



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

June 6, 2018

MEMORANDUM TO: David L. Pelton, Director
Division of Reactor Projects

FROM: Marc S. Ferdas, Chief */RA/*
Technical Support & Assessment Branch

SUBJECT: EXTENT-OF-CONDITION REVIEW IN RESPONSE TO
FINDINGS ASSOCIATED WITH INSPECTION PROCEDURE
95003: EVALUATION OF NRC ASSESSMENT AND
INSPECTION PROCESSES AT PILGRIM NUCLEAR POWER
STATION

In accordance with Inspection Procedure (IP) 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," Region I conducted an evaluation to determine whether the NRC's assessment and inspection processes applied at Pilgrim Nuclear Power Station (Pilgrim), appropriately characterized licensee performance, based on previous inspection information and whether sufficient warning was provided to identify a significant reduction in safety. The review concluded the NRC responded appropriately to the decline in Pilgrim's performance and the Reactor Oversight Process (ROP) and inspection processes were appropriate to provide sufficient warning of degraded and declining performance. However, the review also identified that Licensee Event Reports (LERs) in the 2011 – 2013 timeframe were not consistently evaluated and documented as findings or violations consistent with ROP and enforcement guidance. In response to this observation, an extent-of-condition review was conducted to determine if a similar issue existed across other Region I sites. The extent-of-condition review was conducted by a Region I team consisting of a senior resident inspector, senior risk analyst, and a branch chief.

Based on an independent review of over 90 LERs, the team determined that overall LERs were properly evaluated and documented in accordance with the applicable inspection and enforcement guidance available to inspectors at the time of their closeout. There were a few isolated examples spread across different sites in which this review came to a different conclusion than what was originally documented. Due to the regulatory judgement that can be applied when reviewing an issue, some variance in the final assessment is expected between different inspectors. None of the identified examples would have caused the agency to change its assessment or oversight activities for that site. The results of this review was shared with the responsible branches. Any additional and clarifying information received from the branches was factored into the team's final assessment. The enclosed report details the results of our review.

Enclosure: As Stated

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DOCUMENT NAME: G:\DRP\BRANCH5\+++Pilgrim\+++Pilgrim Column 4 Activities\95003 EVALUATION\Pilgrim Extent of Conditions LER
Results Enclosure 3.docx
ADAMS ACCESSION NUMBER: ML18158A133

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RI/DRP	RI/DRP			
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DATE	5/31/18	6/6/18			

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Enclosure 1

Extent-of-Condition Review – Closeout of License Event Reports 2009 to 2017

Background

In accordance with Section 03.11 of Inspection Procedure 95003, Region I conducted a review of NRC's oversight of Pilgrim Nuclear Power Station (Pilgrim) for the period leading to the plant's placement in Column 4 of NRC's Action Matrix. The review concluded the NRC responded appropriately to the decline in Pilgrim's performance and the ROP and inspection processes were appropriate to provide sufficient warning of degraded and declining performance. However, the review also identified that Licensee Event Reports (LERs) in the 2011 – 2013 timeframe were not consistently evaluated and documented as findings or violations consistent with ROP and enforcement guidance.

Scope/Activities Conducted

In response to the team's findings, an extent-of-condition review was conducted to determine if a similar issue existed across other Region I sites. The extent-of-condition review was conducted by a Region I team consisting of a senior resident inspector, senior risk analyst, and a branch chief. The team reviewed 64¹ LERs closed in calendar years 2009 – 2015. Additionally, a review of 28² LERs closed in calendar years 2016 and 2017 was completed to further assess current performance. A list of the LERs reviewed are contained in Attachment 1.

Each LER and the inspection report in which it was closed out was reviewed. Based on the information contained in these documents, the team assessed the determination made concerning the existence of a performance deficiency and whether that conclusion was reasonably supported by the information. Additionally, a brief assessment of the assigned risk significance was performed to determine if it seemed appropriate.

