Entergy

Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

John A. Dent, Jr.
Site Vice President

November 26, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

SUBJECT: Response to Request for Additional Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Hazard Walkdowns Conducted to Verify Current Plant Compliance with the Current Licensing Basis (CLB) for Seismic Requirements

Pilgrim Nuclear Power Station
Docket No. 50-293
License No. DPR-35

LETTER NUMBER 2.13.088

REFERENCES:

1. NRC Letter to Entergy, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident", dated March 12, 2012 (ADAMS Accession No. ML12053A340)

2. Electrical Power Research Institute (EPRI) Seismic Walkdown Guidance, For Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, EPRI Report 1025286, dated June 2012 (ADAMS Accession No. ML12188A031)

3. NRC Letter to Entergy, Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Seismic Walkdowns, dated November 1, 2013 (ADAMS Accession No. ML13304B418)

4. Entergy Letter to NRC, Seismic Walkdown Report – Entergy's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, November 27, 2012 (PNPS Letter 2.12.077)

5. Entergy Letter to NRC, Seismic Walkdown Report Update – Entergy's Updated Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, July 18, 2013 (PNPS Letter 2.13.056)

A001
NRR

6. Internal NRC memorandum from Lisa M. Regner, Senior Project Manager, Projects Management Branch, Japan Lessons-Learned Project Directorate, Office of Nuclear Reactor Regulation to Matthew A. Mitchell, Chief Projects Management Branch Japan Lessons-Learned Project Directorate, Office of Nuclear Reactor Regulation; Subject: Summary of the September 12, 2013, Public Meeting to Discuss Implementation of Japan Lessons-Learned Near-Term Task Force Recommendation 2.3, Seismic Walkdowns, dated October 4, 2013 (ADAMS Accession No. ML13266A424)

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) staff issued a letter requesting information per Title 10 to the *Code of Federal Regulations*, Section 50.54(f) (Reference 1). The letter requested licensees to conduct seismic hazard walkdowns to verify current plant configuration with the Current Licensing Basis (CLB). The NRC endorsed an Electric Power Research Institute (EPRI) guidance document that resulted from this effort (Reference 2); because the NRC staff determined that the use of the guidance, coupled with appropriate training, would meet the objectives and requests of the 50.54(f) letter.

Entergy Nuclear Operations, Inc (Entergy) provided the Seismic Walkdown Report for Pilgrim Nuclear Power Station (PNPS) in Reference 4. In that submittal Entergy committed to perform walkdowns for equipment that could not be inspected while at power which were identified in Section 6.3 of the Seismic Walkdown Report. An updated Seismic Walkdown Report was submitted in Reference 5.

Following the staff's initial review of the walkdown reports, regulatory site audits were conducted at a sampling of plants. By internal NRC correspondence (Reference 6) the NRC summarized the public Webinar conducted on September 12, 2013 and provided written questions identifying the areas where additional information could assist the NRC staff in completing their reviews of the Walkdown Reports. These questions were consolidated and on November 1, 2013 Reference 3 was issued by the NRC requesting additional information (RAI). Entergy is replying to the RAI Reference 3 for PNPS. The enclosed attachment provides additional information not required by the original request for information (Reference 1) to assist the NRC staff in completing their review of the Seismic Hazard Walkdowns conducted at PNPS.

This letter contains no new regulatory commitments.

Should you have any questions concerning the content of this letter, please contact Mr. Joseph R. Lynch, Manager, Regulatory Assurance at (508) 830-8403.

I declare under penalty of perjury that the foregoing is true and correct; executed on November 26, 2013.

