

January 9, 2008

Joseph W. Donahue, Vice President  
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Progress Energy  
Post Office Box 1551  
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SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 – REVIEW OF THE FIRE PROBABILISTIC RISK ASSESSMENT MODEL TO SUPPORT IMPLEMENTATION OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARD NFPA-805, “PERFORMANCE-BASED STANDARD FOR FIRE PROTECTION FOR LIGHT WATER REACTOR ELECTRIC GENERATING PLANTS,” AS ALLOWED UNDER TITLE 10 OF THE CODE OF FEDERAL REGULATIONS, PARAGRAPH 50.48(c) (TAC NO. MC5630)

Dear Mr. Donahue:

This letter is to provide Progress Energy (PE) with a copy of the U.S. Nuclear Regulatory Commission’s (NRC’s) plan for conducting a review of the Shearon Harris Nuclear Power Plant, Unit 1 (HNP) fire probabilistic risk assessment (FPRA) model (enclosed). This review will allow the NRC staff to assess the technical adequacy of the base HNP FPRA model. In turn, this will support NRC review of HNP’s anticipated license amendment request to transition the HNP fire protection program to one based on the National Fire Protection Association (NFPA) standard NFPA-805, as allowed under Title 10 of the *Code of Federal Regulations*, Part 50, Section 48(c). The NRC is conducting this review because HNP is a NFPA-805 pilot application. If successful, future amendments requesting use of NFPA-805 may be eligible to rely on the results of an industry peer review.

Enclosed is the NRC review plan for conducting the review of the HNP FPRA. The NRC review includes 1 week at the PE corporate offices to examine FPRA documentation and interact with responsible members of the PE staff. The onsite portion of the review is currently scheduled to take place the week of February 4, 2008. NRC team members may also perform plant walk-downs for certain parts of the review and will require escorted access to the HNP areas of interest. The NRC team will examine HNP FPRA documentation in advance of the onsite portion of the staff review.

Section VII of the NRC review plan lists or references the documentation that the team will require in order to conduct its review. By agreement with the PE staff, selected information will be made available to the NRC in advance of the onsite portion of the NRC review at the Nuclear Energy Institute (NEI) offices in Washington, D.C. The NRC team requires this information to be at the NEI offices by January 14, 2008, in order to support the current schedule.

Mr. J. Donahue

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If you have any questions regarding this matter, please contact me at (301) 415-3178.

Sincerely,

*/RA/*

Marlayna Vaaler, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: As stated

cc w/enclosure: See next page



Mr. J. Donahue

- 2 -

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Mr. Joseph Donahue  
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Unit No. 1**

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SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1  
REVIEW OF THE FIRE PROBABILISTIC RISK ASSESSMENT MODEL TO SUPPORT  
IMPLEMENTATION OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARD  
NFPA-805, "PERFORMANCE-BASED STANDARD FOR FIRE PROTECTION FOR LIGHT  
WATER REACTOR ELECTRIC GENERATING PLANTS," AS ALLOWED UNDER TITLE 10 OF  
THE CODE OF FEDERAL REGULATIONS, PARAGRAPH 50.48(c)  
DOCKET NO. 50-400

I. PURPOSE

The primary purpose of the U.S. Nuclear Regulatory Commission (NRC) staff review of the Shearon Harris Nuclear Power Plant, Unit 1 (HNP, the licensee) Fire Probabilistic Risk Assessment (FPRA) model is to determine whether the base FPRA model is of sufficient technical adequacy and appropriate scope to support implementation of National Fire Protection Association (NFPA) standard NFPA-805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," as allowed under Title 10 of the *Code of Federal Regulations*, Part 50, Section 48(c). The review will weigh the HNP base FPRA against Part 3 "Internal Fires at Power Probabilistic Risk Assessment Requirements," of the American Society of Mechanical Engineers/American Nuclear Society, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications" (ASME/ANS RA-S-2007). The staff will generate a report containing the results of the review, including "Facts and Observations" (F&Os) for each technical area, as well as other requirements of the standard. A non-proprietary public version of this report will be made available in the Agencywide Documents Access and Management System (ADAMS).

