NEI 08-03 [Revision 0]

Lessons Learned from Initial Early Site Permit Experience

February 2008

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Nuclear Energy Institute

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NOTICE

EXECUTIVE SUMMARY

NEI 08-03, *Lessons Learned from Initial Early Site Permit Experience,* presents lessons learned based on experience from the three pilot applications for Early Site Permits (ESP) submitted in 2003 by Dominion, Entergy and Exelon, and a fourth ESP application submitted by Southern Nuclear in 2006. The three pilot applications were supported by the Department of Energy under its Nuclear Power 2010 Program to demonstrate the ESP portion (Subpart B) of the NRC's licensing process for new nuclear plants, 10 CFR Part 52.

The purpose of this report is to provide background and insight to future ESP/Combined License "COL" applicants in understanding the regulatory environment and infrastructure as the nuclear power industry enters a new era of nuclear power plant licensing, and, in so doing, assist applicants in setting and meeting reasonable expectations for the preparation and review of applications, including associated schedule and resource projections. This report compiles lessons learned identified by industry personnel involved with the early ESP applications as well as the NRC staff.

Seeking an ESP should be considered by companies that have selected a site but have not yet finalized their choice of technology, and/or companies that are not prepared to enter fully into the COL process. The ESP process is best suited to future applicants that have a longer time horizon and wish to "bank" a pre-approved site for later use. Companies that know what and where they want to build, and desire the shortest time-to-market, should bypass the ESP process and proceed directly into the COL process. An ESP should also be considered by companies wishing to achieve substantial reductions in time-to-market once the decision to license and build is made. When an ESP is incorporated in a COL application with standardized elements of a previously issued COL, the timeline for preparation and NRC review should be much shorter than for first-of-kind (first wave) applicants.

Development and NRC review of the first-of-kind ESP applications were made more challenging by the lack of guidance available to both the applicants and NRC reviewers, and because Part 52 itself was evolving at the time. While guidance is not yet complete, the situation is improved for future ESP applicants now that NRC has put in place key elements of the regulatory infrastructure. Future applicants also have the advantage of the experience and precedents resulting from the early ESPs. In addition, the industry and the NRC have begun longer-term efforts to enhance the NRC's environmental review process to benefit both future ESP and COL applicants.

References and resources for prospective ESP applicants are identified throughout the document.

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1 INTRODUCTION

NEI 08-03, *Lessons Learned from Initial Early Site Permit Applications*, presents lessons learned based on experience from the three pilot ESP applications submitted in 2003 by Dominion, Entergy and Exelon, and a fourth ESP application submitted by Southern Nuclear in 2006. The three pilot applications were supported by the Department of Energy under its Nuclear Power 2010 Program to demonstrate the ESP portion (Subpart B) of the NRC's licensing process for new nuclear plants, 10 CFR Part 52.

The purpose of this report is to provide background and insight to future ESP/COL applicants in understanding the regulatory environment and infrastructure as the nuclear power industry enters a new era of nuclear power plant licensing, and, in so doing, to assist applicants in setting and meeting reasonable expectations for the preparation and review of applications, including associated schedule and resource projections. This report compiles lessons-learned identified by the NRC staff and industry personnel involved with the early ESP applications.

ESP lessons learned are organized and presented as follows:

- Section 2.0 – General
- Section 3.0 – Safety Review
- Section 4.0 – Emergency Planning Review
- Section 5.0 – Environmental Review
- Section 6.0 – Additional Items

1.1 STATUS OF INITIAL ESP APPLICATIONS

As of January 2008, the status of the ESP applications submitted to date is as follows:

Applicant	Site	Status
Dominion	North Anna	Complete; ESP issued November 27, 2007
Entergy	Grand Gulf	Complete; ESP issued April 5, 2007
Exelon	Clinton	Complete; ESP issued March 15, 2007
Southern Nuclear	Votgle	In progress; ESP application submitted August 15, 2006

1.2 WHO SHOULD SEEK AN EARLY SITE PERMIT?

Companies may seek an Early Site Permit (ESP) under Subpart B of 10 CFR Part 52 in order to establish the suitability of a site for one or more new nuclear plants in advance of a decision to submit a complete license application and actually build the plant. The ESP process is a major licensing action for NRC as well as a Major Federal Action under NEPA and thus requires an SER, EIS, mandatory hearing, and, if there are admitted contentions, a hearing on contested issues. It takes about 3 years for NRC to complete these steps and issue an ESP.

Applicants may submit an ESP application (ESPA) and immediately follow with a COL application (COLA) upon ESP issuance, and COLAs may even be submitted that refer to an ESPA under review. However, it will generally be more efficient for applicants who know what and where they want to build, and desire the shortest timeline to plant operation, to bypass the ESP process and proceed directly into the COL process. Serious COL applicants wishing to get a head start on the environmental review process need not submit an ESP to do so. Instead they may submit a partial COLA, including Environmental Report, and other information required by 10 CFR 2.101(a)(5), up to six months in advance of the balance of required COLA information. To achieve the full advantage of this procedural option, NEI has recommended that the Commission commence the hearing process as well as the technical review upon receipt of a partial COLA. The Commission is expected to finalize its policy in this regard in 2008.

Seeking an ESP may be the right course for applicants who have selected a site but have not yet finalized their choice of technology, and/or applicants who are not prepared to enter fully into the COL process. The ESP process is best suited to future applicants that have a longer time horizon and wish to "bank" a pre-approved site for later use. Applicants wishing to establish the suitability of a site but have not yet selected a technology may seek an ESP based on a "plant parameter envelope" (PPE) that encompasses the designs under consideration. The PPE approach was used by the first three ESP applicants, and two of these ESPs will be referenced in the Grand Gulf and North Anna COLAs. These COLAs should be monitored for insights into how to maximize the extent of issue resolution (finality) of issues resolved in future PPE-based ESPs.

An ESP would also help companies wishing to achieve substantial reductions in time-to-market once the decision to license and build is made. When an ESP is incorporated in a COL application with standardized elements of a previously issued COL (via the design centered approach), the timeline for preparation and NRC review should be much shorter than for first-of-kind (first wave) applicants.

1.3 GUIDANCE AVAILABLE FOR ESP APPLICANTS

Supported by the Department of Energy under its Nuclear Power 2010 initiative, Dominion, Entergy and Exelon were early movers in developing first-ever ESP applications and demonstrating the ESP portion of the Part 52 licensing process. These

pilot ESPs were made more challenging by their first-of-kind nature, lack of available guidance for both the applicant and NRC reviewers, and because Part 52 itself was evolving at the time. While guidance is not yet complete, the situation is improved for future ESP applicants now that NRC has put in place key elements of the regulatory infrastructure.

- The Part 52 rulemaking and Regulatory Guide 1.206, *COL Applications for Nuclear Power Plants,* were completed in 2007, including clarified requirements, definitions and guidance related to ESP. While focused on COL applicants, RG 1.206 contains guidance on establishing site characteristics that is also applicable to ESPs.
- In 2007, the NRC staff also updated NUREG-0800, *Review of Safety Analysis Reports for Nuclear Power Plants* (Standard Review Plan – SRP).
- The NRC staff is in the process of updating its Environmental Standard Review Plan (ESRP – NUREG-1555). Updated sections and the status of stakeholder comments are available on the NRC website.

In addition, NRO Office Instruction NRO-REG-100 (ADAMS #ML072250552) provides new acceptance review guidance for determining the completeness of both Safety Analysis Reports and Environmental Reports for COL applications. Applicable portions of this guidance may be used to assess ESP applications.