Sincerely,

DE Moyes FOR J. DENT

John A. Dent Jr.
Site Vice President

Attachment: Pilgrim Nuclear Power Station Response to Request for Additional Information to Support the NRC Review of Seismic Walkdown Inspections

cc: Mr. William M. Dean
Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713

U. S. Nuclear Regulatory Commission
Director, Office of Nuclear Reactor Regulation
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2378

Ms. Nadiyah Morgan, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop O-8C2A
Washington, DC 20555

U. S. Nuclear Regulatory Commission
ATTN: Robert J. Fretz Jr.
Mail Stop OWFN/4A15A
11555 Rockville Pike
Rockville, MD 20852-2378

U. S. Nuclear Regulatory Commission
ATTN: Robert L. Dennig
Mail Stop OWFN/10E1
11555 Rockville Pike
Rockville, MD 20852-2378

Mr. John Giarrusso Jr.
Planning, Preparedness & Nuclear Section Chief
Mass. Emergency Management Agency
400 Worcester Road
Framingham, MA 01702

NRC Senior Resident Inspector
Pilgrim Nuclear Power Station

ATTACHMENT to

PNPS Letter 2.13.088

PILGRIM NUCLEAR POWER STATION (PNPS)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION TO SUPPORT THE NRC REVIEW OF SEISMIC WALKDOWN INSPECTION

Pilgrim Nuclear Power Station

Response to Request for Additional Information to Support the NRC Review of Seismic Walkdown Inspections

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff issued a letter requesting information per Title 10 of the Code of Federal Regulations, Section 50.54(f) (hereafter called the 50.54(f) letter). The 50.54(f) letter requested that licensees conduct seismic hazard walkdowns to verify the plant configuration with the current licensing basis (CLB). The licensees stated by letter that the seismic walkdowns would be performed in accordance with Electric Power Research Institute EPRI-1025286, "Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic" (walkdown guidance). Following the NRC staff's initial review of the walkdown reports, regulatory site audits were conducted at a sampling of plants. Based on the walkdown report reviews and site audits, the staff identified additional information necessary to allow the staff to complete its assessments.

Question 1: Conduct of the walkdowns, determination of potentially adverse seismic conditions (PASCs), dispositioning of issues, and reporting

As a result of the audits and walkdown report reviews, the NRC staff noted that licensees' interpretations of the seismic walkdown guidance varied, which resulted in meaningful differences in the process used to disposition identified issues and in the documentation that was provided to the NRC staff. In particular, the application of engineering judgment in determining what constituted a potentially adverse seismic condition (PASC), the threshold for conducting licensing basis evaluations (LBEs), and determining what information was to be reported to the NRC staff varied.

The NRC staff intended that conditions initially marked No (N) or Unknown (U) in the field by the seismic walkdown engineers (SWEs) for which an analysis or calculation was performed would be considered as PASCs and that an analysis or calculation constituted an LBE. The walkdown guidance allows for analysis as part of engineering judgment; however, the intent was to allow for only simple analyses that could be readily performed in support of engineering judgment. Further, the walkdown activities were intended to allow for transparency in the licensee's process to demonstrate that PASCs were appropriately identified, that they were addressed in an appropriate manner, and the basis documented such that the current condition of the plant was clearly consistent with the CLB with regard to seismic capability.

During the audits, the NRC staff identified examples of field observations that were deemed not to be PASCs. However, the basis for the determination was not clearly recorded. In some cases, the field checklists were amplified by noting that the basis was engineering judgment. During site audit discussions, the staff was able to trace the basis for the engineering judgments and found that in many cases they were appropriate. It is expected that these situations would not be included in the walkdown report.

There were other situations that a PASC and LBE were not reported; however, the NRC staff found during the audit that a calculation, analysis (more than just simple), or evaluation was

conducted but informally. An example is a confirmatory calculation performed to demonstrate that six anchor bolts out of eight was not a seismically adverse condition. Another example would be an analysis to demonstrate that an existing, slightly short weld was as seismically sound as the prescribed weld length in the plant design documentation. The staff expected these types of conditions and evaluations to be captured in the licensee's normal plant processes (e.g., condition report or corrective action program (CAP)), and also reported in the walkdown report, since they were potentially adverse seismic conditions that required more than applying judgment or simple analysis to address.