The NRC review plan is based upon Part 3 of ASME/ANS RA-S-2007 (Reference 1). It relies heavily on Section 3-2, "Peer Review for Internal Fire at Power," as one source of information on how to structure and conduct the review.<sup>1</sup> The plan also utilizes guidance set forth in the Nuclear Energy Institute's (NEI's) draft document on conducting FPRA peer reviews, NEI 07-12, "Fire Probabilistic Risk Assessment Peer Review Process Guidance" (Reference 3). This review plan incorporates the experience gained from the NRC staff's review of five plant PRA models associated with pilot applications of Regulatory Guide (RG) 1.200 "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" (References 2 and 4).

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1 The general "Peer Review" guidance of Section 1.6 of Reference 1 is another information source.

ENCLOSURE

## II. REVIEW SCOPE

The scope of this review will be the licensee's base FPRA model, encompassing the estimation of both core damage frequency (CDF) and large early release frequency (LERF) resulting from internal fire events. This review will consider the technical requirements in Section 3-1 of ASME/ANS RA-S-2007, weighing selected portions of the licensee's base FPRA model against the supporting requirements in each area.

The review will also assess the licensee's process for assuring configuration control of the FPRA model, as addressed in Section 1-5 of ASME/ANS RA-S-2007 (in the context of fire). Additionally, the review will consider those technical requirements of Part 2 of ASME/ANS RA-S-2007 that are incorporated by reference in Part 3 of ASME/ANS RA-S-2007. Further, since the FPRA is built on the licensee's Internal Events PRA model, the review team will consider the results of the licensee's peer review and self-assessment to RG 1.200 of its Internal Events PRA model to the extent deemed appropriate by the NRC technical lead.

The assessment of the licensee's FPRA will include the areas shown in the table below:

<b>Review Activities (from ASME/ANS RA-S-2007)</b>	
<b>ASME/ANS RA-S-2007 Element (section numbers shown)</b>	<b>Review Activity Detail</b>
3-2.3 (up-front review)	Prior to performing the initial FPRA staff review, the staff review team should verify the Internal Events PRA has been reviewed against Part 2 of ASME/ANS RA-S-2007. The results of the Internal Events PRA peer review should be reviewed as a part of the FPRA staff review. This review SHALL be used in support of the determination for the Capability Category for Supporting Requirements (SRs) above referencing the requirements of Part 2 of ASME/ANS RA-S-2007.
1-4.3 Expert Judgment	The use of expert judgment to implement requirements in Part 3 of ASME/ANS RA-S-2007 shall be reviewed.
3-1.7.1 Plant Partitioning (PP)	A review SHALL be performed on the plant partitioning analysis. The portion of the plant partitioning analysis verification typically includes: <ul style="list-style-type: none"><li>• The global analysis boundary is appropriate to the overall FPRA scope, and the intended FPRA applications.</li><li>• The criteria used to partition the plant into physical analysis units are defined and appropriate.</li><li>• That all fire areas within the global analysis boundary have been clearly identified.</li><li>• In those cases where a fire barrier that lacks a fire resistance rating or spatial separation has been credited as a partitioning feature, use a selective review to show that an appropriate multi-compartment fire scenario analysis has been conducted.</li><li>• A selective review, by walkdown, <i>is recommended</i> to confirm the plant partitioning analysis.</li></ul>

