

NON-CONCURRENCE PACKAGE

NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT
05000338/2008003, 05000339/2008003, AND 07200056/2008003

August 25, 2008

Handwritten signature or initials, possibly 'AE', in black ink.

NON-CONCURRENCE PROCESS

SECTION A - TO BE COMPLETED BY NON-CONCURRING INDIVIDUAL

TITLE OF DOCUMENT *North Anna Power Station - NRC Integrated Inspection*

ADAMS ACCESSION NO.

Report 05000338/2008003, 05000339/2008003, and 07200056/2007001

DOCUMENT SPONSOR

SPONSOR PHONE NO.

NAME OF NON-CONCURRING INDIVIDUAL

PHONE NO.

Rodney L. Clegg

540 894 5421

DOCUMENT AUTHOR

DOCUMENT CONTRIBUTOR

DOCUMENT REVIEWER

ON CONCURRENCE

TITLE

ORGANIZATION

Resident Inspector

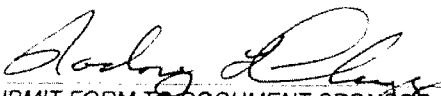
R II, DRP

REASONS FOR NON-CONCURRENCE

Please see attached documents.

CONTINUED IN SECTION D

SIGNATURE



DATE

8/1/08

SUBMIT FORM TO DOCUMENT SPONSOR AND COPY TO YOUR IMMEDIATE SUPERVISOR

NON-CONCURRENCE PROCESS

TITLE OF DOCUMENT NORTH ANNA POWER STATION - NRC INTEGRATED INSPECTION REPORT
05000338/2008003, 05000339/2008003, AND 07200056/2008003

ADAMS ACCESSION NO.

SECTION C - TO BE COMPLETED BY DOCUMENT SPONSOR

NAME

MARK A. BATES

TITLE

ACTING BRANCH CHIEF

PHONE NO.

404-562-4612

ORGANIZATION

NRC REGION II, DRP

ACTIONS TAKEN TO ADDRESS NON-CONCURRENCE

SEE ATTACHED.

CONTINUED IN SECTION D

NON-CONCURRING INDIVIDUAL (To be completed by document sponsor):

CONCURS

NON-CONCURS

WITHDRAWS NON-CONCURRENCE

I do not concur with NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001 as issued based on the following items.

1. A draft NCV regarding the 1H Emergency Diesel Generator, shown below, was submitted by the resident inspectors for inclusion in NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001.

Unavailability of '1H' EDG Due to Failure to Adequately Establish Procedural Requirements for Air Start Check Valve Maintenance

Introduction: A self-revealing, Green, non-cited violation (NCV) of TS 5.4.1a was identified regarding the failure to adequately establish procedural requirements for repair of the EDG air start check valves that resulted in the increased unavailability of the Unit 1 '1H' EDG.

Description: On May 7, 2008, during a maintenance run of the '1H' EDG following activities associated with a scheduled 80 hour maintenance outage, the air start check valve associated with the #8 cylinder stuck open allowing combustion gas into the air start header, subsequently causing it to rupture due to heating of the soldered joints. An evaluation by the licensee determined that the self-locking nut associated with the #8 cylinder air start check valve had disengaged from the threaded check valve shaft and was oriented in such a way as to prevent the check valve from reseating. This event and the resulting emergent maintenance caused additional unavailability of '1H' EDG for approximately 40 hours. The licensee revised maintenance procedure, 0-MCM-0701-14, "Repair of Emergency Diesel Generator Air Start Check Valves," and completed repairs to the air start check valve and air start header. The licensee also conducted inspections of the remaining air start check valves and returned the '1H' EDG to an operable status on May 10, 2008. The inspectors reviewed apparent cause evaluation (ACE) 013750 and noted the discussion of two specific industry operating experience (OE) events.