The NRC staff also found that the process that was used to deal with a field observation that was deemed to be a PASC was also not completely described or captured in the report. In many cases, the licensee reported that an LBE was not performed. However, during the audits, it was clear that an LBE (or an equivalent determination method) was performed and used in determining whether a PASC should be entered into the CAP. The staff expects that these conditions would be reported in the walkdown report.

On the whole, through the audits, the NRC staff found that it was able to conclude that the intent of the guidance was met when the licensee's overall process was completely explained, the information was updated to reflect the actual process, and results were updated. The self-assessments conducted by the licensees of the audited plants also identified the lapse in the description of the process used by the licensee to identify a PASC and disposition it.

Therefore, in order to clarify the process that was followed, please provide a description of the overall process used by the licensee (and its contractors) to evaluate observations identified in the field by the SWEs. The process should include how a field observation was determined to be a PASC or not and how the bases for determinations were recorded. Once a determination was made that an observation was a PASC, describe the process for creating a condition report (or other tracking mechanism), performing the LBE (or other determination method), and the resultant action, such as entering it into the CAP, or documenting the result and basis.

Also, in order to confirm that the reported information supports concluding that the plant meets the CLB, please follow one of the following three acceptable alternatives:

(a) Provide a supplement to the table or text from the original walkdown report, if needed, to include similar conditions as the above examples and situations and for conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination. The supplement should include a short description of each condition, how it was dispositioned and the basis for the disposition, as follows: 1) for each condition that was entered into the CAP, provide the CAP reference number, initiation date, and (if known) the planned completion date, or 2) for all other conditions, provide the result of the LBE (or other determination method), the basis for the result, and how (or where) the result was captured in the plant's documentation or existing plant process.

(b) Following the plant's standard procedures, confirm that a new CAP entry has been made to verify if appropriate actions were taken when reporting and dispositioning identified PASCs (including conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination). The eventual CAP closeout, including the process followed and actions taken, should be in sufficient detail to enable NRC resident inspectors to follow up.

(c) If no new conditions are identified for addition to the supplement or the CAP entry mentioned above is deemed not necessary, provide a statement of confirmation that all potentially seismic adverse conditions (including conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination) identified during the walkdowns and walk-bys were addressed and included in the report to the NRC.

Response to Question 1:

Industry guidance document, EPRI Report 1025286 (Reference 2), was developed to assist nuclear power plants in providing the information necessary for responding to Enclosure 3 to the Fukushima 50.54(f) Letter. The EPRI guidance document was formally endorsed by the NRC on May 31, 2012. The Entergy nuclear fleet, including PNPS, committed to using this NRC-endorsed guidance as the basis for conducting and documenting seismic walkdowns for resolution of NTTF Recommendation 2.3: Seismic. In order to support that commitment, Entergy developed and issued fleet procedure EN-DC-168 to ensure strict compliance with the EPRI guidance for completing the walkdowns and to achieve consistent fleet results.

Entergy Corporation contracted ENERCON Engineering Services to provide resources and expertise to supplement the PNPS site workforce and allow the seismic walkdown program to be completed within the established schedule.

PNPS completed its NTTF Recommendation 2.3 Seismic Walkdown Program in two phases. The initial phase of the program, which included approximately 80% of the overall scope, was completed in October and November of 2012 as documented in Reference 4. The final phase, which included all of the walkdowns that were inaccessible during the initial phase, was completed in the Spring/Summer of 2013 in conjunction with PNPS's Refueling Outage 19 as documented in Reference 5.

