



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

January 26, 2012

EA-11-277

Mr. Joseph E. Pacher, Vice President
R.E. Ginna Nuclear Power Plant, LLC
Constellation Energy Nuclear Group, LLC
1503 Lake Road
Ontario, New York 14519

SUBJECT: R.E. GINNA NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION
REPORT 05000244/2011005 AND EXERCISE OF ENFORCEMENT
DISCRETION

Dear Mr. Pacher:

On December 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your R.E. Ginna Nuclear Power Plant. The enclosed inspection report documents the inspection results, which were discussed on January 12, 2012, with Mr. Edwin D. Dean, III and other members of your staff.

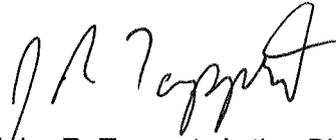
The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding and one self-revealing finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report with the basis of your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at R.E. Ginna Nuclear Power Plant. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at R.E. Ginna Nuclear Power Plant.

In addition, the licensee identified a finding involving a violation of a Ginna fire protection license condition. The NRC have screened this finding and determined that it warranted enforcement discretion per Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)."

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

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Tappert". The signature is fluid and cursive, with a large initial "J" and "T".

John R. Tappert, Acting Director
Reactor Projects Region I
Division of Reactor Projects

Docket No. 50-244
License No. DPR-18

Enclosure: Inspection Report No. 05000244/2011005
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Sincerely,
/RA/
 John R. Tappert, Acting Director
 Reactor Projects Region I
 Division of Reactor Projects

Docket No. 50-244
 License No. DPR-18

Enclosure: Inspection Report No. 05000244/2011005
 w/ Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-244

License No.: DPR-18

Report No.: 05000244/2011005

Licensee: Constellation Energy Nuclear Group, LLC

Facility: R.E. Ginna Nuclear Power Plant, LLC

Location: Ontario, New York

Dates: October 1 through December 31, 2011

Inspectors: G. Hunegs, Senior Resident Inspector
D. Dodson, Resident Inspector
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Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000244/2011005; 10/01/2011 – 12/31/2011; R.E. Ginna Nuclear Power Plant (Ginna); Maintenance Risk Assessments and Emergent Work Control, and Operability Determinations and Functionality Assessments.

The report covered a 3-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The inspectors identified two findings of very low safety significance (Green), which were non-cited violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within the Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events

- Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65, "Maintenance Rule," paragraph (a)(4), when Ginna did not adequately manage an increase in risk when initiating the RPS channel 2 calibration procedure, which resulted in an underestimation of the risk and several required risk management tools were not implemented by Ginna operations staff as required. Ginna developed several corrective actions including enhanced procedural guidance for operators and entered the finding into the corrective action program (CR-2011-7071).

This finding is more than minor because the overall elevated plant risk would put the plant into a higher licensee-established risk category and required additional risk management actions per plant procedures. This finding is associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined this finding is of very low safety significance because the incremental core damage probability deficit was less than 1.0E-6.

This finding has a cross-cutting aspect in the area of human performance, work control, in that Ginna did not plan and coordinate work activities consistent with nuclear safety. Specifically, Ginna management was not fully apprised of plant conditions prior to making the actual risk change and before continuing with channel 2 calibration work (H.3 (b) per IMC 0310). (Section 1R13)

Cornerstone: Mitigating Systems

- Green. A self-revealing NCV of TS 5.4.1.a, "Procedures," was identified for Ginna's failure to properly tighten turbine-driven auxiliary feedwater (TDAFW) system threaded connections. Specifically, the performance of procedure MMP-GM011-00012, "AFW Pump Turbine Major Mechanical Inspection and Mechanical Overspeed Trip Testing," Revision 00200, did not ensure that low pressure trip switch mount threaded connections remained tight. Consequently, high turbine outboard bearing vibrations were noted, and the TDAFW system was declared inoperable. Corrective actions included additional testing and

inspection to ensure that no bearing damage had occurred, revising applicable portions of the TDAFW system maintenance procedures, and providing additional guidance for mechanical maintenance and planning personnel. This finding was entered into Ginna's corrective action program (CR-2011-8098).

This finding is more than minor because it is similar to IMC 0612, Appendix E, Example 3.j., in that, the high vibration resulted in a reasonable doubt on the operability of the system. The performance deficiency is associated with the Mitigating Systems cornerstone attribute of equipment performance (reliability, availability) and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors evaluated this finding using Phase 1, "Initial Screening and Characterization" worksheet of Attachment 4 to IMC 0609. The inspectors determined this finding was not a design or qualification deficiency, did not involve an actual loss of safety function for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Therefore, the inspectors determined this finding to be of very low safety significance.

This finding has a cross-cutting aspect in the area of human performance, work control, in that Ginna failed to plan and coordinate work activities, consistent with nuclear safety. Specifically, the work planning aspects, including the TDAFW system maintenance procedure and work package, did not incorporate the risk insights associated with conducting maintenance activities on risk significant safety-related equipment [H.3 (a)]. (Section 1R15)

Other Findings

None

REPORTS DETAILS

Summary of Plant Status

R.E. Ginna Nuclear Power Plant (Ginna) began the inspection period operating at full rated thermal power. On October 11, 2011, an automatic reactor trip occurred due to auto stop oil pressure. The trip was caused by a full circumferential break on a high pressure turbine lube oil (TLO) pipe weld. Following repairs to the TLO system, the plant was started up, and the generator was synchronized to the grid on October 15. The plant returned to 100 percent power on October 16. The plant remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – One sample)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Ginna's readiness for the onset of cold weather. The review focused on service water (SW), standby auxiliary feedwater (AFW), and fire protection water. The inspectors reviewed the updated final safety analysis report (UFSAR), technical specifications (TSs), control room logs, and the corrective action program (CAP) to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Ginna personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Ginna's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial Walkdowns (71111.04Q – Three samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- The motor-driven auxiliary feedwater (MDAFW) system following plant startup on October 16, 2011

- The 'A' MDAFW system during unplanned maintenance on 'B' MDAFW system on November 2, 2011
- The 'B' emergency diesel generator (EDG) system during extensive planned maintenance on the 'A' EDG system on November 16, 2011

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, TSs, work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Ginna staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – Four samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Ginna controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service (OOS), degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Technical support center (TSC) battery room and inverter room on October 27, 2011
- 'A' EDG on November 18, 2011
- Control room on November 28, 2011
- Relay room on November 28, 2011

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – One sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on October 6, 2011, that involved a fire in the turbine building, east of the instrument air compressors. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that Ginna personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Ginna's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – One sample)

Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Ginna identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on the battery and EDG rooms to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11).1 Quarterly Review of Licensed Operator Requalification Testing and Training (71111.11Q – One sample)a. Inspection Scope

The inspectors observed a graded licensed operator simulator exam on November 1, 2011, which included testing of the operators' ability to respond to transients and to implement emergency operating procedures. The inspectors evaluated operator performance during the simulated event and verified completion of risk-significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems. The inspectors also reviewed and verified compliance with Ginna procedure OTG-2.2, "Simulator Examination Instructions," Revision 43.

b. Findings

No findings were identified.