Results/Assessment

The extent-of-condition review verified that a systemic issue did not exist within Region I associated with the review and closeout of LERs. Overall, LERs have been properly evaluated and documented in accordance with the applicable inspection and enforcement guidance available to inspectors at the time of their closeout. The review did identify a few isolated examples (3) spread across several different sites where a performance deficiency was not identified even though information within the LER likely justified that a finding or violation of very low safety significance (Green) should have been documented. Additionally, the team identified a couple of instances (2) where a performance deficiency was not identified even though information within the LER likely justified that a minor finding or violation likely existed and should have been documented as part of the LER closeout. The table below provides a complete summary of the extent-of-condition review.

¹ 694 LERs closed (2009-2015). Does not include Pilgrim.

² 188 LERs closed (2016 – 2017).

As Documented in NRC Inspection Report	Extent-of-Condition Review	2009-2015	2016-2017
LIV-Green	No PD	2*	0
LIV-Green	SR-Minor	1	0
No PD	SR-Green	3	0
No PD	SR-Minor	0	1
No PD	LIV-Minor	1	0
Number of LERs Reviewed ³		64	28

Key

LIV = Licensee Identified Violation

PD = Performance Deficiency

SR=Self Revealing Finding/Violation

Note

*Involved specific issue associated with safety relief valve (SRV) set-point drift, which is currently under review by the program office to ensure greater consistency across the regional offices in how these type of issues are assessed and the associated LER is closed. Thus the difference between as documented and the team's assessment was expected.

Due to the regulatory judgement that can be applied when reviewing an issue, some variance in the final assessment was expected between different inspectors. None of the identified examples would have caused the agency to change its assessment or oversight activities for that site.

Conclusion/Summary

Based on an independent review of over 90 LERs, the team determined that overall LERs were properly evaluated and documented in accordance with the applicable inspection and enforcement guidance available to inspectors at the time of their closeout.

³ Survey Monkey Sample Size Calculator (<https://www.surveymonkey.com/mp/sample-size-calculator/>) used to determine number of LERs to review. [Population = Number of LERs Closed/Confidence Level = 90%/Margin of Error = 10-15%].

Attachment 1

Site	LER Number	LER Title
LER Closeout 2009-2015		
BV	05000334/2009-004-00	Two Ultrasonic Indications Found In Reactor Coolant System Drain Pipe
BV	05000334/2014-002-00	Beaver Valley Unit 1 Turbine Driven Auxiliary Feedwater Pump Governor Oscillations Result In Pump Trip
BV	05000334,05000412/2014-004-00	Unanalyzed Condition Resulting From Unfused Direct Current Control Circuits
BV	05000412/2011-003-00	Automatic Actuation of Standby Service Water Pumps Following Unexpected Service Water Pump Trip
CC	05000317/2010-001-00	Reactor Trip Due to Water Intrusion into Switchgear Protective Circuitry
CC	05000317,05000318/2012-001-00	Valve Surveillance Requirement Not Met Due to Legacy Issues
CC	05000318/2013-001-00	Reactor Coolant System Pressure Boundary Leakage in Valve Leakoff Line Weld
CC	05000317,05000318/2014-004-01	Unfused 250 VDC Circuits Result in 10 CFR 50 Appendix R Unanalyzed Condition Due to Original Design did not Adequately Address Fire Protection Requirements
CC	05000317/05000318/2011-002-02	Technical Specification 3.0.3 Entry for Inoperable 125V Direct Current Channels
FP	05000333/2012-002-01	High Pressure Coolant Injection Pressure Control Valve Failure.
FP	05000333/2014-002-01	Secondary Containment Vacuum Below Technical Specification Limit
FZ	05000333/2011-001-00	RCIC Inoperable Longer than Allowed by TS
GN	05000244/2009-002-00	Plant Trip Due to Loss of Electrohydraulic Control System Pressure
GN	05000244/2011-001-00	Unanalyzed Condition due to Postulated Fire Causing a Station Blackout
GN	05000244/2012-001-00	Automatic Start of 'B' Emergency Diesel Generator Caused by Loss of Offsite Circuit 767 Due to Wildlife
GN	05000244/2014-002-00	Unanalyzed Condition Due to Postulated Hot Short Fire Event Involving DC Control Circuits Affecting Multiple Fire Areas
GN	05000244/2011-002-00	Train 'B' Actuation Logic Circuit to Operate the 'B' Main Steam Isolation Valve was not Operable
HC	05000354/2009-004-00	Multiple Control Rod Drifts Resulting In A Reactor Scram
HC	05000354/2009-006-00	Post-Fire Safe Shutdown Analysis Error
HC	05000354/2010-003-00	RHR Shutdown Cooling Suction Relief Valve Missed Surveillance
HC	05000354/2013-007-00	As-Found Values for Safety Relief Valve Lift Set Points Exceed Technical Specification Allowable Limit
HC	05000354/2013-010-01	Loss of Both Control Room Chillers.