The first event, OE25538, documented failure of an air start check valve due to a missing self-locking nut, was reviewed by the licensee and documented in their engineering logs on September 28, 2007. The inspectors noted that the log entry concluded that while the OE was applicable to North Anna, the licensee had a 6 year PM frequency to replace the air start check valves that were rebuilt by procedure 0-MCM-0701-14 with a specific step to install the applicable lock nuts. Thus, the licensee concluded that adequate guidance existed to ensure that the valves were correctly rebuilt and would not result in a failure similar to that described in the OE.

The second event, OE4352, documented failure of an air start check valve due to the reuse of a lock nut that subsequently backed off of the respective stem allowing the spring retaining nut to back off. This demonstrated that air start check valve self-locking nuts lose their torque characteristics with successive use. The inspectors identified no licensee documentation of a previous review of OE4352 for applicability to North Anna.

The inspectors agreed with the licensee's conclusion that prior knowledge of this OE would have precluded the inoperability of 1H EDG.

The inspectors interviewed licensee engineering personnel to discuss licensee document, ER-AA-SYS-1004, "System Engineer Handbook," of which the purpose states in part that guidance to the system engineer is provided to assure that the

engineering product from each nuclear station meets a common standard. Attachment 2, "Detailed Job Duties and Responsibilities the System Engineer Shall Perform," section 13, "Operating Experience Review," states in part that the system engineer is cognizant of OE Reports on their system and accumulates, reviews, and initiates action as appropriate on relevant OE information to improve system performance. The inspectors concluded that the licensee had reasonable opportunity to identify OE4352 during their evaluation of OE25538 and take the necessary corrective actions. The inspectors reviewed O-MCM-0701-14 and noted that this procedure did not address concerns with the reuse of air start check valve self-locking nuts. The inspectors concluded that the licensee failed to adequately establish procedural requirements for repair of EDG air start check valves that resulted in the increased unavailability of the '1H' EDG. The licensee initiated CR098146 for corrective action.

Analysis: The inspectors determined that the failure to adequately establish procedural requirements for repair of EDG air start check valves was a performance deficiency or finding due to noncompliance with TS 5.4.1a requirements. The inspectors reviewed Inspection Manual Chapter (IMC) 0612, Appendix B, and determined the finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of procedure quality in that the procedure failed to ensure air start check valves were properly assembled following maintenance. The inspectors reviewed IMC 0609, Appendix A, and determined that the finding was of very low safety significance or Green because it did not result in a loss of operability due to a design or qualification deficiency, did not represent an actual loss of safety function, did not result in a train being out of service longer than allowed by TS, and was not potentially risk significant due to possible external events. The cause of this finding involved the cross-cutting area of problem identification and resolution, the related component of OE, and the associated aspect of implementation and institutionalization of OE through changes to station processes, procedures, equipment, and training programs, P.2(b), because the failure to properly evaluate available OE led to the failure to establish adequate procedural requirements which led to an increase in the unavailability of the '1H' EDG.

Enforcement: TS 5.4.1.a, requires in part, that written procedures shall be established per Regulatory Guide 1.33, Appendix A, of which part 9 specifies procedures for performing maintenance. Contrary to this, on May 7, 2008, the licensee failed to adequately establish appropriate procedural requirements in O-MCM-0701-14 which subsequently resulted in the increased unavailability of the '1H' EDG. Because the finding is of very low safety significance and because it has been entered into the licensee's corrective action program (CAP) as CR098146, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000338/2008003-01, Unavailability of '1H' EDG Due to Failure to Adequately Establish Procedural Requirements for Air Start Check Valve Maintenance.

NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT
05000338/2008003, 05000339/2008003, AND 07200056/2007001 as issued classified the above finding as licensee identified. I do not concur with this assessment based on the following:

NRC Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports" issued on September 20, 2007, and in effect at the time the subject inspection report was issued, defines certain terms for the purpose of documentation. These include NRC-Identified, Self-Revealing, and Licensee-Identified. The structure of each of these definitions consists of a strict definition statement i.e. a _____ finding are those findings that.....