.2 Annual Review (71111.11A – One sample)a. Inspection Scope

On December 15, 2011, an NRC region-based inspector conducted an in-office review of results of Ginna-administered annual operating tests and comprehensive written exams for 2011. The inspection assessed whether pass rates were consistent with the guidance of NRC Inspection Manual Chapter (IMC) 0609, Appendix I, and "Operator Requalification Human Performance Significance Determination Process (SDP)." The inspector verified that:

- Crew pass rates were greater than 80 percent (pass rate was 100 percent)
- Individual pass rates on the job performance measures of the operating exam were greater than 80 percent (pass rate was 100 percent)
- More than 80 percent of the individuals passed all portions of the exam (100 percent of the individuals passed all portions of the examination)
- Individual pass rates on the dynamic simulator test were greater than 80 percent (pass rate was 100 percent)
- Overall pass rate among individuals for all portions of the exam was greater than or equal to 75 percent (overall pass rate was 100 percent)

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – Three samples)a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule basis documents to ensure that Ginna was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a) (2) performance criteria established by Ginna staff was reasonable. As applicable, for SSCs classified as (a) (1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a) (2). Additionally, the inspectors ensured that Ginna staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- SW system on November 28, 2011
- Spent fuel pool (SFP) cooling system on December 1, 2011
- Chemical and volume control system (CVCS) on December 14, 2011

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – Five samples)a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Ginna performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Ginna personnel performed risk assessments as required by 10 CFR 50.65(a) (4) and that the assessments were accurate and complete. When Ginna performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Planned reactor protection system (RPS) channel 2 calibrations on October 11, 2011
- Planned maintenance on the 'A' SFP heat exchanger (HX) on October 18, 2011
- Planned maintenance on the 'D' standby AFW system in conjunction with the 'B' MDAFW discharge check valve failure and the failed 'B' charging pump on October 31, 2011
- Unplanned maintenance on the 'B' MDAFW on November 3, 2011
- Planned maintenance on the 'A' EDG on November 17, 2011

b. Findings

Introduction. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65, "Maintenance Rule," paragraph (a) (4), when Ginna did not adequately manage an increase in risk when initiating the RPS channel 2 calibration procedure.

Description. On October 11, 2011, the work week schedule had RPS channel 2 calibrations planned for the day. Unavailable equipment during CPI-TRIP-TEST-5.20 for the RPS channel 2 calibration work included the anticipated transient without a scram (ATWS) mitigation system actuation circuitry (AMSAC), pressurizer pressure transmitter PT-430, channel 2 loop 'A' Tavg temperature TI-402, and turbine first stage pressure transmitter PT-485. Although Ginna accounted for all equipment to be OOS, Ginna did not account for procedure TRIP-TEST-5.20, "RPS Trip Test/Calibration for Channel 2 (White) Bistable Alarms," Revision 03502, in the risk assessment model. When procedure CPI-TRIP-TEST-5.20 was started for RPS channel 2 calibrations, the core damage frequency (CDF) probabilistic risk factor unexpectedly changed to 2.0, yellow; the CDF probabilistic risk factor was expected to be 1.7, green. Ginna identified the increased risk condition prior to making physical changes to the plant but after initiating CPI-TRIP-TEST-5.20. Procedure A-52.4, "Control of Limiting Conditions for Operating Equipment," Revision 14001, and operations guideline, OPG-AUTO SOFTWARE, "Control Room Software Operation," Revision 1003, require operators to evaluate OOS equipment and procedures in the risk assessment model prior to initiating the procedure.

The inspectors identified that several required risk management tools were not implemented by Ginna operations staff as required. Specifically, procedure CNG-OP-4.01-1000, "Integrated Risk Management," Revision 00900, lists the minimum tools to consider for managing risk. Contrary to this procedure, the normal practice of making management notifications was not considered nor completed prior to making the actual risk change. Specifically, operators did not acquire general supervisor shift operations approval for the activity plan and compensatory measures for the yellow risk. CNG-OP-1.01-2000, "Operations Log Keeping and Station Rounds," Revision 00200, requires narrative log entries to be made by the control room supervisor at the start of risk-significant activities describing plant risk due to activity initiation and the compensatory measures in place. Operators did not update the standard logs to reflect the risk associated with this maintenance as required. Additionally, the guidance contained in OPG-OPERATIONS-EXPECTATIONS, "Operations Department Expectations," Revision 01203, was not followed. Specifically, a plant announcement was not made when CDF risk color changed from green to yellow.

Ginna developed several corrective actions for unexpected risk color changes including adding further procedural guidance for approvals for unexpected risk color changes, adding further procedural guidance to stop work until equipment is restored and additional evaluation is completed, and adding further operations guidance to include procedures in risk evaluations. These actions were documented in CR-2011-7071.

The inspectors concluded that a performance deficiency existed in that Ginna did not adequately manage the increase in risk before performing maintenance activities to support RPS channel 2 calibrations as required by 10 CFR 50.65, "Maintenance Rule," paragraph (a)(4), which resulted in an underestimation of the risk and lack of risk management actions prior to continuing with testing. This finding was determined to be of very low safety significance and was entered into Ginna's CAP (CR-2011-7071). This

finding has a cross-cutting aspect in the area of human performance, work control, because Ginna did not plan and coordinate work activities consistent with nuclear safety.

Analysis. The performance deficiency associated with this finding is that Ginna did not adequately manage the increase in risk before performing maintenance activities to support RPS channel 2 calibrations. Using IMC 0612, "Power Reactor Inspection Reports," Appendix E, Example 7.e, this finding is more than minor because the overall elevated plant risk would put the plant into a higher licensee-established risk category and required additional risk management actions per plant procedures. This finding is associated with the human performance attribute of the Initiating Events cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined that this finding was of very low safety significance (Green) using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management SDP," Flow Chart 1, because the incremental core damage probability deficit was $6.5E-9$, which is less than $1.0E-6$.

This finding has a cross-cutting aspect in the area of human performance, work control, in that Ginna did not plan and coordinate work activities consistent with nuclear safety. Specifically, Ginna management was not fully apprised of plant conditions prior to making the actual risk change and before continuing with channel 2 calibration work. [H.3 (b)]

Enforcement. 10 CFR 50.65, paragraph (a)(4), "Maintenance Rule," states, in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on October 11, 2011, Ginna did not adequately manage an increase in risk prior to beginning the RPS channel 2 calibration procedure. Ginna developed several corrective actions including enhanced procedural guidance for operators. Because this violation was of very low safety significance and it was entered into Ginna's CAP (CR-2011-7071), this violation is being treated as an NCV, consistent with the Enforcement Policy. **(NCV 05000244/2011005-01, Failure to Manage Risk of Reactor Protection System Channel 2 Calibrations)**

1R15 Operability Determinations and Functionality Assessments (71111.15 – Six samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- SW pump 'B' strainer fouling on September 20, 2011
- Safety injection (SI) test line isolation valve 898F failure on October 4, 2011
- 'A' EDG fuel oil transfer pump 'A' motor high temperature on November 7, 2011
- Elevated temperature on the turbine-driven AFW (TDAFW) pump governor control valve on November 17, 2011
- High turbine bearing housing vibrations on the TDAFW pump on November 22, 2011
- TDAFW pump air-operated recirculation line valve failure on December 2, 2011

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to Ginna's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Ginna. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

Introduction. A Green self-revealing NCV of TS 5.4.1.a, "Procedures," was identified for Ginna's failure to properly tighten TDAFW system threaded connections. Specifically, the performance of procedure MMP-GM011-00012, "AFW Pump Turbine Major Mechanical Inspection and Mechanical Overspeed Trip Testing," Revision 00200, did not ensure that low pressure trip switch mount threaded connections remained tight. Consequently, high turbine outboard bearing vibrations were noted, and the TDAFW system was declared inoperable.