Site	LER Number	LER Title
HC	05000354/2015-004-00	As-Found Values for Safety Relief Valve Lift Set Points Exceed Technical Specifications Allowable Limit
HC	05000354/2015-005-00	Reactor Scram Due to Invalid RRCS Actuation
HC	05000354/2012-001-00	APRM Flow Unit Summers Out of Tech Spec Tolerance
IP	05000247/2009-005-00	Automatic Reactor Trip Due to a Turbine-Generator Exciter Protective Trip Caused by a Loss of the Generex Power Supply Monitored Voltage Due to a High Resistance Ground Connection
IP	05000286/2011-003-00	Technical Specification Required Shutdown and a Safety System Functional Failure for a Leaking Service Water Pipe Causing Flooding in the SW Valve Pit Preventing Access for Accident Mitigation
IP	05000286/2011-006-00	Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable Isolation Valve Seal Water System Due to an Out of Position Valve
IP	05000286/2013-002-00	Safety System Functional Failure and Common Cause Inoperability of the Emergency Core Cooling System Due to Violation of Containment Sump Debris Barrier Integrity
IP	05000286/2012-001-00	Common Cause Inoperability of Both Trains of MDAFW Pumps due to Inability to Control AFW Regulating Valves After Isolation of Nitrogen Backup
LM	05000352,05000353/2012-007-00	Condition Prohibited by Technical Specifications due to Primary Containment Isolation Valves Design
LM	05000352/2012-003-01-00	Valid Manual Actuation of the Primary Containment Isolation System Due to Ventilation System Trip
LM	05000353/2013-001-00	Valid Manual Actuation of the Reactor Protection System During Refuel Outage Testing
LM	05000352/2014-004-00	Valid Manual Actuation of the Reactor Protection System With the Reactor Critical Due to Closure of Turbine Valves
LM	05000353/2015-001-00	Condition That Could Have Prevented Fulfillment of the High Pressure Coolant Injection (HPCI) System Safety Function
LM	05000352/2013-001-00	HPCI System Pressure Switch Lubricating Oil Leak
MS	05000336/2009-005-00	Both Containment Air Lock Doors Open in Mode 1
MS	05000423/2013-007-00	Reactor Trip on Low-Low Steam Generator Level
MS	05000423/2014-001-00	Limiting Condition for Operations Exceeded upon Approval of Enforcement Discretion
MS	05000336/2014-005-00	Train A Containment Spray Inoperable Due To Gas Voids
MS	05000423/2014-004-00	Unlatched Dual Train HELB Door Results in Potential Loss of Safety Function
MS	05000336/2014-004-00	FM Found in a Motor Lead Rendered a MDAFW Pump Inoperable
NMP	05000410/2011003-00	Reactor Shutdown due to an Unisolable Leak on a FW Pump Minimum Flow Line
OC	05000219/2012-002-01	Loss of Offsite Power During Hurricane Sandy