<b>Review Activities (from ASME/ANS RA-S-2007)</b>	
<b>ASME/ANS RA-S-2007 Element (section numbers shown)</b>	<b>Review Activity Detail</b>
	<p>The review of the plant partitioning analysis SHALL be closely coordinated with the review of the corresponding multicompart ment analysis.</p>
3-1.7.2 Equipment Selection (ES)	<p>A review SHALL be performed on the equipment selection process. The portion of the equipment selection process typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The equipment selection process has captured the potentially risk significant equipment and their failure modes (including spurious operation) sufficient to meet the needs of the FPRA application.</li> <li>• The credited functions needed to support human actions in the FPRA have been identified consistent with the FPRA Capability Category being addressed (or otherwise that the FPRA has assumed the worst failure mode for any noncredited equipment).</li> </ul>
3-1.7.3 Cable Selection and Location (CS)	<p>A review SHALL be performed on the cable selection and location process. The portion of the cable selection and location process typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The cable selection process is consistent with the equipment selection and associated failure modes and captures other support equipment (including locations) needed to provide the credited functions.</li> <li>• That power supply and distribution systems have been treated in the cable selection process including fuse/breaker coordination.</li> <li>• The cable location information (including cable endpoint location) is of sufficient depth and scope so as to support the intended FPRA applications and is consistent with the physical analysis units as defined by Plant Partitioning.</li> <li>• The FPRA has appropriately treated those instances where specific cable location information is lacking.</li> </ul>
3-1.7.4 Qualitative Screening (QLS)	<p>If a qualitative screening analysis has been performed, a staff review SHALL be performed on the qualitative screening analysis. The portion of the qualitative screening analysis typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• That appropriate qualitative screening criteria have been established.</li> </ul>

<b>Review Activities (from ASME/ANS RA-S-2007)</b>	
<b>ASME/ANS RA-S-2007 Element (section numbers shown)</b>	<b>Review Activity Detail</b>
	<ul style="list-style-type: none"> <li>• The criteria have been uniformly applied and that a justification is provided for any physical analysis units screened out of the analysis with assurance that the screening process does not cause a significant risk contributor to be missed.</li> <li>• That a disposition has been documented for all physical analysis units within the global analysis boundary.</li> </ul>
3-1.7.5 FPRA Plant Response Model (PRM)	<p>A review SHALL be performed on the FPRA plant response model. The portion of the FPRA plant response model typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The fire-induced initiating events are properly identified.</li> <li>• The equipment (e.g., structures, systems, components, instrumentation, barriers) are properly modeled with the appropriate fire relevant failure modes including spurious operation and accounting for the appropriate fire scenarios.</li> <li>• The modeled equipment and human failure events (HFEs) reflect the as-built plant considering the reactor type, design vintage, and specific design.</li> <li>• The HFEs are properly modeled including both nonfire-specific and fire-relevant actions.</li> </ul>
3-1.7.6 Fire Scenario Selection and Analysis (FSS)	<p>A review SHALL be performed on the fire scenario selection and analysis process. The portion of the FPRA fire scenario selection and analysis process typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The fire scenario selection and analysis element has identified and analyzed a representative set of fire scenarios that adequately cover potential risk significant scenarios involving fire for both single and multicompartment scenarios as appropriate.</li> <li>• The selected target sets are reasonable and appropriately reflect potential post-fire cable and equipment failures, including specification of failure modes, given the nature of the fire sources present and target locations.</li> <li>• That fire detection and suppression considerations have been treated appropriately.</li> <li>• That appropriate fire modeling tools have been selected, and that fire modeling tools have been applied within their capabilities and limitations by personnel knowledgeable of their use.</li> </ul>

