

Pilgrim 1

4Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: SL-IV Dec 31, 2009

Identified By: NRC

Item Type: VIO Violation

Incomplete Licensed Operator Medical Examinations

A Severity Level IV violation (VIO) of 10 CFR 50.9, "Completeness and Accuracy of Information," was identified due to the submittal of inaccurate medical information for licensed operators. The submittals to the NRC were inaccurate because they certified that the operators had been medically examined and had met all medical qualifications, when in fact, olfactory testing to detect odor of products of combustion had not been performed. The facility has completed corrective actions to develop and administer an appropriate test. All licensed operators passed this new test, and no new license conditions were required.

The licensee's medical physician failed to adequately test all licensed operators (both initial and renewal licensees) in accordance with 10 CFR 55.21 and 55.33 with respect to ANSI/ANS-3.4 1983. The licensee submitted medical information for its licensed operators and applicants that was incomplete and incorrect in its assessment of the medical condition and general health of its licensed operators and initial applicants. The licensee's failure to provide complete and accurate information to the NRC, which could have resulted in an incorrect licensing action, is a performance deficiency because the licensee is expected to comply with 10 CFR 50.9, and because it was within the licensee's ability to foresee and prevent. Because violations of 10 CFR 50.9 are considered to be violations that potentially impede or impact the regulatory process, they are dispositioned using the Traditional Enforcement process. The applicability of cross-cutting aspects related to the performance deficiency of this finding will be determined after NRC review of Entergy's response to the Notice of Violation. (Section 1R11)

Inspection Report# : [2009005](#) (*pdf*)

Significance:  Oct 01, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish adequate procedures to prevent adverse impact due to spurious valve closure caused by fire damage.

The inspectors identified that Entergy did not ensure that plant procedures were adequate to prevent a spurious actuation from affecting the ability to provide a source of make-up water to the reactor vessel within 20 minutes following the evacuation of the control room during a fire as specified in procedure 2.4.143, Shutdown From Outside the Control Room, Revision 40. The finding was determined to be of very low safety significance (Green) and a NCV of the Pilgrim Nuclear Power Station Technical Specification 5.4.1.d, Procedures. Entergy entered the issue into the corrective action program and planned to implement changes to the procedure to resolve the issue. Entergy also reviewed completed reactor core isolation cooling (RCIC) and high pressure coolant injection (HPCI) system startup job performance measures (JPMs) and performed procedure walkthroughs to assess the time needed to attempt a RCIC start and then transfer to, and start HPCI to confirm these actions could be taken in within the time necessary to prevent lowering vessel level to that of the top of active fuel.

The inspectors determined that this finding was more than minor because it was associated with the procedure quality attribute of the mitigating system cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, during a fire in the control room or cable spreading room there are four valves in each of the RCIC and HPCI systems that could

spuriously close due to fire damage to cabling. Procedure 2.4.143 does not ensure that the associated motor control center circuit breakers are opened (to prevent spurious closure) and that the valves are in the correct position prior to starting one of the systems to provide make-up to the reactor vessel. Unidentified spurious closure of the valves during or after startup of the systems could disable the system and delay establishment of reactor vessel makeup. The inspectors assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected safe shutdown capabilities and screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because it was determined to be a minor procedure issue that could be compensated for by operator experience and familiarity. No cross-cutting aspect was assigned because the inspectors concluded this issue was not indicative of current licensee performance. (Section 1R05.01)

Inspection Report# : [2009007](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Scope Security Diesel Generator into the Maintenance Rule

