regulation does not impact the site. The staff reviewed the applicant's response to **RAI 13.06.01-12** and found that it meets the requirements of 10 CFR 73.55(e)(10)(i)(D) and is therefore acceptable.

Vital Area Barriers

The provisions of 10 CFR 73.55(e)(9) require that "Vital equipment must be located only within vital areas, which must be located within a protected area so that access to vital equipment requires passage through at least two physical barriers, except as otherwise approved by the Commission and identified in the security plans." In addition, 10 CFR 73.55(e)(5) requires certain vital areas to be bullet-resisting.

Section 11.4 of the PSP describes vital areas as restricted access areas surrounded by physical barriers with the capability to restrict access to only authorized individuals. All vital areas are constructed in accordance with established regulatory requirements. Section 11.4 also states that the reactor control room, the central alarm station (CAS), and the location within which the last access control function for access to the protected area is performed, must be bullet-resisting.

The staff issued **RAI 13.06.01-13** requesting the applicant to clarify the redundancy features between the CAS and the secondary alarm station (SAS).

The applicant's response, states that the PSP will be revised to clarify the redundancy features of the SAS. The RAI response included a PSP description for the redundancy of the CAS and SAS. The staff reviewed the applicant's response to RAI 13.06.01-13 and found it acceptable because it clarifies the SAS redundancy, which meets the requirements of 10 CFR 73.55(i)(4). Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item CI 13.06.01-13**.

Target Set Equipment

The provisions of 10 CFR 73.55(f) require the following:

(1) The licensee shall document and maintain the process used to develop and identify target sets, to include the site-specific analyses and methodologies used to determine and group the target set equipment or elements. (2) The licensee shall consider cyber attacks in the development and identification of target sets. (3) Target set equipment or elements that are not contained within a protected or vital area must be identified and documented consistent with the requirements in § 73.55(f)(1) and be accounted for in the licensee's protective strategy. (4) The licensee shall implement a process for the oversight of target set equipment and systems to ensure that changes to the configuration of the identified equipment and systems are considered in the licensee's protective strategy. Where appropriate, changes must be made to documented target sets.

Section 11.5 of the PSP states that target set equipment or elements that are not contained within a protected or vital area are identified and accounted for in the site protective strategy, as required by 10 CFR 73.55(f)(3).

The staff reviewed Revision 3, Amendment 33 to GE's ABWR SSAR, in addition to Attachment 10 of the ICE, Revision 1, of the STP Units 3 and 4. NRC staff reviewed the applicant's description in Sections 11.5 and 14.5 of the PSP and in Section 8 of the SCP, including the STP ICE and information in the GE ABWR SSAR for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in Sections 11.5 and 14.5 of the PSP and in Section 8 of the SCP are consistent with the acceptance criteria in SRP Section 13.6.1, the staff found that these descriptions meet the requirements of 10 CFR 73.55(f)(1), (3), and (4) and are therefore acceptable. The site protective strategy is described in detail in the facility implementing procedures that were not subject to NRC review as part of this COL application. These procedures are subject to future NRC inspections, in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

Delay Barriers

The provisions of 10 CFR 73.55(e)(3)(C)(ii) require that physical barriers must "provide deterrence, delay, or support access control" to perform the required function of the licensee's Physical Protection Program. The PSP describes the use of delay barriers at the STP site.

Section 11.6 of the PSP includes a description of the use of delay barriers to meet the requirements of 10 CFR 73.55(e).

NRC staff reviewed the applicant's descriptions in PSP Sections 11,11.1, 11.2, 11.2.1, 11.2.2, and 11.2.3 and Sections 11.3 through 11.6 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(e) and are therefore acceptable.

13.6.4.1.12 Security Posts and Structures

The provisions of 10 CFR 73.55(e)(5) require that the reactor control room, the CAS, and the location within which the last access control function for access to the protected area is performed must be bullet-resisting.

Section 12 of the PSP states that security posts and structures are qualified to a level commensurate with their application within the site-protective strategy and they must be constructed with bullet-resistant materials.

NRC staff reviewed the applicant's description in PSP Section 12 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(e)(5) and is therefore acceptable.

13.6.4.1.13 Access Control Devices

Regulations in 10 CFR 73.55(g)(1) state that consistent with the function of each barrier or barrier system, the licensee shall control personnel, vehicle, and material access, as applicable, at each access control point in accordance with the Physical Protection Program design requirements of 10 CFR 73.55(b).

The provisions of 10 CFR 73.55(g)(6) require control of access control devices and state, "The licensee shall control all keys, locks, combinations, passwords and related access control devices used to control access to protected areas, vital areas and security systems to reduce the probability of compromise."

Types of Security Related Access Control Devices

Section 13.1 of the PSP describes the applicant's use of security-related access control devices to control access to protected and vital areas and security systems.

Control and Accountability

Section 13.2.1 of the PSP describes the control of security-related locks. Section 13.2.2 of the PSP describes the controls associated with the changes to and replacements of access control devices, the accountability and inventory control process, and the circumstances that require changes in security-related locks. The applicant uses the facility procedures to produce, control, and recover keys, locks, and combinations for all areas and equipment that serve to reduce the probability of compromise. Issuance of access control devices is limited to individuals who have unescorted access authorization and who require access to perform official duties and responsibilities. Keys and locks are accounted for through a key inventory control process described in the facility procedures.

NRC staff reviewed the applicant's descriptions in PSP Sections 13, 13.1, 13.2, 13.2.1, and 13.2.2 of the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of

NUREG-0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(g)(1) and (6) and are therefore acceptable.

13.6.4.1.14 Access Requirements

Access Authorization and Fitness for Duty

The provisions of 10 CFR 73.55(b)(7) require that the licensee shall establish, maintain, and implement an Access Authorization Program in accordance with 10 CFR 73.56 and shall describe the program in the PSP. The provisions of 10 CFR Part 26 require the licensee to establish and maintain an FFD Program.

Section 14.1 of the PSP describes how the Access Authorization Program implements regulatory requirements utilizing the provisions in RG 5.66. NRC staff found that RG 5.66 is an acceptable method for meeting the requirements of 10 CFR 73.55(b)(7).

The staff issued **RAI 13.06.01-15** requesting the applicant to address the requirements of 10 CFR 73.55(e)(10) and to justify the approach for meeting the acceptance criteria captured in Section 13.6.1 of NUREG-0800.

The applicant's response to this RAI states that their approach captured in the security plan is site specific, and the applicant includes a justification for this change. The staff reviewed the tapplicant's response to **RAI 13.06.01-15** and found that the applicant's approach meets the requirements of 10 CFR 73.55(e)(10). The response is therefore acceptable.

The staff reviewed the applicant's description in PSP Section 14.1 of the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(b)(7), 10 CFR 73.56, and 10 CFR Part 26 and is therefore acceptable.

Insider Mitigation Program

The provisions of 10 CFR 73.55(b)(9) require that the licensee shall establish, maintain, and implement an Insider Mitigation Program and shall describe the program in the PSP. The Insider Mitigation Program must monitor the initial and continuing trustworthiness and reliability of individuals granted or retaining unescorted access authorization to a protected or vital area. This program must also implement defense-in-depth methodologies to minimize the potential for an insider to adversely affect, either directly or indirectly, the licensee's capability to prevent significant core damage and spent fuel sabotage. The Insider Mitigation Program must include elements from the Access Authorization Program, the FFD Program, the Cyber Security Program, and the Physical Protection Program.

Section 14.2 of the PSP describes how the applicant will establish, maintain, and implement an Insider Mitigation Program utilizing the guidance in RG 5.77, "Insider Mitigation Program". The Insider Mitigation Program requires elements from the Access Authorization Program described in 10 CFR 73.56; the FFD Program described in 10 CFR Part 26; the Cyber Security Program described in 10 CFR 73.54; and the Physical Security Program described in 10 CFR 73.55. In addition, Section 14.2 describes the integration of the programs mentioned above to form a cohesive and effective Insider Mitigation Program. In addition, the applicant addresses the

observations for the detection of tampering. NRC staff found that RG 5.77 is an acceptable method for meeting the requirements of 10 CFR 73.55(b)(9).

The staff issued **RAI 13.06.01-14** requesting the applicant to revise the PSP concerning patrols, in accordance with 10 CFR 73.55(i)(5)(vi).

The applicant's response to **RAI 13.06.01-14** states that the PSP will be revised in accordance with 10 CFR 73.55(i)(5)(vi). The RAI response included proposed changes to the PSP. The staff reviewed the applicant's response to **RAI 13.06.01-14** and found that the prposed PSP changes meet the requirements of 10 CFR 73.55(i)(5). Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-14**.

The NRC staff reviewed the applicant's description in PSP Section 14.2 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(b)(9) and is therefore acceptable.

Picture Badge Systems

Requirements in 10 CFR 73.55(g)(6)(ii) for identification badges state, "The licensee shall implement a numbered photo identification badge system for all individuals authorized unescorted access to the protected area and vital areas. In addition, identification badges may be removed from the protected area under limited conditions and only by authorized personnel. Records of all badges shall be retained and shall include name and areas to which persons are granted unescorted access."

The provisions of 10 CFR 73.55(g)(7)(ii) require individuals who are not employed by the licensee but who require frequent or extended unescorted access to the PA and/or vital areas to perform duties and responsibilities required by the licensee at irregular or intermittent intervals, to satisfy the access authorization requirements of 10 CFR 73.56 and 10 CFR Part 26. These individuals shall be issued a non-employee photo identification badge that is easily distinguished from other identification badges, before being allowed unescorted access to the protected and vital areas. Nonemployee photo identification badges must visually reflect that the individual is a nonemployee and no escort is required.

Section 14.3 of the PSP describes the site picture badge system. Identification badges will be displayed while individuals are inside the protected or vital areas. When not in use, badges may be removed from the protected area by authorized holders, provided that a process exists to deactivate the badge upon exiting the PA and positively confirm the individual's true identity and authorization for unescorted access before entry into the PA. Records must be maintained to include the name and areas to which unescorted access is granted of all individuals to whom photo identification badges are issued.

The NRC staff reviewed the applicant's description in PSP Section 14.3 of the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the

description in the PSP meets the requirements of 10 CFR 73.55(g)(6) and (7) and is therefore acceptable.

Searches

The provisions of 10 CFR 73.55(h) require, in part, state the objective of search program is: "to detect, deter, and prevent the introduction of firearms, explosives, incendiary devices, or other items which could be used to commit radiological sabotage." To accomplish this, "the licensee shall search individuals, vehicles, and materials consistent with the physical protection program design requirements in paragraph (b) of 10 CFR 73.55, and the function to be performed at each access control point or portal before granting access."

Section 14.4 of the PSP provides an overview description of the search process for vehicles, personnel, and materials. The search process is conducted using security personnel, specifically trained nonsecurity personnel and technology. Detailed discussions of actions to be taken in the event that unauthorized materials are discovered are in the implementing procedures.

Vehicle Barrier System Access Control Point

The provisions of 10 CFR 73.55(h)(2)(ii) through (v) provide the requirements for licensees to search vehicles at the OCA. The provisions of 10 CFR 73.55(h)(3) provide requirements for searching personnel, vehicles, and materials before entering the PA.

Section 14.4.1 of the PSP describes the process for searching personnel, vehicles, and materials at predetermined locations before granting access to designated facility areas identified by the applicant as necessary for satisfying the Physical Protection Program. The applicant has developed specific implementing procedures that address vehicle and material searches at these locations.

PA Packages and Materials Search

Section 14.4.2 of the PSP describes the process for conducting searches of packages and materials for firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage. The searches will use equipment capable of detecting these items or visual and physical searches, or both, to ensure that all items are clearly identified before they enter the STP PA. Detailed requirements for conducting these searches are in the applicant's implementing procedures and include searching and controlling bulk materials and products. The applicant's implementing procedures also discuss the control of packages and materials previously searched and tamper sealed by personnel trained in accordance with the T&QP.

PA Vehicle Search

Section 14.4.3 of the PSP describes the process for searching vehicles for firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage. The searches will use equipment capable of detecting these items or visual and physical searches, or both, to ensure that all items are clearly identified at the PA. Detailed requirements for conducting these searches are in the applicant's implementing procedures, which also address methodologies for searching vehicles that must enter the PA under emergency conditions.

PA Personnel Searches

Section 14.4.4 of the PSP describes the process for searching all personnel requesting access to PAs. The PSP describes searching for firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage. The searches will use equipment capable of detecting these items or visual and physical searches, or both, to ensure that all items are clearly identified before granting access to the PA. All persons except official Federal, State, and LLEA personnel on official duty are subject to these searches upon entering the PA. Detailed discussions of observation and control measures are in the implementing procedures.

NRC staff issued **RAI 13.06.01-16** requesting the applicant to clarify the requirements in 10 CFR 73.55(g)(5)(ii) concerning situations involving emergency response personnel.

The applicant's response states that the PSP will be revised to indicate who will coordinate with the Security Force Supervisor during an onsite emergency situation.

The staff reviewed the applicant's response to **RAI 13.06.01-16** and found that the response meets the requirements of 10 CFR 73.55(g)(5)(ii) and is therefore acceptable based on a revision to the PSP. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-16**.

Protected Area Access Controls

Section 14.4.5 of the PSP describes the process for controlling access at all points where personnel or vehicles could gain access to the applicant's PA. The plan notes that all points of personnel access are through a lockable portal. The entry process is normally monitored by multiple security personnel. Personnel are normally allowed access through means that verify identity and authorization following the search process. Vehicles are controlled through positive control methods described in the facility procedures.

NRC staff issued **RAI 13.06.01-17** requesting that the applicant address the requirement of 10 CFR 73.55(g)(1) for alternate ingress and egress locations for personnel access to the PA. .

The applicant's response to **RAI 13.06.01-17** states that all personnel access points to the site will meet the same criteria for personnel access into the PA. The staff reviewed the applicant's response to **RAI13.06.01-17** and found that it meets the requirements of 10 CFR 73.55(g)(1) and is therefore acceptable.