Description. On November 21, 2011, during the performance of the TDAFW system quarterly surveillance test, high vibrations were identified on the TDAFW steam turbine bearing housing. The vibration measured on the outboard bearing housing had increased significantly to 1.5 inches per second from 0.15 inches per second. The turbine inboard bearing overall vibration was slightly higher than normal levels, and pump bearing housing vibration remained within the acceptance criteria. On November 22, Ginna determined that the turbine vibrations were unacceptable, and the TDAFW pump was declared inoperable and unavailable.

Ginna formed an issue response team, developed a failure modes and effects analysis, conducted an apparent cause evaluation (ACE), and performed extensive troubleshooting. Ginna determined that several threaded connections associated with the low pressure trip switch were loose as mechanics were able to achieve between one and one and a half turns on the threaded connections associated with the mount. The cause of high turbine vibrations was resonance caused by looseness of the low pressure trip switch threaded connections. In May 2011, during the refueling outage (RFO), a major overhaul using procedure MMP-GM011-00012 was completed. Ginna determined that the low oil pressure switch threaded connections were not properly tightened during the overhaul which caused the threaded connections to be loose.

The inspectors noted that Ginna procedure ME-320, "Threaded Fastener and Torque Application Guidelines," Revision 001, provides guidance when existing documentation does not provide a specification or guidance; however, this guidance was not incorporated into the procedure or the work package for the TDAFW pump overhaul.

On November 23, during subsequent testing following immediate actions to tighten connections, vibrations were determined to be acceptable, and the TDAFW pump was declared operable. Additionally, Ginna performed a past operability assessment and

determined that the pump was capable of performing its design basis function for the prescribed mission time. On December 1, the outboard bearing was inspected to ensure that no damage occurred during previous operation with the high vibrations present. The internal inspection showed that no damage had occurred to the turbine.

Several corrective actions were developed including that the TDAFW appurtenance hardware was tightened to the proper torque specifications and applicable maintenance procedure steps were changed for the TDAFW turbine to include torque specifications for appropriate hardware. Additional actions included walkdowns of all safety related and critical rotating equipment to determine if improperly torqued ancillary equipment could cause vibration issues and updating the system engineering walkdown procedure to inspect threaded connections. Also, training will be developed to provide guidance for mechanical maintenance and planning personnel on torque requirements and risk insights.

The inspectors determined that a performance deficiency existed in that Ginna did not assure that the TDAFW system threaded connections were properly tightened. This finding was determined to be of very low safety significance and was entered into Ginna's CAP (CR-2011-8098). This finding has a cross-cutting aspect in the area of human performance because the work planning aspects, including the TDAFW maintenance procedure and work package, did not ensure that the threaded connections remained tight.

Analysis. The inspectors determined that the failure to properly tighten TDAFW system threaded connections was a performance deficiency that was within Ginna's ability to foresee and correct. This finding is more than minor because it is similar to IMC 0612, Appendix E, Example 3.j., in that, the high vibration resulted in a reasonable doubt on the operability of the system. The performance deficiency is associated with the Mitigating Systems cornerstone attribute of equipment performance (reliability, availability) and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors evaluated this finding using Phase 1, "Initial Screening and Characterization" worksheet of Attachment 4 to IMC 0609, "SDP." The inspectors determined this finding was not a design or qualification deficiency, did not involve an actual loss of safety function for greater than its TS allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Therefore, the inspectors determined this finding to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance, work control, in that Ginna failed to plan and coordinate work activities, consistent with nuclear safety. Specifically, the work planning aspects, including the TDAFW system maintenance procedure and work package, did not incorporate the risk insights associated with conducting maintenance activities on risk significant safety-related equipment [H.3 (a)].

Enforcement. TS 5.4.1.a, "Procedures," requires, in part, that the applicable procedures recommended in regulatory guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, Appendix A, February 1978, be established, implemented, and maintained. RG 1.33 requires, in part, that performing maintenance that can affect the performance of safety-related equipment should be properly performed in accordance with written procedures appropriate to the circumstances. Contrary to the above, on

November 22, 2011, it was determined that maintenance that can affect the performance of safety-related equipment was not adequately performed. Specifically, the procedure MMP-GM011-00012 was not adequately established nor implemented to ensure that the TDAFW system low pressure trip switch mount threaded connections remained tight.

Ginna's corrective actions included additional testing and inspection to ensure that no bearing damage had occurred, revising applicable portions of the TDAFW system maintenance procedures, walkdowns of all safety related and critical rotating equipment, and providing additional guidance for mechanical maintenance and planning personnel. Because this finding was determined to be of very low safety significance and was entered into Ginna's CAP (CR-2011-8098), this violation is being treated as an NCV, consistent with the Enforcement Policy. **(NCV 05000244/2011005-02, Inadequate Maintenance Resulted in the Failure to Properly Tighten Turbine-Driven Auxiliary Feedwater System Threaded Connections)**

1R19 Post-Maintenance Testing (71111.19 – Eight samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Replacement of 'A' control room emergency air treatment system normal return air isolation damper solenoid on October 17, 2011
- 'B' MDAFW system repairs on November 3, 2011
- Security diesel oil change on November 3, 2011
- Replacement of standby AFW three-way valve number 9728 on November 10, 2011
- Train 'A' SW pump time delay relay replacement on November 18, 2011
- 'A' EDG fuel oil transfer pump repair on November 22, 2011
- Troubleshoot high TDAFW pump vibrations on November 23, 2011
- TDAFW turbine bearing housing disassembly and operational deflection shape testing on December 1, 2011

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – One sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the forced outage which occurred from October 11 through 15, 2011. The inspectors reviewed Ginna's development and implementation of outage plans and schedules to verify that

risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown processes and monitored controls associated with the following outage activities:

- Personnel fatigue management
- Control of outage activities
- Foreign material exclusion control
- Decay heat removal, inventory control, and reactivity control
- Startup activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – Six samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and Ginna procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- CPI-AXIAL-N42, Calibration of Nuclear Instrumentation System Power Range N42 Axial Offset on October 11, 2011
- STP-O-12.1, 'A' EDG on November 18, 2011 (inservice test (IST))
- STP-O-16QT, AFW Turbine Pump – Quarterly on November 21, 2011 (IST)
- STP-O-16QT, AFW Turbine Pump – Quarterly on November 23, 2011 (IST)
- STP-O-2.7.1-COMP-B, Loop 'B' SW Comprehensive Pump Test on November 30, 2011
- STP-O-31A, Charging Pump 'A' IST on December 15, 2011

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – One sample)

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for Ginna licensed operators on November 1, 2011, which required emergency plan implementation by an operations crew. Ginna planned for this evolution to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Ginna evaluators noted the same issues and entered them into the CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Mitigating Systems Performance Index (Five samples)

a. Inspection Scope

The inspectors reviewed Ginna's submittal of the Mitigating Systems Performance Index (MSPI) for the following systems for the period of April 1, 2010, to September 30, 2011:

- Emergency Alternating Current (AC) Power System
- High Pressure Injection System
- Heat Removal System
- Residual Heat Removal (RHR) System
- Cooling Water Systems

To determine the accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment PI Guideline," Revision 6. The inspectors also reviewed Ginna's operator narrative logs, CRs, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – Five samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by inspection procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Ginna entered issues into the CAP at an appropriate

threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Ginna outside of the CAP, such as trend reports, PIs, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or CAP backlogs. The inspectors also reviewed Ginna's CAP database for the third and fourth quarters of 2011 to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 40A2.1). The inspectors reviewed Ginna's trend report for the period of May 1 through August 21, 2011, conducted under CNG-QL-1.01-1008, "Quarterly Report Process," Revision 00300, to verify that Ginna personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

Ginna has identified trends and has appropriately entered the trends into their CAP. A noteworthy trend was the increase in the number of human performance issues. The human performance issues were primarily related to fundamental operating practices such as procedure adherence and maintaining rigor when addressing problems. Ginna has developed corrective actions to improve human performance and reinforce behavior by increased focus on questioning attitude, improving rigor associated with task completion, and developing clear guidance on roles and responsibilities.

