

GINNA

3Q/2009 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: FIN Finding

Did Not Provide Adequate Compensatory Guidance to Verify Condensate Storage Tank Operability

The inspectors identified a self-revealing NCV of Technical Specification (TS) 5.4.1.a, "Procedures," when an auxiliary operator did not correctly implement procedure S-7M, "Transferring Refueling Water Storage Tank to Any Chemical and Volume Control System Holdup Tank (HUT)," Revision 000, and close valve V-8661, "Spent Fuel Pool (SFP) Recirculation Pump 'B' Discharge Isolation Valve," as specified by step 5.1.21. As a result, an estimated 3,000 gallons of water was inadvertently transferred from the SFP to the 'B' and 'C' HUTs which caused the 'B' SFP pump to automatically trip, and the SFP level to decrease an estimated 5 inches. Ginna implemented several corrective actions including a requirement for operators to conduct a pre-job brief before transferring water with marked-up system prints showing the intended flow path and water transfers are to be observed by a senior reactor operator or a shift technical advisor. Ginna entered this issue into their corrective action program for resolution.

This finding is more than minor because it is associated with the Initiating Events Cornerstone and affected the cornerstone objective of limiting 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 the finding was of very low safety significance (Green), because the finding did not increase the likelihood of a loss of reactor coolant system (RCS) inventory, degrade the ability of Ginna to terminate a leak path or add RCS inventory when needed, nor degrade the ability to recover residual heat removal. This finding has a cross-cutting aspect in the area of human performance because operators did not adhere to the procedural requirements outlined in S-7M and close valve V-8661 prior to initiating the water transfer (H.4.b per IMC 0305).

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

Mitigating Systems

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correctly Implement Chemical and Volume Control System Water Transfer Procedure

The inspectors identified a Green finding of very low safety significance when Ginna failed to ensure adequate procedures were developed to support implementation of compensatory measures for a degraded condition associated with the condensate storage tanks (CSTs). The CSTs at Ginna have flexible bladders installed on top of each tank to minimize air infiltration. On March 7, 2007, Ginna discovered that the bladders had degraded which allowed water to accumulate on top of the bladder surface. Ginna performed an operability determination (OD) that limited the amount of water that was allowed to accumulate on the bladder surface because it could bias the CST level indication system. The inspectors determined that Ginna did not provide operators with adequate procedures, equipment, and training to verify the OD leakage limits were met as specified by CNG-OP-1.01-1002, "Conduct of Operability Determination/Functionality Assessments," Revision 0000. Ginna's corrective actions included increasing the pump down frequency on the CST and verifying the leakage was within the limits specified in the OD. Ginna entered this issue into their corrective action program for resolution.

This finding is more than minor because it affected the equipment performance attribute of the Mitigating Systems

Cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent core damage. The inspectors determined that the finding was of very low safety significance (Green) because it did not result in a loss of safety function and did not screen as potentially risk significant due to a seismic, flooding, or a severe weather-initiating event. This finding has a cross-cutting aspect in the area of human performance because Ginna did not ensure that complete, accurate, and up-to-date design documentation and procedures were available (H.2.c per IMC 0305).

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

Significance: **G** Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Meet Technical Specifications for Inservice Testing Requirements

An NRC-identified NCV of TS 5.5.7, "Inservice Testing (IST) Program," was identified when Ginna failed to implement the IST program in accordance with relief request GR-2. Relief request GR-2 states that if any limiting value is exceeded, the valve is immediately declared inoperable and the appropriate technical specification (TS) action statement is entered, if applicable. However, because only the high limiting value for stroke time was contained in the surveillance procedure, plant personnel did not identify that a valve did not meet the low IST limiting value for stroke time. As a result, Ginna did not declare turbine-driven auxiliary feedwater (TDAFW) recirculation valve, air-operated valve (AOV) 4291, inoperable until 9 days after it exceeded the IST low limiting value. Ginna's corrective actions included issuing an operations night order which provided instructions that after valve stroke timing was complete, the shift technical advisor or control room supervisor shall compare the stroke times to the action limit low and high values in Ginna's IST summary document prior to exiting the TS limiting condition for operation. Ginna entered this issue into their corrective action program (CAP) for resolution.