Escort and Visitor Requirements

The provisions of 10 CFR 73.55(g)(7) state in part that the licensee may permit escorted access to protected and vital areas to individuals who have not been granted unescorted access, in accordance with the requirements of 10 CFR 73.56 and 10 CFR 26. The provisions of 10 CFR 73.55(g)(8) also discuss escort requirements. Licensees are required to implement procedures for processing, escorting, and controlling visitors. Procedures shall address the confirmation of identity of visitors, maintenance of a visitor control register, and visitor badging and escort controls that include training, communication, and escort ratios.

Section 14.4.6 of the PSP describes the process for controlling visitors. The PSP affirms that procedures address identifying, processing, and escorting visitors and maintaining a visitor control register. Training requirements for escorting visitors include responsibilities,

communications, and escort ratios. All escorts are trained to perform escort duties in accordance with site requirements. All visitors wear a badge that clearly indicates an escort is required.

NRC staff reviewed the applicant's descriptions in PSP Sections 14.4 and 14.4.1 through 14.4.6 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(h)(2), (h)(3), (g)(7), and (g)(8) and are therefore acceptable.

Vital Area Access Controls

The provisions of 10 CFR 73.55(g)(4) require that licensees control access into vital areas consistent with established access authorization lists. In response to a site-specific credible threat or other credible information, licensees shall implement a two-person (line-of-sight) rule for all personnel in vital areas, so that no one individual is permitted access to a vital area.

The provisions of 10 CFR 73.56(j) require the licensee to establish, implement, and maintain a list of individuals who are authorized to have unescorted access to specific nuclear power plant vital areas during non-emergency conditions. The list must include only those individuals who have a continued need for access to those specific vital areas in order to perform their duties and responsibilities. The list must be approved by a cognizant licensee manager or supervisor who is responsible for directing the work activities of the individual who is granted unescorted access to each vital area. The list must be updated and reapproved at least once every 31 days.

Section 14.5 of the PSP describes vital areas and states that the applicant is responsible for ensuring that vital areas are locked and protected by an active intrusion alarm system. An access authorization system is established to limit unescorted access that is controlled by an access authorization list, which is reassessed and reapproved at least once every 31 days. The facility procedures describe additional access control measures.

NRC staff issued **RAI 13.06.01-18** requesting the applicant to address the requirements of 10 CFR 73.55(e)(9)(ii) by identifying the individual(s) with the authority to grant access to a vital area during an emergency.

The applicant's response to **RAI 13.06.01-18** states that the PSP indicates the authorized person(s) responsible for allowing such an action. The staff reviewed the applicant's response to RAI 13.06.01-18 and found that it meets the requirements of 10 CFR 73.55(e)(9)(ii) and is therefore acceptable.

The staff issued **RAI 13.06.01-19** requesting the applicant to clarify the requirements of 10 CFR 73.55(e)(9)(v) as to how the minimum vital areas and equipment are protected.

The applicant's response **to RAI 13.06.01-19** included a final list of vital areas which will be incorporated into a future revision of the PSP. The rationale for identifying specific plant equipment and areas as vital is captured in Revision 1 of the ICE. The ICE also contains the final list of vital equipment and vital areas for STP units 3 and 4. Verification that this proposed revision to the ICE is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06-15.**

The staff reviewed the applicant's response to **RAI 13.06.01-19** and found that it meets the requirements of 10 CFR 73.55(e)(9)(v) and is therefore acceptable based on the vital area list provided in the RAI response. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-19**.

The applicant's response to **RAI 13.06-19** states that PSP Section 14.5 will be revised, as necessary, to clearly identify the areas that are specifically identified by regulation as vital.

The staff reviewed the applicant's response to RAI 13.06-19 and found it acceptable, because it provides information on how the licensee meets 10 CFR 73.55(e)(9) and 10 CFR 73.55(g)(4).

The staff has reviewed the applicant's description in PSP Section 14.5 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(g)(4) and is therefore acceptable.

13.6.4.1.15 Surveillance Observation and Monitoring

The provisions of 10 CFR 73.55(i)(1) require the licensee to establish and maintain intrusion detection systems that satisfy the design requirements of 10 CFR 73.55(b) and to provide, at all times, the capability to detect and assess unauthorized persons and to facilitate the effective implementation of a site protective strategy.

Illumination

The provisions of 10 CFR 73.55(i)(6) require, in part, that "all areas of the facility are provided with illumination necessary to satisfy the design requirements of 10 CFR 73.55(b) and implement the protective strategy." Specific requirements include providing "a minimum illumination level of 0.2 foot-candles, measured horizontally at ground level, in the isolation zones and appropriate exterior areas within the protected area. Alternatively, the licensee may augment the facility illumination system by means of low-light technology to meet the requirements of this section or otherwise implement the protective strategy." The licensee shall describe in the security plans how the lighting requirements of this section are met and, if used, the type(s) and application of low-light technology.

Section 15.1 of the PSP states that all affected areas of the site have lighting capabilities that provide illumination sufficient for the initiation of an adequate response to an attempted intrusion of the isolation zone, a PA, or a vital area. This section discusses the implementation of technology using fixed and non-fixed low-light level cameras or alternative technological means. This section also addresses the potential for a loss of lighting and the compensatory actions that would be taken if that event were to occur.

NRC staff issued **RAI 13.06.01-20** requesting the applicant to address the requirements of 10 CFR 73.55(i)(6)(i) concerning onsite lighting requirements.

The applicant's response to **RAI 13.06.01-20** provided clarification on how site lighting meets the requirements of 10 CFR 73.55(i)(6)(i). The RAI response also included the proposed PSP description to describe how the lighting requirement is met. The staff reviewed the applicant's response to RAI 13.06.01-20 and found that it meets the requirements of 10 CFR 73.55(i)(6)(i)

and is therefore acceptable based on a revision to the PSP. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-20.**

Surveillance Systems

The provisions of 10 CFR 73.55(i)(1) provide, in part, that the licensee implement, establish, and maintain intrusion detection and assessment surveillance, observation, and monitoring systems that satisfy the design requirements of 10 CFR 73.55(b) and the licensee's OCA.

Section 15.2 of the PSP describes that surveillance is accomplished by using human observation and technology. Surveillance systems include a variety of cameras and video display and annunciation systems designed to assist the security organization in observing, detecting, and assessing alarms or unauthorized activities. Certain systems provide real-time video images and the capability of playing back recorded video images. The facility implementing procedures describe the specifics of surveillance systems.

NRC staff issued **RAI 13.06.01-21** requesting the applicant to address the requirements of 10 CFR 73.55(i)(3)(vii) concerning surveillance equipment.

The applicant's response to **RAI 13.06.01-21** states that surveillance equipment will be maintained with back-up power. The staff reviewed the applicant's response to RAI 13.06.02-21 and found that is meets the requirements of 10 CFR73.55(i)(3)(vii) and is therefore acceptable Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-21.**

Intrusion Detection Equipment

Section 15.3 of the PSP describes the perimeter intrusion detection system and the PA and vital area intrusion detection systems. These systems are capable of detecting attempted penetration of the PA perimeter barrier and are monitored with assessment equipment designed to satisfy the requirements of 10 CFR 73.55(i). The equipment provides real-time and play-back/recorded video images of the detected activities before and after each alarm annunciation. The PSP describes how the applicant will meet regulatory requirements for redundancy, tamper indication, and an uninterruptable power supply.

NRC staff issued **RAI 13.06.01-22** requesting the applicant to address the requirements of 10 CFR 73.55(e)(9)(vi) concerning secondary power supply systems.

The applicant's response to **RAI 13.06.01-22** identifies the systems with secondary power supply systems. The staff reviewed the applicant's response to RAI 13.06.01-22 and found that it meets the requirements of 10 CFR 73.55(e)(9)(vi) and is therefore acceptable Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-22**

Central Alarm Station (CAS) and Secondary Alarm Station (SAS) Operation

The provisions of 10 CFR 73.55(i)(4) provide requirements for alarm stations. The provisions of 10 CFR 73.55(i)(4)(i) require that both alarm stations must be designed and equipped to ensure that a single act, in accordance with the DBT of radiological sabotage defined in 10 CFR 73.1, cannot disable both alarm stations. The licensee shall ensure the survivability of at least one

alarm station to maintain the ability to perform the following functions: (1) detect and assess alarms; (2) initiate and coordinate an adequate response to an alarm; (3) summon offsite assistance; and (4) provide command and control. The provisions of 10 CFR 73.55(i)(4)(iii) require that alarm stations must be equal and redundant.

Section 15.4 of the PSP describes the functional operations of the CAS and the SAS. The PSP provides that the alarm stations are equipped such that no single act will disable both alarm stations. The applicant's PSP provides that each alarm station is properly manned and no activities are permitted that would interfere with the operator's ability to execute assigned duties and responsibilities.

NRC staff issued **RAI 13.06.01-23** requesting the applicant to address the requirements of 10 CFR 73.55(i)(4)(i) concerning the locations of both alarm stations.

The applicant's response to **RAI 13.06.01-23** states how these requirements are being met. The staff reviewed the applicant's response to **RAI 13.06.01-23** and found that it meets the requirements of 10 CFR 73.55(i)(4)(i) and is therefore acceptable.

Security Patrols

1. Owner-Controlled Area (OCA) Surveillance and Response

The provisions of 10 CFR 73.55(e)(6) require that the licensee shall establish and maintain physical barriers in the OCA as needed to satisfy the Physical Protection Program design requirements of 10 CFR 73.55(b). The provisions of 10 CFR 73.55(i)(5)(ii) require in part, the licensee to provide continuous surveillance, observation, and monitoring of the OCA. The provisions of 10 CFR 73.55(i)(5)(ii) state that these responsibilities may be performed by security personnel during continuous patrols, through the use of video technology or with a combination of both.

Section 15.5.1 of the PSP describes the processes used to meet this requirement. The PSP discusses the process to be used and provides details regarding the implementation of OCA surveillance techniques are found in the facility procedures. The PSP includes a discussion regarding the implementation of manned and video options for the patrol and surveillance of the OCA.

2. Protected and Vital Area Patrols

The provisions of 10 CFR 73.55(i)(5)(iii) through (viii) require, in part, that armed patrols check unattended openings that intersect a security boundary such as an underground pathway; check external areas of the PA and vital area portals; periodically inspect vital areas; conduct random patrols of accessible target set equipment; be trained to recognize obvious tampering and if detected, initiate an appropriate response in accordance with established plans and procedures.

Section 15.5.2 of the PSP describes the process the applicant employs to meet the above requirements. The PSP describes the areas of the facility that will be patrolled and observed as well as the frequency of these patrols and observations. The applicant addresses observations for the detection of tampering in Section 14.2 of the PSP and in the facility procedures.

NRC staff reviewed the applicant's descriptions in PSP Sections 15, 15.1 through 15.4, 15.5.1, and 15.5.2 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(b) and (i) and are therefore acceptable.

13.6.4.1.16 Communications

The provisions of 10 CFR 73.55(j)(1) through (6) describe the requirements for the establishment and maintenance of a continuous communication capability with both onsite and offsite resources to ensure effective command and control, during both normal and emergency situations. Alarm stations must be capable of calling for assistance, on-duty security force personnel must be capable of maintaining continuous communication with each alarm station and vehicle escort, and personnel escorts must maintain timely communication with security personnel. Continuous communication capabilities must terminate in both alarm stations, between the LLEA and the control room. Nonportable communications must remain operable from independent power sources, and the licensee must identify areas where communications could be interrupted or not maintained.

Notifications (Security Contingency Event Notifications)

Section 16.1 of the PSP states that the applicant has a process to ensure that continuous communications are established and maintained between the onsite security force staff and the offsite support agencies.

System Descriptions

Section 16.2 of the PSP describes the establishment and maintenance of the communications system. Detailed descriptions of security systems are included in the facility procedures. The applicant has access to both hard-wired and alternate communication systems. Site security personnel are assigned communications devices with which to maintain continuous communications with the CAS and SAS. All personnel and vehicle are assigned communication resources with which to maintain continuous communications. Continuous communication protocols are available between the CAS, the SAS, and the control room.

NRC staff reviewed the applicant's descriptions in PSP Sections 16, 16.1 and 16.2 for the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the PSP descriptions meet the requirements of 10 CFR 73.55(j)(1) through (6) and are therefore acceptable.

13.6.4.1.17 Reviews, Evaluations, and Audits of the Physical Security Program

The provisions of 10 CFR 73.55(m) require, in part, that each element of the Physical Protection Program will be reviewed at least every 24 months. Reviews shall be conducted (1) within 12 months following initial implementation of the Physical Protection Program; or (2) within 12 months after a change in personnel, procedures, equipment, or facilities that could have a potentially adverse affect on security; or (3) as necessary based on site-specific analysis assessments or on other performance indicators. Reviews must be conducted by individuals

who are independent of the security program and must include the plans, implementing procedures, and local law enforcement commitments. Results of reviews shall be presented to senior management above the level of the security manager, and findings must be entered in the site's Corrective Action Program.

Section 17 of the PSP states that, the Physical Security Program is reviewed 12 months following initial implementation and at least every 24 months by individuals independent of both security program management and personnel who have a direct responsibility for implementation of the security program. The Physical Security Program review includes, but not limited to, an audit of the effectiveness of the Physical Security Program, cyber security plans, implementing procedures, safety/security interface activities, the testing, maintenance, and calibration program, and response commitments by local, State, and Federal law enforcement authorities.

A review shall be conducted as necessary based on site-specific analyses, assessments, or other performance indicators as soon as reasonably practical, but no longer than 12 months, after changes occur in personnel, procedures, equipment, or facilities that could potentially have an adverse effect on safety/security.

The results and recommendations of the Physical Security Program review, management's findings on whether the Physical Security Program is currently effective. A report will document any actions taken as a result of recommendations from prior program reviews. The report will be provided to plant management and to appropriate corporate management at least one level higher than managers with responsibility for the day-to-day plant operations. These reports are maintained in an auditable form and are available for inspection.

Findings from the onsite Physical Security Program reviews are entered into the facility's Corrective Action Program.

NRC staff issued **RAIs 13.06-14** and **13.06-10** requesting the applicant to address the requirements of 10 CFR 73.58 concerning the safety/security interface.