Future ESP applicants also have the advantage of being able to learn from the precedents set by prior applications. In this regard, Southern Company's August 2006 application for an ESP at its Votgle site represents another point on the ESP learning curve. Southern benefited from the experience of the three pilot applications and was also the first ESP application that did not use the plant parameter envelope approach. Southern specified in its ESP its plans to build two Westinghouse AP1000 units at Votgle. The latest NRC guidance and experience from previous ESP applicants should be considered and used when preparing future ESP applications.

In particular, past NRC requests for additional information (RAIs) and applicant responses should be helpful in clarifying the level-of-detail expected for ESP applications. Future ESP applicants should aim to address NRC information needs up front, where appropriate. This strategy should result in substantially fewer RAIs and potentially shorter NRC review schedules.

The NRC's New Reactor Licensing Web site contains the following information on the ESP applications submitted to date:

- Application Information
- Review Schedule
- Safety Evaluation Report
- Environmental Impact Statement
- Early Site Permit (once issued)
- NRC points of contact

NRC RAI letters, applicant responses, and their ADAMS accession numbers are identified in Appendix C of each ESP Environmental Impact Statement for the environmental review, and in Appendix B of each ESP Safety Evaluation Report for the safety review.

Also on the NRC website is a set of 2002-2003 NEI-NRC correspondence on a range of ESP generic issues that were addressed in the period leading up to the pilot ESP applications (2002-2003). For example, this correspondence provided the underpinnings for use of the plant parameter envelope approach. This info is largely historical in nature; the definitive outcome of these issues is reflected in final ESP documents.

1.4 ONGOING EFFORTS TO ENHANCE THE NRC'S ENVIRONMENTAL REVIEW PROCESS

The NRC's environmental review is a major part of the ESP process. In a June 22, 2007, Staff Requirements Memorandum on the recommendations of the Combined License Review (Merrifield) Task Force (COMDEK-07-0001/COMJSM-07-0001), the Commission directed the NRC staff to conduct a public meeting with the industry and other stakeholders on ways to enhance the efficiency and effectiveness of the environmental review process. A number of proposals were discussed in an NRC workshop that was held on December 6, 2007, including:

- improved guidance for NRC staff and applicants, including continuation of NRC efforts to update NUREG-1555, the Environmental Standard Review Plan;
- joint workshops or other training to inform/rebaseline both the industry and NRC, including licensing boards and contractors, on NEPA purpose, scope and implementation;
- consideration of generic approaches, e.g., generic EIS for new plants, to address certain environmental issues; and
- enhancements to the environmental scoping and hearing processes.

The workshop transcript is available via ADAMS #ML073521491.

At the December 6, 2007, workshop and in a follow-up letter to NRC dated January 25, 2008, the industry expressed the expectation that experience from the early ESP and COL applications, combined with enhancements to NRC's environmental review process should result in substantial efficiencies and a reduction in the nominal schedule for the NRC environmental review.

It is recognized that many of the enhancements proposed to improve the effectiveness and efficiency of the NRC's environmental review process, *e.g.*, development of generic approaches to address specific environmental issues, may take some time (e.g., two to three years) to implement. Thus the benefits of these longer term efforts will primarily accrue to the next wave of COL and ESP applicants. The NRC is expected to produce a report on the December 6 workshop in the second quarter of 2008 that contains an action plan for enhancing its environmental review process, including further stakeholder interactions.

1.5 PRIORITIZING ESP APPLICATIONS FOR NRC REVIEW AND ESP-RELATED FACTORS IN PRIORITIZING COL APPLICATIONS FOR NRC REVIEW

In a November 16, 2006, Staff Requirements Memorandum on SECY-06-0187, the Commission identified factors that the staff should consider when making resource allocations and schedule decisions if and when actual licensing work exceeds the funds budgeted for new reactors.

For ESPs:

- the quality and the completeness of the application itself;
- the extent to which an application is likely to be followed up in the near term by a COL at the designated site; and
- the degree of an applicant's adherence to schedules and meeting of milestones that could impact the staff's review.

The Commission also identified ESP-related factors for prioritizing NRC review of COL applications, including:

- the extent to which an application references a completed early site permit (ESP) and a certified design;
- the extent to which an application references an ESP application submitted well in advance of the COL and which demonstrates the likelihood that environmental and emergency planning issues will be resolved prior to the COL hearing;
- the extent to which an applicant has coordinated with applicable state permitting authorities; and
- the extent to which an applicant has coordinated toward meeting other applicable federal requirements the schedule of the Department of Homeland Security (DHS) review of an applicant's EP plan and the schedule for the DHS security consultation consistent with Section 657 of the Energy Policy Act of 2005.

To maximize the likelihood that there will be sufficient NRC resources to conduct safety and environmental reviews on the applicant's preferred schedule, it is imperative that prospective applicants inform the NRC in writing as early as possible regarding plans to submit an ESP (or COL) application. This will enable NRC to include sufficient resources in its annual budgeting process. NRC budget planning begins 18-24 months prior to each fiscal year (which starts October 1).

2 ESP LESSONS LEARNED – GENERAL

Many of the lessons learned in Sections 2 and 3 are based on a November 1, 2007, NRC staff presentation to the Advisory Committee on Reactor Safeguards.

2.1 ISSUES WITH ELECTRONIC SUBMITTALS

There were several problems associated with electronic submittals resulting in rejections of ESP applications and responses to RAIs. In some cases, applicants' responses to RAIs would be rejected 2 or 3 times because of electronic format issues. NRC has now combined all the guidance documents into one and has provided video clips and a checklist for Portable Document Format (PDF) documents to assist applicants with electronic submittals. For more information, see Guidance for Electronic Submission to NRC, 2007-11-20, ADAMS #ML071580647.

In addition, the NRC staff and industry have formed an electronic submittals group that meets regularly to share information and lessons learned. Representatives from the Office of Information Services (OIS) and the Document Control Desk regularly attend and provide feedback to COLA and design certification applicants on issues the staff has encountered and information on the latest requirements of NRC and the National Archives and Records Administration. OIS has also developed a packing slip tool for rapid upload of documents into ADAMS. Using the new guidance and packing slip, the Dominion COL application for North Anna Unit 3 was successfully uploaded into ADAMS on the first try.

Applicants should be mindful of NRC requirements for electronic submittals and should require contractors to provide data, analyses and other inputs/supporting information in accordance with NRC requirements (*e.g.*, maximum file size, acceptable fonts, etc.). This will facilitate preparation and submittal of the ESPA as well as possible submittal of additional information in response to NRC RAIs.

2.2 RELIABILITY OF INTERNET INFORMATION

The reliability of Internet data taken from other agency websites and databases that are relied upon in ESP safety decisions remains an open issue for NRC. The NRC plans to resolve this issue definitively in the future. In the meantime, applicants should take the following steps when using Internet data:

- Only use data from trusted sites, such as those of industry, national and governmental organizations such as the National Weather Service, U.S. Geological Society, Census Bureau, etc.
- Internet data changes without notice; applicants should retain a copy of the specific Web site data used and the date the data was accessed.
- Applicants should consider contacting the owner of the Web site to obtain the needed data directly from source databases (e.g., on a compact disc).