This finding was more than minor because additional unavailability of the auxiliary feedwater (AFW) system was accrued due to retesting AOV-4291 and Ginna's failure to include action limits and low limiting values for valve stroke timing in surveillance procedures is programmatic in nature and is not isolated to STP-O-16Q-T, "AFW Turbine Pump – Quarterly," Revision 00200, or TDAFW recirculation valve, AOV-4291. Therefore, if left uncorrected, this finding could become a more significant safety concern due to the potential not to detect valve degradation which could impact valve operability. This finding also affected the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. This finding has a very low safety significance because the conditions did not result in an actual failure of the TDAFW recirculation valve or a loss of safety function, and it did not screen as potentially risk significant due to a seismic, flooding, or a severe weather-initiating event. The inspectors determined the finding had a cross-cutting aspect related to appropriate corrective actions in the CAP component of the problem identification and resolution area because Ginna did not take appropriate action to address this issue when it was identified on June 19, 2009, and documented in CR 2009-4248 (P.1.d. per IMC 0305).

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

Significance: **W** Aug 27, 2009

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Preclude Recurrence of a Significant Condition Adverse to Quality Associated with the Turbine-Driven Auxiliary Feedwater Pump Governor Control Valve

A self-revealing apparent violation (AV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for the failure to preclude recurrence of a significant condition adverse to quality (SCAQ) associated with the turbine-driven auxiliary feedwater (TDAFW) pump governor control valve. Specifically, after identifying corrosion of the governor control valve stem in April 2005, Ginna did not take adequate corrective actions to preclude the recurrence of corrosion which led to the binding of the governor control valve and failure of the TDAFW pump on July 2, 2009. In addition, the inspectors concluded that governor control valve stem binding was the likely cause of the failure of the TDAFW pump on May 26, 2009. The overspeed trip of the TDAFW pump on May 26, 2009, was originally determined by Ginna to be failure of the governor control system relay valve. Governor control valve stem corrosion is a SCAQ because corrosion of the stem can lead to governor control valve stem binding and failure of the

TDAFW pump as discussed in NRC Information Notice 94-66: "Overspeed of Turbine-Driven Pumps Caused by Governor Valve Stem Binding" and other related industry operating experience documents. Immediate corrective actions included entering this condition in the corrective action program (CAP), conducting a root cause analysis (RCA), replacing the governor control valve stem, and conducting weekly monitoring of the governor control valve during surveillance testing to identify any potential for stem binding. In addition, corrective actions included a follow-up inspection of the governor control valve during the fall 2009 refueling outage. Ginna will continue to monitor the governor control valve under an enhanced TDAFW surveillance program to ensure TDAFW pump operability.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, stem corrosion caused binding of the governor control valve and led to the failure of the TDAFW pump. This finding was assessed using IMC 0609 and preliminarily determined to be White (low to moderate safety significance) based on a Phase 3 analysis with a total (internal and external contributions) calculated conditional core damage frequency (CCDF) of 8.6E-6. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Ginna did not implement a CAP with a low threshold for identifying issues completely, accurately, and in a timely manner commensurate with their safety significance [P.1(a) per IMC 0305]. Specifically, Ginna did not identify issues associated with corrosion of the governor control valve within the CAP.

Inspection Report# : [2009008](#) (pdf)

Significance:  Aug 27, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions Associated with Steam Admission Valve Leakage

A self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for the failure to establish adequate measures to correct a longstanding issue associated with steam admission valves leakage. As a result, the leakage most likely contributed to the build-up of corrosion on the TDAFW pump governor control valve stem and contributed to the failure of the TDAFW pump on May 26, 2009, and on July 2, 2009. The steam admission valves had been leaking since at least 2005. However, Ginna did not take adequate measures to correct the leakage or minimize the impact of the leakage on governor control valve performance. Immediate corrective actions included entering this condition in the corrective action program, conducting a root cause analysis, replacing the governor control valve stem, and conducting weekly monitoring of the governor control valve during surveillance testing to identify any potential for stem binding. Additionally, the steam admission valves were inspected and re-worked and the governor control valve was inspected during the fall 2009 outage. Ginna will continue to monitor the governor control valve under an enhanced TDAFW surveillance program to ensure TDAFW pump operability. Planned corrective actions include replacing the steam admission valves in May 2011.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, leakage through the steam admission valves can result in continuous wetting of the governor control valve stem and lead to or accelerate corrosion of the governor control valve. This could result in a stem binding of the governor control valve and failure of the TDAFW pump. The inspectors evaluated the significance of this finding using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its technical specification (TS) allowed outage time, and did not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Ginna did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary, in a timely manner, commensurate with their significance [P.1(c) per IMC 0305]. Specifically, Ginna did not thoroughly evaluate the potential effect of the steam admission valve leakage on the governor control valve performance.