The applicant's response to **RAI 13.06-14** states that administrative controls for the safety and security interfaces will be addressed in site implementing procedures, and a revision to the FSAR will address this item. The RAI response also included the FSAR description to address safety and security interface in site procedures.

The staff reviewed the applicant's proposed FSAR safety and security interface description and the response that stated the intent to revise the COL application, Part 2, FSAR Subsection 13.5.3.4.1, "Administrative Procedures," to incorporate requirements for the safety/security interface. The staff aslos reviewed applicant's documented process for reviewing safety and security interface for the application process in the response to **RAI 13.06-10**. The staff found that the applicant's responses to **RAI 13.06-14** and **RAI 13.06-10** meet the requirements of 10 CFR 73.58 and are therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision STP Units 3 and 4 is being tracked as **Confirmatory Item 13.06-05.**

The staff reviewed the applicant's description in PSP Section 17 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations NUREG-0800 and acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that

the description in the PSP meets the requirements of 10 CFR 73.55(m) and is therefore acceptable.

13.6.4.1.18 Response Requirements

The provisions of 10 CFR 73.55(k) require, in part, that the licensee establish and maintain a properly trained, qualified, and equipped security force to interdict and neutralize threats up to and including the DBT defined in 10 CFR 73.1 to prevent significant core damage and spent fuel sabotage. To meet this objective, the licensee must ensure that necessary equipment is in supply, and that the equipment is working and is readily available. The licensee must ensure that training is provided to all armed members of the security organization who will be available onsite to implement the applicant's protective strategy, as described in the facility procedures and in 10 CFR Part 73, Appendix C. The licensee must have facility procedures to reconstitute armed response personnel and to establish working agreement(s) with LLEAs. The applicant must implement a threat warning system to accommodate heightened security threats and coordination with NRC representatives.

Section 18 of the PSP describes an armed response team, responsibilities, training, and equipment and requires a number of armed response force personnel to be immediately available at all times to implement the site's protective strategy. The applicant must ensure that training is conducted in accordance with the requirements of 10 CFR Part 73, Appendix B, which will ensure implementation of the site protective strategy in accordance with 10 CFR Part 73, Appendix C. Procedures are in place to reconstitute the armed response personnel as are agreements with LLEA. Procedures are in place to manage the threat warning system.

In the Revision 1 of the ICE, the applicant provides additional details concerning the implementation of the site's physical protective strategy (i.e., the initial position of an armed response team and site-specific layout features).

NRC staff reviewed the applicant's description in PSP Section 18 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the PSP meets the requirements of 10 CFR 73.55(k) and is therefore acceptable.

13.6.4.1.19 Special Situations Affecting Security

The provisions of 10 CFR 73.58 require that each operating nuclear power reactor licensee with a license issued under 10 CFR Part 50 or 10 CFR Part 52 shall comply with the following requirements: The licensee shall assess and manage the potential for adverse effects on safety and security, including the site emergency plan, before implementing changes to plant configurations, facility conditions, or security; the scope of changes to be assessed and managed must include planned and emergent activities (such as, but not limited to, physical modifications, procedural changes, changes to operator actions or security assignments, maintenance activities, system reconfiguration, access modification or restrictions, and changes to the security plan and its implementation); where potential conflicts are identified, the licensee shall communicate them to appropriate licensee personnel and take compensatory and/or mitigative actions to maintain safety and security under applicable Commission regulations, requirements, and license conditions.

Section 19 of the PSP includes requirements for assessments to manage the increased risk of special situations affecting security.

Refueling/Major Maintenance

Section 19.1 of the PSP states that for refueling or major maintenance activities, the PSP states that security procedures identify measures for implementation actions before refueling or major maintenance activities. These measures include controls to ensure that (1) a search is conducted before revitalizing an area, (2) protective barriers and alarms are fully operational, and (3) there is post-maintenance performance testing to ensure the operational readiness of equipment per 10 CFR 73.55(n)(8).

Construction and Maintenance

Section 19.2 of the PSP states that during periods of construction and maintenance when temporary modifications are necessary, the applicant will implement measures that provide for equivalency in the physical protective measures and features impacted by the activities such that physical protection measures are not degraded. The process for making such changes or modifications is in the facility procedures.

NRC staff reviewed the applicant's descriptions in PSP Sections 19, 19.1, and 19.2 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the descriptions in the PSP meets the requirements of 10 CFR 73.55(n)(8) and 10 CFR 73.58 and are therefore acceptable.

13.6.4.1.20 Maintenance, Testing, and Calibration

The provisions of 10 CFR 73.55(n) require the licensee to establish, maintain, and implement a Maintenance, Testing, and Calibration Program to ensure that security systems and equipment, including secondary and uninterruptible power supplies, are tested for operability and performance at predetermined intervals; are maintained in an operable condition; and are capable of performing their intended functions. The regulation requires licensees to describe their Maintenance, Testing, and Calibrations Program in the PSP; implementing procedures describe the details of and intervals for conducting these activities. Licensee procedures must identify criteria for documenting deficiencies in the Corrective Action Program and ensure data protection, in accordance with 10 CFR 73.21. The licensee must conduct periodic operability testing of the intrusion alarm system and must conduct performance testing in accordance with the PSP and implementing procedures. Communication equipment must be tested at least daily, and search equipment must also be tested periodically. Procedures must be established for testing equipment located in hazardous areas, and procedures must be established for returning equipment to service after each repair.

Sections 20.1 through 20.6 of the PSP describe the Maintenance, Testing, and Calibration Program for security-related equipment. Section 20.1 states that the applicant shall conduct intrusion detection testing in accordance with RG 5.44. Each operational component required for the implementation of the security program is, at a minimum, tested in accordance with 10 CFR 73.55(n), the PSP, and implementing procedures.

NRC staff issued **RAI 13.06.01-24** requesting the applicant to address the requirements of 10 CFR 73.55(n)(1)(ii) concerning testing options in RG 5.44.

The applicant's response provided a PSP description that addressed the testing options of RG 5.44. The staff reviewed the applicant's response to **RAI 13.06.01-24** and found that it meets the requirements of 10 CFR 73.55(n)(1)(ii) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01.24.**

The staff issued **RAI 13.06.01-25** requesting the applicant to address the requirements of 10 CFR 73.55(e)(3) concerning an incorrect reference regarding "bullet resistance."

The applicant's response to this RAI provides a PSP description for the error identified in the bullet resistance. The staff reviewed the applicant's response to **RAI 13.06.01-25** and found that the PSP description meets the requirements of 10 CFR 73.55(e)(3) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-25**.

The staff reviewed the applicant's descriptions in PSP Sections 20 and 20.1 through 20.6 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(n) and are therefore acceptable.

13.6.4.1.21 Compensatory Measures

The provisions of 10 CFR 73.55(o) require, in part, that the licensee shall identify criteria and measures to compensate for degraded or inoperable equipment, systems, and components to meet the requirements of this section. Compensatory measures must provide a level of protection that is equivalent to the protection provided by the degraded or inoperable, equipment, system, or components. Compensatory measures must be implemented within specific time frames that are necessary to meet the appropriate portions of 10 CFR 73.55(b) and are described in the security plans.

Section 21 of the PSP identifies measures and criteria required to compensate for degraded or inoperable equipment, systems, and components, in accordance with 10 CFR 73.55(o), to assure that the effectiveness of the physical protection system is not reduced by failure or other contingencies affecting the operation of the security-related equipment or structures. PSP Sections 21.1 through 21.12 address PA and vital area barriers, intrusion detection and alarm systems, lighting, alarm systems, fixed and nonfixed closed circuit television, play-back and recorded video systems, computer systems, access control devices, vehicle barrier systems, channeling barrier systems, and other security-related equipment.

NRC staff reviewed the applicant's descriptions in PSP Sections 21 and 21.1 through 21.12 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG 0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(o) and are therefore acceptable.

13.6.4.1.22 Records

The provisions of 10 CFR Part 26; 10 CFR 73.55(q); 10 CFR 73.56(k) and (o); 10 CFR Part 73, Appendix B, Section VI.H, Appendix C, Section II.C; and 10 CFR 73.70 require, in part, that the licensee must retain and maintain all records required to be kept by the Commission regulations, orders, or license conditions until the Commission terminates the license for which the records were developed. The applicant shall also maintain superseded portions of these records for at least 3 years after the record is superseded, unless otherwise specified by the Commission. The licensee is required to keep records of contracts with any contracted security force that implements any portion of the onsite Physical Protection Program for the durations of the contract. The licensee must make all records available to the Commission that the Commission requires the applicants to keep and the Commission may inspect, copy, retain, and remove all such records, reports, and documents whether kept by the licensee or by a contractor. Review and audit reports must be maintained and be available for inspection for a period of 3 years.

Section 22 of the PSP addresses the requirements for maintaining records. Sections 22.1 through 22.13 address each kind of record that the applicant will maintain and the duration of retention for each record. The following types of records are maintained in accordance with the above mentioned regulations: Access Authorization Records; Suitability, Physical, and Psychological Qualification records for Security Personnel; PA and VA Access Control Records; PA Visitor Access Records; PA Vehicle Access; VA Access Transaction Records; Vitalization and Devitalization Records; VA Access List Reviews; Security Plans and Procedures; Security Patrols, Inspections and Tests; Maintenance; CAS and SAS Alarm Annunciation and Security Response Records; Local Law Enforcement Agency Records; Records of Audits and Reviews; Access Control Devices; Security Training and Qualification Records; Firearms Testing, and Maintenance Records; and an Engineering Analysis for the Vehicle Barrier System.

NRC staff reviewed the applicant's descriptions in PSP Sections 22 and 22.1 through 22.13 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(q), 10 CFR 73.55(o), and 10 CFR 73.70 and are therefore acceptable.

13.6.4.1.23 Digital Systems Security

Section 23 of the PSP addresses digital systems security. The applicant states in the PSP that the requirements of 10 CFR 73.54 are implemented. The applicant maintains a cyber security plan that describes how it provides a high assurance that safety, security, and emergency preparedness functions are protected against the DBT.

The staff's review of the cyber security plan is in Section 13.8. of this SER.

13.6.4.1.24 Temporary Suspension of Security Measures

The provisions of 10 CFR 73.55(p) allow the licensee to "suspend implementation of affected requirements of this section under the following conditions: In accordance with 10 CFR 50.54(x) and 50.54(y) of this chapter, the licensee may suspend any security measures under this section in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can

provide adequate or equivalent protection is immediately apparent. This suspension of security measures must be approved as a minimum by a licensed senior operator before taking this action. During severe weather when the suspension of affected security measures is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the license conditions and technical specifications can provide adequate or equivalent protection. This suspension of security measures must be approved, as a minimum, by a licensed senior operator, with input from the security supervisor or manager, before taking this action."

Suspension of Security Measures In Accordance with 10 CFR 50.54(x) and (y)

Section 24.1 of the PSP addresses the suspension of security measures in accordance with 10 CFR 50.54(x) and 10 CFR 50.54(y). Specifically, the plan describes the conditions under which a suspension is permissible, where the authority for a suspension resides, and the requirements for reporting such a suspension.

Suspension of Security Measures During Severe Weather or Other Hazardous Conditions

As required in 10 CFR 73.55(p), the suspension of security measures is reported and documented in accordance with the provision of 10 CFR 73.71. This suspension of security measures must be approved, at a minimum, by a licensed senior operator with input from the security supervisor or manager before taking this action. Suspended security measures must be reinstated as soon as conditions permit.

Section 24.2 of the PSP provides that certain security measures may be temporarily suspended during circumstances such as imminent, severe or hazardous weather conditions, but only when such action is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the security measures can provide adequate or equivalent protection. Under the PSP, suspended security measures shall be restored as soon as practical.

NRC staff reviewed the applicant's descriptions in PSP Sections 24, 24.1, and 24.2 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations NUREG–0800 acceptance criteria. Because the applicant's descriptions in the PSP are consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the descriptions in the PSP meet the requirements of 10 CFR 73.55(p) and are therefore acceptable.

13.6.4.1.25 Appendix A Glossary of Terms and Acronyms

NRC staff reviewed Appendix A, "Glossary of Terms and Acronyms," and found the glossary to be consistent with the endorsed NEI 03–12, Revision 6.

The staff issued **RAI 13.06.01-25** requesting the applicant to address the bullet resisting standard typographical error.

The applicant's response to **RAI 13.06.01-25** provides a PSP description for the error identified in the bullet resistance. The staff reviewed the applicant's response to **RAI 13.06.01-25** and found that the PSP description meets the requirements of 10 CFR 73.55(e)(3) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-25**

The staff issued **RAI 13.06.01-26** requesting the applicant to address the requirements of 10 CFR 73.55(h) concerning the definition of "Contraband."

The applicant's response to **RAI 13.06.01-26** provides a PSP description that revises the definition of "Contraband." The staff reviewed the applicant's response to **RAI 13.06.01-26** and found that the revised PSP description for the definition of "Contraband" meets the requirements of 10 CFR 73.55(h) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-26**.

The staff issued **RAI 13.06.01-27** requesting the applicant to address the requirements of 10 CFR 73.55(b)(9) concerning the definition of "Insider."

The applicant's response to **RAI 13.06.01-27** provides a PSP description that revises the definition of "Insider." The staff reviewed the applicant's response to **RAI 13.06.01-27** and found that the revised PSP description for the definition of "Insider" meets the requirements of 10 CFR 73.55(b)(9) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-27**.

Appendix A Glossary of Terms and Acronyms

NRC staff reviewed Appendix A, "Glossary of Terms and Acronyms," and found the glossary to be consistent with the endorsed NEI 03-12, Revision 6.

13.6.4.1.26 Conclusions on the Physical Security Plan

On the basis of the NRC staff's review described in Subsections 13.6.4.1.1 through 13.6.4.1.25 of this SER, the staff found that the PSP meets the requirements of 10 CFR 73.55(a) through (r). The target sets, Target Set Analysis and Site Protective Strategy are contained in the facility implementing procedures, which were not subject to NRC review as part of this COL application and are therefore subject to future NRC inspections, in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). The staff concluded that complete and procedurally correct implementation of the PSP will provide a high assurance that activities involving special nuclear materials are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety.