The inspectors identified a non-cited violation of very low safety significance (Green) of 10CFR50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants”, because Entergy did not include all aspects of the emergency lighting system into the Pilgrim Maintenance Rule scoping document. Specifically, Entergy did not include the security diesel generator which provides backup power to emergency yard lighting which is required to meet Appendix R emergency lighting requirements. Entergy has entered the issue into their corrective action program to add the security diesel generator and normal power supplies for yard emergency lighting into the maintenance rule scoping document.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone in that the issue affected emergency lighting reliability in support of the accomplishment of the Emergency Operating Procedures (EOP)s. In addition, the security diesel generator has a history of surveillance procedure failures due to oil and coolant temperatures being outside of normal bands and there have been long term equipment issues including: intake louver issues, thermostat performance, radiator hose leaks, and fuel level indicator problems. This history of equipment performance issues does not show effective control of system performance or condition through appropriate preventive maintenance activities. The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of a single train system for greater than the Technical Specification (TS) allowed outage time, and was not made risk-significant because of external events. The finding does not have a cross-cutting aspect since the failure to scope this equipment into the maintenance rule was not recognized during the initial maintenance rule scoping activities and, as a result, is not indicative of current licensee performance. In addition, the current Entergy maintenance rule scoping procedure includes a review for non-safety related systems, structures and components (SSCs) which support EOP implementation and specifically, emergency lighting. This process identified the need to include the security diesel generator into the maintenance rule scoping document when this issue was recently identified and then evaluated by Entergy.

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate for Operability of the “B” RBCCW/SSW Heat Exchanger

The inspectors identified a non-cited violation of very low safety significance (Green) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings”, because Entergy did not assess operability of the “B” RBCCW/SSW Heat Exchanger (HX) when the HX failed a differential pressure (dP) surveillance. Specifically, operators conducted backwashing of a degraded HX as directed by Entergy procedure 2.2.32, Rev. 80, Attachment 7, “Salt Service Water System”, prior to assessing operability. In addition, Entergy Procedure 8.5.3.14, Revision 27, “SSW Flow Rate Operability Test”, specifically directs backwashing HXs as a corrective action prior to assessing

operability when the HXs fail to meet the dP acceptance criteria. Entergy entered this issue into their corrective action program, and actions will include evaluation for revision of applicable procedures to incorporate dP graphs to evaluate for operability.

The performance deficiency is that Entergy did not assess operability of degraded HXs when the HX dP exceeded predetermined values specified in the procedure. The finding is more than minor because it affects the Mitigating Systems Cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The issue adversely affects the procedure quality attribute of the cornerstone in the area of testing procedures in that the procedure directs taking corrective actions for a degraded HX prior to assessing operability of the HX. The inspectors evaluated this finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings". This finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of a single train system for greater than the TS allowed outage time, and was not made risk-significant because of external events. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, Resources, because Entergy did not provide an adequate procedure. Specifically, site procedures directed operators to take corrective actions prior to assessing operability of a degraded HX. (H.2.c of IMC 0305)

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Human Error Resulting in Unplanned HPCI Isolation

A self-revealing non-cited violation of very low safety significance (Green) of TS 5.4.1, "Procedures", was identified for a procedure error which resulted in the inadvertent isolation of the High Pressure Coolant Injection (HPCI) system. Specifically, a step in Procedure 8.M.2-2.6.3, "HPCI High Steam Line Temperature," which conducted continuity checks of temperature switches, was not adequately completed which caused the HPCI system to isolate. This has been entered into Entergy's corrective action program, and actions taken include revising the procedure to include a step requiring concurrent continuity checks of temperature switches and a wait time of five minutes to allow the temperature switches to reset.

The performance deficiency associated with this finding was that Entergy did not adequately perform continuity checks as specified in the surveillance procedure. This resulted in an inadvertent isolation of the HPCI system. This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone. Isolating the HPCI system affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase I Initial Screening and Characterization of Findings," the finding was determined to require a Phase II analysis because the finding resulted in an actual loss of system safety function. Using the Pilgrim site-specific pre-solved initiating event sequences and an exposure time of less than three days with the HPCI system unavailable, the Phase II estimation determined this finding was of very low safety significance (Green). The finding has a cross cutting aspect in Human Error Prevention Techniques under the Work Practices component of the Human Performance area. Specifically, Entergy did not conduct effective self or peer checks to ensure that continuity checks were adequately performed. (H.4.a of IMC 305)