.3 Annual Sample: Review of the Operator Workaround Program

a. Inspection Scope

The inspectors reviewed the cumulative effects of the existing operator workarounds, operator burdens, existing operator aids and disabled alarms, and open main control room deficiencies to identify any effect on emergency operating procedure operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed operator workarounds as specified in Ginna procedure A-52.16, "Operator Workaround/Challenge Control," Revision 02300.

The inspectors reviewed Ginna's process to identify, prioritize, and resolve main control room distractions to minimize operator burdens. The inspectors reviewed the system used to track these operator workarounds and recent Ginna self assessments of the program. The inspectors also toured the control room and discussed the current operator workarounds with the operators to ensure the items were being addressed on a schedule consistent with their relative safety significance.

b. Findings and Observations

No findings were identified.

The inspectors determined that the issues reviewed did not adversely affect the capability of the operators to implement abnormal or emergency operating procedures. The inspectors also verified that Ginna entered operator workarounds and burdens into the CAP at an appropriate threshold and planned or implemented corrective actions commensurate with their safety significance.

4. Annual Sample: TDAFW Pump Reliability

a. Inspection Scope

On December 2, 2008, the TDAFW pump failed to develop acceptable discharge pressure during a quarterly surveillance test (see NRC Integrated Inspection Report 05000244/2009002). On May 26 and July 2, 2009, the TDAFW pump tripped on overspeed during surveillance testing (see NRC Special Inspection Team Report 05000244/2009008). In July 2010, the NRC staff performed a supplemental inspection in accordance with inspection procedure 95002, "Inspection for One Degraded Cornerstone or Any Three White Inputs in a Strategic Performance Area," to assess Ginna's evaluation associated with the three TDAFW pump failures which resulted in two White inspection findings and a related White PI (see NRC Supplemental Inspection Report 05000244/2010007). During the period October 31 to November 3, 2011, the inspectors performed a follow-up review of Ginna's TDAFW-related actions and monitoring since July 2010 to ensure that Ginna implemented timely corrective actions, effectively addressed the underlying causal factors, and appropriately monitored system performance. The inspectors compared the actions taken to the requirements of Ginna's CAP and 10 CFR Part 50, Appendix B, Criterion XVI.

The inspectors reviewed Ginna's associated root cause analyses, operability determinations, technical evaluations, and short- and long-term corrective actions. The inspectors also reviewed a sample of completed surveillance tests, system health and walkdown reports, vendor manuals, WOs, and maintenance procedures to assess the adequacy of Ginna's corrective actions and to ensure alignment with vendor recommendations. In particular, the inspectors reviewed TDAFW pump performance in response to an actual system demand following the reactor trip on October 11, 2011. The inspectors performed several walkdowns of the TDAFW pump and turbine, steam admission valves, and steam bypass valves to independently assess the material condition, operating environment, and configuration control. The inspectors also discussed TDAFW system performance with the system engineer to review the design and system functional requirements as well as obtain historical performance and trend data.

The inspectors reviewed a sample of TDAFW-related issues that Ginna entered into the CAP since July 2010. The inspectors reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions. In addition, the inspectors reviewed corrective action CRs written on issues identified during the inspection to verify adequate problem identification and incorporation of the problem into the CAP.

b. Findings and Observations

No findings were identified.

Ginna's long-term corrective actions included control valve stem replacement with improved materials in November 2010, and replacement of the steam admission valves, steam admission bypass valves, and steam admission check valves during the 2011 RFO.

The inspectors concluded that Ginna had taken timely and appropriate action in accordance with vendor recommendations, surveillance and maintenance procedures, and Ginna's CAP. The inspectors determined that Ginna's associated technical evaluations were sufficiently thorough based on focused plant walkdowns, vendor guidance, sound engineering judgment, testing, and relevant operating experience. Ginna's assigned corrective actions were aligned with the identified causal factors, adequately tracked, appropriately documented, and completed as scheduled. Based on the documents reviewed, plant walkdowns, and engineer and operator interviews, the inspectors noted that Ginna personnel identified problems and entered them into the CAP at a low threshold.

.5 Annual Sample: Adverse Trend In Relief Valve Performance

a. Inspection Scope

The inspectors performed an in-depth review of Ginna's evaluations and effectiveness of corrective actions associated with several CRs regarding system relief valve (RV) failures at Ginna. Specifically, Ginna had identified a number of instances where RVs failed to lift as required during testing or were observed to be leaking based on system response or visible leakage. These instances resulted in 18 CRs over a 9½-month period. The subject RVs included those used for system or component overpressure relief as well as those providing thermal overpressure protections such as on the shell side of the RHR system HXs.

The inspectors assessed Ginna's problem identification threshold, associated analyses and evaluations, extent-of-condition reviews, and prioritization and timeliness of corrective actions. The inspectors performed this review to determine whether Ginna was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors verified Ginna had appropriately grouped the valves for root cause evaluation based on application, failure mode, and inservice testing requirements and that operating experience reviews were included in the CRs and ACEs.

The inspectors reviewed Ginna's tracking system for planned work and maintenance and conducted interviews with the inservice testing program owner and additional

engineering personnel to assess the effectiveness of the implemented corrective actions. Additionally, the inspectors performed a field walkdown of selected RVs and systems to assess the material condition.

b. Findings and Observations

No findings were identified.

Ginna personnel identified the adverse trend with RV performance and appropriately evaluated the matter in accordance with Ginna procedures. The inspectors reviewed several of the subject CRs, a number of the corresponding corrective actions, two ACEs, and additional documentation developed by Ginna and concluded Ginna had appropriately evaluated the problems and identified the necessary corrective actions. The inspectors found Ginna's conclusion reasonable that there did not appear to be any prominent single common cause to the failures. The inspectors found that the issues had been accurately documented within the CAP and appropriate extent-of-condition reviews had been performed to assess the potential impact on other system RVs.

Ginna appropriately evaluated the cause of the RV failures for the different groups of the valves. Ginna identified distinct failure mechanisms such as system dynamics, higher pressures during testing, and suspected incompatible material coming into direct contact with brackish/raw water. Ginna implemented suitable procedural changes and hardware modifications to address the identified causes.