Inspection Report# : [2009008](#) (pdf)

Significance:  Aug 27, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish Design Control Measures Associated with the Turbine-Driven Auxiliary Feedwater Pump Governor Control Valve

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure to establish measures to ensure that a modification performed on the governor control valve bushing was a suitable application of materials for the TDAFW pump. During a review of the RCA associated with the TDAFW pump failures, the inspectors noted that Ginna did not consider the potential impact of removing some of the hardened layer of the bushing on the corrosion rate of the governor control valve. Following concerns raised by the inspectors, Ginna inspected the governor control valve bushing during the fall 2009 refueling outage and observed corrosion of the bushings. Ginna noted that the corrosion of the bushings appeared to have been caused by the lapping of the bushing to achieve the increased clearance between the stem and the bushings. Immediate corrective actions following the inspection of the governor control valve during the fall 2009 refueling outage included entering this condition in the CAP and refurbishing the governor control valve with a new stem and bushing.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, lapping of the valve bushing resulted in an unanticipated corrosion mechanism of the governor control valve that impacted the reliability of the TDAFW pump. The inspectors evaluated the significance of this finding using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The finding is of very low safety significance because it is a design or qualification deficiency confirmed not to result in the loss of operability or functionality. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Decision Making, because Ginna did not make a safety-significant or risk-significant decision using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety was maintained [H.1(a) per IMC 0305]. Specifically, Ginna did not use a systematic process such as an engineering evaluation to properly evaluate the potential impact of removing some of the hardened layer of the bushing. [H.1(a) per IMC 0305]

Inspection Report# : [2009008](#) (*pdf*)

Significance: **W** Mar 31, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Properly Lubricate Governor Linkage

The inspectors identified an violation of Technical Specification 5.4.1.a, "Procedures," for the failure of the licensee to implement an effective preventive maintenance (PM) program for the turbine-driven auxiliary feedwater (TDAFW) pump governor linkage. Specifically, procedure M-11.5C, "AFW Pump Minor Mechanical Inspection and Maintenance," Revision 29, which includes steps for cleaning and lubricating the TDAFW pump governor linkages, was not properly implemented. The cleaning and lubrication steps were inappropriately deleted during the work planning process for the PM scheduled on the TDAFW system. As a result, the governor linkages were not lubricated during the March 2008 maintenance period, which directly contributed to the failure of the TDAFW pump as demonstrated by testing performed on December 2, 2008. Ginna's planned corrective actions include increased frequency of testing to validate the identified root cause and appropriate resolution, upgrades to the maintenance procedure for disassembly and lubrication of bearing wear surfaces and linkages, and guidance on the type of lubricant to use. In addition, corrective actions include enhancements to the scope of minor maintenance requirements on the TDAFW pump to ensure that the linkage cleaning and lubrication is not missed, and establishing a 9-year periodicity to rebuild the governor and associated linkages.

The inspectors determined that this finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform adequate maintenance resulted in the inoperability of the TDAFW

pump. This finding was assessed using IMC 0609 and preliminarily determined to be White based on a Phase 3 analysis with a total (internal and external contributions) calculated conditional core damage frequency (CCDF) of 8.8E-6. This finding has a cross-cutting aspect in the area of human performance because Ginna did not establish appropriate controls to assess how changes to the TDAFW PM program would impact operation of the TDAFW system (H.3.b per IMC 0305).
Inspection Report# : [2009002](#) (*pdf*)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: FIN Finding

Inadequate Risk Management Results in Loss of Normal Control Room Annunciators

A Green self-revealing finding was identified on February 5, 2009, when Ginna failed to review applicable internal operating experience and implement compensatory actions to minimize the consequences associated with replacement of the annunciator cards, in accordance with CNG-OP-4.01-1000, "Integrated Risk Management," Revision 00200. Specifically, CNG-OP-4.01-1000, requires work activities that are considered medium risk to have contingency plans based in part on operating experience. As a result, when the power supplies were inadvertently de-energized, restoration of the alarm panels was delayed until recovery work instructions were prepared and implemented. Ginna's corrective actions include adding a trouble shooting plan to work packages for annunciators that depicts how to restore failed annunciators, revising CNGOP-4.01-1000, to incorporate a checklist of equipment important to the emergency plan in the screening section of the risk process, and having an senior reactor operator review the final weekly schedule for maintenance that could possibly impact equipment used by the emergency plan.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. When the annunciator panels were deenergized, the ability of operators to identify and respond to off-normal plant conditions was degraded. Using Phase 1 of IMC 0609, Appendix A, the inspectors determined that the finding was of low safety significance (Green), because the finding did not represent a loss of system safety function; did not represent an actual loss of safety function of a single train for greater than its Tech Spec allowed outage time; did not represent an actual loss of safety function of one or more non-Tech Spec trains of equipment designated as risk-significant per 10CFR50.65, for greater than 24 hours; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance because Ginna personnel did not appropriately plan work activities by incorporating risk insights and the need for planned contingencies, compensatory actions and abort criteria, which directly contributed to the loss of power to the control board annunciator panels and declaration of an UE (H.3.a per IMC 0305).
Inspection Report# : [2009002](#) (*pdf*)