During the course of the seismic walkdowns and area walk-bys, the objective of the SWE teams was to identify existing degraded, non-conforming, or unanalyzed plant conditions with respect to the PNPS current seismic licensing basis. Seismic walkdowns and area walk-bys were performed in accordance with Section 4 of the EPRI Guidance for all items on the Seismic Walkdown Equipment List (SWEL). The walkdowns of the SWEL items were documented on Seismic Walkdown Checklists (Entergy EN-DC-168 equivalent of EPRI 1025286 Appendix C). Photographs were taken of each item and included on the corresponding final version of the checklists. All Seismic Walkdown Checklists (SWC) are included in Attachment C (initial scope) and Attachment J (deferred scope) of the PNPS final submittal report. The associated area walk-bys were documented on Area Walk-by Checklists (Entergy EN-DC-168 equivalent of EPRI 1025286 Appendix C). Photographs were taken of potentially adverse conditions and included on the corresponding final version of the checklists. All Area Walk-by Checklists (AWC) are included in Attachment D (initial scope) and Attachment K (deferred scope) of the PNPS final submittal report.

When an unusual condition was observed by a SWE team in the field, the condition was noted on the SWC or AWC form and briefly discussed between the two SWEs to agree upon whether it should be treated as a PASC. These initial conclusions were based on the specific checklist questions, qualification training received by all SWEs, and conservative engineering judgment.

The walkdown sheets were annotated where appropriate with supporting references or justification for acceptance of the condition. This included explanation of why some field conditions were not identified as PASCs if they had been previously addressed by another process, i.e. SQUG, Modification, or previous CR.

For conditions that were reasonably judged as insignificant to seismic response, the disposition was included on the SWC or AWC checklist and the appropriate question was marked "Y", indicating that no PASC was identified. These non-seismic conditions were reported to the PNPS Lead SWE for appropriate processing into the CAP. Final resolution of these non-seismic conditions is not explicitly tracked or reported as part of the NTTF 2.3 Seismic Walkdown Program, except by noting the corresponding CR numbers on the applicable SWCs and AWCs.

A total of 17 conditions that were initially identified during the seismic walkdowns and area walk-bys to be potentially adverse seismic conditions are summarized in Attachment E of the PNPS final submittal report (Reference 5). These conditions were addressed as follows:

- The condition was reported to the PNPS Lead SWE and Operations Team Member immediately upon exit from the plant walkdown.
- If there was reason to suspect that the condition may have been previously addressed, a brief search of plant documentation was performed to determine if an existing basis for acceptance could be readily retrieved. In three cases, appropriate justification was easily retrieved. These three issues were formally documented as LBE-01, LBE-02, and LBE-03. The corresponding SWC or AWC checklist questions were marked "Y", indicating that no potentially adverse seismic condition exists and no CAP entry was required.
- Initial review of the condition identified in LBE-4 revealed that the condition had not been previously evaluated and that there was no basis for its acceptance. A condition report was therefore initiated and the condition was corrected immediately (unsecured concrete blocks removed from drywell before restart from the refueling outage). The condition was identified in Attachments E & F of the PNPS final submittal report. The corrective actions associated with this issue included evaluation of past operability for the period of time that the condition existed.
- The remaining 13 potentially adverse seismic conditions were clearly seismically non-compliant although generally minor with regard to their potential effects. The corresponding SWC or AWC checklist questions were marked "N", indicating that a potentially adverse seismic condition did exist. A condition report was initiated immediately for each. These conditions were either corrected immediately by Operations or tracked to completion as an NRC commitment via the work management process as indicated in Attachment E of the PNPS submittal report.

In no case was any type of calculation or analysis performed to justify the acceptance of a potentially adverse condition. If existing justification for a condition could not be readily retrieved from plant records, the condition was entered immediately into the CAP.

Based on review of the PNPS final seismic walkdown submittal report, we confirm that the reported information supports the conclusion that the plant meets its CLB in accordance with alternative (c) listed in the RAI Question 1. No new CAP entries are deemed necessary because all potentially adverse seismic conditions identified during the walkdowns and walk-bys were addressed and included in the reports to the NRC via References 4 and 5.