The inspectors reviewed selected maintenance records and did not identify any additional issues. The inspectors determined Ginna's overall response to the issue was commensurate with the safety significance, was timely, and included appropriate corrective actions. Additionally, the inspectors determined that the actions taken were reasonable to resolve the issues and that Ginna had conducted a thorough technical review of the RV failures and included effectiveness reviews to substantiate the corrective actions taken to resolve the issues.

.6 Annual Sample: 'B' Component Cooling Water Pump Motor Failure

a. Inspection Scope

This inspection was conducted to assess Ginna's corrective actions associated with CR-2011-4311. Specifically, the inspectors reviewed actions taken to address the June 4, 2011, insulation failure internal to the 'B' component cooling water (CCW) pump motor which resulted in the failure of the 'B' CCW pump during quarterly pump testing. The concern was the adequacy of Ginna's small and intermediate horsepower motor predictive and preventive maintenance strategies, and their ability to predict and prevent safety system inoperability, unavailability, and to ensure safety systems perform their safety functions when required.

In particular, the inspectors reviewed the corrective actions Ginna implemented regarding the 'B' CCW pump motor failure. The inspectors reviewed procedures, CRs, the small and intermediate horsepower motor preventive maintenance template, and industry operating experience to assess the effectiveness of Ginna's corrective actions. The inspectors also discussed the corrective actions with station personnel and conducted walkdowns of safety-related small and intermediate horsepower motors

b. Findings and Observations

No findings were identified.

Ginna's long-term corrective actions included making arrangements to purchase, swap out, and/or replace two CCW motors, the RHR motors, and the TDAFW pump AC lube oil pump. Ginna's corrective actions also included reviewing and revising maintenance strategies for other critical small and intermediate horsepower motors to identify if any motor preventive maintenance template should include a rebuild/replace task.

The inspectors determined Ginna's overall response to the issue was commensurate with the safety significance, was timely, and included appropriate corrective actions. The inspectors determined that Ginna's technical evaluation was sufficiently thorough and based on sound engineering judgment, testing, and relevant operating experience. The inspectors concluded Ginna had appropriately evaluated the problems and identified the necessary corrective actions. Ginna's assigned corrective actions were aligned with the identified causal factors, adequately tracked, appropriately documented, and completed as scheduled. The inspectors found that appropriate extent-of-condition reviews had been performed to assess the potential impact on other small and intermediate horsepower motors. Based on the documents reviewed, plant walkdowns, and engineer interviews, the inspectors noted that Ginna personnel identified problems and entered them into the CAP at a low threshold.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – Four samples)

.1 Plant Events

a. Inspection Scope

For the plant event listed below, the inspectors reviewed and observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to the appropriate regional personnel and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Ginna made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR 50.72 and 10 CFR 50.73. The inspectors reviewed Ginna's follow-up actions related to the event to assure that Ginna implemented appropriate corrective actions commensurate with their safety significance.

- Automatic reactor trip on October 11, 2011, due to a full circumferential break on a high pressure TLO pipe weld.

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 050002442011-001-00: Unanalyzed Condition due to Postulated Fire Causing a Station Blackout

a. Inspection Scope

This LER documented a potential fire scenario that could result in the loss of power to the safeguards busses. The inspectors reviewed the LER for accuracy, appropriateness of corrective actions, violations of requirements, and generic issues.

b. Findings

Introduction. The licensee identified a finding of low to moderate safety significance involving a violation of a Ginna fire protection license condition, in that Ginna failed to accurately analyze interlock effects for a safe shutdown system resulting in a failure to protect the system from potential fire-induced spurious operations. Specifically, Ginna identified that a fire in the turbine building could lead to the failure to restore all AC power to safeguards busses 14 and 16. The fire could cause the loss of both trains of 480V safeguards busses and result in the inability to achieve and maintain hot shutdown conditions. The finding has been screened by the NRC and determined to warrant enforcement discretion per Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)."

Description. As a result of developing NFPA 805 probabilistic risk assessment models, Ginna identified that a fire in the turbine building could lead to the failure to restore all AC power to safeguards busses 14 and 16. The fire could cause a loss of 4160V power to the 480V safeguards busses while shorting control cables for the 480V bus normal supply breakers. Ginna determined that if the control cables short before the normal supply is lost to the busses, the normal supply breakers would lose control power and fail as-is in the closed position. As a result, when the emergency diesel generators (EDGs) start on bus undervoltage signals, the EDG output breakers would not automatically close due to an interlock that requires the normal supply breakers to be open.

Ginna identified that this unanalyzed condition could cause the loss of both trains of 480 V safeguards busses and result in the inability to achieve and maintain hot shutdown conditions. Ginna initiated condition report CR-2011-5716 for long-term resolution and promptly established a standing order directing Ginna operators to locally trip the normal supply breakers to the 480V safeguards busses and close the EDG output breakers should this event occur. The NRC concluded that Ginna's interim compensatory measures were commensurate with the risk significance.

Analysis. Ginna failed to accurately analyze interlock effects for a safe shutdown system resulting in a failure to protect the system from potential fire-induced spurious operations. Ginna completed a risk characterization that concluded the risk associated with this issue is 5.89E-6/year. An NRC Senior Reactor Analyst reviewed Ginna's evaluation and concluded that the assessment assumptions and risk quantification methodologies were appropriately conservative. Accordingly, the NRC agrees with Ginna's risk estimate for this condition and concludes that this issue would be of low to moderate safety significance.

NRC Enforcement Policy Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)," provides, in part, for the exercise of enforcement discretion for certain noncompliances with fire protection license conditions that are identified as a result of a licensee's transition to NFPA 805. Ginna identified this issue in August 2011, during NFPA 805 PRA model development. Specifically, this issue qualifies for discretion since: 1) Ginna identified the violation as a result of the voluntary initiative to adopt NFPA 805; 2) Ginna took immediate compensatory measures and actions to correct the violation as described below; 3) the issue was not likely to have been previously identified by routine licensee activities; 4) the violation was not willful; and, 5) the violation is not associated with a finding of high safety significance.

Cross-cutting aspects are not applicable to findings involving enforcement discretion.

Enforcement. Ginna license condition 2.C.3 requires, in part, that Ginna implement all fire protection features described in the licensee's submittals referenced in and as approved or modified by the NRC's Fire Protection Safety Evaluation (SE) dated February 14, 1979, and SE supplements, including one dated February 27, 1985. The NRC February 27, 1985 SE supplement states, in part, that Ginna identified associated circuits that could prevent operation or cause maloperation of shutdown systems and that Ginna provided protection for the affected safe shutdown systems.

Contrary to the above, in August 2011, while developing NFPA 805 probabilistic risk assessment models, Ginna identified that it had previously failed to accurately analyze interlock effects for a safe shutdown system resulting in a failure to protect the system from potential fire-induced spurious operations. Specifically, Ginna identified that a fire in the turbine building could lead to the failure to restore all AC power to safeguards busses 14 and 16. The fire could cause the loss of both trains of 480V safeguards busses and result in the inability to achieve and maintain hot shutdown conditions. Ginna entered the issue into the CAP (CR-2011-5716), and implemented the immediate corrective action of establishing a standing order directing Ginna operators to locally trip the normal supply breakers to the 480V safeguards busses and close the EDG output breakers should this event occur.

Ginna is in transition to NFPA 805 and, therefore, the licensee-identified violation was evaluated in accordance with the criteria established by Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)." Because all the criteria were met, the NRC is exercising enforcement discretion for this issue. This LER was reviewed by the inspectors and no additional findings were identified.

