

Response to Request for Information
Senator Elizabeth Warren, Senator Edward Markey, and Representative William Keating
Letter dated February 12, 2017

1. What are the specific conditions that are required to prompt a preemptive shutdown, and how were they not met by Pilgrim in this case?

To determine shutdown criteria, Entergy reviewed historical values for winter storm-related losses of offsite power (LOOPS) to determine the range of parameters for which vulnerabilities existed. As a result of that review, Entergy developed guidance for placing the plant in cold shutdown in advance of an anticipated LOOP. Based on wind speed, wind direction, temperature, snowfall rate, National Weather Service forecasts, and switchyard indications, actions ranging from controlled shutdown to immediate plant scram are prescribed, dependent on conditions observed at the plant and National Weather Service forecasts. The U.S. Nuclear Regulatory Commission (NRC) has reviewed these criteria and found them acceptable, as documented in Inspection Report 2015-004¹. Specifically, NRC inspectors determined that the criteria reflected available weather data and provided sufficient guidance for operators to operate the plant safely during winter storm conditions.

During the January 4, 2018, storm, Pilgrim plant operators monitored the predicted snowfall rate and wind direction and determined that the procedure criteria to commence a plant shutdown prior to the storm were not met. An NRC inspector was onsite and independently determined that operators properly implemented this plant procedure.

2. What steps does the NRC plan to take to prevent future emergency shutdowns caused by LOOPS?

Entergy made plant switchyard modifications and plant procedures changes in response to Winter Storm Juno in 2015. Specifically, Entergy revised its plant procedures and made modifications to the plant's switchyard to install heat lamps on two high voltage switchyard circuit breakers and associated equipment to increase their reliability during winter storm conditions. These modifications increased switchyard equipment reliability and decreased the likelihood of a LOOP during winter storm conditions. Additionally, plant procedure changes were made to place the plant in a condition where safety equipment was preemptively powered by onsite sources and to manually shut down the plant for specific severe storm conditions. These procedure changes were intended to lessen the effects of a LOOP condition, should it occur. As discussed in Inspection Report 2015-004, the NRC determined that these changes were acceptable.

Separately, the NRC continues to assess Entergy's performance at Pilgrim through our rigorous inspection and oversight process. If at any time these activities uncover indications of degrading performance or unsafe conditions at Pilgrim, the NRC would take additional regulatory actions.

¹ NRC, Pilgrim Nuclear Power Station – Integrated Inspection Report 05000293/2015004 (Agencywide Documents Access and Management System (ADAMS) Accession No. [ML16042A327](#)).

3. What was the effect of the LOOP on Pilgrim’s operations?

During the January 4, 2018, winter storm, Pilgrim plant operators, based on an indication of unavailability of one of two 345 kV offsite power lines, implemented their approved plant procedures and inserted a manual scram to shut down the reactor and bring the plant offline. Pilgrim plant operators also started the onsite emergency diesel generators to power safety equipment from onsite power sources in accordance with their procedures. These actions placed the plant in a condition where the reactor was shut down and safety equipment was preemptively powered by onsite sources. As a result, should a loss of the second 345 kV line have occurred during the winter storm, the plant would have already been in a safe shutdown state.

NRC inspections during and following the winter storm determined that Entergy’s actions pursuant to its procedure were appropriate for plant safety.

4. Has NRC considered broadening the winter shutdown requirements, especially in the case of Column 4 plants with subpar safety records?

The appropriateness of plant procedures is determined, in part, by plant specific design and site characteristics, and is independent of plant performance level. As discussed in the response to question 1, the NRC inspected changes to Pilgrim plant procedures governing winter storm weather conditions and plant shutdown and determined they provided appropriate direction for plant safety, considering specific site conditions and the plant switchyard equipment. NRC inspectors were on-site, both during and after the storm, and verified that Pilgrim operators implemented the revised procedures appropriately.

Consistent with the plant’s placement in Column 4, the NRC will continue to provide additional oversight and inspection of activities at Pilgrim until comprehensive corrective actions are completed and sustainable performance improvement is demonstrated.

5. Last year, the NRC reduced the level of inspections staff at Pilgrim from three inspectors to two, returning it to the standard level of resident inspectors for nuclear sites. Does the NRC believe that the presence of a third resident inspector would help avoid unforeseen shutdowns or push Pilgrim to more rapidly move out of Column 4?

Although resident inspectors conduct independent inspections of a licensee’s use and adherence to approved plant procedures, the responsibility for following these procedures resides solely with licensee staff and management. This includes decisions regarding the implementation of procedural requirements for shutting down a nuclear power plant (unforeseen or otherwise), if safety or security conditions warrant.

The presence of a third resident inspector at Pilgrim would also not affect the licensee’s ability to move out of Column 4 of the NRC’s Reactor Oversight Process Action Matrix. In order for Pilgrim to move out of Column 4, Entergy would first have to complete the corrective actions and effectiveness reviews identified in the 2017 NRC Confirmatory Action Letter and in the Pilgrim Recovery Plan.² The NRC would then independently inspect these actions to verify completion and confirm that Entergy has demonstrated sustained performance improvement. Only when the NRC concludes, based on these follow-up inspections, that the actions have been completed adequately will the NRC consider allowing Pilgrim to transition out of Column 4.

² NRC, Confirmatory Action Letter – Pilgrim Nuclear Power Station (ADAMS Accession No. [ML17214A088](#)).

The NRC continually assesses Entergy's performance at Pilgrim, and if at any time it is determined that performance at Pilgrim has declined to an unacceptable level with respect to public safety, the NRC will not hesitate to take additional regulatory action, up to and including the issuance of a shutdown order.