Inspection Report# : [2009004](#) (pdf)

Significance:  Jul 10, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Surveillance Procedure Resulting in Failed Standby Liquid Control Train

A self-revealing non-cited violation of very low safety significance (Green) of Technical Specification (TS) 5.4.1, "Procedures," was identified for inadequate procedural guidance which resulted in repeated lifting of the "A" Standby Liquid Control (SBLC) system relief valve and the subsequent failure of the "A" SBLC system. Specifically, the SBLC system test procedure did not provide precautions or identify methods to avoid exceeding the pressure set point

of the pump relief valve during testing. Entergy determined that lifting of the relief valve during test activities resulted in wear of the relief valve over time and its subsequent failure. The issue was entered into the corrective action program and the surveillance procedure was revised to add cautions against exceeding 1300 psig and to reduce the test pressure window upper limit. In addition, if 1350 psig is exceeded, a condition report must be written to evaluate the impact on the system. Corrective actions are also planned to increase the relief valve design set point and to replace the test throttle valve with one more suited to adjusting system pressure.

The performance deficiency was that Entergy did not specify adequate test controls to ensure that SBLC system relief valve set points were not challenged during test performance. This led to repeated relief valve lifts which over time contributed to the degradation of the relief valve that rendered the "A" train inoperable. The inspectors determined that the finding was more than minor because the finding was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone's objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, one train of SBLC was unavailable for several days. Using Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1-Initial Screening and Characterization of Findings," the inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of a single train for greater than its TS allowed outage time and was not made risk significant because of external events. This finding has a cross-cutting aspect in the area of Human Performance, Resources, because Entergy did not provide complete procedures. Specifically, the procedure did not include precautions and/or techniques to avoid exceeding the relief valve set point during testing. (H.2(c) of IMC 0305) (Section 1R22)

Inspection Report# : [2009005](#) (pdf)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish and Maintain Adequate Measures to Monitor Critical Parameters of the EDG Air Start System

The inspectors identified a non-cited violation (NCV) of very low safety significance of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," because Entergy personnel did not establish and maintain measures to monitor critical design parameters to assure that equipment and processes essential to the safety-related function of the emergency diesel generator (EDG) air start system were adequate. Specifically, Entergy did not establish adequate measures to assure that an adequate supply of air was available to the air receivers for a minimum of two cold engine starts without recharging. This resulted in the "A" EDG being inoperable on March 8, 2009. Entergy entered this issue into their corrective action program (CAP) for resolution as CR-PNP-2009-00807. The immediate corrective actions included establishing compensatory requirements to increase the monitoring frequency for the air start system critical parameters.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the finding affected the reliability of the EDG to ensure a minimum of two cold engine starts without recharging to help mitigate the consequences of design basis events. The inspectors determined that the finding is of very low safety significance (Green) because it is not a design or qualification deficiency, did not represent a loss of safety function, and did not screen as potentially risk significant due to external events.

There is no cross-cutting aspect identified for this finding because the inspectors determined that the performance deficiency is not reflective of current plant performance. The monitoring frequencies of the EDG air start system critical parameters were established for an extended period and prior to this problem there had not been recent issues with monitoring EDG air start capability.

Inspection Report# : [2009002](#) (pdf)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Scaffolding Procedure Requirements

The inspectors identified an NCV of very low safety significance of Technical Specification 5.4.1 “Procedures,” because Entergy personnel did not adequately implement procedure requirements in accordance with EN-MA-133, “Control of Scaffolding.” Specifically, personnel did not erect scaffold in accordance with procedure EN-MA-133 and maintain the minimum distance erection requirements for safety-related equipment or alternatively perform engineering evaluations that concluded the equipment will not be impacted by the scaffolds. Entergy entered this issue into their CAP for resolution as CR-PNP-2009-00064, implemented prompt actions to correct the scaffolds, and performed engineering evaluations to assess the affect of the scaffolds on the safety-related equipment.

