



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 E. LAMAR BLVD.  
ARLINGTON, TX 76011-4511

November 14, 2016

Mr. Vin Fallacara, Acting Site Vice President  
Entergy Operations, Inc.  
Grand Gulf Nuclear Station  
P.O. Box 756  
Port Gibson, MS 39150

**SUBJECT: GRAND GULF NUCLEAR STATION - NOTIFICATION OF AN NRC  
TRIENNIAL FIRE PROTECTION BASELINE INSPECTION (NRC INSPECTION  
REPORT 05000416/2017008) AND REQUEST FOR INFORMATION**

Dear Mr. Fallacara:

The purpose of this letter is to notify you that the U.S. Nuclear Regulatory Commission (NRC), Region IV staff will conduct a triennial fire protection baseline inspection at the Grand Gulf Nuclear Station, Unit 1, in April 2017. The inspection team will be comprised of four reactor inspectors from the NRC Region IV office. The inspection will be conducted in accordance with Inspection Procedure 71111.05T, "Fire Protection (Triennial)," the NRC's baseline fire protection inspection procedure.

The schedule for the inspection is as follows:

- Information gathering visit: February 21 - 22, 2017
- On-site inspection: April 3 - 7, 2017  
April 17 - 21, 2017

The purpose of the information gathering visit is to obtain information and documentation needed to support the inspection and to become familiar with the fire protection program, fire protection features, post-fire safe shutdown capabilities, plant layout, and mitigating strategies to address Section B.5.b of NRC Order EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures," dated February 25, 2002, and 10 CFR 50.54(hh)(2).

The team leader will participate in the information gathering visit to select the fire areas for evaluation, identify additional documents needed to support the inspection, obtain unescorted access, and meet with the key personnel who will support the inspection. The fire area selection will require a walkdown of candidate fire areas in company with key personnel from your staff. The enclosure to this letter provides an initial list of the documents the team will need for their review. We request that your staff transmit copies of the documents listed in the enclosure to the NRC Region IV office for team use in preparation for the inspection. Please send this information so that it will arrive in the NRC Region IV office by the dates listed in the enclosure.

During the information gathering visit, the team leader will also discuss the following inspection support administrative details: office space size and location, specific documents requested to be made available to the team in their office spaces, arrangements for reactor site access, and the availability of knowledgeable plant engineering and licensing organization personnel to serve as points of contact during the inspection.

We request that during the on-site inspection weeks, you ensure that copies of analyses, evaluations, or documentation regarding the implementation and maintenance of the fire protection program, including post-fire safe shutdown capability, be readily accessible to the team for their review. Of specific interest for the fire protection portion of the inspection are those documents that establish your fire protection program satisfies the NRC regulatory requirements and conforms to applicable NRC and industry fire protection guidance. For the B.5.b portion of the inspection, those documents implementing your mitigating strategies and demonstrating the management of your commitments for the strategies are of specific interest. Also, please ensure that appropriate personnel are available to support the team at the site during the inspection. These personnel should be knowledgeable of the plant systems required to achieve and maintain safe shutdown conditions from inside and outside the control room, the electrical aspects of the post-fire safe shutdown analyses, the reactor plant fire protection systems, and the fire protection program and its implementation.

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget under control number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

V. Fallacara

- 3 -

Your cooperation and support during this inspection will be appreciated. If you have questions concerning this inspection or the inspection team's information or logistical needs, please contact John Mateychick, the team lead inspector, in the Region IV office at (817) 200-1560 or [John.Mateychick@nrc.gov](mailto:John.Mateychick@nrc.gov).

Sincerely,

**/RA/**

Gregory E. Werner, Chief  
Engineering Branch 2  
Division of Reactor Safety

Docket No. 50-416  
License No. NPF-29

Enclosure:  
Triennial Fire Protection Inspection  
Documentation Request

cc w/enclosure: Electronic Distribution

## **Triennial Fire Protection Inspection Documentation Request**

Please provide the following documentation (Items 1 – 5) prior to the on-site information gathering visit, preferably no later than February 3, 2017. Whenever practical, please provide copies electronically. Please provide an index of the requested documents which includes a brief description of the document and the numerical heading associated with the request (i.e., where it can be found in the list of documents requested).

1. The current version of the fire protection program and fire hazards analysis.
2. Post-fire safe shutdown analysis and the supporting calculations that demonstrate acceptable plant response.
3. Licensing basis documents for fire protection (safety evaluation reports, pertinent sections of the final safety analysis report, exemptions, deviations, letters to/from the NRC regarding fire protection/fire safe shutdown, etc.).
4. The fire probabilistic risk assessment or portions of the plant's individual plant examination for external events (IPEEE) report addressing fire events. Also, include the results of any post-IPEEE reviews and listings of actions taken/plant modifications conducted in response to IPEEE information that relate to fire risk.
5. A copy of the documents that support your multiple spurious operation evaluations (i.e., expert panel reports, evaluation packages, etc.).