13.6.4.2 *Appendix B Training and Qualification Plan*

13.6.4.2.1 Introduction

The provisions of 10 CFR 73.55(c)(4) state that the licensee shall establish, maintain, implement, and follow a T&QP that describes how the criteria set forth in 10 CFR Part 73, Appendix B will be implemented.

The provisions of 10 CFR 73.55(d)(3) state that the licensee may not permit any individual to implement any part of the Physical Protection Program unless the individual has been trained, equipped, and qualified to perform the assigned duties and responsibilities in accordance with 10 CFR Part 73, Appendix B and the T&QP. Nonsecurity personnel may be assigned duties and responsibilities required to implement the Physical Protection Program and shall

(i) Be trained through established licensee training programs to ensure that each individual is trained, qualified, and periodically requalified to perform assigned duties.

(ii) Be properly equipped to perform assigned duties.

(iii) Possess the knowledge, skills, and abilities, to include physical attributes such as sight and hearing, required to perform their assigned duties and responsibilities.

In addition, 10 CFR Part 73, Appendix B, Section VI.D.2.(a) states that armed and unarmed individuals shall be requalified at least annually, in accordance with the requirements of the Commission-approved T&QP.

The T&QP describes that its purpose is to address the requirements found in 10 CFR Part 73, Appendix B, Section VI. The objective of the plan is to provide a mechanism to ensure that members of the security organization—and all others who have duties and responsibilities implementing the security requirements and protective strategy—are properly trained, equipped, and qualified. Deficiencies identified during the administration of the T&QP requirements are documented in the site's Corrective Action Program.

The NRC staff reviewed the introductory section in the T&QP and determined that it includes all of the programmatic elements necessary to satisfy the requirements of 10 CFR 73.55 and 10 CFR Part 73, Appendix B, Section VI that are applicable to the T&QP. Additional section-by-section evaluations and discussions are found in the following paragraphs.

13.6.4.2.2 Employment Suitability and Qualification

The following T&QP sections describe the requirements for mental qualifications, documentation, and physical requalification for security personnel (applicant employee and contractor).

Suitability

The provisions of 10 CFR Part 73, Appendix B, SectionVI.B.1.(a) requires, in part, that before employment or assignment to the security organization, an individual shall (1) possess a high school diploma or pass an equivalent performance examination designed to measure basic mathematical, language, and reasoning skills, abilities, and knowledge required to perform security duties and responsibilities; (2) have attained the age of 21 for an armed capacity or the age of 18 for an unarmed capacity; and (3) not have any felony convictions that reflect on the individual's reliability. Individuals in an armed capacity will not be disqualified from possessing or using firearms or ammunition, in accordance with applicable State or Federal laws including 18 U.S.C. 922. Licensees shall use information obtained during the completion of the individual's background investigation for unescorted access to determine suitability. The satisfactory completion of a firearm background check for the individual in 10 CFR 73.19 will also fulfill this requirement. The provisions of 10 CFR Part 73, Appendix B, Section VI.B.1.(b) requires that the qualification of each individual to perform assigned duties and responsibilities must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.1 of the T&QP details the qualification requirements for employment in the security organization that follows the regulation in 10 CFR Part 73, Appendix B, Section VI.B.1.(a).

Physical Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2 require, in part, that individuals whose duties and responsibilities are directly associated with the effective implementation of the Commission-approved security plans, licensee protective strategy, and implementing procedures may not have any physical conditions that would adversely affect the performance of their assigned security duties and responsibilities.

Section 2.2 of the T&QP details individuals directly associated with implementation of the security plans. The protective strategy and procedures may not have any physical conditions that would adversely affect their performance of assigned security duties and responsibilities. All individuals on the Critical Task Matrix shall demonstrate the necessary physical qualifications before assuming their duties.

Physical Examination

The provisions in 10 CFR Part 73, Appendix B, Section VI.B.2.(a)(2) state that armed and unarmed individuals assigned to security duties and responsibilities shall be subject to a physical examination designed to measure the individual's physical ability to perform the assigned duties and responsibilities as identified in the Commission-approved security plans, licensee protective strategy, and implementing procedures.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2.(a)(3) state, in part, that the physical examination must be administered by a licensed health professional, with the final determination made by a licensed physician to verify the individual's physical capability to perform assigned duties and responsibilities.

The provisions of 10 CFR Part 73, Appendix B, Sections VI.B.2.(a)(4)(b) through (e) provide the minimum requirements that individuals must meet and include requirements for vision, hearing, a review of existing medical conditions, and an examination for potential addictions.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2.(f) address a medical examination before returning to assigned duties following any incapacitation.

Section 2.3 of the T&QP describes the physical examinations for armed and unarmed individuals assigned to security duties, as well as other individuals who implement parts of the Physical Protection Program. Minimum requirements exist for physical examinations of vision, hearing, existing medical conditions, and addiction or other physical requirements.

NRC staff reviewed the applicant's descriptions in T&QP Sections 2.1, 2.2, and 2.3 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the T&QP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that these description meet the requirements of 10 CFR Part 73, Appendix B, Sections VI.B.1 and B.2 and are therefore acceptable.

Medical Examinations and Physical Fitness Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.4.(a) require, in part, that armed members of the security organization shall be subject to a medical examination by a licensed physician to determine the individual's fitness to participate in physical fitness tests, and the

licensee shall obtain and retain a written certification from the licensed physician that no medical conditions were disclosed by the medical examination that would preclude the individual's ability to participate in the physical fitness tests or meet the physical fitness attributes or objectives associated with assigned duties.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.4.(b) require, in part, that before an assignment, armed members of the security organization shall demonstrate physical fitness for assigned duties and responsibilities by performing a practical physical fitness test. The physical fitness test must consider physical demands such as strenuous activity, physical exertion, levels of stress, and exposure to the elements as they pertain to each individual's assigned security duties. The physical fitness qualification of each armed member of the security organization must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.4 of the T&QP is explicit in its requirements for medical examinations and physical qualifications.

NRC staff issued **RAI 13.06.01-28** requesting the applicant to address the incorrect reference in Section 2.4 of the T&QP.

The applicant's response to **RAI 13.06.01-28** provides a T&QP description that corrects the reference. The staff reviewed the applicant's response to RAI 13.06.01-28 and found that the revised T&QP description with the corrected meets the requirements of 10 CFR 73.55(b)(4) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-28**.

The staff issued **RAI 13.06.01-29** requesting the applicant to address the physical fitness test described in Section 2.4 of the T&QP.

The applicant's response to **RAI 13.06.01-29** provides a T&QP description that addresses the requirements for a physical fitness test. The staff reviewed the applicant's response to **RAI 13.06.01-29** and found that the revised T&QP description for physical fitness meets the requirements of 10 CFR Part 73 Appendix B Section VI, paragraph B.4.b and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-29**.

NRC staff reviewed the applicant's description in T&QP Section 2.4 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.B.4(a) and 10 CFR Part 73, Appendix B, Section VI.B.4(b) and is therefore acceptable.

Psychological Qualifications

1. General Psychological Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(a) require, in part, that armed and unarmed individuals shall demonstrate the ability to apply good judgment, mental alertness, the capability to implement instructions and assigned tasks, and to possess the acuity of senses and ability of expression sufficient to permit accurate written, spoken, audible, and visible

communication or communicating by using other signals required by assigned duties and responsibilities.

Section 2.5.1 of the T&QP states that individuals whose security tasks and jobs are directly associated with the effective implementation of the security plan and protective strategy shall demonstrate the qualities in 10 CFR Part 73, Appendix B, Section VI.B.3(a).

2. Professional Psychological Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3.(b) require, in part, that a licensed psychologist, psychiatrist, or physician trained in part to identify emotional instability shall determine whether armed members of the security organization and alarm station operators, in addition to meeting the requirements stated in paragraph (a) of this section, have no emotional instabilities that would interfere with the effective performance of assigned duties and responsibilities.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(c) require that a person professionally trained to identify emotional instability shall determine whether unarmed individuals, in addition to meeting the requirements stated in paragraph (a) of this section, have no emotional instability that would interfere with the effective performance of assigned duties and responsibilities.

Section 2.5.2 of the T&QP provides for the administration of psychological and emotional determinations that will be conducted by appropriately licensed and trained individuals.

NRC staff reviewed the applicant's descriptions in T&QP Sections 2.5.1 and 2.5.2 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the T&QP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the T&QP meet the requirements of 10 CFR Part 73, Appendix B, Sections VI.B.3.(a), (b), and (c) and are therefore acceptable.

Documentation

The provisions of 10 CFR Part 73, Appendix B, Section VI.H.1 require, in part, the retention of all reports, records, or other documentation required by Appendix B and 10 CFR 75.55(q).

Section 2.6 of the T&QP states that qualified training instructors create the documentation for training activities and security supervisors attest to these records, as required. Records are retained in accordance with Section 22 of the PSP.

NRC staff reviewed the applicant's description in T&QP Section 2.6 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.H.1 and is therefore acceptable.

Physical Requalification

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.5 require that (a) at least annually, armed and unarmed individuals shall be required to demonstrate the capability to meet the physical requirements of this appendix and the licensee's T&QP; and (b) the physical requalification of each armed and unarmed individual must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.7 of the T&QP states that physical requalification is conducted at least annually and documented as described in the PSP.

NRC staff reviewed the applicant's description in T&QP Section 2.7 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.B.5 and is therefore acceptable.

13.6.4.2.3 Individual Training and Qualification

Duty Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.1 provides for duty training and qualification requirements. The regulation states, in part, that all personnel who are assigned to perform any security-related duty or responsibility shall be trained and qualified to perform assigned duties and responsibilities to ensure that each individual possesses the minimum knowledge, skills, and abilities required to effectively carry out those assigned duties and responsibilities. These areas of training include (1) performing assigned duties and responsibilities in accordance with the requirements of the T&QP and the PSP, and (2) being trained and qualified in the use of all equipment or devices required to effectively perform all assigned duties and responsibilities.

Section 3.1 of the T&QP details the requirements that individuals must be trained in their assigned duties, meet minimum qualifications, and be trained and qualified in all equipment or devices required to perform their duties.

NRC staff reviewed the applicant's descriptions in T&QP Sections 3.0 and 3.1 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the T&QP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the T&QP meet the requirements of 10 CFR Part 73, Appendix B, Section VI.C.1 and are therefore acceptable.

On-the-Job Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.2.(a) through (c) provide requirements for on-the-job training. On-the-job training must include individual demonstrations during the training process of the necessary knowledge, skills, and abilities. Individuals assigned contingency duties must complete a minimum of 40 hours of on-the-job training.

On-the-job training for contingency activities and drills must include, but is not limited to, hands-on application of knowledge, skills, and abilities related to (1) response team duties; (2) use of force; (3) tactical movement; (4) cover and concealment; (5) defensive positions; (6) fields of fire; (7) redeployment; (8) communications (primary and alternate); (9) use of assigned equipment; (10) target sets; (11) table top drills; (12) command and control duties; and (13) the licensee protective strategy.

The T&QP provides a comprehensive discussion of the applicant's approach to meeting the requirements for on-the-job training.

NRC staff reviewed the applicant's description in T&QP Section 3.2 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.2(a) through (c) and is therefore acceptable.

Critical Task Matrix

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.2.(b) require, in part, that each individual who is assigned duties and responsibilities identified in the Commission-approved security plans, the licensee protective strategy, and the implementing procedures shall, before assignment, demonstrate proficiencies in implementing the knowledge, skills, and abilities to perform the assigned duties.

The T&QP contains a critical task matrix as Table 1 of the T&QP. This matrix addresses the means through which each individual will demonstrate the required proficiencies. Tasks that individuals must perform are listed in RG 5.75.

NRC staff reviewed the applicant's description in T&QP Section 3.3 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.2.(b) and is therefore acceptable.

Initial Training and Qualification Requirements

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.1.(a) through (b) provide the requirements for duty training.

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1.(a) provide requirements for demonstrating qualifications.

Section 3.4 of the T&QP adds that individuals are trained and qualified before performing security-related duties in the security organization and must meet the minimum qualifying standards in Subsections 3.4.1 and 3.4.2.

Written Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1.(b)(1) state that written exams must include those elements listed in the Commission-approved T&QP to demonstrate an acceptable understanding of assigned duties and responsibilities and to include the recognition of potential tampering involving both safety and security equipment and systems.

Hands-On Performance Demonstration

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1.(b)(2) require that armed and unarmed individuals shall demonstrate hands-on performance of assigned duties and responsibilities by performing a practical hands-on demonstration for required tasks. The hands-on demonstration must ensure that the theory and associated learning objectives for each required task are considered and each individual demonstrates the knowledge, skills, and abilities required to effectively perform the task.

Sections 3.4.1 and 3.4.2 of the T&QP describe the measures the applicant will implement to meet the requirements stated above.

NRC staff reviewed the applicant's descriptions in T&QP Sections 3.4, 3.4.1, and 3.4.2 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the T&QP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the T&QP meet the requirements of 10 CFR Part 73, Appendix B, Sections VI.C.1 and D.1 and are therefore acceptable.

Continuing Training and Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.2 state, in part, that armed and unarmed individuals shall be requalified at least annually, in accordance with the requirements of this appendix and the Commission-approved T&QP. The results of requalification must be documented by a qualified training instructor and attested to by a security supervisor.

Section 3.5 of the T&QP discusses the management of the Requalification Program to ensure that each individual is trained and qualified. In part, the applicant's plan provides that annual requalification may be completed up to 3 months before or 3 months after the scheduled date. However, the next annual training must be scheduled 12 months from the previously scheduled date rather than the date the training was actually completed.

NRC staff reviewed the applicant's description in T&QP Section 3.5 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.D.2 and is therefore acceptable.

Annual Written Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1.(3) statee that armed individuals shall be administered an annual written exam that demonstrates the required knowledge, skills, and abilities to carry out assigned duties and responsibilities as an armed member of the

security organization. The annual written exam must include those elements listed in the Commission-approved T&QP to demonstrate an acceptable understanding of assigned duties and responsibilities.