2.3 NEED FOR COMMON UNDERSTANDINGS BETWEEN NRC STAFF AND APPLICANT

Many of the problems associated with the reviews of the North Anna, Clinton and Grand Gulf ESP applications were the result of lack of clear guidance, including definitions of terms. Since those applications were submitted, NRC has updated or issued new rules and guidance, including:

a. 10 CFR Part 51, Part 52 and other 10 CFR new plant requirements – FR 72 49352, Aug. 28, 2007;
b. Regulatory Guide 1.206, *COL Applications for Nuclear Power Plants*
c. NUREG-0800, *Review of Safety Analysis Reports for Nuclear Power Plants* (Standard Review Plan – SRP);
d. NUREG-1555, Standard Review Plans for Environmental Reviews for Nuclear Power Plants; and
e. NRO Office Instruction NRO-REG-100 (acceptance review guidance – ADAMS ML072250552).

The new and updated regulations and guidance reflect input provided in numerous interactions with NEI, design-centered working groups and individual applicants. These interactions were helpful in developing common understandings regarding expectations for the content of ESP applications. In particular, the new rules and guidance extend and define the concept of COL Action Items to ESP and establish clear definitions of Site Characteristics, Permit Conditions and Plant Parameter Envelope. The staff has incorporated key definitions into Section 1.0 of the SRP (NUREG-0800).

3 ESP LESSONS LEARNED – SAFETY REVIEW

Many of the lessons learned in Sections 2 and 3 are based on a November 1, 2007, NRC staff presentation to the Advisory Committee on Reactor Safeguards.

3.1 APPLICABILITY OF PART 21 FOR ESP

The Part 52 update rulemaking clarified the applicability of Part 21 to ESP applicants and holders with respect to "basic components," as that term is defined in Part 21. As described in the Part 52 Statements of Consideration (SOC), this applicability extends to contracted services for safety-related analyses (see 72 FR 49424):

> …services that are required to support an early site permit application (e.g., geologic or seismic analyses, etc.) that are safety-related and could be relied upon in the siting, design, and construction of a nuclear power plant, are to be treated as basic components as defined in part 21. Therefore, these services must be either purchased as basic components, requiring the service provider to have an appendix B to part 50 QA program, as well as its own part 21 program, or the early site permit applicant could dedicate the service in accordance with part 21, which requires the dedication process itself to be controlled under an appendix B to part 50 QA program.

Applicants should be sensitive to pre-ESP activities and apply Part 21 to analyses, soil borings, etc., that are safety-related or could be relied upon in the siting, design and construction of a nuclear power plant.

3.2 APPLICABILITY OF 10 CFR PART 50, APPENDIX B, FOR ESP

The Part 52 update rulemaking clarified the applicability of Appendix B to ESP applicants and holders (see Section 52.17(a)(xi). Not all 18 criteria of Appendix B apply to activities associated with ESP. In the case of QA criteria that do not apply to ESP activities, the applicants should provide justification as to why each specific QA control (e.g., Criterion VIII, Identification and Control of Materials, Parts, and Components, or Criterion XV, Nonconforming Materials, Parts, or Components) does not apply to ESP activities.

Applicants should implement an appropriate quality assurance program early on to support pre-application activities required to support an ESP.

3.3 CLIMATE CHANGE OVER THE NEXT 20 YEARS

The early ESPs coincided with growing concerns about global climate change, including global warming and extreme weather events. In particular, the ACRS expressed strong interest in assuring that climate change impacts are considered in ESP reviews. ACRS was especially interested in the data on hurricane cycles for the Atlantic and Gulf of Mexico coasts. In response, the staff implemented in 2007 a new approach to consideration of climate change impacts that considers current scientific thoughts, including the 2007 Intergovernmental Panel on Climate Change (IPCC) report. The areas potentially most affected by this review are the design basis hurricane and design basis temperatures. For example, going forward, NRC will request applicants to review 100 years of temperature data around the site vs. the historical 30 year look back. Also, future ESP applicants should be prepared to provide data and/or analyses which adequately address apparent trends toward increased hurricane frequency and intensity, as they relate to the ESP/COL site. In this regard, NRC plans to undertake a hurricane research study.

The staff has revised SRP 2.3.1 to reflect enhanced consideration of climate change in its safety reviews and is implementing the new approach for the first time on the Vogtle ESP review.

3.4 UPDATED GUIDANCE FOR HYDROLOGY

The staff has updated its guidance on hydrology as reflected in the update to SRP 2.4. The most significant areas impacted are effects of tsunamis and a proposed updated Regulatory Guide 1.59 on flooding. The guidance for calculating ice thickness has also been updated. The staff is participating in the international studies on tsunamis and expects to finalize revised guidance before reviewing a coastal site. The staff is participating in the development by IAEA of guidelines on hydrological and meteorological hazards.

3.5 TREATMENT OF THE HIGH FREQUENCY COMPONENT OF SEISMIC GROUND MOTION

NRC issued Regulatory Guide 1.208 on performance-based seismic methodology in March 2007. The guide addresses the problem associated with use of the standard RG 1.60 response spectra that showed significant seismic accelerations for higher frequency seismic inputs, especially for rock sites. RG 1.60 was used successfully for licensing current operating plants. The NRC also issued draft Interim Staff Guidance (ISG) in August 2007, based on extensive interaction with stakeholders, that allows use of realistic incoherency effects for ground motion inputs which substantially reduces the impact of high frequency ground motions.

In February 2008, the staff indicated that they will be finalizing their ISG for seismic issues to include the agreed upon resolutions for high frequency analyses. The staff and industry agree that high frequency issues should be covered in each DCD as required rather than being addressed in individual COLAs or ESPs. Further, the details of the required analyses and acceptable screening tests to identify and qualify high frequency sensitive components will be addressed in the final ISG. The majority of this information will be consistent with what was provided by the industry in EPRI report 1015108, "The Effects of High Frequency Ground Motion on Structures, Components and Equipment in Nuclear Power Plants," and EPRI Report 1015109, "Seismic Screening of Components Sensitive to High Frequency Vibratory Motions."

Determining the seismic hazard has been a pacing element in developing ESP (and COL) applications to date (on or near the critical path). New guidance on performance-based seismic methodology and use of realistic incoherency effects for high frequency ground motion inputs should help. However, the seismic area will continue to take a substantial amount of lead time, requires use of technical experts that are in short supply, and may be subject to additional issues arising from future NRC reviews. For these reasons, seismic hazard should be a prime factor in site selection, and planning the seismic portion of the application should be a first order priority for applicants.

3.6 COL ACTION ITEMS FOR ESP

The initial three pilot ESP applicants did not specifically identify in Site Safety Analysis Reports those actions that would be expected at COL or were deferred to the COL stage. In the end, the NRC Staff identified these issues, documented those conclusions in its SER, and entered them into the Permit as COL Action Items. This is different from the design certification process in which the reactor vendor proposes and maintains ownership of analogous COL information item statements. Future ESP applicants should consider including their own set of COL Action Items and thus maintain ownership of this important aspect of the ESP.

4 4.0 ESP LESSONS LEARNED – EMERGENCY PLANNING REVIEW

4.1 "MAJOR FEATURES" VS. "COMPLETE AND INTEGRATED" OPTION

The "major features" option (10 CFR 52.17(b)(2)(i)) was considered to be a failure by consensus of the applicants. Confusion over the applicability of NUREG-0654, Supplement 2 requirements, as well as differing views concerning the extent of EP information required to support the major features option for ESP sites that have existing E-plans, led to a disproportionate number of Requests for Additional Information (RAIs) in the EP area. It also became apparent that the major features option would not provide regulatory value in terms of issue resolution for the COL phase commensurate with the effort put in.