Please provide the following documentation (Items 6 – 48) prior to the week of March 20, 2017, to support inspection preparation. Whenever practical, please provide copies electronically. Drawings should be provided as paper copies of sufficient size such that all details are legible.

6. Plant layout and equipment drawings for fire areas that identify: (a) the physical plant locations of major hot standby and cold shutdown equipment; (b) plant fire area and/or fire zone delineation; (c) the locations of fire protection equipment, such as detection, suppression, and post-fire emergency lighting units; and (d) fire area boundaries. The specific documents needed to support inspection preparation will be discussed during the site visit.
7. Fire protection program implementing procedures (e.g., administrative controls, operator response procedures for fires, fire fighting procedures, etc.).
8. Operating procedures used for achieving and maintaining hot and cold shutdown conditions from the control room in the event of a fire outside the control room (III.G.2 areas).
9. Operating procedures used to implement an alternative shutdown capability with or without control room evacuation (III.G.3 areas).
10. A list of equipment used to achieve and maintain hot standby and cold shutdown in the event of a fire (safe shutdown equipment list).

Enclosure

11. Piping and instrumentation (flow) diagrams showing the components used to achieve and maintain hot standby and cold shutdown for normal and alternative shutdown. Please provide one copy of the piping and instrumentation (flow) diagrams for these systems of a size sufficient to read all details. These should include the systems used for reactor coolant system makeup, reactor coolant system pressure control, decay heat removal, and reactivity control, including the essential support systems.
12. A listing, with descriptions, of design change packages performed since the last triennial fire protection inspection which were determined to impact fire protection and post-fire safe shutdowns.
13. Fire protection program change evaluations (Generic Letter 86-10 evaluations) performed since the last triennial fire protection inspection.
14. Procedures/instructions that control the configuration of the plant's fire protection program, features, and post-fire safe shutdown methodology and system design. Also, procedures/instructions that govern the implementation of plant modifications, maintenance, and special operations and their impact on fire protection.
15. A listing of open and closed corrective action documents initiated since the last triennial fire protection inspection which relate to the fire protection program or equipment, including corrective actions for fire-induced circuit failures (both single and multiple spurious actuations) for the selected fire areas. Include the corrective action program document number, date, and subject.
16. A listing of the applicable codes and standards (with the versions/dates) related to the design of plant fire protection features and evaluations of any code deviations. Copies of these codes should be available for review.
17. Drawings of the portions of the emergency lighting system which support fire response.
18. Procedures used to remove smoke from safety-related areas and the engineering studies or calculations which support the design basis.
19. Drawings of communication systems credited in the license basis for firefighting and plant operations during fires where control room is occupied and/or evacuated.
20. Piping and instrumentation (flow) diagrams for the fire water and sprinkler systems.
21. A listing of maintenance and surveillance testing procedures for alternative shutdown capability and fire barriers, detectors, pumps and suppression systems. Also, include a list of maintenance and surveillance testing procedures which verify fuse and breaker coordination in accordance with the post-fire safe shutdown coordination analysis.
22. Maintenance rule performance criteria and a summary of the performance history for systems or functions monitored within the maintenance rule program that support the fire protection program or involve safe shutdown equipment over the period since the last triennial fire protection inspection.

23. Fire protection program requirements (e.g., limiting conditions for operation, surveillance test requirements) covered by technical specifications, the technical requirements manual, the updated final safety analysis report, or similar documents.
24. Internal and external self-assessments, audits, peer-assessments, or similar reviews related to post-fire safe shutdown capability or the fire protection program completed since the last triennial fire protection inspection.
25. A list of manual actions taken outside the control room which are credited to mitigate the consequences of fires in III.G.2 areas (non-alternative shutdown areas). The list should group actions by the initiating fire area or zone and indicate where the action must take place.
26. Electronic copies of operator study guides (i.e., lesson plan text and graphics) or design basis documents that describe the purpose/function/operating characteristics of the safe shutdown systems (reactor coolant system makeup, reactor coolant system pressure control, decay heat removal, and reactivity control, including the essential support systems).
27. Two copies of one-line diagrams of the AC and vital DC electrical distribution systems. These should depict how power gets from the switchyard to the engineered safety feature loads (480V and 4160V).
28. A list of automatic and manually initiated gaseous fire suppression systems in the plant, giving their location and the key equipment being protected.
29. A list of repairs (and the procedure that controls the repairs) needed to reach and/or maintain hot or cold shutdown.
30. A list of high to low pressure interface valves.
31. Procedures governing the training and operation of the fire brigade.
32. Organization charts of site personnel down to the level of fire protection staff personnel.
33. A contact list of key site personnel who will be supporting this inspection, giving the office location and phone number on-site.
34. The team would like to observe an unannounced fire brigade drill in the plant, if possible, during the week of April 17, 2017. Please put us in contact with the appropriate personnel for planning fire brigade drills during the on-site information gathering trip.
35. The team would like to perform a walkthrough of the alternative shutdown procedure with qualified operators in the plant during the week of April 3, 2017. The team would like to perform a walkthrough of a sample of manual actions required for other fires not requiring control room evacuation. Please put us in contact with the appropriate personnel for planning the walkthroughs during the on-site information gathering trip.