Section 3.5.1 of the T&QP provides that each individual will be tested, in part, with an annual written exam that, at a minimum, covers the role of security personnel; the use of deadly force; the requirements in 10 CFR 73.21; authority of private security personnel; the power of arrest; search and seizure; offsite law enforcement responses; and tactics, tactical deployment, and engagement.

NRC staff reviewed the applicant's description in T&QP Section 3.5.1 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.D.1.(3) and is therefore acceptable.

Demonstration of Knowledge Skills, and Abilities

The provisions of 10 CFR Part 73 Appendix B Section VI, A.4, B.2.(c)(2), B.3.(a), B.4.(b)(1), B.4.(b)(3), B.5.(a), C.2.(a), C.2.(b), C.3.(a), C.3.(b), C.3.(d), D.1.(a), D.1.(b)(1), D.1.(b)(2), D.1.(b)(3), an D.1.(c) state, in part, that an individual must demonstrate required knowledge, skills, and abilities to carry out assigned duties and responsibilities.

Section 3.5.2 of the T&QP states that all knowledge, skills and abilities will be demonstrated in accordance with a Systematic Approach to Training (SAT) Program, similar to what is described in RG 5.75.

NRC staff reviewed the applicant's description in T&QP Section 3.5.2 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.A, B, C, and D and is therefore acceptable.

Weapons Training and Qualification

1. General Firearms Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.E state that armed members of the security organization shall be trained and qualified in accordance with the requirements of this appendix and the Commission-approved T&QP. Training must be conducted by certified firearms instructors who shall be recertified at least every 3 years. Licensees shall conduct annual firearms familiarization and armed members of the security organization must participate in weapons range activities on a nominal 4-month periodicity.

Section 3.6.1 of the T&QP addresses the requirements in 10 CFR Part 73, Appendix B, Section VI.E.1.(d)(1) through (11) and includes the requirements for training in the use of deadly force and participation in weapons range activities on a nominal 4-month periodicity.

NRC staff reviewed the applicant's description in T&QP Section 3.6.1 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.E.1 and is therefore acceptable.

2. General Weapons Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.1. "Weapons Qualification and Requalification Program," require that qualification firing must be accomplished in accordance with Commission requirements and the Commission-approved T&QP for assigned weapons. The results of weapons qualification and requalification must be documented and retained as a record.

Section 3.6.2 of the T&QP states that all armed personnel are qualified and requalified in assigned weapons. All weapons qualifications and requalification will be documented and retained as a record.

NRC staff reviewed the applicant's description in T&QP Section 3.6.2 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.1 and is therefore acceptable.

3. Tactical Weapons Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.2 require that the licensee conduct tactical weapons qualifications. The licensee's T&QP must describe the firearms used, the Firearms Qualification Program, other tactical training required to implement the Commission-approved security plans and the licensee's protective strategy, and implementing procedures. The licensee will develop tactical qualification and requalification courses that must describe the performance criteria needed to include the site-specific conditions (such as lighting, elevation, and fields-of-fire) under which assigned personnel shall be required to carry out their assigned duties.

Section 3.6.3 of the T&QP states that a tactical qualification course of fire is to be used to assess armed security force personnel in tactical situations to ensure that they are able to demonstrate the required tactical knowledge, skills, and abilities to remain proficient.

NRC staff reviewed the applicant's description in T&QP Section 3.6.3 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.3 and is therefore acceptable.

Firearms Qualification Courses

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.3 state, in part, that the licensee shall conduct the following qualification courses for each weapon used: (a) an annual daylight fire qualification course; and (b) an annual night fire qualification course.

Courses of Fire

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.4 describe required courses of fire.

Section 3.6.4 of the T&QP describes the firearms qualification courses used to ensure that armed members of the security organization are properly trained and qualified. Firearm courses are conducted individually for handguns, shotguns, semiautomatic rifles, and enhanced weapons.

NRC staff reviewed the applicant's description in T&QP Section 3.6.4 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.3 and 10 CFR Part 73, Appendix B, Section VI.F.4 and is therefore acceptable.

Firearms Requalification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.5 state that armed members of the security organization shall be requalified for each assigned weapon at least annually, in accordance with Commission requirements and the Commission-approved T&QP, and the results documented and retained as a record. Firearms requalification must be conducted using the courses of fire outlined 10 CFR Part 73,,Appendix B, Sections VI.F.2, VI.F.3, and VI.F.4.

Section 3.6.5 of the T&QP states that armed members of the security organization are requalified at least annually with each weapon assigned using the courses of fire in the T&QP.

NRC staff reviewed the applicant's description in T&QP Section 3.6.5 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.5 and is therefore acceptable.

Weapons, Personal Equipment, and Maintenance

The provisions of 10 CFR Part 73 Appendix B, Section VI.G provide the requirements for the maintenance of weapons and personal equipment. These requirements state that the licensee shall provide armed personnel with weapons that are capable of performing the function stated in the Commission-approved security plans, the licensee's protective strategy, and implementing procedures. In addition, the licensee shall ensure that each individual is equipped with or has ready access to all personal equipment or devices required for the effective implementation of the Commission-approved security plans, the licensee's protective strategy, and implementing procedures.

Section 3.7 of the T&QP states that personnel are provided with weapons and personal equipment necessary to meet the plans and the protective strategy. The equipment is described in Section 9.0 of the PSP, and maintenance is performed as described in Section 20.0 of the PSP.

NRC staff reviewed the applicant's description in T&QP Section 3.7 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.G and is therefore acceptable. The staff's reviews of Sections 9.0 and 20.0 of the PSP are in Subsections 13.6.4.1.9 and 13.6.4.1.20 of this SER.

Documentation

The provisions of 10 CFR Part 73 Appendix B Section VI.H require that the licensee shall retain all reports, records, or other documentation required by this appendix in accordance with the requirements of 10 CFR 73.55(r). The licensee shall retain each individual's initial qualification record for 3 years after termination of the individual's employment and shall retain each requalification record for 3 years after it is superseded. The licensee shall document data and test results from each individual's suitability, physical, and psychological qualification and shall retain this documentation as a record for 3 years from the date of obtaining and recording these results.

Section 3.8 of the T&QP states that records are retained in accordance with Section 22 of the PSP.

NRC staff reviewed the applicant's description in T&QP Section 3.8 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.H and is therefore acceptable.

13.6.4.2.4 Performance Evaluation Program

The provisions in10 CFR Part 73, Appendix B, Section VI.C.3, "Performance Evaluation Program," states the following in part:

> (a) Licensees shall develop, implement and maintain a Performance Evaluation Program that is documented in procedures which describes how the licensee will demonstrate and assess the effectiveness of their onsite physical protection program and protective strategy, including the capability of the armed response team to carry out their assigned duties and responsibilities during safeguards contingency events. The Performance Evaluation Program and procedures shall be referenced in the licensee's Training and Qualifications Plan.
>
> (b) The Performance Evaluation Program shall include procedures for the conduct of tactical response drills and force-on-force exercises designed to demonstrate and assess the effectiveness of the licensee's physical protection program, protective

strategy and contingency event response by all individuals with responsibilities for implementing the safeguards contingency plan.

The Performance Evaluation Program must be designed to ensure, in part, that each member of each shift who is assigned duties and responsibilities required to implement the SCP and the licensee's protective strategy participates in at least one tactical response drill on a quarterly basis and one force-on-force exercise on an annual basis.

Section 4 of the T&QP describes how the Performance Evaluation Program is consistent with the requirements of 10 CFR Part 73, Appendix B, Section VI.C.3.(a) through (m). The facility procedures include additional details of the Performance Evaluation Program.

NRC staff reviewed the applicant's description in T&QP Section 4 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.3 and is therefore acceptable.

13.6.4.2.5 Definitions

The provisions of 10 CFR Part 73, Appendix B, Section VI.J state, in part, that terms defined in 10 CFR Part 50, 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," and 10 CFR Part 73 have the same meaning when used in this appendix. Definitions are in PSP Appendix A, "Glossary of Terms and Acronyms."

NRC staff reviewed the definitions sections of the PSP, which meet the requirements of 10 CFR 73.2 and are therefore acceptable.

Included in this section of the T&QP is the Critical Task Matrix, which is considered SGI and is not included in this SER.

NRC staff issued **RAI 13.06.01-30** requesting the applicant to address the absence of specific wording in T&QP Table 1, Task 18.

The applicant's response to **RAI 13.06.01-30** provides a T&QP description that addresses the absent wording in Table 1, Task 18. The staff reviewed the applicant's response to **RAI 13.06.01-30** and found that revised T&QP Table 1, Task 18 meets the requirements of 10 CFR Subpart B, 52, paragraph 52.79(a)(35)(i) and (ii) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-30**.

The staff issued **RAI 13.06.01-31** requesting the applicant to address the performance criteria stated in T&QP Table 1, Task 20, as well as in the performance methods.

The applicant's response provides a T&QP description that addresses the performance criteria captured inTable 1, Task 20. The staff reviewed the applicant's response to **RAI 13.06.01-31** and found that the revised T&QP Table 1, Task 20 meets the requirements of Appendix B Section VI, paragraph C.1 and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-31**.

NRC staff has reviewed the applicant's description in the T&QP of the Critical Task Matrix tasks for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the description in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, and is therefore acceptable.

13.6.4.2.6 Conclusion on the Training and Qualification Plan

On the basis of the NRC staff's review described in Sections 13.6.4.2.1 through 13.6.4.2.5 of this SER, the T&QP meets the requirements of 10 CFR Part 73, Appendix B. The NRC staff concluded that complete and procedurally correct implementation of the training and qualification plan will provide a high assurance that activities involving special nuclear materials are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety.

13.6.4.3 *Appendix C Safeguards Contingency Plan*

13.6.4.3.1 Background Information

This category of information identifies the perceived dangers and incidents that the plan addresses and a general description of how the response is organized.

Purpose of the Safeguards Contingency Plan

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.b state that the licensee describe the general goals, objectives and operational concepts underlying the implementation of the SCP.

Section 1.1 of the SCP details the purpose and goals of the SCP, including the guidance to security and management for contingency events.

Scope of the Safeguards Contingency Plan

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.c delineate the types of incidents that are covered by the applicant in the SCP, how the onsite response effort is organized and coordinated to effectively respond to a safeguards contingency event, and how the onsite response for safeguards contingency events has been integrated into other site emergency response procedures.

Section 1.2 of the SCP details the scope of the SCP to analyze and define decisions and actions of security force personnel, as well as facility operations personnel, to achieve and maintain a safe shutdown.

Perceived Danger

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.(a) require that, consistent with the DBT specified in 10 CFR 73.1(a)(1), the licensee shall identify and describe the perceived dangers, threats, and incidents against which the SCP is designed to protect.

Section 1.3 of the SCP outlines the threats used to design the physical protection systems.

The applicant adequately addresses perceived danger, provides a purpose of the plan, and describes the scope of the plan.

Definitions

Section 1.4 of the SCP states that a list of terms and their definitions used in describing operational and technical aspects of the approved SCP, as required by 10 CFR Part 73, Appendix C, Section II.B.1.d is in PSP Appendix A, "Glossary of Terms and Acronyms."

NRC staff reviewed the applicant's description in SCP Sections 1, 1.1, 1.2, 1.3, and 1.4 for the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in Section 13.6.1 of NUREG-0800, the staff found that the description in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.D.3 and is therefore acceptable.

13.6.4.3.2 Generic Planning Base

As required in 10 CFR Part 73, Appendix C, Section II.B.2., this section of the plan defines the criteria for the initiation and termination of responses to security events to include the specific decisions, actions, and supporting information needed to respond to each type of incident covered by the approved SCP.

Situations Not Covered by the Contingency Plan

Section 2.1 of the SCP describes the general types of conditions that are not covered in the plan.

Situations Covered by the Contingency Plan

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.a require, in part, that the plan identify those events that will be used for signaling the beginning or aggravation of a safeguards contingency, according to how they are perceived initially by licensee's personnel. Licensees shall ensure the detection of unauthorized activities and shall respond to all alarms or other indications signaling a security event, such as the penetration of a PA or vital area or an unauthorized barrier penetration (vehicle or personnel); tampering; bomb threats; or other threat warnings either verbal (such as telephoned threats) or implied (such as an escalation of civil disturbances).

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.b require, in part, that the plan defines the specific objective to be accomplished relative to each identified safeguards contingency event. The objective may be to obtain a level of awareness about the nature and severity of the safeguards contingency, so as to prepare for further responses; to establish a level of response preparedness; or to successfully nullify or reduce any adverse safeguards consequences arising from the contingency.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.c require, in part, that the licensee identify the data, criteria, procedures, mechanisms, and logistical support necessary to achieve the objectives identified.

Section 2.2 of the SCP describes in detail the specific situations covered by the SCP, including objectives and information required for each.

NRC staff reviewed the applicant's descriptions in SCP Sections 2, 2.1 and 2.2 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the SCP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the SCP meet the requirements of 10 CFR Part 73, Appendix C, Section II.B.2 and are therefore acceptable.

13.6.4.3.3 Responsibility Matrix

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4 state that this category of information consists of the detailed identification of responsibilities and specific actions to be taken by licensee organizations and/or personnel in response to safeguards contingency events. To achieve this result, the applicant must fulfill the following requirements.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.a require, in part, that the licensee develop site procedures that consist of matrixes detailing the organization and/or personnel responsible for decisions and actions associated with specific responses to safeguards contingency events. The responsibility matrix and procedures must be referenced in the licensee's SCP.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.b require, in part, that the responsibility matrix procedures shall be based on the events outlined in the licensee's generic planning base and shall include specific objectives to be accomplished, descriptions of responsibilities for decisions and actions for each event, and an overall description of response actions for each responding entity.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.c require, in part, that responsibilities are to be assigned in a manner that precludes a conflict of duties and responsibilities that would prevent the execution of the SCP and emergency response plans.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.d require, in part, that the licensee ensure that predetermined actions can be completed under the postulated conditions.

Section 3 of the SCP includes the Responsibility Matrix. The Responsibility Matrix integrates the response capabilities of the security organization (described in Section 4 of the SCP) with the background information relating to decision/actions and organizational structure (described in Section 1 of the SCP). The Responsibility Matrix provides an overall description of the response actions and their interrelationships. Responsibilities and actions have been predetermined to the maximum extent possible and assigned to specific entities to preclude conflicts that would interfere with or prevent the implementation of the SCP or the ability to protect against the DBT of radiological sabotage.