For ESP sites that have existing E-plans, applicants should forgo the major features option and submit complete and integrated E-plans under Section 52.17(b)(2)(ii) for the potential new units based on the existing E-plan. Part 52 has been modified to facilitate this option and the desired result that EP issues are treated as resolved for the COL phase. Specifically, Section 52.17(b)(3) now requires that applicants propose ITAAC as part of complete and integrated E-plans to address EP information that is not available at the ESP phase. Information to close EP ITAAC would either be provided in a COL application or EP ITAAC established in the ESP would become part of COL ITAAC to be completed prior to fuel load.

The "major features" option has been retained in Part 52 (see Section 52.17(b)(2)(i)). It is possible that this option may still hold value for certain greenfield ESP sites. A future ESP applicant for a greenfield site should consider this option as part of pre-application interactions with the NRC. If the "major features" option does not appear viable, greenfield ESP applicants should comply with the Section 52.17(b)(1) requirements to address any physical impediments to the development of E-plans for the site. Complete and integrated E-plans would then be required to be provided in the COL application that references the greenfield ESP.

4.2 USE OF EXISTING EMERGENCY PLANNING DOCUMENTS

If an ESP is to be co-located with an existing licensed facility, and if the emergency planning documents for the latter are to be referenced or depended upon in lieu of preparing stand-alone submittals for the ESP application, the applicant should ensure that the basis documents have been reviewed against current requirements and guidance. For example, evacuation time estimates should be reviewed and the need for updating should be evaluated, as discussed in Regulatory Issue Summary RIS 01-016, *Update of Evacuation Time Estimates*.

4.3 INTERFACE WITH FEMA, STATES AND LOCAL AGENCIES

There was confusion regarding the role of FEMA in reviewing emergency plans for the initial three ESP applicants, due in part to use of the "major features" option. Given that "major features" is no longer a preferred option for the EP portion of an ESP, and given the prospect of COL applications, the focus has been on understanding the role of FEMA in reviewing complete and integrated E-plans. NEI and industry conducted a meeting with FEMA and NRC on October 4, 2006. The purpose of the meeting was to clarify FEMA's role in reviewing an emergency plan submitted for the purpose of a COLA. This same review process would be used for a complete and integrated E-plan option for an ESP. Further clarification subsequent to the meeting was made in an exchange of letters between NEI and FEMA in 2007. The NEI letter to FEMA dated November 29, 2007, and FEMA's reply dated December 19, 2007, are provided in Appendix 1. Also provided in Appendix 1 is an August 28, 2007, NEI letter to NRC providing industry understandings of NRC responses to new plant EP-related questions provided at a May 11, 2007, public meeting. NRC is expected to confirm or clarify these understandings via reply to this letter in 2008.

All applicants should initiate interaction with state and local agencies as early as practicable in the planning process. ESP applicants interested in the "major features" option, perhaps for a greenfield site, should engage NRC and FEMA early to assure that requirements and benefits under this option are well understood.

4.4 ADDITIONAL EMERGENCY PLANNING ISSUES

On May 11, 2007, NRC held a public meeting to discuss questions and issues concerning EP for new plants. While the context was primarily COL applications, much of this information may also be of interest to ESP applicants who pursue the "complete and integrated" EP option. In a letter to NRC dated August 28, 2007 (see Appendix 1), NEI summarized the questions discussed and the NRC responses. An NRC response to this letter is expected in early 2008.

To address the need for "complete and integrated" emergency plans to include Emergency Action Levels, NEI has developed the following guidance documents for traditional and so-called passive plants, respectively:

- NEI 99-01, Revision 5, Methodology for Development of Emergency Action Levels, September 2007; and
- NEI 07-01, Revision 0, Methodology for Development of Emergency Action Levels for Advanced Passive Light Water Reactors, September 2007.

The latest versions of these documents are available on the NEI Member Web site under Technical Reports/Official Documents/NEI Reports. NRC is expected to endorse these guidelines in a Regulatory Guide in early 2008.

5 ESP LESSONS LEARNED – ENVIRONMENTAL REVIEW

The lessons learned related to ESP environmental reviews presented in this section are based on information provided by the NRC staff in 2005 (ADAMS #ML052560058). Where appropriate, updated status information is also provided.

5.1 EARLY ENGAGEMENT BEFORE APPLICATION

September 2005 NRC Lesson Learned – ESP applicants should engage the NRC at the earliest opportunity that business plans permit to ensure that plans can be made to provide resources for the review. Additionally, pre-application discussions are essential to ensure that (1) the scope and duration of monitoring programs to establish site characteristics are likely to meet regulatory expectations and (2) the approach for identifying alternative sites is reasonable.

2007 Status – NRC has developed a plan for pre-application environmental reviews and provided the following information in public meetings in 2007 (ML070860817):

Pre-App: Essential Step in Review Process

- **Inventory –** EPAct 2005 incentives and growing consensus on global warming creating extraordinary interest.
- **Enhancing Effectiveness** – Accepting reality that environmental/siting review is site-specific; reference design reviews will accrue schedular benefits with subsequent reviews; and, environmental reviews will accrue schedular benefits if applicant hits the target.
- **Ownership** – Ultimately, NRC is responsible for the reliability of all information used in its EIS.

Objectives of Pre-App Reviews

- **Planning** – Understanding and aligning plans and schedules, including applicant's interim milestones for preparing application.
- **Outreach** – Early vetting of technical and jurisdictional issues, obtaining the status of other authorizations, and understanding the design and implementation of programs.
- **Meeting Target** – Sharing expectations on conforming approach and process (using RGs) to meet application requirements; alternative approaches or methods take review time.
- **Readiness** – Capturing insights regarding readiness and maturity of application, aligning review team resources, and preserving information for use by review team.
- **Informed** – Obtaining background and insights to effectively participate in public information meetings prior to receipt of application.

Concept of Operations – Pre-App Schedule Strategies (Depending on Applicant Preference and Lead Time before Expected Application Submittal)

- **Idealized/Optimal Case** – Beginning approximately 22 months prior to receipt of application and tied to decision-making milestones regarding site selection, design of field programs and data collection activities, and need for other permits building to preparation of application. Greatest benefit.
- **Compressed Case** – Beginning approximately 12 months prior to receipt of application with data collection programs underway at proposed site and applicant's stakeholder interactions nearly complete.
- **Truncated Case** – Beginning approximately 7 months prior to receipt of application with analyses nearing completion and virtually all applications for necessary permits filed. Some benefit.

Idealized/Optimal Case	Compressed Case	Truncated Case
-660 to -600 Days – Initial interactions (Plans, activities initiated, NRC expectations)	-400 to -300 Days – Initial interactions (Plans, activities initiated, NRC expectations, observe data collection activities, stakeholder and government to government (G-2-G) interactions	-250 to -160 Days – Initial interactions (Plans, activities initiated, NRC expectations, observe data collection activities, stakeholder and G-2-G interactions)
-550 to -450 Days – Familiarization (site selection process, alternative sites, other stakeholder interactions, including G-2-G interactions)	-280 to -190 Days – Familiarization (site selection process, alternative sites, other stakeholder interactions, including G-2-G interactions)	-120 to -80 Days – Records and products assessment
-420 to -360 Days - Observation of data collection at proposed site	-130 to -80 Days – Records and products assessment	-100 to -30 Days – Public Information Meeting
-360 to -250 Days – Stakeholder Interactions (permits and approvals)	-100 to -50 Days – Public Information Meeting	
-200 to -150 Days – Records and products assessment		
-100 to -50 Days – Public Information Meeting		

NRC Instructions to applicants:

Submit preferred schedule strategy for pre-application interactions (Optimal, Compressed, or Truncated), point of contact (e-mail and phone number), and preferred date (and alternative) for any step (some can be combined) to **preapp_siting@nrc.com**.