The following documents (Items 36 – 48) involve B.5.b mitigating strategies.

36. License condition that incorporated the requirements issued to address the requirements of Section B.5.b of NRC Order EA-02-026, "Order for NRC Interim Safeguards and Security Compensatory Measures," dated February 25, 2002, and 10 CFR 50.54(hh)(2).
37. A list of all modifications to regulatory commitments made to meet the requirements of Section B.5.b of NRC Order EA-02-026, "Order for NRC Interim Safeguards and Security Compensatory Measures," dated February 25, 2002; the subsequently imposed license conditions; and 10 CFR 50.54(hh)(2).
38. A list of procedures/guidelines which were revised or generated to implement the mitigation strategies. These could be extensive damage mitigation guidelines, severe accident management guidelines, emergency operating procedures, abnormal operating procedures, etc.
39. A matrix that shows the correlation between the mitigation strategies identified in Nuclear Energy Institute 06-12 and the site-specific procedures or guidelines that are used to implement each strategy.
40. A list of engineering evaluations/calculations that were used to verify engineering bases for the mitigation strategies.
41. Piping and instrumentation diagrams or simplified flow diagrams for systems relied upon in the mitigation strategies. These could be the type used for training.
42. A list of modification packages and simplified drawings/descriptions of modifications that were made to plant systems to implement the mitigation strategies.
43. Procedures used to inventory equipment (hoses, fittings, pumps, etc.) required to be used to implement the mitigation strategies.
44. A list of B.5.b strategies, if any, which have implementing details that differ from that documented in the submittals to the NRC and the safety evaluation report.
45. Site general arrangement drawing(s) that show the majority of buildings/areas referenced in B.5.b documents.
46. Training records and lesson plans related to the B.5.b mitigating strategies.
47. Copies of Memoranda of Understanding (MOUs) (e.g., with local fire departments) required to implement any mitigating strategies.
48. The team would like to perform a walkthrough of the procedure implementing a sample mitigating strategy (to be selected by the inspector during the information gathering visit) and the inventory equipment (hoses, fittings, pumps, etc.) required to be used to implement the mitigation strategies during the week of April 21, 2017. Please put us in contact with the appropriate personnel for planning the walkthrough during the on-site information gathering trip.

The following documentation needs (Items 49 – 52) will be dependent upon sample selections and will be finalized during discussions with your staff. Please provide the required documents prior to the week of March 20, 2017. Whenever practical, please provide copies electronically. Drawings should be provided as paper copies of sufficient size such that all details are legible.

49. Pre-fire plans for the selected fire areas (areas to be selected by the team during the on-site information gathering trip).
50. List of identified fire-induced circuit failure configurations that could prevent operation or cause maloperation of equipment credited for safe shutdown in the event of a fire (for the selected fire areas). Include failure configurations associated with hot shorts, open circuits, or shorts to ground identified as potentially causing spurious or multiple spurious actuations or maloperations of this equipment.
51. Cable routing information for components and equipment credited for safe shutdown in the selected fire areas. This information request item will be discussed and finalized with your staff during the information gathering visit.
52. Drawings showing the location details for detection and suppression systems in the selected fire areas.



V. Fallacara

- 3 -

Your cooperation and support during this inspection will be appreciated. If you have questions concerning this inspection or the inspection team's information or logistical needs, please contact John Mateychick, the team lead inspector, in the Region IV office at (817) 200-1560 or John.Mateychick@nrc.gov.

Sincerely,

/RA/

Gregory E. Werner, Chief  
Engineering Branch 2  
Division of Reactor Safety

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**Distribution:**  
See next page

**ADAMS ACCESSION NUMBER: ML16320A208**

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OFFICE	SRI:EB2	C:EB2							
NAME	JMateychick	GWerner							
SIGNATURE	/RA/	/RA/							
DATE	11/10/16	11/14/16							

**OFFICIAL RECORD COPY**

Letter to Vin Fallacara from Gregory E. Werner, dated November 14, 2016

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