Significance:  Dec 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Meet Minimum Shift Manning Requirements Due to Inattentiveness

An NRC-identified NCV of Technical Specification 5.4.1.a, "Procedures," was identified on November 21, 2008, when minimum shift staffing decreased below the requirements contained in procedure ND-OPS, "Operations," because a Ginna auxiliary operator (AO) was inattentive. The individual of concern was assigned the shift role of "primary AO" and was responsible for performing rounds in the auxiliary building, as well as valve manipulations to support plant testing/operation. Further, he was one of the five members of the site fire brigade. Ginna's immediate

corrective action consisted of relieving the AO of his duties, and in accordance with Ginna's policy, subjecting the AO to a for-cause fitness for duty drug test. Shift staffing was restored to the full complement outlined in ND-OPS within one hour, when an additional AO arrived on-site.

This finding is more than minor, because it could reasonably be viewed as a precursor to a significant event. Specifically, while inattentive, the AO may not have been able to respond to a plant event which reduces the effectiveness of event mitigation. This finding has been reviewed by NRC management in accordance with IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," and was determined to be of very low safety significance (Green) because staffing for the operating shift and fire brigade was restored to a full complement within one hour after the AO was relieved, and because no initiating events occurred during that time. This finding has a cross-cutting aspect in the area of human performance because the AO did not implement effective actions to remain fit for duty (H.4.a per IMC 0305).

Inspection Report# : [2008005](#) (*pdf*)

Barrier Integrity

Significance:  Nov 21, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

B.5.b Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

Emergency Preparedness

Significance:  Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Operators Did Not Have Corrective Lens Kits Available to Implement Emergency Plan Requirements

An NRC-identified NCV of 10 CFR 50.54(q) was identified for a failure to follow and maintain in effect emergency plans which met the standards in 50.47(b). Specifically, 50.47(b)(8) states that "adequate emergency facilities and equipment to support the emergency response are provided and maintained." Contrary to this requirement, Ginna failed to provide spectacle adapter kits for all eyeglass wearers (i.e., non-soft contact wearers) that were key emergency response organization personnel who were potentially required to wear a self-contained breathing apparatus (SCBA) in order to fulfill emergency response functions. Ginna entered this performance deficiency into their corrective action program for resolution. Ginna's corrective actions included revising procedures and electronic data files that govern the training and qualification of licensed operators to include steps that ensure licensed operators who require corrective lenses are provided SCBA lens inserts.

This finding is more than minor because, if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. The inspectors determined that the finding was of very low safety significance (Green) using IMC 0609, Appendix B, "Emergency Preparedness SDP," in that it did not involve a risk-significant planning standard (PS) and was not indicative of a PS functional failure. An adequate number of SCBA-qualified plant personnel with no vision correction needed, wearers of soft contacts, or personnel with vision correction lenses, designated as key emergency responders, were available for actual response in the event of an actual emergency. Therefore, the issue did not result in the failure to meet an emergency PS. This finding has a cross-cutting aspect in

the area of human performance because Ginna failed to ensure that equipment was available and adequate for key emergency response personnel (H.2.d per IMC 0305).

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

Occupational Radiation Safety

Significance: G Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Meet Technical Specification Requirements for Senior Radiation Protection Technician Qualifications

An NRC-identified NCV of Technical Specification 5.3.1, “Plant Staff Qualifications,” was identified for failure to ensure senior radiation protection technicians (RPTs) met the minimum qualification requirements specified in American National Standards Institute (ANSI) N18.1-1971, “American National Standard Selection and Training of Nuclear Power Plant Personnel.” Ginna entered this performance deficiency into their corrective action program (CAP) for resolution. Ginna’s initial corrective actions included verifying all senior RPTs currently employed at the site meet the experience requirements contained in ANSI N18.1-1971. Future corrective actions will involve modifying Ginna procedures regarding the training and qualification of senior RPTs to ensure they meet ANSI N18.1-1971.

This finding is more than minor because, if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. This finding was evaluated using IMC 0609, Appendix C, “Occupational Radiation Safety SDP.” The inspectors determined that the finding was of very low safety significance (Green) because it did not involve: (1) as low as is reasonably achievable (ALARA) planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. Since this performance deficiency occurred in 2006 and does not reflect current performance, no cross-cutting aspect was assigned.

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

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : December 10, 2009