- Requests will be sorted and aligned to share costs effectively.
- NRC will assign an Environmental Project Manager or qualified point of contact for logistics.

5.2 UNDERSTAND THE DECISION STANDARDS

September 2005 NRC Lesson Learned – The ESP applicant's team members should be particularly familiar with the environmental decision standards (environmentally preferable, obviously superior) that the staff will use to compare the proposed site to the alternatives. Interactions during the environmental review, such as during an environmental site audit, are most effective with counterparts who are knowledgeable about the issues and the process.

2007 Status – NRC has completed a revision to its regulations, including new requirements, clarifications, and definitions related to the environmental review process (FR 72 49352, August 28, 2007). In addition, NRC is in the process of updating NUREG-1555 (Environmental Standard Review Plan). NRC held a workshop on December 12, 2007 to discuss stakeholder comments on proposed revisions to the ESRP. Transcript is available at ADAMS #ML080030149. Industry and NRC efforts to update and clarify environmental review guidance will continue into 2008, and applicants should monitor these activities.

5.3 DATA AND ANALYSES MUST SUPPORT THE NECESSARY CONCLUSIONS

September 2005 NRC Lesson Learned – The necessary depth of analysis varies depending on the site-specific environmental setting and environmental resources that may be impacted, but analyses must support the necessary conclusions. Early discussions between the applicant and the staff can help ensure that the data and analyses in the application will adequately support the staff's evaluation.

5.4 JUSTIFY APPLICABILITY OF EXISTING INFORMATION

September 2005 NRC Lesson Learned – ESP applicants for sites already in use should consider the wealth of siting information already available and alternative sites that have been considered by the NRC and its predecessor. Nevertheless, the applicability and utility of such information must be established by the applicant for the proposed action.

5.5 CLEARLY DOCUMENT ASSUMPTIONS AND MITIGATION MEASURES

September 2005 NRC Lesson Learned – At the COL stage, the applicant must demonstrate that the design selected is bounded by the evaluation performed at the ESP stage to preserve issue resolution. As part of its COL EIS review, the staff will evaluate and determine whether the design is bounded by the evaluation performed in the ESP EIS. Therefore, the ESP [EIS] will include a list of assumptions and mitigation strategies relied upon in reaching the conclusion.

2007 Status – The COL application for North Anna Unit 3, submitted November 27, 2007 (ML073320913), was the first to reference an ESP. North Anna 3 ER Tables 3.0-1 and 3.0-2 (and FSAR Table 2.0-201) provide the demonstration required by Section 51.50(c)(1)(iii), and Section 52.79(b) that the design of the facility falls within the ESP site characteristics and design parameters. Applicants should monitor the NRC review of the North Anna COLA (and Grand Gulf COLA when submitted) for insights regarding preservation of ESP issue resolution for the COL stage.

5.6 INCLUDE COMMITMENTS RELATED TO ENVIRONMENTAL PERMITS FOR PRE-CONSTRUCTION ACTIVITIES

September 2005 NRC Lesson Learned – If the ESP applicant plans to seek authorization to conduct site preparation and limited construction activities under 10 CFR 52.25, then it should consult with the State and with other Federal agencies to determine which permits are required before activities can be performed. Once authorized as part of an ESP, there will be no additional NRC action before a COL application; consequently, a license commitment (which will be converted to a license condition) should be provided in the ESP application.

2007 Status – The COL application for North Anna Unit 3, submitted November 27, 2007 (ML073320913), was the first to reference an ESP. Applicants should refer to the North Anna ESP, issued November 27, 2007 (ML073180440), which includes a license condition related to performing limited construction activities approved in the ESP under Section 52.25.

5.7 OTHER-THAN-LIGHT-WATER REACTORS ADD CHALLENGES THAT MUST BE ADDRESSED

September 2005 NRC Lesson Learned – Certain analyses, such as the impacts of the uranium fuel cycle and transportation of spent fuel and high-level waste have the benefit of generic treatments; see Tables S-3 and S-4. Since certain reactor types do not meet the entry conditions for use of the generic treatments, interest in other-than-light-water reactors places additional burdens on the ESP or COL applicants to consider and defend such individual and cumulative impacts within the ESP or COL application.

5.8 RECONCILE CONCERNS OF STATE AND OTHER FEDERAL AGENCIES EARLY

September 2005 NRC Lesson Learned – The ESP applicant should engage other governmental agencies (e.g., State and other Federal permitting agencies) prior to submitting the ESP application to the NRC to discuss and reconcile, if possible, siting issues of particular concern (e.g., water use, transmission line corridor issues).

2007 Status – Consistent with the LWA changes to Section 52.10(e), NRC will no longer evaluate the environmental impact of preconstruction activities, including transmission line corridor issues. However, COL applicants will still need to address in the COLA ER the cumulative impacts of preconstruction activities in connection with the environmental impacts of proposed facility. The NRC is in the process of updating the ESRP, including new guidance on cumulative impacts. Future applicants should monitor interactions of current and near term applicants for insights on applying the new guidance.

5.9 RESOLVE ISSUES RELATED TO CZMA AND SECTION 401 CERTIFICATIONS EARLY

September 2005 NRC Lesson Learned – A Coastal Zone Management Act certification, if applicable, and a Federal Water Pollution Control Act (Clean Water Act) Section 401 certification are required before the ESP permit can be issued. The ESP applicant should take the necessary steps to obtain certifications early in the application process. If the proposed project is modified during the review process to address, for example, a state concern related to one of these certifications, it could have an adverse impact on the review schedule.

5.10 FLAG CONFORMING CHANGES BETWEEN THE SAFETY AND ENVIRONMENTAL AREAS

September 2005 NRC Lesson Learned – Effective communication is essential between the safety and environmental sides of the review. This applies to both the NRC and the Applicant. The safety and environmental reviews overlap in a number of areas; consequently, a change to the ESP application in response to an environmental RAI can impact the safety side and vice versa.

2007 Status – The NRC has changed its project management structure to assure better coordination of environmental and safety RAIs. Specifically, there will be separate environmental and safety PMs plus an overall project PM with this coordination responsibility.

5.11 LATE CHANGES COULD REQUIRE RE-CIRCULATION OF THE DRAFT EIS

September 2005 NRC Lesson Learned – The NRC discloses the environmental impacts of the project to the public and other federal and state agencies in a draft EIS. If the application is modified materially after the draft EIS is issued, then the NRC may have to re-circulate a *new* draft EIS; this will have an adverse impact on the review schedule. For example, late changes in ultimate heat sink design prompted by local concerns about

water use, temperature or level may require re-review of associated environmental impacts that would have an adverse impact on the review schedule.

5.12 MINIMIZE DIFFERENCES BETWEEN THE ESP AND COL DESIGNS

September 2005 NRC Lesson Learned – The value of the ESP is tied to the early resolution of siting issues and its potential use in a COL. The closer that the design selected at the COL stage is to the surrogate design(s) evaluated during the ESP stage, the more issues will remain resolved at the COL stage; this enhances the effectiveness of the Part 52 licensing process. Use of a plant parameter envelope defers the final resolution of certain design-specific issues to the COL stage.

2007 Status – The COL application for North Anna Unit 3, submitted Nov. 27, 2007 (ML073320913), was the first to reference an ESP. Applicants should refer to North Anna 3 ER Tables 3.0-1 and 3.0-2 (and FSAR Table 2.0-201) which provide the demonstration required by Section 51.50(c)(1)(iii), and Section 52.79(b) that the design of the facility falls within the ESP site characteristics and design parameters.