NRC staff reviewed the applicant's description in SCP Section 3 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.4 and is therefore acceptable.

13.6.4.3.4 Licensee Planning Base

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3 requires, in part, that the licensee planning base include factors affecting the SCP that are specific for each facility.

Licensee Organization

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.a require, in part, that the SCP describe the organization's chain of command and delegation of authority during safeguards contingency events to include a general description of how command and control functions will be coordinated and maintained.

Duties/Communication Protocols

Section 4.1.1 of the SCP details the duties and communication protocols of each member of the security organization responsible for implementing any portion of the applicant's protective strategy.

Security Chain of Command/Delegation of Authority

Section 4.1.2 of the SCP details the chain of command and the delegation of authority during contingency events. This section also describes the Responsibility Matrix portions of the SCP. The PSP discusses the chain of command and the delegation of authority during normal operations.

Physical Layout

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.b require, in part, that the SCP include a site map depicting the physical structures located on the site, including onsite independent spent fuel storage installations and a description of the structures depicted on the map. Plans must also include a description and map of the site in relation to nearby towns; transportation routes (e.g., rail, water, and roads); pipelines; airports; hazardous material facilities; and pertinent environmental features that may have an effect on the coordination of response activities. Descriptions and maps must indicate main and alternate entry routes for law enforcement or other offsite response and support agencies and the location for marshaling and coordinating response activities.

Section 4.2 of the SCP references Section 1.1 of the PSP for layouts of the OCAs, PAs, site maps; and descriptions of site features.

Safeguards Systems

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.c require, in part, that the SCP include a description of the physical security systems that support and influence how the licensee will respond to an event, in accordance with the DBT described in 10 CFR 73.1(a). The description must begin with onsite physical protection measures implemented at the outermost perimeter and must move inward, through those measures implemented to protect target set equipment.

Section 4.3 of the PSP states that safeguards systems are described in PSP Sections 9, 11, 12, 13, 15, and 16, and in facility implementing procedures/documents. Section 8 of the SCP describes how physical security systems will be used to respond to a threat at the site.

Law Enforcement Assistance

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.d requires, in part, that the licensee provide a listing of available law enforcement agencies and a general description of their response capabilities, their criteria for responding, and a discussion of working agreements or arrangements for communicating with these agencies.

Section 4.4 of the SCP describes the role of LLEAs in the site's protective strategy. Section 8 of the PSP and Section 5.6 of the SCP include additional details regarding LLEAs.

Policy Constraints and Assumptions

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.e require, in part, that the SCP contain a discussion of State laws, local ordinances, and company policies and practices that govern licensee responses to incidents. The SCP must also include (but is not limited to) the (1) use of deadly force; (2) recall of off-duty employees; (3) site jurisdictional boundaries; and (4) use of enhanced weapons, if applicable.

Section 4.5 of the SCP describes the site security policies, including the use of deadly force and the authority to request offsite assistance.

Administrative and Logistical Considerations

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.f require, in part, that the licensee provide descriptions of licensee practices that influence how the security organization responds to a safeguards contingency event to include (but is not limited to) a description of the procedures that will be used for ensuring that equipment needed to facilitate a response will be readily accessible, in good working order, and in sufficient supply.

Section 4.6 of the SCP outlines administrative duties of the security manager, nuclear security captain, facility procedures, and administrative forms.

NRC staff issued **RAI 13.06.01-32** requesting the applicant to address the requirements of Appendix C Section II B.3.(iii), concerning an inconsistency with a position title in the SCP.

The applicant's response states that the inconsistency will be revised in the SCP. The staff reviewed the applicant's response to **RAI 13.06.01-32** and found that it meets the requirements of Appendix C Section II B.3.(iii), and is therefore acceptable based on a revision to the SCP. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-32.**

NRC staff reviewed the applicant's descriptions in SCP Sections 4, 4.1, 4.1.1, 4.1.2, and 4.2 through 4.6 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's descriptions in the SCP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the descriptions in the SCP meet the requirements of 10 CFR Part 73 Appendix C, Section II.B.3 and are therefore acceptable.

13.6.4.3.5 Response Capabilities

This section outlines the applicant's responses to threats to the facility. Details include how the applicant will protect against the DBT with onsite and offsite organizations. The responses are consistent with the regulations of 10 CFR 50.54(p)(1); 10 CFR 73.55(k); 10 CFR Part 73, Appendix B, Section VI; and 10 CFR Part 73 Appendix C, Section II.B.3. In addition, 10 CFR Appendix C, "Introduction," states in part that it is important to note that a licensee's SCP is intended to complement any emergency plans developed pursuant to Appendix E to 10 CFR 50 and 10 CFR 52.17.

Response to Threats

Section 5.1 of the SCP states that the protective strategy is designed to defend the facility against all aspects of the DBT. Each organization has defined roles and responsibilities.

Armed Response Team

Section 5.2 of the SCP identifies individuals from the Responsibility Matrix and their role in the site's protective strategy. This section also notes the minimum number of individuals and their contingency equipment to implement the protective strategy. The applicant describes the armed response team, which is consistent with 10 CFR 73.55(k)(4), (5), (6) and (7); 10 CFR Part 73 Appendix B, Section VI; and 10 CFR Part 73 Appendix C, Section II.B.3.

NRC staff issued **RAI 13.06.01-33** requesting the applicant to address the requirements of 10 CFR 73.55(k)(6)(i) concerning a clarification of the support provided to responders.

The applicant s response to **RAI 13.06.01-33** provides a SCP description that revises Section 5.2 to provide clarity. The staff reviewed the applicant's response to RAI 13.06.01-33 and found that the revised SCP description meets the requirements of 10 CFR 73.55(k)(6)(i) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-33**.

Supplemental Security Officer

Section 5.3 of the SCP details the use of supplemental security officers in the site's protective strategy. The applicant describes the use of supplemental security officers, which is consistent with the requirements in 10 CFR 73.55(k)(4).

Facility Operations Response

Section 5.4 of the SCP details the role of operations personnel in the site's protective strategy including responsibilities, strategies, and conditions for operator actions.

Emergency Plan Response

Section 5.5 of the SCP notes the integration of the Emergency Plan (EP) with the site's protective strategy and includes some examples of how the EP can influence the protective strategy, as discussed in 10 CFR 73.55(b)(11).

Local Law Enforcement Agencies (LLEAs)

Section 5.6 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the LLEAs that will respond to the site, as a part of the protective strategy. Section 8 of the PSP includes details on the response of the LLEAs.

State Response Agencies

Section 5.7 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the State response agencies that will respond to the site, as a part of the protective strategy.

Federal Response Agencies

Section 5.8 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the Federal response agencies that will respond to the site, as a part of the protective strategy.

Response to ISFSI Events

STP does not have an independent spent fuel storage installation (ISFSI), so this section does not apply.

NRC staff reviewed the applicant's descriptions in SCP Sections 5.0 through 5.9 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations in Section 13.6.1 of NUREG–0800 acceptance criteria. Because the applicant's descriptions in the SCP are consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that these descriptions meet the requirements of 10 CFR 50.54(p)(1); 10 CFR 73.55(k); 10 CFR Part 73, Appendix B, Section VI; and 10 CFR Part 73, Appendix C, Section II.B.3 and are therefore acceptable. In addition, Appendix C, "Introduction," states in part that it is important to note that an applicant's SCP is intended to complement any EPs developed pursuant to Appendix E to 10 CFR Part 50 and 10 CFR 52.17.

13.6.4.3.6 Defense-In-Depth

Section 6 of the SCP lists the site's physical security characteristics and programs and the strategy elements that illustrate the defense-in-depth nature of the site's protective strategy, as required in 10 CFR 73.55(b)(3).

NRC staff reviewed the applicant's description in SCP Section 6 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the SCP meets the requirements of 10 CFR 73.55(b)(3) and is therefore acceptable.

13.6.4.3.7 Primary Security Functions

Section 7 of the SCP describes the primary security functions of the site and their roles in the site's protective strategy. This section also notes the development of target sets and their functions in the development of the site's protective strategy.

NRC staff issued **RAI 13.06.01-34** requesting the applicant to provide the title of the source document used to develop information in Section 7 of the SCP.

The applicant's response to **RAI 13.06.01-34** provides a SCP description that addresses the source document used to develop information in Section 7 of the SCP. The staff reviewed the applicant's response to **RAI 13.06.01-34** and found that the revised SCP description meets the requirements of 10 CFR Part 73, Appendix C, Section II B.3.c(v) and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as STP **Confirmatory Item 13.06.01-34**.

The staff reviewed the applicant's description in SCP Section 7 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the description in the SCP meets the requirements of 10 CFR 73.55(b) and is therefore acceptable.

13.6.4.3.8 Protective Strategy

Provisions of 10 CFR Part 73, Appendix C, Section II.B.3.c.(v) require that licensees develop, implement, and maintain a written protective strategy that shall (1) be designed to meet the performance objectives of 10 CFR 73.55(a) through (k); (2) identify predetermined actions, areas of responsibilities, and timelines for the deployment of armed personnel; (3) contain measures that limit the exposure of security personnel to possible attack; (4) contain a description of the physical security systems and measures that provide defense-in-depth; (5) describe the specific structure and responsibilities of the armed response organization; and (6) provide a command and control structure.

Section 8 of the SCP describes the site's protective strategy.

NRC staff issued **RAI 13.06.01-35** requesting the applicant to correct a reference in Section 8 of the SCP.

The applicant's response to **RAI 13.06.01-35** provides a SCP description that corrects the reference identified in Section 8 of the SCP. The staff reviewed the applicant's response to **RAI 13.06.01-35** and found that the revised SCP description meets the requirements of 10 CFR 50.54 and is therefore acceptable. Verification that this proposed revision to the PSP is incorporated in the next FSAR revision is being tracked as **Confirmatory Item 13.06.01-35**.

The applicant provided additional details concerning the protective strategy and physical structures and systems in Revision 2 of the ICE.

The staff reviewed the applicant's description in SCP Section 8 of the implementation of the site-specific Physical Protection Program, in accordance with Commission regulations and NUREG–0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in Section 13.6.1 of NUREG–0800, the staff found that the

description in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.3.c(v) and is therefore acceptable.

13.6.4.3.9 Conclusions on the Safeguards Contingency Plan

On the basis of the NRC staff's review described in Sections 13.6.4.3.1 through 13.6.4.3.8 of this SER, the SCP meets the requirements of 10 CFR Part 73, Appendix C, in accordance with the DBT of radiological sabotage as stated in 10 CFR 73.1. The target sets, i.e., Target Set Analysis and Site Protective Strategy, are in facility implementing procedures that were not subject to NRC review as part of this COL application and are therefore subject to future NRC inspections, in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). NRC staff concluded that the complete and procedurally correct implementation of the SCP will provide a high assurance that activities involving special nuclear materials are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety.

13.6.4.3.10 COL Information Items

NRC staff issued **RAI 13.06.06-15** requesting the applicant to address the resolution of all security combined license information items that are identified in NUREG–1503.

The applicant's response dated December 6, 2010, states that a review was completed of the ABWR DCD, in NUREG–1503 Section 13.6 and of the SGI, in SSAR Section 13.6.3, for security combined license information items. The applicant has addressed the following items in the RAI response:

COL License Information Item 13.6.2-1 requires a COL applicant to provide a site-specific physical security, safeguards contingency and training (security plans), in accordance with 10 CFR 50.34 and 10 CFR 73.55.

The applicant provides the site-specific security plans as Part 8 of the COL application.

COL License Information Item 13.6.2-2 identifies the COL applicant's determination that operational status was achieved and must be based on tests conducted under realistic operating conditions of a sufficient duration to demonstrate that (1) the equipment is properly operating and capable of long-term, reliable operation; (2) procedures have been developed, approved, and implemented; and (3) personnel responsible for security operations and maintenance have been properly trained and have demonstrated their capability of performing their assigned duties and responsibilities.

The applicant identifies security equipment operability and reliability by completing physical security ITAAC, which are in the STP COL application. The applicant describes security procedures throughout the physical security plan, and submits it in Part 8 of the COL application. The training and qualification plan submitted as Part 8 of the COL application specifically requires personnel to be properly trained to perform maintenance activities, and the physical security plan describes maintenance personnel as individuals trained to perform maintenance, testing, and calibration on security equipment.

COL License Information Item 13.6.3-1 requires the COL applicant to provide a classification of the CAS and SAS.

The applicant provides the site-specific physical security plan as Part 8 of the COL application. The designation of the CAS and SAS are defined in Section 14.5 of the physical security plan.

COL License Information Item 13.6.3.11 requires the COL applicant to confirm that the locations of vital systems and operations are in vital areas.

The applicant will provide the final list for vital areas and vital equipment in the revision of the SGI ICE. Also, physical security ITAAC number 1 in Part 9 of the STP COL application specifies that vital equipment will be located only within vital areas.

COL License Information Item 13.6.3-3 requires the COL applicant to include an evaluation of the capability of the security response force to interdict the violent external assault postulated in 10 CFR 73.1(a)(i), which properly accounts for the minimum delay provided by the vital area barriers and doors.

The applicant has submitted the ICE, which describes the site layout; a total number of armed responders for the armed response team; the rationale for plant equipment that was protected as vital equipment; and security physical structures and equipment. The applicant has requested to complete certain site and security design details after the issuance of the license for STP Units 3 and 4. The completion of these security design details is addressed in a licensing condition.

COL License Information Item 13.6.3.5-1 requires the COL applicant to demonstrate that door controls are compatible with RG 5.12 for the positive control of vital areas.

The applicant provides the site-specific physical security plan as Part 8 of the COL application. Sections 13 and 22.3.3 of the physical security plan describe the positive controls for vital areas.

COL License Information Item 13.6.3.5-2 requires the COL applicant to evaluate compliance with prompt access to vital equipment.

The applicant provides the site-specific physical security plan as Part 8 of the COL application. Sections 13 and 14 of the physical security plan describe prompt access to vital equipment.