<b>Review Activities (from ASME/ANS RA-S-2007)</b>	
<b>ASME/ANS RA-S-2007 Element (section numbers shown)</b>	<b>Review Activity Detail</b>
3-1.7.7 Ignition Frequency (IGN)	<p>A review SHALL be performed on the ignition frequency analysis. The portion of the ignition frequency analysis typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The ignition frequencies have included generic industry data and experience.</li> <li>• That, as appropriate to the Capability Category, the ignition frequency has considered plant outlier experience (Capability Category II) and/or has included plant-specific frequency updates (Capability Category III).</li> <li>• The apportionment process applied to estimate fire area, fire compartment, and/or fire scenario frequencies has appropriately preserved the original plant wide fire frequencies for all ignition sources.</li> </ul>
3-1.7.8 Quantitative Screening (QNS)	<p>If a quantitative screening analysis has been performed, a staff review SHALL be performed on the quantitative screening analysis. The portion of the quantitative screening analysis typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The quantitative screening criteria have been established, and the applied criteria are consistent with the quantitative goals established for this technical element and for the required Capability Category.</li> <li>• The criteria have been uniformly applied.</li> <li>• That a disposition has been documented for all physical analysis units within the global analysis boundary that survived qualitative screening.</li> </ul>
3-1.7.9 Circuit Failures (CF)	<p>A review SHALL be performed on the circuit failure analysis. The portion of the circuit failure analysis typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• For a selected set of representative cases, that the circuit failure analysis has appropriately identified the relevant fire-induced circuit failure modes.</li> <li>• For a selected set of representative cases, that the circuit failure mode probability evaluations have appropriately quantified the likelihood of fire-related failure modes that could cause equipment functional failure and/or spurious operation.</li> </ul>
3-1.7.10 Human Reliability Analysis (HRA)	<p>A review SHALL be performed on the HRA. The portion of the HRA typically reviewed includes verification of the following:</p>

<b>Review Activities (from ASME/ANS RA-S-2007)</b>	
<b>ASME/ANS RA-S-2007 Element (section numbers shown)</b>	<b>Review Activity Detail</b>
	<ul style="list-style-type: none"> <li>• The HRA adequately accounts for the additional influences caused by fire.</li> <li>• That               <ul style="list-style-type: none"> <li>(a) HFEs adopted from an Internal Events PRA have been modified as appropriate to reflect fire effects, and</li> <li>(b) new HFEs are included to account for specific fire-related actions consistent with plant procedures that were not covered by the Internal Events PRA.</li> </ul> </li> </ul>
3-1.7.11 Seismic-Fire (SF)	<p>A review SHALL be performed on the seismic-fire interactions review. The portion of the seismic-fire interactions review typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• That a qualitative seismic-fire interaction analysis has been included, documented, and its findings are reasonable.</li> </ul>
3-1.7.12 Fire Risk Quantification (FQ)	<p>A review SHALL be performed on the fire risk quantification. The portion of the fire risk quantification typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• The CDF and LERF for each quantified fire scenario are properly quantified.</li> <li>• The FPRA provides the results and insights needed for risk-informed decisions.</li> <li>• The CDF and LERF estimates and uncertainties have been reported.</li> <li>• The significant risk contributors have been identified and discussed.</li> </ul>
3-1.7.13 Uncertainty and Sensitivity (UNC)	<p>A review SHALL be performed on the uncertainty and sensitivity analysis. The portion of the uncertainty and sensitivity analysis typically reviewed includes verification of the following:</p> <ul style="list-style-type: none"> <li>• Sources of uncertainty that can significantly affect the FPRA conclusions have been identified.</li> <li>• The effects of identified uncertainties have been properly estimated or that these uncertainties have been propagated during quantification and that the impacts on the results have been discussed and evaluated.</li> <li>• That sufficient sensitivity analyses have been performed so as to provide an understanding of               <ul style="list-style-type: none"> <li>(a) the level of robustness of the results, and</li> <li>(b) how sensitive the acceptability of any risk-informed decisions may be to realistic changes in the value of</li> </ul> </li> </ul>

<b>Review Activities (from ASME/ANS RA-S-2007)</b>	
<b>ASME/ANS RA-S-2007 Element (section numbers shown)</b>	<b>Review Activity Detail</b>
	uncertain parameters.
1-5. PRA Configuration Control	The staff review team shall review the process, including implementation, for maintaining or upgrading the FPRA against the configuration control requirements of ASME/ANS RA-S-2007.

### III. REVIEW METHODOLOGY

The review will consist of the following phases:

- Team member selection and training (see Section IV of this review plan).
- Up-front review (offsite) of selected FPRA documentation.
- Onsite review of FPRA.
- Development of review results and completion of review report.