Site	LER Number	LER Title
OC	05000219/2014-006-00	Reactor SCRAM due to Decreasing Reactor Water Level
OC	05000219/2013-001-00	Automatic Reactor SCRAM due to an Invalid Intermediate Range Monitor SCRAM Signal
PB	05000277/2-10-04 -00	Improper Credit for Function of Off-site Power Source Transformer Load Tap Changer
PB	05000278/3-13-001-00	Laboratory Analysis Identifies Safety Relief Valves and Safety Valve Set Point Deficiencies
PB	05000277/2014-003-00	Containment Leakage Limit Exceeded Due to Through-Seat Leakage of Feedwater Check Valves
PB	05000278/2013-001	SRV Set Point Deficiencies
SB	05000443/2011-001-00	Noncompliance with Technical Specification for Leakage Detection Instruments
SB	05000443/2012-004-00	Manual Actuation of the Service Water Cooling Tower
SB	05000443/2009001-00	RPS Actuation on SG Low Water Level
SL	05000272/2010-002-00	Automatic Reactor Trip Due to Main Power Transformer Bushing Failure
SL	05000272/2011-005-00	Incorrect NIS Trip Setpoints Results in TS 3.0.3 Entry
SL	05000272/2014-002-00	Manual Reactor Trip Due to Loss of the 11 Steam Generator Feedwater Pump
SL	05000272/2015-007-00	Inoperable Control Room Emergency Air Conditioning System Due to Failed Charcoal Filter Surveillance Test.
SL	05000272/2011-002-00	Bypass of Steam Generator Blowdown Valve Isolation during Testing
SQ	05000388/2011-002-00	Condition Prohibited by Technical Specification Due to Unknown RCIC Inoperability
SQ	05000387/2013-003-00	Unauthorized Access Due to Not Completing Required Training
SQ	05000387/2009001-00	HPCI System Inoperable due to Turbine Stop Valve Failure
TMI	05000289/2011-001-00	Unanalyzed Condition Affecting Probable Maximum Flood (PMF) Level
TMI	05000289/2012-002-01	Missing Seals in Air Intake Tunnel Conduits
TMI	05000289/2008-001-00	Decay Heat River Water System Pump Failed to Start
LER Closeout 2016 - 2017		
BV	05000334,05000412/2017001-00	Inadequate Tornado Missile Protection Identified Due to Non-Conforming Design Conditions
CC	05000318/2015-001-00	Manual Reactor Trip Due to Steam Generator Feed Pump 22 Trip
FP	05000333/2015-007-00	Slow Exhaust Fan Start Leads to Secondary Containment Vacuum Below Technical Specification Limit
FP	05000333/2016-002-00	Sticking DC Pilot in Solenoid Valve Cluster Assembly Results in Slow MSIV Closures
GN	05000244/2016-001-00	Loss of Station Transformer 12A Resulting in Automatic Start of Emergency Diesel Generator 'A' due to Undervoltage Signals to Safeguard Buses 14 and 18
HC	05000354/2016-002-00	High Pressure Coolant Injection System Inoperable

Site	LER Number	LER Title
IP	05000247/2015-003-00	Manual Reactor Trip Due to Indications of Multiple Dropped Control Rods Caused by Loss of Control Rod Power Due to a Power Supply Failure
IP	05000247/2017-002-00	Auxiliary Feedwater Flow Indication Inoperable for Longer Than the Allowed Technical Specification Completion Time Due to Failure to Complete Restoration Following Calibration
LM	05000353/2015-007-00	Condition Prohibited by Technical Specifications Due to an Inoperable Reactor Coolant Leakage Detection System
MS	05000336/2015-003-00	Valid Actuation of the Reactor Protection System
NMP	05000220/2017-002-00	Manual Reactor Scram Due to Pressure Oscillations
OC	05000219/2016-002-01	Control Rod Drive Cooling Water System Isolation Scram Time Testing Was Not Performed
OC	05000219/2016001-00	Failure of the No. 1 Emergency Diesel Generator during Surveillance Testing due to a Cooling Water System Leak
PB	05000277/2016-001-00	Leak in High Pressure Service Water Pipe Results in Condition Prohibited by Technical Specifications
PG	05000293/2017-003-00	Pressure Suppression Pool Declared Inoperable Due to High Water Level
PG	05000293/2017-004-00	Secondary Containment Testing Led to Loss of Safety Function to Both Trains of Standby Gas Treatment System
PG	05000293/2017-010-00	Air Accumulation Creates Small Void in Core Spray Discharge Piping
SB	05000443/2017-001-00	Manual Reactor Trip in Response to a Feedwater Isolation due to High Level in Steam Generator 'B'
SL	05000311/2015-003-00	Both Trains of High Head Safety Injection Inoperable Due to a Relief Valve Failure
SL	05000311/2016-002-01	Automatic Reactor Trip due to Main Turbine Trip
SL	05000272/2015-002-02	Condition Prohibited by Technical Specification for One Channel of Steam Generator Level Indication Inoperable
SQ	05000387/2015-007-00	Unit 1 'B' Inboard Main Steam Isolation Valve, HV141F022B closed during surveillance test which caused a SCRAM on Unit 1
SQ	05000387,05000388/2016-008-00	Inoperability of Diesel Generator Due to Misalignment of MOC Switch Contacts Due to Inadequate Post Maintenance Testing
SQ	05000387/2016-018-00	Inoperability of RCIC Due to an Oil Leak
SQ	05000388/2016-005-00	Unit 2 HPCI Manually Overridden Prior to a Manual Scram During a Plant Transient
SQ	05000387/2016-019-00	Pressure Boundary Leakage from an Inadequate Weld Repair in Small Bore Pump Seal Vent Piping
SQ	05000387/2016-011-01	Valve Inoperability for a period of longer than allowed by Technical Specifications