NRC staff reviewed the applicant's technical information and found that the applicant's responses to **RAI 13.06.06-15** are acceptable and meet the requirements for adequately addressing COL license information items regarding implementation of the Physical Security Program.

13.6.5 Post-Combined License Activities

13.6.5.1 *License Conditions*

The license for a nuclear facility contains terms and conditions for operation. 10 CFR 50.54, "Conditions of Licenses," identifies the standard conditions, with some exceptions, which are applicable to every COL issued. In addition to those standard conditions, the COL applicant proposes additional license conditions to address the completion of post-licensing information commitments or COL action items that cannot be completed until after the license has been issued.

In Part 2 of the STP Units 3 and 4 COL application, the applicant lists several license conditions relating to physical security.

License Condition

Operational Program Implementation lists milestones where different elements of the Physical Security Program are implemented. The applicant has proposed that fuel receipt (protected area) is the milestone for the implementation of physical security.

NRC staff reviewed this license condition and found it acceptable, because the applicant will apply the physical security plan that is consistent with 10 CFR Parts 50, 52, and 73 and with the physical security requirements of the site.

License Condition

For the reasons discussed in the technical evaluation section above, the staff proposed to include the following license condition for physical security:

License Condition

The licensee shall submit to the Director of NRO, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspection of the physical security programs. The schedule shall be updated every 6 months until 12 months before scheduled fuel load, and every month thereafter until the physical security program has been fully implemented.

License Condition

8 months before fuel is allowed onsite (protected area), STP shall develop a written protective strategy that describes in detail the physical protection measures, security systems, and deployment of the armed response team relative to site-specific conditions, to include but not limited to, the final facility layout, and the location of target set equipment and elements in accordance with 10 CFR Appendix C.II.B.3.c.(v).

On the basis of its review of the STP ICE, the staff finds this license condition to be acceptable because the applicant demonstrated in sufficient detail the interdiction of an adversary force that supports the protection of vital equipment to address COL Action Item 13.6.3.3-3. The design details provided after the issuance of the license are consistent with the implementation of the security program prior to the operation of the facility.

13.6.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1503. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information related to physical security. With the exceptions of the identified **confirmatory items** in the technical evaluation section, no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and Part 52, Appendix A, Section VI.B.1, all nuclear safety issues relating to physical security that were incorporated by reference have been resolved.

The NRC staff's reviews of the PSP, T&QP, and SCP submittals dated December 9, 2009, and of the RAI responses focused on ensuring that these plans contain the necessary programmatic elements in order to provide a high assurance that activities involving special nuclear materials are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety.

The NRC staff's reviews of the STP Units 3 and 4 PSP, T&QP, and SCP focused on ensuring that these plans contain the necessary programmatic elements to provide a high assurance that activities involving special nuclear materials are not inimical to common defense and security and do not constitute an unreasonable risk to public health and safety. The staff determined that these plans contain the necessary programmatic elements that, when effectively implemented, will provide the required high assurance. The burden to effectively implement these plans remains with the applicant. Effective implementation depends on the procedures and practices the applicant develops to satisfy the programmatic elements of the PSP, T&QP, and SCP. The target sets, the site-specific target set analysis, and the site's protective strategy are in the facility implementing procedures, which were not subject to NRC staff review, as part of this COL application, and are therefore subject to future NRC inspections in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). As required by Section 3 of the applicant's PSP, a Performance Evaluation Program will be implemented that periodically tests and evaluates the effectiveness of the overall protective strategy. This program requires that deficiencies be corrected. In addition, NRC inspectors will conduct periodic force-on-force exercises that will test the effectiveness of the applicant's protective strategy. Based on the results of the applicant's own tests and evaluations, the NRC's baseline inspections, and force-on-force exercises, enhancements to the applicant's PSP, T&QP, and SCP may be required to ensure that the overall protective strategy can be effectively implemented. As such, NRC staff approval of the applicant's PSP, T&QP, and SCP is limited to the programmatic elements necessary to provide the required high assurance, as stated above. Should deficiencies be identified with the programmatic elements of these plans, as a result of the periodic applicant- or NRC-conducted drills or exercises that test the effectiveness of the overall protective strategy, the plans shall be corrected to address these deficiencies in a timely manner. The applicant will notify the NRC of these changes in a plan, in accordance with the requirements of 10 CFR 50.54(p) or 50.90.

The COL applicant's security plan information is being withheld from public disclosure, in accordance with the provisions of 10 CFR 73.21.

13.7 Fitness for Duty

13.7.1 Introduction

Pursuant to 10 CFR) 52.79(a)(44), COL applications must include a description of the fitness for duty (FFD) Program required by 10 CFR Part 26 and its implementation. The FFD Program is designed to provide reasonable assurance that (1) individuals are trustworthy and reliable demonstrated by the avoidance of substance abuse; (2) individuals are not under the influence of any substance, legal or illegal, or are mentally or physically impaired from any cause that in any way adversely affects their ability to safely and competently perform their duties; (3) measures are established and implemented for the early detection of individuals who are not fit to perform their duties; (4) the construction site is free from the presence and effects of illegal drugs and alcohol; (5) workplaces are free from the presence and effects of illegal drugs and alcohol; and (6) the effects of fatigue and degraded alertness on an individual's ability to safely

and competently perform their duties are managed commensurate with maintaining public health and safety.

13.7.2 Summary of Application

The applicant has provided Section 13.7 of the STP COL FSAR, Revision 4, for the staff to review. Revision 4 is going to be replaced in its entirety by the next revision of the FSAR. The staff has received the draft text of revised Section 13.7 in a letter dated October 27, 2010 (ML103070082), in response to RAIs 13.06.01-1 and 13.06.01-2. In these documents, the applicant describes conditions of the operations and construction FFD Programs for Units 3 and 4. The staff's review is based on Revision 4 of the FSAR Section 13.7 and the associated RAI response dated October 27, 2010.

Supplemental Information

The applicant responded to the staff RAIs in a letter dated August 25, 2009 (ML092390067). This letter described the FFD Program for both the construction phase and the operating phase of STP Units 3 and 4. The staff requested further clarification from the STP on FSAR Revision 4 Section 13.7. As a result of this request, the applicant provided revised Section 13.7 in the response to RAIs 13.06.01-1 and 13.06.01-2 dated October 27, 2010 (ML103070082). In FSAR Revision 4, Section 13.7, the applicant states:

> The Fitness for Duty (FFD) Program is implemented and maintained in two phases: the construction phase program and the operating phase program. The construction and operations phase programs are implemented as identified in Table 13.4S. The construction phase program is consistent with NEI 06–06. Revision 5, ["Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites."] NEI 06-06, Revision 5. The operations phase program is consistent with 10 CFR Part 26.

The staff requested further clarification from the STP on FSAR Revision 4 Section 13.7. As a result of this request, the applicant provided revised Section 13.7 in the response to RAIs 13.06.01-1 and 13.06.01-2 dated October 27, 2010 (ML103070082).

License Conditions

There are no license conditions applicable to the STP COL application.

13.7.3 Regulatory Basis

The applicable regulatory requirements for Section 13.7 are as follows:

- 10 CFR Part 26
- 10 CFR 52.79(a)(44)

Regulatory guidance for FFD Programs is included in RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."

Pending the issuance of an NRC regulatory guide for NEI 06–06, applicants may cite NEI 06-06, Revision 5, as a reference in the development of site-specific applications.

13.7.4 Technical Evaluation

NRC staff reviewed Section 13.7 of the STP COL FSAR to ensure that the information in the COL FSAR represents the complete scope of information relating to this review topic. The staff's review confirmed that the information in the application and the information incorporated by reference address the required information relating to the FFD Programs. The staff reviewed the information in the STP COL FSAR:

Supplemental Information

The applicant provides a new Section 13.7 in the STP COL FSAR, as part of the response to the RAIs13.06.01-1 and 13.06.01-2, which will be included in the next revision of the COL application describing the FFD Programs.

The staff's review of revised Section13.7 included (1) the adequacy of the FFD Program for the construction phase; (2) the adequacy of the FFD Program for the operations phase; and (3) the implementation schedule proposed by the applicant for both the construction phase and the operations phase FFD Programs.

The staff issued RAI 13.06.01-1 on the review of the FSAR Revision 3, Section 13.7.1 "Introduction." In this RAI the staff stated:

> The introduction reads: "A Fitness for Duty program is implemented and maintained to meet the requirements contained in the 10 CFR Part 26. The FFD program complies with the FFD requirements contained in 10 CFR Part 26 at STP 3 & 4 site." This statement doesn't specify if compliance will be met with requirements for operating reactors or with requirements for 10 CFR Part 26, Subpart K - FFD Program for Construction. Please identify which requirements will be complied with.

The applicant's response to this RAI states the intent to revise Section 13.7 by completely deleting the information submitted for the STP COL application in FSAR Section 13.7 of Revision 4. The applicant adopts and revises the staff's guidance in the SER on NEI 06–06 (ML092881085) describing the implementation of FFD Program at the STP Units 3 and 4 site. In addition, the applicant adds that Table 13.4S-1 of the COL FSAR will be revised to include the construction and operation phase FFD Program descriptions, as specified in the staff's SER on NEI 06–06. The applicant states that the program applies to all covered individuals, which includes STPNOC employees, co-owner employees, STPNOC applicants, contractors, vendors, or supplier employees performing work at STP. STP visitors or short-term consultants/contractors exhibiting behavior suggesting a lack of FFD may also be subject to for cause drug and alcohol screening under this policy.

The FSAR emphasizes that management and oversight personnel, as further described in NEI 06-06, and security personnel prior to the receipt of special nuclear material in the form of fuel assemblies (with certain exceptions) will be subject to the operations FFD Program that meets the requirements of 10 CFR Part 26, Subparts A through H, N, and O. At the establishment of a protected area, all persons who are granted unescorted access will meet the requirements of an operation FFD Program. In addition, the applicant provides the following site-specific information:

- The construction site is defined in the Physical Security Plan, Appendix E and is under the control of the Constructor. The 10 CFR Part 26 requirements are implemented for the construction site area based on the descriptions provided in Table 13.4S-1.
- Construction workers & first line supervisors (Constructor employees and subcontractors) are covered by the STPNOC approved Constructor FFD Program (elements Subpart K).
- STPNOC employees and STPNOC subcontractor's construction management and oversight personnel are covered by the STPNOC Operations FFD Program and Constructor's employees and Constructor's subcontractors construction management and oversight personnel are covered by the STPNOC approved Constructor FFD Program (elements Subpart A – H, N and O).
- STPNOC security personnel are covered by the STPNOC Operations FFD Program and Constructor's security personnel are covered by the STPNOC approved Constructor FFD Program (elements Subpart A – H, N and O). This coverage is applicable from the start of construction activities to the earlier of (1) the receipt of Special Nuclear Material in the form of fuel assemblies, (2) the establishment of a protected area, or (3) the 10 CFR 52.103(g) finding.
- STPNOC FFD Program personnel are covered by the STPNOC Operations FFD Program and Constructor's FFD Program personnel are covered by the STPNOC approved Constructor FFD Program (elements Subpart A, B, D – H, N, O, and C per licensee's discretion).
- STPNOC security personnel protecting fuel assemblies, or the established protected area, or the facility following the 10 CFR 52.103(g) finding are covered by the STPNOC Operations FFD Program (elements Subpart A – I, N and O). The operations phase program is consistent with 10 CFR Part 26. (Elements Subpart A – N, and O, except for individuals listed in §26.4(b), who are not subject to §§ 26.205 – 209, as described in Section 13.7.2 below.

The staff reviewed the applicant's revised response to RAI 13.06.01-1 and determined that it provides a sufficient level of detail and addresses all of the milestones established by 10 CFR 26.3 and 26.4. Verification of the proposed Section 13.7 replacement in the next revision of the STP COL application is being tracked as **Confirmatory Item 13.06.01-1**.

In RAI 13.06.01-2, the staff stated:

> The introduction reads "A Fitness for Duty program is implemented and maintained to meet the requirements contained in the 10 CFR Part 26. The FFD program complies with the FFD requirements contained in 10 CFR Part 26 at STP 3 & 4 site." The FSAR does not state whether the information provided is a supplement and clarification to the requirements in 10 CFR Part 26, or whether it is meant to be the applicant's stand-alone FFD program. Moreover, the FSAR contains supplemental information to 10 CFR Part 26, but is also repeats other sections of the rule. Please clarify the intent of the FSAR.

The applicant's response is identical to the response submitted for RAI 13.06.01-1, with the same replacement of the content requested in the RAI.

As with Confirmatory Item 13.06.01-1, the revised response to RAI 13.06.01-2 provides a sufficient level of detail and addresses all of the milestones established by 10 CFR 26.3 and 26.4. This confirmatory item can be resolved upon the issuance of the next revision of the COL application, and the inclusion of the proposed changes in Section 13.7.

License Conditions

There are no license conditions applicable to FFD in the STP COL application.

13.7.5 Post Combined License Activities

There are no post COL activities related to this section.

13.7.6 Conclusion

NRC staff reviewed FSAR Section 13.7 along with the applicant's proposed revision to this section. The staff's review confirmed that the applicant's proposed revision to Section 13.7 has adequately addressed the required information related to the FFD, and therefore found it acceptable. The FFD portion of the FSAR, Section 13.7, is consistent with the requirements of 10 CFR Part 26 and 10 CFR 52.79(a)(44).

13.8 Cyber Security

13.8.1 Introduction

This section of the FSAR provides information relating to the preparations and plans for the cyber security program for STP Units 3 and 4. The purpose of this section is to demonstrate that the COL applicant will establish and maintain a cyber security program to provide high assurance that digital systems, networks, and communication systems are protected from cyber attacks.

13.8.2 Summary of Application

In Part 8 of the COL application, the applicant submits a cyber security plan as part of the physical security plan. In addition, in FSAR Section 13.6, the applicant provides the following:

COL License Information Item

- COL License Information Item 13.7 Physical Security Interface

In Section 13.6.3, "COL License Information," the applicant provides the following site-specific supplemental information to address COL License Information Item 13.7:

> A Cyber Security Program is implemented and maintained to meet the requirements contained in 10 CFR Part 73.54 during the operating phase of the nuclear units. This program will be implemented on site prior to Unit 3 Fuel receipt (protected area).