The review of the licensee's FPRA model shall assess the elements contained in Section 3-1 of ASME/ANS RA-S-2007 to the extent necessary to determine if the methodology and its implementation meet the requirements of that standard. It will also assess the licensee's process for maintaining configuration control of the FPRA model in accordance with Section 1-5 of ASME/ANS RA-S-2007.

The review need not assess all aspects of the FPRA; however, enough aspects of the FPRA shall be reviewed for the reviewers to achieve consensus on the adequacy of methodologies and their implementation for each FPRA element. The judgment of the assigned reviewers will be used to determine the specific depth of the review in each FPRA element.

For each FPRA element assessed by the review team, all high-level requirements and supporting requirements shall be assessed. Note that assessment is not necessary for an element determined to be "not applicable" by the review team (e.g., if no qualitative screening was performed, element "QLS" would not be applicable).

The review team will review the results of the overall FPRA and the results of each applicable FPRA element to determine their reasonableness given the design and operation of the plant (e.g., investigation of cutset or sequence combinations for reasonableness).

Section 3.2 of ASME/ANS RA-S-2007 requires that a peer review be performed using a written methodology that assesses and addresses the requirements of Section 3-1 of ASME/ANS RA-S-2007. This review plan fulfills the requirement for a written methodology that includes the following attributes set forth in ASME/ANS RA-S-2007:

- A process for selection of the peer review team – The review team will be selected based on the requisite qualifications set forth in Section IV of this review plan.

- Training in the peer review process – The review team members will have received training on the peer review process, which may include credit for previous participation in NRC staff reviews or industry peer reviews of Internal Event PRAs, and Part 3 of ASME/ANS RA-S-2007, which will be documented as part of the review report (Section V of this review plan).
- An approach to be used by the peer review team for assessing if the PRA meets the supporting requirements of Section 3-1 of ASME/ANS RA-S-2007 – The approach to be used by the review team is described in this section of the review plan, and will be similar to the process described in NEI 07-12.
- A process by which differing professional opinions are to be addressed and resolved – The technical integration lead will use a modified consensus process to resolve differing professional opinions. In the event of an irreconcilable and substantive technical disagreement, the technical integration lead will make the decision between the alternate views and the NRC “Differing Professional Opinion” process will be used (Reference 5).
- An approach for reviewing the FPRA configuration control – The licensee’s process for maintaining configuration control of the FPRA model will be assessed using Section 1-5 of ASME/ANS RA-S-2007 and a table of the requirements developed during the RG 1.200 pilot audits (see References 2 and 4).
- A method for documenting the results of the review – This will be accomplished by the review report, which is addressed in Section V of this review plan.

#### IV. REVIEW TEAM AND QUALIFICATIONS

The review will be conducted by a team of NRC staff and contractors who individually and collectively meet the experience requirements of ASME/ANS RA-S-2007. The team will be assigned review areas within their expertise and will review documentation, discuss questions with the licensee FPRA practitioners, review FPRA model elements (e.g., event trees, fault trees) and review risk assessment results (e.g., cutsets).

ASME/ANS RA-S-2007 requires that peer review team members’ collective qualifications include:

- Knowledge of the plant nuclear steam supply system design, containment design, and plant operation.
- The ability to assess all the PRA elements of Part 3 of ASME/ANS RA-S-2007 and the interfaces between those elements.
- Knowledge of: systems engineering; FPRA; Appendix R or equivalent fire safe shutdown analysis; circuit failure analyses; fire modeling; and fire protection programs and their elements.

Part 3 of ASME/ANS RA-S-2007 requires individual peer reviewers to:

- Be knowledgeable of the requirements in this standard for their area of review.
- Be experienced in performing the activities related to the FPRA elements for which the reviewer is assigned.
- Not be allowed to review their own work or work to which they have contributed.

- Not be allowed to review a FPRA for which they have a conflict of interest, such as a financial or career path incentive or disincentive that may influence the outcome of the peer review.