.3 (Closed) LER 05000244/2011-002-00: Train 'B' Actuation Logic Circuit to Operate the 'B' Main Steam Isolation Valve was not Operable

On August 23, 2011, one channel of the 'B' main steam isolation valve (MSIV) logic circuitry was declared inoperable when the channel was found deenergized due to a loose fuse clip connection. Each MSIV has two channels in the logic circuitry, either of which will close the MSIV when an isolation signal is generated. With the one channel deenergized, the other channel was still available to close the MSIV. Ginna management concluded that the loose fuse clip caused the loss of direct current control power to the channel and that the fuse clip was loose due to the insertion of a plastic fuse blank when safety tagging the fuse and clip. This tagging device has been in use at

Ginna since April 2011. Corrective actions included repairing the fuse clip, restoring the logic circuit to service, and inspecting similar fuse clips for damage and repairing them as necessary. Additionally, training is being developed regarding installing fuse blanks. The failure to identify and correct a condition adverse to quality in that one channel of the 'B' MSIV control power was deenergized was dispositioned as an NCV in NRC Integrated Inspection Report 05000244/2011004. This LER was reviewed by the inspectors, and no additional findings were identified.

.4 (Closed) LER 05000244/2011-003-00: Reactor Trip Due to Failure of Turbine Lube Oil Piping

On October 11, 2011, Ginna experienced an automatic turbine and reactor trip from 100 percent power. The trip was caused by a failure of the TLO piping internal to the TLO reservoir which resulted in main turbine auto stop trip oil pressure switches activating on low oil pressure. The pipe failure is attributed to high piping stresses from original construction in combination with substandard welding, routine maintenance, and cyclical fatigue. All systems operated as expected. Corrective actions included repairs to the piping and system, redesign of the piping to facilitate maintenance and to eliminate stress risers inherent to the original weld configuration, and revision of preventive maintenance activities for similar piping configurations. The inspectors reviewed Ginna's post-trip review, logs, CRs, corrective actions, and the LER associated with the trip. No findings or violations were identified. This LER is closed.

4OA6 Meetings, Including Exit

Exit Meeting

On January 12, 2012, the inspectors presented the inspection results to Mr. Edwin D. Dean, III and other members of the Ginna staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION**KEY POINTS OF CONTACT**Licensee Personnel

J. Pacher	Vice President, Ginna
D. Bierbrauer	Manager, Nuclear Safety and Security
J. Bowers	General Supervisor, Radiation Protection
E. Dean	Plant General Manager
K. McLaughlin	General Supervisor, Shift Operations
T. Mogren	Manager, Engineering Services
T. Paglia	Manager, Operations
J. Scalzo	Director, Emergency Preparedness
S. Snowden	General Supervisor, Chemistry
S. Wihlen	Manager, Integrated Work Management

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000244/2011005-01	NCV	Failure to Manage Risk of Reactor Protection System Channel 2 Calibrations (Section 1R13)
05000244/2011005-02	NCV	Inadequate Maintenance Resulted in the Failure to Properly Tighten Turbine-Driven Auxiliary Feedwater System Threaded Connections (Section 1R15)

Closed

05000244/2011-001-00	LER	Unanalyzed Condition due to Postulated Fire Causing a Station Blackout (Section 4OA3)
05000244/2011-002-00	LER	Train 'B' Actuation Logic Circuit to Operate the 'B' Main Steam Isolation Valve was not Operable (Section 4OA3)
05000244/2011-003-00	LER	Reactor Trip Due to Failure of Turbine Lube Oil Piping (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

O-22, Cold Weather Walkdown Procedure, Revision 00801
IP-REL-7, Seasonal Readiness Program, Revision 00200

Condition Reports

CR-2011-6967
CR-2011-7724
CR-2011-7726

Work Order

WO C91199352

Section 1R04: Equipment Alignment

Document

UFSAR

Procedures

STP-O-16-COMP-B, AFW Pump 'B' Comprehensive Test, Revision 00601
T-41A, Alignment of AFW System Prior to Power Operations, Revision 07800

Drawing

33013-1237, AFW Piping and Instrument Drawing (P&ID), Revision 058

Condition Reports

CR-2011-7591
CR-2011-7229

Work Order

WO C91668976

Section 1R05: Fire Protection

Document

Ginna Fire Protection Plan, Revision 5

Procedures

FRP-19.0, Relay Room/Multiplexer Room/Annex Room, Revision 00902
FRP-20.0, Control Room, Revision 00701
FRP-29.0, TSC, Revision 01201
SC-3.1.1, Fire Alarm Response (Fire Brigade Activation), Revision 017
SC-3.4.1, Fire Brigade Captain and Control Room Personnel Responsibilities, Revision 03902
SC-3.15.17, Technical Requirements Manual Fire Watch Posting, Revision 02602

Drawing

33013-2555, Fire Response Plan TSC, Revision 6

Work Order

WO C91212495

Section 1R06: Flood Protection Measures

Document

MPR-3084, Evaluation of Internal and External Flooding at Ginna, Revision 0

Condition Report

CR-2011-7790

Section 1R11: Licensed Operator Requalification Program

Procedures

CNG-TR-1.01-1013, Licensed Operator Requalification Program, Revision 00200

OTG-2.2, Simulator Examination Instructions, Revision 43

Section 1R12: Maintenance Effectiveness

Documents

Acceptance Criteria Basis (ACB) 2009-0005

ACB-2010-0163

ACE CR-2009-3865

ACE CR-2009-5291

ACE CR-2010-3744

ACE CR-2011-4599

ACE CR-2011-6718

Design Analysis NS-2005-011

Maintenance Rule Change Control No: MR1-2010-0012

ML11343A679, Report of Facility Changes, Tests, and Experiments Conducted Without Prior NRC Approval for January 2010 through June 2011 under the Provision of 10 CFR 50.59

ODMI CR-2011-8146

SFP Cooling System Health Report (October 1 through December 31, 2011)

SW System Health Report (October 1 through December 31, 2011)

System Report for CVCS

Train Performance Criteria Events for Charging Pumps

Troubleshooting Control Form CR-2011-8146

Maintenance Rule Evaluations and Scoping Documentation

Procedure

CNG-AM-1.01-1023, Maintenance Rule Program, Revision 00100

Drawings

33013-1265, CVCS P&ID, Revision 012, Sheet 1 of 2

33013-1265, CVCS P&ID, Revision 023, Sheet 2 of 2

Condition Reports

CR-2003-0705	CR-2009-5291	CR-2011-4599	CR-2011-7927
CR-2008-10194	CR-2010-2200	CR-2011-6139	CR-2011-7993
CR-2008-10272	CR-2010-2598	CR-2011-6718	CR-2011-8146
CR-2009-3865	CR-2010-3744	CR-2011-7749	CR-2011-8423