Question 2: Conduct of the Peer Review Process

As a result of the walkdown report reviews, the NRC staff noted that some descriptions of the peer reviewers and the peer review process that was followed were varied and, in some cases, unclear. In some cases, the staff could not confirm details of the process, such as if the entire process was reviewed by the peer review team, who were the peer reviewers, what was the role of each peer reviewer, and how the reviews affected the work, if at all, described in the walkdown guidance.

Therefore, in order to clarify the peer review process that was actually used, please confirm whether the following information on the peer review process was provided in the original submittal, and if not, provide the following.

(a) Confirmation that the activities described in the walkdown guidance on page 6-1 were assessed as part of the peer review process.

(b) A complete summary of the peer review process and activities. Details should include confirmation that any individual involved in performing any given walkdown activity was not a peer reviewer for that same activity. If there were cases in which peer reviewers reviewed their own work, please justify how this is in accordance with the objectives of the peer review efforts.

Also, if there are differences from the original submittal, please provide a description of the above information. If there are differences in the review areas or the manner in which the peer reviews were conducted, describe the actual process that was used.

Response to Question 2:

The peer review process for the NTTF Recommendation 2.3 Seismic Walkdown Program was performed in accordance with Section 6 of the EPRI Guidance in two phases.

The initial phase of the seismic walkdown program, which included approximately 80% of the overall scope, was performed and peer reviewed in October and November of 2012 as documented in Reference 4. PNPS Senior Lead Structural Engineer Jeffrey Kalb was designated as the lead peer reviewer for the initial phase activities. Assisting Mr. Kalb in the peer review of the various aspects of the program was Senior Project Manager Dr. Fred Mogolesko. Biographies of Kalb and Mogolesko are included in Section 4.5 of the initial submittal report. PNPS Operations Manager John Macdonald also performed review and final approval of the SWEL.

The peer review process for the initial phase of the program included the following activities:

- Review of the selection process for the SSCs that are included in the Seismic Walkdown Equipment List (SWEL) and review of the final SWEL.
- Review of a sample of the checklists prepared for the seismic walkdowns and area walk-bys.
- In-field observations, including real time observations of the SWE teams in the field and independent walkdowns to evaluate the quality of the SWE products.

- Review of licensing basis evaluations (LBE) and decisions for entering the potentially adverse conditions into the plant's Corrective Action Program.
- Review of the initial submittal report (Reference 4).
- Providing a summary of the peer review process that was included directly in the initial submittal report.

A detailed description of the initial phase peer review effort is presented in Sections 9.1 and 9.2 of the initial submittal report. Peer review checklists and comment forms are also included as Attachments G and H of the submittal report.

Table 4-1 of the initial submittal report lists the personnel responsible for directly performing the various walkdowns and support activities. Comparing this to Table 4-2, which lists the peer reviewers, shows no overlap. That is, the peer reviewers were not involved in performing any of the activities that they reviewed.

The final phase of the seismic walkdown program, which included the walkdowns that were inaccessible during the initial phase, was completed and peer reviewed in the Spring/Summer of 2013 in conjunction with PNPS's Refueling Outage 19 as documented in Reference 5.

Senior Project Manager Dr. Fred Mogolesko was designated as peer review team lead for the final phase activities. Supporting Dr. Mogolesko in the peer review effort were PNPS Senior Lead Structural Engineer Jeffrey Kalb and Enercon Lead SWE Laura Maclay. Biography of Maclay is included in Section 4.0 of the final submittal report.

The peer review process for the final phase of the program included the following activities:

- Review of a sample of the checklists prepared for the seismic walkdowns and area walk-bys.
- Review of licensing basis evaluations (LBE) and decisions for entering the potentially adverse conditions into the plant's Corrective Action Program.
- Review of the final submittal report (Reference 5).
- Providing a summary of the peer review process that was included directly in the final submittal report.

A description of the final phase peer review effort is presented in Section 9.3 of the final submittal report. Note that there were no changes to the SWEL so no review of that aspect was required. As with the initial phase, there were no cases where a peer reviewer performed the review of their own work.