This is followed by further example statements and documentation guidance, etc. In reading the definition statements it is noted that the NRC-Identified and Self-Revealing definitions are positive statements, i.e. "self-revealing findings are those findings that become self-evident and require no active and deliberate observation by the licensee or NRC inspections....." On the contrary, the definition statement for Licensee-Identified is a negative statement i.e. "licensee-identified findings are those findings that are not NRC-identified or self-revealing". Thus I feel that the proper interpretation of a licensee identified finding is one that cannot be reasonably defined as either NRC-Identified or Self-Revealing. The above finding was obviously not NRC-Identified, therefore, one must revisit the definition of Self-Revealing in IMC 0612. For the sake of brevity I bring attention to the follow excerpts from the definition statement and its supporting examples. In part it states that Self-Revealing findings "require no active or deliberate observation by the licensee or NRC inspectors to determine whether a change in process or equipment capability or function has occurred." It goes on to state that some examples include findings resulting from "obvious failures of fluid piping or plant equipment". It is my belief that based on the sequence of events described in the above draft NCV this event was an obvious failure of fluid piping or plant equipment, but more importantly it did not require active or deliberate observation to determine a change had occurred. Therefore, this event meets the definition of Self-Revealing as described in IMC 0612 and thus would not meet the definition of Licensee-Identified. Based on discussions with other NRC personnel involved in the Reactor Oversight Process this logical progression used to assign the identification of findings is consistent with other Regions. It should be noted that the considerations made when giving credit for licensee identification as discussed in the NRC Enforcement Manual would also support not giving credit for licensee identification in this instance because the identification 1) did not occur prior to an event (as described in Section 4.3.2.2 of the Enforcement Manual) happening and 2) was not the result of the licensee looking for the problem. It is understood that this is not an escalated enforcement issue, however, it is important that the enforcement program (which includes the disposition of NCVs such as the one described above) is implemented in a predictable and consistent manner. Therefore, it is reasonable to hold the belief that the criteria for identification of an issue would not run counter to each other between different agency guidance documents.

2. A draft NCV regarding the 2H Emergency Diesel Generator, show below, was submitted by the resident inspectors for inclusion in NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001.

CR094772, 2H EDG Oil Leakage Increasing and CR101714, Technical Specification Violation for Two Service Water Pumps Inoperable for Greater Than Allowed Completion Time

Introduction: A self-revealing, NCV of 10 CFR 50, Appendix B, Criterion V, was identified for failure to prescribe adequate work instructions for maintenance on the Unit 2 '2H' emergency diesel generator (EDG) standby lube oil pump which resulted in a failure of the EDG.

Description: On April 5, 2008, after monitoring increasing oil leakage on the '2H' EDG exhaust manifolds since April 1, 2008, the licensee declared the EDG inoperable and

performed an air roll of the EDG which indicated the cylinders had excessive oil accumulation. The inspectors reviewed the licensee's RCE000225 which determined that due to inadequate work instructions per WO 00767749-01, the wrong size pump internals had been installed in the standby lube oil pump during a maintenance outage that occurred from March 24 through March 29, 2008. This resulted in a pump discharge flow of 20 gallons per minute (gpm) versus a normal 10 gpm which led to oil flow to the upper crankcase, into the cylinders and eventually the exhaust manifolds. Fortunately, the '2H' EDG had exhaust manifold leaks which allowed leakage of the accumulating oil which the inspectors concluded was a readily detectable degradation in the material condition, capability, or functionality of equipment, i.e., a self-revealing condition. The RCE also determined that based on the failure mode leading to the oil accumulation in the EDG cylinders, '2H' EDG was inoperable approximately 3 hours and 41 minutes after completion of the operability performance test on March 29, 2008, at 1319 hours. Further review of the RCE by the inspectors revealed that the licensee failed to identify a TS violation related to the SW system.