The NRC staff reviewer shall also be knowledgeable (by direct experience) of the specific methodology, code, tool, or approach that was used in the FPRA element assigned for his/her review. Understanding and competence in the assigned area shall be demonstrated by the range of the individual's experience in the number of different, independent activities performed in the assigned area, as well as the different levels of complexity of these activities. The team members assigned to review each element shall have experience specific to the area and be capable of recognizing the impact of plant-specific features on the analysis.

One member of the review team (the technical integrator) shall be familiar with all the FPRA elements identified in ASME/ANS RA-S-2007 and shall have demonstrated understanding of the interrelationship among these PRA elements. A team leader will be assigned to lead the team during performance of the FPRA review. The team leader need not be the technical integrator.

## V. DOCUMENTATION

The results of the NRC staff review will be documented in a review report that will meet the requirements of Section 1-6.6.1 of ASME/ANS RA-S-2007. At the team leader's discretion, a draft report may be given to the licensee to review if it is deemed advisable to seek any clarifications prior to issuing the final report. Specifically, the review report shall include the following:<sup>2</sup>

- Identification of the version of the FPRA reviewed.
- The names of the review team members.
- A brief resume on each team member describing the individual's employer, education, FPRA training, and FPRA experience and expertise.
- The elements of the FPRA reviewed by each team member.
  
- A discussion of the extent to which each FPRA element was reviewed.
- Results of the review identifying any differences between the requirements in Sections 3-1 and 1-5 of ASME/ANS RA-S-2007 and the methodology implemented, defined to a sufficient level of detail to allow resolution of the differences.
- Identification and significance of exceptions and deficiencies with respect to the supporting requirements, including an assessment of FPRA assumptions that the reviewers have determined to be relevant.
- Differences or dissenting views among review team reviewers (if requested by any review team member).
- Recommended alternatives for resolution of any differences.
- Identification of the strengths and weaknesses in the FPRA.
- Assessment of key assumptions.
- An assessment of the Capability Category for the supporting requirements.

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2 The industry PRA peer review process generates one report that is proprietary, only for the licensee. The NRC FPRA staff review process will also produce a second report for the public. This report will parallel the proprietary version, but any safeguards, security or other sensitive information will be removed.

Detailed tables for each element of Part 3 of ASME/ANS RA-S-2007 showing each supporting requirement may be used to capture the review team assessment of the Capability Category of that supporting requirement. A summary table showing the assessment results by supporting requirement will be developed. F&Os from the review will be documented with sufficient information to convey the specific issue in a way that allows resolution by the licensee. Section VIII of this review plan provides a sample form for recording F&Os. Suggested actions to address identified issues may be provided if deemed appropriate by the review team technical lead.

## VI. RESOURCES AND SCHEDULE

Part 3 of ASME/ANS RA-S-2007 says that a peer review should be conducted by a team with a minimum of five members, and shall be performed over a minimum period of one week. The NRC review team is expected to consist of nine technical reviewers, a report coordinator, and a number of observers. The technical reviewers collectively cover the areas of expertise identified in Section IV of this review plan. The review will require at least one week of up-front review of the materials on the FPRA provided by the licensee, in addition to a week onsite conducting the review. Additional post-review will be required for assembly and issuance of the final review report.

The actual date of the onsite portion of the FPRA review may change based on readiness of the licensee and availability of the NRC staff and contractors. Therefore, the schedule below is considered tentative; changes will be negotiated between the NRC and licensee's project managers. The key milestones of interest to the licensee for this review are shown in the table:

Review Milestones and Schedule Relative to Onsite FPRA Review		
Activity	Date	Comments
Information for up-front review available to NRC	01/14/08	
Entrance meeting	02/04/08	NRC team lead will provide overview of staff review plan.
Initial licensee fire PRA presentation	02/04/08	Presentation of key plant features relevant to the fire PRA and summary of results (~2 hours).
Onsite review	02/04-02/07 2008	Conduct per plan.
Daily licensee debrief	02/05-02/07 2008	Time to be mutually agreed upon between NRC team leader and licensee point of contact.
Exit Meeting	02/08/08	(Late morning or early afternoon.)
Final Reports <sup>1</sup>	02/29/08	Target for essentially complete draft report.
<sup>1</sup> The final team report will be issued in both non-public (SUNSI) and publicly available versions		

## VII. REQUIRED REFERENCE MATERIAL (FROM LICENSEE)

The review will take place at the HNP site, the Progress Energy corporate offices, or other locations agreed upon by the licensee and NRC staff where (1) the necessary reference material and (2) appropriate FPRA analysts will be available to support the review. In addition to requiring access to personnel knowledgeable regarding the site FPRA model, the documentation set forth in NEI 07-12 should be available to the review team.