6 ESP LESSONS LEARNED – ADDITIONAL ITEMS

6.1 NEW RULES ON LIMITED WORK AUTHORIZATIONS (LWA)

Applicants may seek an LWA as part of the ESP under Section 52.17(c). In this regard, new definitions and rules took effect in 2007. See 72 FR 57416, October 9, 2007. Among other things, the new rules broaden the scope of pre-construction activities that can be performed without prior NRC approval (See amended Section 52.10(e)). For example, excavation for foundations and erection of transmission lines are now considered pre-construction activities that are outside the purview of the NRC. For some applicants, these changes may eliminate the need to seek an LWA as part of the ESP (or COL) process.

The NRC is expected to produce guidance on using the new LWA process in 2008.

6.2 "NEW AND SIGNIFICANT" INFORMATION

COL applications that reference an ESP must address environmental issues that were not resolved in the ESP as well as "new and significant" information with respect to issues that were resolved in the ESP. The SOC for the Part 52 final rule state, "For information to be 'significant,' it must be material to the issue being considered, that is, it must have the potential to affect the finding or conclusions of the NRC staff's evaluation of the issue." (72 FR 49431, Aug. 28, 2007.)

Additional clarification on the meaning of "new and significant" information may also be provided in connection with the ongoing update by NRC of its environmental review guidance.

The COL application for North Anna Unit 3, submitted Nov. 27, 2007 (ML073320913), was the first to reference an ESP. Section 1.3.3 of the North Anna 3 ER provides new and significant information for various issues related to the impacts of construction and operation of the facility that were resolved in the ESP proceeding. Applicants should consult this information (and the analogous information in the Grand Gulf COL application expected to be submitted to NRC in 2008) and should monitor the associated NRC reviews for insights concerning treatment of "new and significant" information.

The SOC for the Part 52 final rule also state, "A combined license applicant should have a reasonable process to ensure it becomes aware of new and significant information that may have a bearing on the earlier NRC conclusion, and should document the results of this process in an auditable form. The NRC staff will verify that the applicant's process for identifying new and significant information is effective." To support a future COL application, ESP applicants and holders may wish to establish a process to identify, assess, and document new and significant information arising between the time of ESP issuance and COLA.

6.3 BACKFILL SOIL ITAAC

In 2007, it was determined that an ITAAC on backfill soil was required for plants requiring engineered backfill under Category 1 structures. This requirement affects COL applicants as well as ESP applicants seeking an LWA that includes engineered backfill activities. In its ESP application, Southern Company has proposed a backfill ITAAC based on soil compaction as well as a soil test program that will provide a correlation between the percent compaction and shear wave velocity, which is a site parameter of the AP1000 and other design certifications. The backfill ITAAC and test program are intended for use in demonstrating that the soil site will meet design certification shear wave velocity requirements at the Nuclear Island foundation. Prospective applicants should monitor the NRC review of the Votgle ESP/COL application for insights concerning backfill ITAAC.

For applicants planning to move immediately from ESP to the COL phase, soil testing of backfill material should be planned as early as possible. This includes static and dynamic property testing of the backfill material, and especially resonant column-torsional shear (RCTS) testing. Currently, there are very few labs that can perform RCTS testing, so early planning and scheduling of this resource is key.

6.4 MANDATORY HEARING ON UNCONTESTED ISSUES

The licensing boards in the ESP hearings have conducted extremely detailed reviews of the NRC staff's safety evaluation report and environmental impact statement and asked hundreds of questions. The reviews by the licensing boards appear to have exceeded the

scope of the review required by NRC's regulations and Commission directions, which direct the boards to ensure that the record and the staff's documents contain sufficient bases for the board to make the requisite findings. The overall effort and cost of preparing and participating in the mandatory hearings was substantial for both the staff and applicant, and without commensurate benefit to either safety or the environment.

In a June 22, 2007, memorandum the Commission approved the recommendation of the Combined License Review (Merrifield) Task Force that the Commission itself will conduct the mandatory hearing associated with future COL applications and asked OGC to draw up a plan to implement this recommendation. It is expected that the Commission will also conduct the mandatory hearings associated with future ESP applications. See COMDEK-07-0001/COMJSM-07-0001 – Report of the Combined License Review Task Force.

In an August 10, 2007, letter to the NRC providing comments on the draft policy statement on conduct of new plant licensing proceedings (CLI-07, 72 FR 32139, June 11, 2007), the industry also recommended adoption of Commissioner McGaffigan's suggestion that in cases where there are both mandatory and contested hearings, the agency should endeavor to complete both "as simultaneously as possible."

In the longer term, both the industry and NRC support legislation to eliminate the requirement to conduct a hearing when no request for hearing is made.

APPENDIX 1 –
NEI CORRESPONDENCE WITH FEMA AND NRC ON NEW PLANT EMERGENCY PLANNING ISSUES

NUCLEAR ENERGY INSTITUTE

Alan P. Nelson
DIRECTOR
EMERGENCY PREPAREDNESS
NUCLEAR GENERATION DIVISION

November 29, 2007

Mr. Daniel Wilcox
Acting Branch Chief, Radiological Emergency Preparedness Branch
Federal Emergency Management Agency
Department of Homeland Security
500 C Street SW (Crystal City Room 847)
Washington, DC 20472

Subject: October 4th, 2007 NEI/FEMA Meeting on Advanced Light Water Reactor Emergency Preparedness New Reactor Licensing

Dear Mr. Wilcox:

On October 4th, 2007, the NEI Emergency Preparedness Task Force met with you and your staff to discuss FEMA's review of Early Site Permits/Combined Operating Licenses for new plant applications. At the conclusion of the meeting, NEI committed to provide a summary of FEMA's clarification on specific presentations. Enclosed is our understanding of FEMA's responses to presentations provided by industry representatives during the course of the meeting. Please review the enclosure and identify any areas that may be inconsistent with our understanding.

NEI, on behalf of the industry task force, would like to thank FEMA for the opportunity to hold open discussions on these most important issues.

If you have any questions, please contact me at (202) 739-8110; apn@nei.org or Martin Hug at (202) 739-8129; mth@nei.org.

Sincerely,

Alan P. Nelson

Enclosure

c: Ms. Vanessa Quinn, U.S. Federal Emergency Management Agency
Mr. Kevin Williams, U.S. Nuclear Regulatory Commission
Mr. Daniel Barss, U.S. Nuclear Regulatory Commission

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FEMA Feedback on Selected Presentations

Discussion

During the meeting, industry provided presentations to FEMA on the following subject matter areas:

- Letters of agreement
- FEMA reviews for sites with existing reasonable assurance
- Emergency planning for Green Field sites
- Developing offsite plans for new reactors at existing sites[1]
- Overlapping EPZ considerations
- Evacuation time estimates.

The following is NEI's understanding of insights FEMA provided on selected presentations.[2]

FEMA reviews for sites with existing reasonable assurance

FEMA explained that the 350 review process involves a state's governor requesting FEMA to review offsite plans. The COLA process requires a somewhat different review, which results in an "interim finding of reasonable assurance." FEMA stated that the COLA "interim finding" is just a "snapshot" in time. Final reasonable assurance is demonstrated during the exercise and the public meeting following the exercise. NEI asked if the "Interim Finding" could be questioned by the public during the public meeting that follows the exercise. FEMA stated that only results from the exercise could be questioned at the post exercise public meeting.

Signatory approval for this "interim finding" process is at the REP Headquarters Branch Chief level instead of the FEMA Administrator level for a 350 review.