Work Orders

WO C90212499
 WO C90774202
 WO C91675124

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Document

Engineering Change Proposal (ECP) CN-10-00522,

Procedures

A-52.4, Control of Limiting Conditions for Operating Equipment, Revision 14001
 CNG-OP-1.01-2000, Operations Log Keeping and Station Rounds, Revision 00200
 CNG-CM-1.01-3003, Probabilistic Risk Assessment Configuration Control, Revision 00300
 CNG-OP-4.01-1000, Integrated Risk Management, Revision 00900
 CPI-TRIP-TEST-5.20, RPS Trip Test/Calibration for Channel 2 (White)
 Bistable Alarms, Revision 03502
 ER-AFW.1, Alternate Water Supply to the AFW Pumps, Revision 03201
 OPG-OPERATIONS-SOFTWARE, Control Room Software Operation, Revision 01003
 OPG-OPERATIONS-SOFTWARE, Control Room Software Operation, Revision 01004
 OPG-OPERATIONS-EXPECTATIONS, Operations Department Expectations, Revision 01203
 OPG-PROTECTED EQUIPMENT, Operations Protected Equipment Program, Revision 00101
 STP-O-16-COMP-B, AFW Pump 'B' Comprehensive Test, Revision 00601
 STP-O-12.6, Diesel Generator Fuel Oil Transfer Pump 'A' Test, Revision 00400
 TRIP-TEST-5.20, RPS Trip Test/Calibration for Channel 2 (White) Bistable
 Alarms, Revision 03502

Drawings

33013-1237, AFW P&ID, Revision 058
 33013-1238, Standby AFW P&ID, Revision 026

Condition Reports

CR-2011-7071	CR-2011-7516
CR-2011-7290	CR-2011-7591
CR-2011-7314	CR-2011-7623
CR-2011-7384	

Work Order

WO C9166876

Section 1R15: Operability Determinations and Functionality AssessmentsDocuments

07-060, CCW and Emergency Core Cooling System Model Conversion from KY Pipe to Protoflo and System Analysis, Revision B
 Job Number 112601, Dresser-Rand Field Service Report for TDAFW Drive
 IST Program Memorandum-179, Quarterly Testing for SI Pumps and Required IST Program Changes, October 13, 2011
 Operational Decision Making CR-2011-6907
 Operability Determination CR-2011-5953

Procedures

CNG-MN-1.01-1002, Trouble Shooting, Revision 00100
 CNG-OP-1.01-1001, Operational Decision Making, Revision 00300
 ME-320, Threaded Fastener and Torque Application Guidelines, Revision 1
 MMP-GM011-00012, AFW Pump Turbine Major Mechanical Inspection and Mechanical Overspeed Trip Testing, Revision 00200
 STP-O-2.7.2-COMP-A, Loop 'A' SW Comprehensive Pump Test, Revision 00300
 STP-O-16QT, AFW Turbine Pump – Quarterly, Revision 00600

Condition Reports

CR-2008-7373	CR-2011-6970	CR-2011-7623
CR-2011-5953	CR-2011-7263	CR-2011-8098
CR-2011-6610	CR-2011-7577	CR-2011-8266
CR-2011-6907	CR-2011-7485	

Work Order

WO C90815276

Section 1R19: Post-Maintenance TestingDocument

TDAFW Field Service Report Completed May 19, 2011

Procedures

CNG-CM-1.01-3003, Probabilistic Risk Assessment Configuration Control, Revision 00300
 CNG-OP-4.01-1000, Integrated Risk Management, Revision 00900
 EWR-4960-2, Time Delay Relay Setpoints SW Pumps Auto Start on Loss of Off-Site Power, Revision 3
 ME-320, Threaded Fastener and Torque Application Guidelines, Revision 1
 Operational Decision Making CR-2011-8266
 OPG, Operations Department Expectations, Revision 01203
 PRI-02-02-EGA1A, Protective Relay Calibration Diesel Generator 'A', Revision 00700
 PRI-22-02-EG1A, Protective Relay Trip Test Diesel Generator 'A', Revision 00901
 STP-E-12.3, Security Emergency Diesel Test, Revision 00500
 STP-O-16-COMP-B, AFW Pump 'B' Comprehensive Test, Revision 00601
 STP-O-36R, Valve 9728 Operability Verification, Revision 00200
 STP-O-16QT, AFW Turbine Pump – Quarterly, Revision 00600

Drawing

33013-1237, AFW P&ID, Revision 58

Condition Reports

CR-2011-7591
CR-2011-7935
CR-2011-8266

Work Orders

WO C90213270	WO C91337660	WO C91244628
WO C91236855	WO C91668976	WO C91199352
WO C91244799	WO C90928705	WO C91720827

Section 1R20: Refueling and Other Outage Activities

Document

Turbine Trip Cause Evaluation

Procedures

CNG-OP-1.01-1006, Post Trip Reviews, Revision 00100
ES-0.1, Reactor Trip Response, Revision 02900

Condition Reports

CR-2011-7076
CR-2011-7078
CR-2011-7082

Section 1R22: Surveillance Testing

Procedures

CPI-AXIAL-N42, Calibration of Nuclear Instrumentation System Power Range N42 Axial Offset, Revision 03500
CPI-DELTA-FLUX-20, Calibration of Delta Flux Loop Channel 2, Revision 01700
CPI-TRIP-TEST-5.20, RPS Trip Test/Calibration for Channel 2 (White) Bistable Alarms, Revision 03502
STP-O-16QT, AFW Turbine Pump – Quarterly, Revision 00600
STP-O-2.7.1-COMP-B, Loop 'B' SW Comprehensive Test, Revision 00200
STP-O-31A, Charging Pump 'A' IST, Revision 00500

Drawings

33013-1237, AFW P&ID, Revision 58
33013-1265, CVCS P&ID, Revision 012, Sheet 1 of 2
33013-1265, CVCS P&ID, Revision 023, Sheet 2 of 2

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CR-2011-7057	CR-2011-8539
CR-2011-8078	CR-2011-8081
CR-2011-8079	CR-2011-8084
CR-2011-8538	CR-2011-8098

Work Order
WO C91236694

Section 1EP6: Drill Evaluation

Procedure
CNG-TR-1.01-1013, Licensed Operator Requalification Program, Revision 00200

Section 4OA1: Performance Indicator Verification

Documents
MSPI Derivation Report for MSPI System MSPI Emergency AC Power System
MSPI Element Performance Limit Exceeded
MSPI Element Unreliability Index
MSPI Element Unavailability Index
NEI 99-02, Regulatory Assessment PI Guideline, Revision 6

Section 4OA2: Problem Identification and Resolution

Documents
Operations Self Assessment of Aggregate Impact, 4th Quarter 2010
Operations Self Assessment of Aggregate Impact, 1st, 2nd, and 3rd Quarters 2011
Preventative Maintenance Template, Small and Intermediate HP Motors, Revision 3

Procedures
A-52.16, Operator Workaround/Challenge Control, Revision 02300
CMM-37-19-9519E, Worthington TDAFW Pump Hydraulic Governor Control Valve Maintenance
for 9519E, Revisions 00300, 00400, and 00500
CNG-CA-1.01-1000, CAP, Revision 00500
IP-IIT-2, IST Program for Pumps and Valves, Revision 01100
OPG-SELF-ASSESSMENT, Operations Self-Assessment Program, Revision 8
P-15.6, Operation of the TDAFW Pump Trip Throttle, Revision 00200
STP-O-2.2Q-B, RHR Pump 'B' IST, Revision 00800
STP-O-2.2-COMP-A, RHR Pump 'A' – Comprehensive Test, Revision 00201
STP-O-2.2-COMP-B, RHR Pump 'B' – Comprehensive Test, Revision 00200
STP-O-16-COMP-A, AFW Pump 'A' – Comprehensive Test, Revision 00600
STP-O-16-Q-A, AFW Pump 'A' – Quarterly, Revision 00501