Site	LER Number	LER Title
TMI	05000289/2017-001-00	Low Temperature Over-Pressurization (LTOP) Technical Specification Requirements Were Not Met
BV	05000334,05000412/2017001-00	Inadequate Tornado Missile Protection Identified Due to Non-Conforming Design Conditions
CC	05000318/2015-001-00	Manual Reactor Trip Due to Steam Generator Feed Pump 22 Trip
FP	05000333/2015-007-00	Slow Exhaust Fan Start Leads to Secondary Containment Vacuum Below Technical Specification Limit
FP	05000333/2016-002-00	Sticking DC Pilot in Solenoid Valve Cluster Assembly Results in Slow MSIV Closures
GN	05000244/2016-001-00	Loss of Station Transformer 12A Resulting in Automatic Start of Emergency Diesel Generator 'A' due to Undervoltage Signals to Safeguard Buses 14 and 18
HC	05000354/2016-002-00	High Pressure Coolant Injection System Inoperable
IP	05000247/2015-003-00	Manual Reactor Trip Due to Indications of Multiple Dropped Control Rods Caused by Loss of Control Rod Power Due to a Power Supply Failure
IP	05000247/2017-002-00	Auxiliary Feedwater Flow Indication Inoperable for Longer Than the Allowed Technical Specification Completion Time Due to Failure to Complete Restoration Following Calibration
LM	05000353/2015-007-00	Condition Prohibited by Technical Specifications Due to an Inoperable Reactor Coolant Leakage Detection System
MS	05000336/2015-003-00	Valid Actuation of the Reactor Protection System
NMP	05000220/2017-002-00	Manual Reactor Scram Due to Pressure Oscillations
OC	05000219/2016-002-01	Control Rod Drive Cooling Water System Isolation Scram Time Testing Was Not Performed
OC	05000219/2016001-00	Failure of the No. 1 Emergency Diesel Generator during Surveillance Testing due to a Cooling Water System Leak
PB	05000277/2016-001-00	Leak in High Pressure Service Water Pipe Results in Condition Prohibited by Technical Specifications
PG	05000293/2017-003-00	Pressure Suppression Pool Declared Inoperable Due to High Water Level
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PG	05000293/2017-010-00	Air Accumulation Creates Small Void in Core Spray Discharge Piping
SB	05000443/2017-001-00	Manual Reactor Trip in Response to a Feedwater Isolation due to High Level in Steam Generator 'B'
SL	05000311/2015-003-00	Both Trains of High Head Safety Injection Inoperable Due to a Relief Valve Failure
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SQ	05000387/2016-018-00	Inoperability of RCIC Due to an Oil Leak
SQ	05000388/2016-005-00	Unit 2 HPCI Manually Overridden Prior to a Manual Scram During a Plant Transient