The finding is more than minor because it is associated with the external factors attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, the finding is similar to example 4.a in Appendix E of IMC 0612 in that personnel did not routinely perform engineering evaluations for scaffolds constructed less than the minimum allowed distance to safety-related equipment. The inspectors determined that the finding is of very low safety significance (Green) because the scaffold issues identified were not a design or qualification deficiency, did not represent a loss of safety function, and did not screen as potentially risk significant due to external events.

This finding has a cross-cutting aspect in the area of Human Performance because Entergy’s supervisory and management staff did not provide adequate oversight of workers or communicate expectations to workers to ensure scaffold erection requirements were fully understood (H.4.c of IMC 305).

Inspection Report# : [2009002](#) (pdf)

Barrier Integrity

Significance:  May 04, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure Resulting in Damage to Refueling Mast

A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1 “Procedures,” was identified, because Entergy’s refueling bridge operators did not continuously monitor a Double Blade Guide (DBG) that was moved into the core to ensure the DBG did not encounter any obstructions, interferences, or other abnormal indications required by Pilgrim Procedure 4.3, Revision 113, “Fuel Handling.” Specifically, the failure to follow the procedure resulted in damaging the refueling mast when the mast was moved and still latched to the DBG. Entergy entered this issue into their corrective action program as CR-PNP-2009-2083. Corrective actions included replacing a section of the refueling mast, replacing the grapple camera, conducting additional training with the refueling crews including a table top dry run, performing a Human Performance Error Review and requiring Operations Senior Management to provide oversight during one hour of each three hour shift when the refueling crew was on the bridge moving fuel.

The inspectors determined that the finding was more than minor because the finding was associated with the human performance attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone’s objective to provide reasonable assurance that physical design barriers (i.e. fuel cladding) protect the public from radionuclide releases caused by accidents or events. The risk significance of the performance deficiency was determined to be of very low safety significance (Green) using IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 Initial Screening and Characterization of Findings.” Specifically, since the finding did not affect spent fuel pool cooling or inventory and since no fuel or control rod was damaged when the mast was bent, the finding was determined to be of very low safety significance. The finding has a cross cutting aspect in Human Error Prevention Techniques in the Work Practices component of the Human Performance area. Specifically, Entergy did not employ effective self and peer checking techniques such that refueling activities were performed safely. (H.4.a of IMC 305).

Inspection Report# : [2009003](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Significance: N/A Feb 27, 2009

Identified By: NRC

Item Type: FIN Finding

Biennial Assessment of 2009 PI&R Inspection

The team concluded that Entergy was effective in identifying, evaluating, and resolving problems. Pilgrim personnel identified problems and entered them into the Corrective Action Program (CAP) at a low threshold, and had taken actions to address previous NRC findings. The team determined that Entergy generally screened issues appropriately for operability and reportability, and prioritized issues commensurate with the safety significance of the problems. Causal analyses appropriately considered extent of condition, generic issues, and previous occurrences. The team determined that corrective actions addressed the identified causes and were typically implemented in a timely manner. However, the team noted several examples of minor safety significance involving less than adequate evaluation or documentation of issues within the corrective action program and one minor issue where corrective actions had not been successful in resolving an issue. These issues were entered into Entergy's CAP for resolution during the inspection.

Entergy's audits and self-assessments reviewed by the inspectors were sufficiently thorough and probing. The team concluded that Entergy adequately identified, reviewed, and applied relevant industry operating experience. Based on interviews, observations of plant activities, and reviews of the CAP and the Employees Concerns Program (ECP), the team determined that site personnel were willing to raise safety issues and to document them in the CAP.

Inspection Report# : [2009006](#) (*pdf*)

Last modified : March 01, 2010