13.8.3 Regulatory Basis

The following NRC regulations include the relevant requirements for the Cyber Security Plan (CSP):

- 10 CFR 73.54, “Protection of digital computer and communication systems and networks”
- 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), and 10 CFR 73.55(m)
- 10 CFR 73.58, “Safety/security interface requirements for nuclear power reactors”
- Appendix G, “Reportable Safeguards Events,” to 10 CFR Part 73, “Physical Protection of Plants and Materials”

13.8.4 Technical Evaluation

NRC staff reviewed Section 13.6.3 of the STP Units 3 and 4 COL FSAR and the applicant’s CSP against the guidance in Regulatory Guide (RG) 5.71, “Cyber Security Programs for Nuclear Facilities.”

13.8.4.1 *Cyber Security Plan Contents*

The CSP describes the following:

- Implementation and documentation of the “baseline” security controls, as described in Regulatory Position C.3.3 of RG 5.71.
- Implementation and documentation of the cyber security program that employs a life-cycle approach to maintain security controls, as described in Regulatory Position C.4 of RG 5.71.

The CSP establishes how digital computer and communication systems and networks within the scope of 10 CFR 73.54 will be adequately protected from cyber attacks up to and including the design-basis threat.

CSP compliance with 10 CFR 73.54 includes the following:

- Establishes and implements the defensive model described in Section 3.1.5 of the STPNOC CSP, with the security controls described in Regulatory Positions C.3.1, C.3.2, and C.3.3 of RG 5.71.
- Maintains the program described in Regulatory Position C.4 of RG 5.71.
- Ensures that documentation of security controls for each critical digital asset (CDA) is available for inspection.
- Ensures that the NRC will review any changes that would decrease the effectiveness of the plan, in accordance with 10 CFR 50.54(p).
- Ensures that any cyber attacks or incidents at the site are reported to the NRC, as required by 10 CFR 73.71, “Reporting of Safeguards Events,” and Appendix G to 10 CFR Part 73.

The CSP includes the following policies and procedures:

- A formal documented security planning, assessment, and authorization policy that describes the purpose, scope, roles, responsibilities, management commitments, and coordination among departments and the implementation of the security program and the controls listed in Appendices B and C to RG 5.71.
- A formal documented procedure to facilitate the implementation of the cyber security program and the security assessment.

The CSP describes the cyber security team (CST), which should have the authority to conduct an objective assessment, make determinations, implement defense-in-depth protective strategies, and implement the security controls using the process outlined in Regulatory Position C.3.3 of RG 5.71.

The submitted CSP states that the CST should have broad knowledge in the following areas:

- information and digital system technology
  - cyber security
  - software development
  - communications
  - systems administration
  - computer engineering
  - networking—site and corporate networks
  - programmable logic controllers
  - control systems
  - distributed control systems
  - computer systems and databases used in design, operation, and maintenance of CDAs
- nuclear facility operations, engineering, and technical specifications
- physical security and emergency preparedness systems and programs

The submitted CSP lists the roles of and responsibilities for the CST, which include the following:

- Perform or oversee each stage of the cyber security management processes
- Document all key observations, analyses, and findings during the assessment process so that information can be used in the application of security controls.
- Evaluate or reevaluate assumptions or conclusions about current cyber security threats.
- Evaluate or reevaluate assumptions or conclusions about potential vulnerabilities to and consequences from an attack.
- Evaluate or reevaluate assumptions or conclusions about the effectiveness of existing cyber security controls, defensive strategies, and attack mitigation methods, as well as cyber security awareness and training of those working with or responsible for CDAs and cyber security controls throughout their system life cycles.
- Confirm information from reviews of CDAs—and connected digital devices and associated security controls—with physical and electronic validation activities.

- Identify and implement new cyber security controls as needed.
- Document the implementation of alternate or compensating measures in lieu of any security controls (Appendices B and C of RG 5.71).
- Document the basis for not implementing certain controls (Appendix B of RG 5.71).
- Prepare documentation and oversee implementation of security controls (Appendices B and C of RG 5.71).
- Retain all documentation in accordance with 10 CFR 73.55(q) and Regulatory Position C.5 of RG 5.71.

The submitted CSP notes that security assessment determinations should not be constrained by business goals.

The submitted CSP describes methods that do the following:

- Identify and document systems, equipment, communication systems, and networks that are associated with the Safety, Security, and Emergency Preparedness (SSEP) functions described in 10 CFR 73.54(a)(1), as well as the support systems associated with these SSEP functions. Systems, equipment, and network systems associated with SSEP functions are referred to as critical systems. The CST identifies critical systems by conducting an initial consequence analysis of systems, equipment, communication systems, and networks to determine whether those that fail or are compromised or exploited could impact the SSEP functions of the nuclear facility, without taking into account existing mitigating measures.
- Perform a consequence analysis of systems, equipment, communication systems, and networks to determine whether they are critical systems.
- Identify and document CDAs that have a direct, supporting, or indirect role in the proper functioning of the critical systems.

The submitted CSP discusses the means to document the following:

- Description of CDAs.
- Identification of each CDA within each critical system.
- Description of each CDA function.
- Identification of consequences to the critical system and SSEP functions if a compromise were to occur.
- Identification of the digital devices with direct or indirect roles in critical system functions.
- Description of security functional requirements or specifications that includes the following:
  - security requirements for vendors or developers to maintain system integrity
  - secure configuration, installation, and operation of the CDA
  - effective use and maintenance of security features or functions
  - known vulnerabilities regarding the configuration and use of administrative functions
  - effective use of user-accessible security features or functions
  - methods for user interaction with the CDA
  - user responsibilities in maintaining the security of the CDA

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.2 *Critical Digital Asset*

The submitted CSP identifies and documents the method for accomplishing the following for each CDA:

- direct/indirect connection pathway
- infrastructure interdependencies
- application of defensive strategies that include defensive models, security controls, and other defensive measures

The submitted CSP discusses the CDA walkdown, which includes the following:

- Performing physical inspections of the connections and configuration of each CDA.
- Tracing all communication connections into and out of each termination point along the pathway for each CDA.
- Examining the physical security of the CDA, including the communication pathways.
- Examining the configuration and assessing the effectiveness of existing security controls along the communication pathways.
- Examining interdependencies for each CDA and trust relationships between CDAs.
- Examining interdependencies with infrastructure support systems that emphasize compromises of electrical power, environmental controls, and fire equipment.
- Examining systems, communication systems, and networks that are potential pathways for attacks.
- Resolving discrepancies found in the review.
- Documenting the walkdown inspection.

The submitted CSP notes that an electronic validation will be performed when a walkdown inspection is impractical. This electronic validation consists of tracing a communication pathway from start to finish. The use of electronic equipment may prove to be a better method than a physical walkdown.

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.3 *Defense-in-Depth*

The submitted CSP provides for the implementation of defensive strategies that ensure the capability to detect, respond to, and recover from cyber attacks. The defensive strategies consist of the following:

- Security controls implemented in accordance with Section 3.1.6 of the CSP and the defensive model outlined in Regulatory Position C.3.2 of RG 5.71.
- Defense-in-depth measures described in Section 6 of Appendix C to RG 5.71.
- Detailed defensive architecture described in Section 7 of Appendix C to RG 5.71.
- Maintenance of a cyber security program in accordance with Section 4 of Appendix A to RG 5.71.

The submitted CSP notes that the defensive model establishes the logical and physical boundaries between CDAs with similar risks and CDAs with lower security risks.

The applicant establishes defense-in-depth strategies by implementing and documenting the following:

- defensive model (Regulatory Position C.3.2 of RG 5.71)
- physical security program and physical barriers
- operational and management controls described in Appendix C to RG 5.71
- technical controls described in Appendix B to RG 5.71

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.4 *Security Controls*

The submitted CSP discusses the use of information collected from Section 3.1.4 of the CSP to conduct one or more of the following:

- Implement all security controls specified in Appendix B of RG 5.71.
- If a security control cannot be applied, implement an alternative control listed in Appendix B of RG 5.71 by doing one of the following:
    - a. Document the basis for employing alternate countermeasures.
    - b. Perform and document an attack vector and tree analysis of the CDA to confirm that the countermeasure provides the same or greater protection as the corresponding control.
    - c. Implement alternative countermeasures that provide at least the same degree of protection as the corresponding security control in Appendix B of RG 5.71.

    In addition, do not implement a control enumerated in Appendix B of RG 5.71 and instead (1) perform an attack vector and attack tree analyses of the specific security controls for the CDA that will not be implemented; and (2) document that the attack vector does not exist and demonstrate that the control is not necessary.

The submitted CSP notes that before implementing security controls on a CDA, the potential for an adverse impact must be assessed. Specifically, the CSP directs the applicant to consider the following:

- Choosing not to implement a security control if there is a known adverse impact to SSEP functions.
- Using alternate controls to mitigate the lack of the security control, in accordance with Section 3.1.6 of the CSP.

The submitted CSP includes provisions to verify that CDAs are adequately protected from cyber attacks up to and including the design-basis threat and that any identified gaps have been closed. The program directs the applicant to do the following:

- Perform an effectiveness analysis, as described in Regulatory Position C.4.1.2 of RG 5.71.
- Perform a vulnerability assessment or scans, as described in Regulatory Position C.4.1.3 of RG 5.71.
- Implement alternative countermeasures that provide at least the same degree of protection as the corresponding security control.

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.5 *Physical and Cyber Security*

The CSP discusses the following efforts necessary to integrate the management of physical and cyber security:

- Establishing a security organization, independent from operations, to incorporate both cyber and physical security.
- Documenting physical and cyber security interdependencies.
- Developing policies and procedures joining management, physical, and cyber security controls.
- Incorporating policies and procedures to secure the CDAs from attacks up to and including the design-basis threat.
- Coordinating personnel training.
- Integrating and coordinating incident response personnel.
- Training senior management.
- Performing periodic exercises of simulated physical and cyber attacks.

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.6 *Policies and Procedures*

The CSP states the following:

- The applicant must develop and implement policies and procedures to meet the security control objectives provided in Appendices B and C to RG 5.71.
- The applicant must document, review, approve, issue, use, and revise policies and implementation procedures as described in Section 4 of the CSP.

- The applicant must ensure that personnel responsible for implementing and overseeing the program report to an executive who is responsible for the nuclear plant operation.
- The applicant must establish procedures that designate specific responsibilities for positions described in Regulatory Position C.10.10 of RG 5.71.

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.7 *Life Cycle Approach*

The CSP states the following:

- The applicant will employ a life-cycle approach consistent with the controls described in Appendix C to RG 5.71.
- The applicant will maintain security controls for CDAs to achieve the overall objectives of the CSP.
- For new or existing CDAs undergoing modifications, the applicant will follow the process described in Section 4.2 of the CSP.
- The CSP describes the specific cyber security policies and procedures that (1) implement the CSP, (2) must be maintained at the site, and (3) are subject to inspection by the NRC.

On the basis of this review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.4.8 *Protection of Systems and Networks*

The CSP closely follows Appendix A of RG 5.71 and describes how the applicant will protect systems and networks from cyber attacks that would have the following effects:

- Adversely impact the integrity or confidentiality of data or software.
- Deny access to or adversely impact the availability of systems, services, or data.
- Adversely impact the operation of systems, networks, and associated equipment.

The CSP describes how the cyber security program will be reviewed as a component of the physical security program, in accordance with the requirements of 10 CFR 73.55(m), including the periodicity requirements.

The CSP describes how the applicant will manage all records and supporting technical documentation required to satisfy the requirements of 10 CFR 73.54(h).

COL License Information Item

- COL License Information Item 13.7 Physical Security Interface

In the FSAR Section 13.4S, Table 13.4S-1, the applicant adds Operation Program #15 to address this COL license information item. In this program, the applicant provides the milestone for implementation of the cyber security program as Fuel Receipt (Protected Area) with the requirement as a license condition.

Operational Program Implementation lists milestones where different elements of the Physical Security Program are implemented. The applicant has proposed that fuel receipt (protected area) is the milestone for the implementation for physical security.

> 8 months before fuel is allowed onsite (protected area), STP shall develop a written protective strategy that describes in detail the cyber protection measures, systems, and deployment of the cyber security program relative to site-specific conditions, to include but not limited to, the final facility design, and the location of target set equipment and elements in accordance with 10 CFR 73.54.

NRC staff finds this license condition acceptable, because the applicant will apply the physical and cyber security plans consistent with 10 CFR Parts 50, 52 and 73 and the security requirements of the site.

On the basis of the above review, NRC staff found that the applicant's CSP appropriately follows the guidance in RG 5.71.

13.8.5 Post Combined License Activities

The applicant has described the CSP and its implementation in accordance with 10 CFR 73.54, 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), 10 CFR 73.55(m), and Appendix G to 10 CFR Part 73, and identifies the following license condition, for addressing COL License Information Item 13.7, as it relates to CSP:

> 8 months before fuel is allowed onsite (protected area), STP shall develop a written protective strategy that describes in detail the cyber protection measures, systems, and deployment of the cyber security program relative to site-specific conditions, to include but not limited to, the final facility design, and the location of target set equipment and elements in accordance with 10 CFR 73.54.

13.8.6 Conclusion

NRC staff compared Section 13.6.3 of the FSAR and the applicant's CSP submitted as part the Physical Security Plan in Part 8 of the COL application for STP Units 3 and 4 to the relevant NRC regulations and the criteria in RG 5.71. On the basis of this review, the staff found that the applicant addressed the requirements of COL License Information Item 13.7 and that the information in the applicant's CSP adequately addresses the relevant requirements and guidance of 10 CFR 73.54 and RG 5.71, respectively. Therefore, the staff found the information in this section acceptable.

The staff's review confirmed that the applicant has addressed the relevant information to satisfy the requirements of 10 CFR 73.54, 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), 10 CFR 73.55(m), and Appendix G to 10 CFR Part 73, as applicable. Thus, the staff concluded that no outstanding information is expected to be addressed in the COL FSAR related to this section.