Condition Reports

CR-2008-7063	CR-2011-4311	CR-2011-7655	CR-2010-6254
CR-2009-3680	CR-2011-4464	CR-2011-7656	CR-2011-3373
CR-2009-4577	CR-2011-5025	CR-2010-2811	CR-2011-3377
CR-2009-6765	CR-2011-6183	CR-2010-4913	CR-2011-3378
CR-2009-9310	CR-2011-6764	CR-2010-5530	CR-2011-3379
CR-2010-2498	CR-2011-7485	CR-2010-5728	
CR-2011-4035	CR-2011-7635	CR-2010-6070	

Drawings

33013-1245, Auxiliary Coolant CCW P&ID, Revision 032
33013-1246, Auxiliary Coolant CCW P&ID, Revision 012, Sheet 2

Work Orders

WO C20805234
WO C90691808

Corrective Actions

CA-2010-2810	CA-2010-3473	CA-2011-2301
CA-2010-2811	CA-2011-2309	CA-2011-2302
CA-2010-3421	CA-2011-2297	CA-2011-2303
CA-2010-3467	CA-2011-2310	
CA-2010-3472	CA-2011-2308	

Completed Surveillances

STP-O-16-COMP-TLU, AFW Turbine Pump - Comprehensive Test Limited Use, dated June 8 and 9, 2011
STP-O-16QT, AFW Turbine Pump - Quarterly, dated August 22, 2011
STP-O-16QT Attachment 8, Governor Valve (V-9519E) Manual Stroking, dated September 6 and 26, 2011

Evaluations

CNG-1.01-1006, 10/11/11 Reactor Trip Technical Evaluation, dated October 13, 2011
CNG-CA-1.01-1005, ACE, Revision 00400 (ACE CR-2010-5530)
CNG-CA-1.01-1005, ACE Tier 1, Revision 00500 (ACE CR-2011-4311)
CNG-CA-1.01-1005, ACE Tier 2, Revision 00400 (ACE CR-2010-6070)
CR-2009-3680 and CR-2009-4577, May and July 2009 TDAFW Pump Failures; Overspeed Trip during Testing Root Cause Analysis Report, dated June 24, 2010
CR-2009-9310, Steam Admission Valves 3504A & 3505A Operability Determination, Revision 2
ECP-10-000900, TDAFW Performance Monitoring Parameters Basis, Revision 0
ESR-2009-0121, Install New Enertech Nozzle Check Valves (3504B and 3505B), dated April 30, 2010
ESR-2010-0022, Replace TDAFW Steam Admission Valves 3504A & 3505A, dated May 14, 2010

Operating Experience

NRC Information Notice 94-66, Overspeed of Turbine-Driven Pumps Caused by Governor Valve Stem Binding, dated September 19, 1994
NRC Information Notice 2008-09, TDAFW Pump Bearing Issues, dated May 22, 2008
NRC Information Notice 2010-20, TDAFW Pump Repetitive Failures, dated September 24, 2010
OE-2010-002743, NRC IN 2010-20 Barrier Analysis, dated December 10, 2010

Preventive and Corrective Maintenance

C91344635, License Renewal Aging Management Inspection (3504C), dated May 25, 2011
C91344647, License Renewal Aging Management Inspection (3505C), dated May 25, 2011
Critical Small and Intermediate Horsepower Motor Tracking Database
M-37.173, Velan Bolted Bonnet Gate Valve Maintenance Procedure, dated May 31, 2011
TDAFW Preventive Maintenance Tracking Database, dated October 31, 2011

System Health, System Walkdowns, and Trending

AFW Maintenance Rule Status/Goal Record, dated October 25, 2011
AFW Quarterly System Walkdown Report, dated October 27, 2011
AFW Quarterly System Health Report, dated July 1 to September 20, 2011
EP-2-P-0168 Attachment A, AFW System MR Goal Determination, dated April 12, 2011
Governor Valve 9519E Stroke Trending dated May 2 to September 14, 2011
Monitoring of Goals for Maintenance Rule Train AFS03 dated November 16, 2009, to March 28, 2011

Miscellaneous

American Society of Mechanical Engineers Operation and Maintenance Code 2004, I-1350 Test Frequency, Classes 2 and 3 Pressure RVs
Attachment A: Sump Tank In-Leakage Monitoring for ACE CR-2010-5530
Attachment M: Summary of Testing Performed for ACE CR-2010-5530, Associated with CRs 2010-5530, 2010-5548, 2010-5517, and 2010-6033
Engineering Programs Group Materials Lab Report, AFW RV 4021 Leakage, dated September 24,

2010

GINNA Nuclear Power Plant Sequence of Events Log dated October 11, 2011
ISTM-154, 4th 10-Year Interval IST Program Pressure Relief Device (Groups 8B and 3G)
Function Reclassification, dated February 27, 2009
NRC Special Inspection Team Report 05000244/2009008 dated November 12, 2009
NRC Supplemental Inspection Report 05000244/2010007 dated August 31, 2010
SYS42, AFW System Training System Description, Revision 19

Vendor Documents

VTD-D0245-4001, Worthington WT Multistage Centrifugal Pump Instruction Manual and Parts List, Revision 4
VTD-E9016-4001, Terry Turbine Maintenance Guide, AFW Application, Revision 0
VTD-W0315-4001, Instructions for 465 Horsepower Non-Condensing Steam Turbine, Revision 2

Section 40A3: Follow-Up of Events and Notices of Enforcement Discretion

Documents

Failure Mode and Effects Analysis CR-2011-7076
Root Cause Analysis CR-2011-7076

Procedures

CNG-OP-1.01-1006, Post Trip Reviews, Revision 00100
ES-0.1, Reactor Trip Response, Revision 02900

Drawing

33013-2283, Turbine Oil Reservoir Skid P&ID, Revision 010

Condition Reports

CR-2011-7076
CR-2011-7103
CR-2011-7180

LIST OF ACRONYMS

AC	alternating current
ACB	acceptance criteria basis
ACE	apparent cause evaluation
ADAMS	Agencywide Documents Access and Management System
AFW	auxiliary feedwater
ATWS	anticipated transient without a scram
CAP	corrective action program
CCW	component cooling water
CDF	core damage frequency
CFR	Code of Federal Regulations
CR	condition report
CVCS	chemical and volume control system
ECP	engineering change proposal
EDG	emergency diesel generator
HX	heat exchanger
IMC	Inspection Manual Chapter
IST	inservice test
LER	licensee event report
MDAFW	motor-driven auxiliary feedwater
MSIV	main steam isolation valve
MSPI	Mitigating Systems Performance Index
NEI	Nuclear Energy Institute
NCV	non-cited violation
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
OOS	out of service
P&ID	pipng and instrument drawing
PARS	Publicly Available Records
PI	performance indicator
PRA	probabilistic risk assessment
RFO	refueling outage
RG	regulatory guide
RHR	residual heat removal
RPS	reactor protection system
RV	relief valve
SDP	significance determination process
SE	safety evaluation
SFP	spent fuel pool
SI	safety injection
SSC	structure, system, and component
SW	service water
TDAFW	turbine-driven auxiliary feedwater
TLO	turbine lube oil
TS	technical specification
TSC	technical support center
UFSAR	updated final safety analysis report
WO	work order