Certain information needs to be provided in advance of the onsite portion of the review to allow review team members to perform an up-front review of their assigned FPRA elements. The material may be provided to the NRC on the docket for HNP if desired. For information the licensee would not typically provide on the docket, arrangements should be made to make the information available to NRC staff at a location convenient to NRC headquarters (e.g., at the NEI offices in Washington, D.C.).

The information to be provided in advance of the onsite portion of the NRC staff review is listed below:

- Results of the Internal Events PRA peer review to Part 2 of ASME/ANS RA-S-2007, including status of comment resolution and resolution to high-level F&Os.
- A report documenting the self assessment of the FPRA to Part 3 of ASME/ANS RA-S-2007.
- Complete Internal Events PRA documentation, including:
  - system notebooks
  - human reliability analysis
  - accident sequence analysis
  - summary documents
- Detailed FPRA documentation, including:
  - FPRA summary documents, including quantification results, dominant CDF and LERF contributors, dominant fire areas or compartments
  - Appendix R documents - Safe Shutdown Analysis, documents related to the Multiple Spurious Operation Expert Panel, detailed circuit analysis documents, etc.
  - fire modeling (methodology, input files, and summary of results)
  - quantification notebook
  - methodology documents and procedures
- Containment performance notebook and LERF methodology.
- FPRA sensitivity and uncertainty methodology and results.

It is expected that information will be available onsite in (or in close proximity to) the meeting room(s) for the staff review team for each of the elements of Part 3 of ASME/ANS RA-S-2007, as well as for general plant and PRA information. A sample list of such information can be found in NEI 07-12.

VIII. SAMPLE FACT & OBSERVATION FORM

<b>FACT/OBSERVATION REGARDING FIRE PRA (FPRA) TECHNICAL ELEMENTS</b>	
Plant Name:	Date:
ID Number (Element-SR- <i>nn</i> ):	Level of Significance:
OBSERVATION:	
BASIS FOR LEVEL OF SIGNIFICANCE:	
POSSIBLE RESOLUTION (REVIEWER):	
PLANT RESPONSE OR RESOLUTION:	

LEVELS OF SIGNIFICANCE FOR FACTS AND OBSERVATIONS	
Finding	An observation (an issue or discrepancy) that is necessary to address to ensure the technical adequacy of the PRA, the capability of the PRA, or the robustness of the PRA update process.
Suggestion	An observation considered desirable to maintain maximum flexibility in PRA applications and consistency with Industry practices, or simply to enhance the PRA's technical capability as time and resources permit, at the discretion of the host utility. Also includes editorial or minor technical item left to the discretion of the host utility.
BP	BP Represents "best industry practice," to the extent that other PRA owners would want to emulate.

IX. REFERENCES

1. ASME/ANS, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," ASME/ANS RA-S-2007, September 1, 2007 (draft, for review).
2. NRC Regulatory Guide 1.200: "An Approach to Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 1, and January, 2007 (Adams Accession No. ML070240001).

3. NEI 07-12: "Fire Probabilistic Risk Assessment (FPRA) Peer Review Process Guidelines," Draft Version F, Rev. 0, December 2007 (ADAMS Accession No. ML073551166).
4. NRC Memorandum, Michael D. Tschiltz to David C. Lew, "Results of the Regulatory Guide (RG) 1.200 Implementation Pilot Program," June 8, 2005 (ADAMS Accession No. ML051590519).
5. NRC Management Directive 10.159, "The NRC Differing Professional Opinions Program."