FEMA stated that the NRC decided that FEMA should perform a review which is "stand-alone" and results in an interim report based on the 16 planning standards described in NUREG-0654. The FEMA Regions will perform the reviews with Headquarters providing oversight. FEMA will take lessons-learned from all the reviews to ensure all Regions are reviewing submittals consistently. FEMA plans to use their staff to do the reviews.

FEMA stated that any potential deficiency identified in an existing offsite plan would be evaluated in the next exercise.

FEMA explained that an interim finding is based on a cross-reference of the state/county plans to the 109 criteria in NUREG-0654/FEMA REP 1, and the finding provides the NRC with reasonable assurance. The interim report is written and based on the 16 planning standards. The FEMA Region responsible for the respective plant application will review the offsite plans and cross-reference to NUREG-0654/FEMA REP 1. FEMA mentioned that COLA applications should verify that the offsite plans in the FEMA regions are the same as the ones included in the applicant's submittal.

[1] Green Field Sites are new reactor sites that are not located adjacent to existing reactor sites.
[2] FEMA did not provide detailed verbal comments on all presentations.

Emergency planning for Green Field sites

During the presentation, it was noted that one proposed Green Field site was in Idaho. FEMA stated that they would like to be notified as soon as practical if a new rector were to be built in Idaho. Currently, none of the field offices have oversight for a REP program in Idaho.

Overlapping EPZ considerations

Industry has benchmarked NRC licensees that have Emergency Planning Zone (EPZ) overlaps, including Point Beach & Kewaunee and Nine Mile Point & Fitzpatrick. These licensees have processes in place to address coordination of siren system maintenance and testing, offsite equipment storage, protective actions for the general public, and public safety information distribution. Our understanding is that there will be no additional FEMA criteria for new sites with overlapping EPZ's since licensees are currently addressing overlapping EPZ considerations and meeting the challenges. FEMA concurred with this approach.

Evacuation time estimates

FEMA concurred that NRC will perform the review of the evacuation time estimates (ETE); and FEMA will verify that the ETE has been provided in the application.

Additional Discussion

FEMA stated:

- That FEMA's application review Request for Additional Information (RAI) will be coordinated through the NRC COLA application project manager,
- A cross reference of the application to the sixteen planning standards and NUREG 0654/FEMA REP1 will aid in a timely FEMA review, and
- COLA application offsite plans submitted to FEMA should be the plans currently in the respective regional FEMA office.

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Washington, DC 20472

FEMA

Alan P. Nelson, Director
Emergency Preparedness
Nuclear Generation Division
Nuclear Energy Institute
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Washington, D.C. 20006-3708

DEC 19 2007

SUBJECT: OCTOBER 4, 2007, NEI/FEMA MEETING ON ADVANCED LIGHT WATER REACTOR EMERGENCY PREPAREDNESS NEW REACTOR LICENSING

Dear Mr. Nelson:

We have reviewed the enclosure provided with your letter, dated November 29, 2007, regarding FEMA's role in support of new reactor licensing. The following information provides correction and/or clarification to the enclosure:

- A "Formal 350 Review" of offsite emergency plans involves a request from the Governor of the State (or the Governor's designee). The "Interim Finding" for the new reactor application review process provides the same basic review of offsite plans, but it is performed in a shorter period of time with signature authority stopping at the REP Branch Chief level (as opposed to the FEMA Administrator).

- The word "final" should not be used with the term "reasonable assurance". "Reasonable assurance" is a continuous process. The completion of the public meeting following the joint exercise (State and local participants) leads to a reasonable assurance finding on preparedness (plan review, joint exercise results and the public meeting).

- For the public meeting following the exercise, the public and the media are invited only as observers. The purpose of the meeting is to discuss the results of the joint exercise. Written comments from the public or media may be submitted at or after the meeting.

- Any identified problems involving the review of existing plans is known as a planning issue (not a planning deficiency). Generally, all existing plans are reviewed and updated annually via the FEMA Annual Letter of Certification (ALC) process. The ALC is sent by the States to FEMA no later than January 31st for the previous year of corrections and /or revisions to the plans. So if a planning issue is identified as part of the license review process, FEMA would expect it to be addressed and, if possible, corrected by January 31st of the following year.

Should you and/or members of your staff have any questions regarding this matter, please contact me at (703) 605-4211 or Mike Takacs at (703) 605-4212.

Sincerely,

Daniel G. Wilcox, Acting Chief
Radiological Emergency Preparedness Branch

cc: V. Quinn (FEMA)
FEMA/REP-CHRON

NUCLEAR ENERGY INSTITUTE

Alan P. Nelson
DIRECTOR, EMERGENCY PREPAREDNESS
NUCLEAR GENERATION DIVISION

August 28, 2007

Mr. Christopher G. Miller
Deputy Director for Emergency Preparedness
Division of Preparedness and Response
Office of Nuclear Security and Incident Response
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Industry Questions and NRC Responses from NRC Public Meeting on Advanced Light Water Reactor Emergency Preparedness New Reactor Licensing, May 11, 2007

Project Number: 689

Dear Mr. Miller:

Enclosed is industry's understanding of NRC's responses to questions discussed during the May 11, 2007 NRC public meeting on advanced light water reactor emergency preparedness new reactor licensing issues. NEI committed to provide a summary of questions and responses to the NRC in an effort to provide quality applications and reduce the regulatory burden.

NEI, on behalf of the industry, would like to thank the staff for providing clarification to the advanced light water reactor emergency preparedness new reactor licensing process.

If you have any questions or require additional clarification, please contact me at (202) 739-8110; apn@nei.org or Martin Hug at (202) 739-8129; mth@nei.org.

Sincerely,

Alan P. Nelson

Enclosure

c: Mr. Daniel M. Barss, NRC
Ms. Vanessa Quinn, FEMA
NRC Document Control Desk

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ENCLOSURE

May 11th NRC Public Meeting – ALWR EP

The table below represents industry issue discussed during the NRC public meeting:
For each issue, NEI provides the industries understanding of the responses in the meeting.

Presentation	Presenter	Questions or Discussion Items
Regulations	Barss	• We understand that the Emergency Plan will be part of an independent licensing action based on applicable regulations and guidance. Response: The COLA application, in the case of a new reactor co-located on an existing site, may reference an existing Emergency Plan. Changes to the existing emergency plan made in support of the new reactor that also affect the existing reactor are review under 10CFR50.54q. If it is determined that DIE exists, this change has to be submitted for NRC approval under the existing reactor docket.
RG 1.206 NUREG 0800 NUREG-0654/0696 Cross Reference	Roach	• Under Section C.1.13.3.1 of RG 1.206, it states the application should include a cross-reference to applicable regulatory requirements, guidance documents, generic communications, and other criteria that are used to develop the application and emergency plan. In the following sentence it describes specific criteria. For example, the only guidance document listed is NUREG-0654; no generic communications are listed as part the specific guidance. We understand that the NUREG-0654 cross reference will be included as part of the emergency plan submittal and the cross reference addressing other regulatory requirements and guidance documents will be part of a supplemental section of the COLA submittal. Response: Yes. The NUREG-0654 cross reference will be included as part of the emergency plan and the cross reference addressing other regulatory requirements will be part of a supplemental section in the COLA submittal. • Describe expectations for a transition plan. Some emergency plan changes may only be interim (example – evacuation plans for construction site) and others will be final plan requirements (table B1 requirements). The transition plan would describe when the NRC approved emergency plan changes would be implemented in the site emergency plan and in some cases be removed from the plan when no longer required. For a transition plan, it may be impossible to specify actual dates because the COLA may be approved for a period of time. Is it appropriate to specify milestones in a transition plan and tie these millstones to major construction activities? Will specific guidance on the requirements of transition plans be made available? Is it up to each

May 11th NRC Public Meeting – ALWR EP

Presentation	Presenter	Questions or Discussion Items
		licensee to develop an approach? Will the transition plan be open to RAI's? Response: It is up to each licensee as to the format of the transition plan. If specific dates for transitions are not available a description of the millstone is appropriate. Milestones may include prior to fuel load, at fuel load and prior to exceeding 5% power. The transition plan is open to RAIs. • Where is the specific requirement regarding a transition plan? Response: SECY 05-0197 states that each COL licensee provides the timing implementation of the various programs, EP being one of these programs. RG 1.206 C.I.13.4 Operational Program Implementation provides guidance. • We understand the required implementation schedule will be addressed in Section 13.4 of the FSAR and implementation details will be provided in accordance with a proposed license condition (SECY-05-0197) beginning one year after COL is issued with updates every six months thereafter. Response: This statement is contained in SECY 05-0197. • Requirements state that offsite plans should be submitted. Applicants assume this means State and Local plans in support of the 10 mile planning zone. Response: Yes.[1]
ITAAC	Musico	• Applicants assume ITAAC may be applied to offsite facilities, equipment and emergency plans. Response: Yes. NRC will review off site ITAAC on a case by case basis. However if there are deficiencies, until the deficiencies are corrected, the unit would not be able to load fuel or go to 5% power. • As part of the COLA process, commitments to supply additional information as it becomes available may be necessary. For instance radiological instrument set points, specified in the Emergency Action Levels, may not be available at the time of the COLA application. What type of licensing alternative to ITAAC could be used to make a commitment for this information once available? Where would these commitments be placed? Response: Commitment to information would be included as part of the acceptance criteria of each applicable ITAAC. No additional ITAAC would need to be created. • Provide examples of level of detail required in ITAAC. Specifically in the area of acceptance

[1] This does not include plans associated with the 50 mile IPZ.

May 11th NRC Public Meeting – ALWR EP

Presentation	Presenter	Questions or Discussion Items
		criteria. Response: ITAAC require enough detail to provide reasonable assurance that, if the licensee performs the inspections, tests and analysis and meets the acceptance criteria the facility has been constructed in conformity to the COLA. For example for onsite exercise objectives the acceptance criteria would be higher tiered categories such as Notifications and Accident Assessment and Classification. The procedural level detail of how the criteria are met is not required. • We understand that EP ITAAC will not be included in the emergency plan and will reside in Part 10 of the COLA. Response: Yes
Shift Staffing	Robinson	• For a co-located site, using a site plan, applicants are assuming Table B-1 requirements approved in SER's for the existing units, extend to the new units. Response: No. Existing unit staffing exemptions do not apply. Any changes not consistent with Table B 1 need to be justified. • How is the smart application template applicable to the new unit applications? Response: Smart application can be used to assist an applicant for a new unit with determining the changes are either in compliance or require a justification from the rules. For instance the information suggested in section B. "Body of the application", may be submitted to provide the basis for the request.
EAL	Kellum	• Discuss use of 99-01 Revision 4 or 5 for non-passive plants • We understand that the expectation is EALs as complete as possible; however certain information such as set points will not be available at COLA submittal. We will commit to that expectation through a licensing commitment. • We understand that the NRC will provide a vehicle to allow use of new/pending EAL guidance documents that have not been endorsed by the NRC at the time of COLA submittal. Response to above three questions: Follow endorsed guidelines at the time of the COLA unless NRC has issued a letter allowing use of the new/pending guidance in 99-01 R5.
Facilities / ANS	Sanfilippo	• There are a number of possible options for TSC location. Can NRC comment on the options: ○ Common TSC for existing units and a TSC for each of the proposed units (this is the

May 11th NRC Public Meeting – ALWR EP

Presentation	Presenter	Questions or Discussion Items
		option covered under the current AP1000 design) ○ Designated TSC inside either existing unit or in new unit that would service all units ○ Common TSC inside the PA but TSC is not contained inside any one of the units (for instance may be in the basement of an admin building inside the PA.) ○ Common TSC outside the PA. Response: Staff will consider various scenarios for TSC location. Justify the location chosen and show that the location satisfies all functional criteria for each unit it services. • A number of utilities utilize a common EOF typically off site at the utilities corporate office. If a company is licensed for this approach, applicants assume that method of providing for an EOF is extended to the new Units (New plant co-located at an existing site or Green Field). Response: If a utility is currently using a common EOF any new sites to be added to that approach should provide justification as to how the common EOF will provide all necessary functions for the new plant. • Explain the basis for the lessons learned from recent ANS activities. Response: Engage FEMA at the early stages. Ensure design report meets FEMA requirements. Be clear on all expectations ahead of time. • Why wasn't the FEMA letter on 44 CFR Part 350 referenced (ML050400336)? Response: FEMA questions will be discussed in a separate meeting to be scheduled in the future.
ETE	Moody	• For a co-located site, discuss NRC expectations for use of the ETE data in updating existing offsite plan. Response: It is expected that the most up to date information be used for a site and that information be shared with agencies responsible for off site plans. • Discuss expectations for population growth discussion in ETE. If population growth is predicted, what about assumptions for infrastructure (additional roads)? What is the basis for requirement to project population growth over the life of the plant (current guidance requires an update to the ETE when significant population changes occur)? Why does this requirement not extend to new plants? Response: ETEs need to incorporate a 10-20 year population projection for early site permit (ESP) applications only: to show reasonable preparedness in accommodating the possible changes in population, road-network, and land-use pattern modifications. Special attention will be on the

May 11th NRC Public Meeting – ALWR EP

Presentation	Presenter	Questions or Discussion Items
		approach to project the population changes and also validity of the assumptions made in the process. Focus is also on the measures to identify, mitigate and eliminate the 'impediments' to evacuation. Include available local/state/regional sources of data, assumptions on vehicle occupancy rates, local DOT plans, etc. These are areas where experience has shown the staff receives questions; thus, the intent is to advise applicants such questions will need to be answered. • Discuss guidance documents that should be used for preparation of ETE. Guidance on evacuation time estimates is in Section J.8, 10l, 10m, and Appendix 4 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." This guidance was endorsed by NRC Regulatory Guide 1.101, Rev 2. Additional information can be found in NUREG/CR-4831, "The State of the Art in Evacuation Time Estimate Studies for Nuclear Power Plants," March 1992, and NUREG/CR-6863, "Development of Evacuation Time Estimate Studies for Nuclear Power Plants," December 2004. (NUREG/CR-4831 and NUREG/CR-6863 are NRC –issued contractor reports, however, NUREG-0654/FEMA-REP-1 Appendix 4 is the only endorsed guidance on the subject). • Construction phase Vs. Post-construction phase. 10CFR50 Appendix E Part IV.G requires licensees to ensure that their emergency plan and its implementing procedures are kept up to date. • Where in Part 52 does it require identifying measures that would mitigate or eliminate impediments to evacuation? Part 52 only discusses this in relation to impediments regarding development of emergency plans. Response: 10CFR52.17(b)(1) refers identification of site-specific physical characteristics that could pose a significant impediment to the development of emergency plans.
Offsite EP Review	Takacs - FEMA	It was determined that a separate meeting to clearly understand FEMA application requirements for ESP/COLA would be beneficial. NEI has requested a public meeting on either September 11 or September 18 with FEMA.
Exercise	Schmitt	No additional questions.