The licensee had previously removed Unit 1 'B' SW pump was from service on April 1, 2008, for motor replacement. Therefore, when the licensee declared '2H' EDG inoperable on April 5, 2008, they also declared the Unit 2 'A' SW pump inoperable, in accordance with TS 3.8.1, condition B2, and entered a 72 hour LCO as required by TS 3.7.8 and 3.0.2. The Unit 1 'B' SW pump was subsequently returned to service on April 6, 2008, and '2H' EDG was returned to service on April 9, 2008. The inspectors reviewed RCE000225, and related documents including the licensee's probabilistic risk analysis. The inspectors subsequently determined that although the licensee concluded that the '2H' EDG was inoperable shortly after it was returned to service on March 29, 2008, the licensee failed to identify that when the Unit 1 'B' SW pump was removed from service on April 1, 2008, that a 72 hour LCO per TS 3.7.8 was also in effect in accordance with required actions per TS 3.8.1. Consequently, the actions required per TS 3.7.8 were not carried out resulting in a TS violation with attendant reporting requirements. The inspectors noted that although the Unit 2 'A' SW pump was technically inoperable, it remained available based on the availability of its normal power supply. The licensee entered this problem into their CAP as CR101714 and submitted Licensee Event Report 05000338, 339/2008-001-00 to document the problem. In accordance with the Enforcement Manual, the inspectors determined that the NCV of 10 CFR 50, Appendix B, Criterion V, was the primary cause of the events involving the '2H' EDG and the violation of TS 3.7.8.

Analysis: The inspectors determined the failure to prescribe adequate work instructions resulting in the failure of '2H' EDG was contrary to 10 CFR 50, Appendix B, Criterion V, and was therefore a performance deficiency or finding. The inspectors reviewed IMC 0612, Appendix B, and determined the finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of configuration control because the licensee failed to take TS specified actions to place the units in the required system/plant configuration. The inspectors reviewed IMC 0609, Appendix A, and determined that the finding was of low safety significance or Green because it did not result in a loss of operability due to a design or qualification deficiency, did not represent an actual loss of safety function, did not result in a train being out of service longer than allowed by TS, and was not potentially risk significant due to possible external events. The cause of this finding involved the cross-cutting area of human performance, the component of resources, and the aspect of documentation, procedures and component labeling,

H.2(c), because the licensee failed to prescribe adequate work instructions for the '2H' EDG standby lube oil pump resulting in a failure of the EDG.

Enforcement: 10 CFR 50, Appendix B, Criterion V requires in part that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances. Contrary to the above, on April 5, 2008, the licensee failed to prescribe adequate work instructions for standby lube oil pump which resulted in a failure of the '2H' EDG. Because the finding is of very low safety significance and because it has been entered into the licensee's CAP as CRs 094681, 094728 and 094772, this violation is being treated as a Green NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000338, 339/2008003-04, Failure to Prescribe Adequate Work Instructions Results in Failure of '2H' Emergency Diesel Generator.

NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001 as issued classified the above 10 CFR 50, Appendix B, Criterion V finding as licensee identified. It also did not include the violation of Technical Specification (TS) as discussed above. The combining of these two into one discussion for the purpose of documentation is strictly administrative. Since each of these items, based on their own merits, could be documented as separate items in the inspection report I will discuss the validity of them separately.

I do not concur with the classification of the 10 CFR 50, Appendix B, Criterion V finding as licensee identified based on the following:

NRC Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports" issued on September 20, 2007, and in effect at the time the subject inspection report was issued, defines certain terms for the purpose of documentation. These include NRC-Identified, Self-Revealing, and Licensee-Identified. The structure of each of these definitions consists of a strict definition statement i.e. a _____ finding are those findings that.....

This is followed by further example statements and documentation guidance, etc. In reading the definition statements it is noted that the NRC-Identified and Self-Revealing definitions are positive statements, i.e. "self-revealing findings are those findings that become self-evident and require no active and deliberate observation by the licensee or NRC inspections....." On the contrary, the definition statement for Licensee-Identified is a negative statement i.e. "licensee-identified findings are those findings that are not NRC-identified or self-revealing". Thus I feel that the proper interpretation of a licensee identified finding is one that cannot be reasonably defined as either NRC-Identified or Self-Revealing. The above finding was obviously not NRC-Identified, therefore, one must revisit the definition of Self-Revealing in IMC 0612. For the sake of brevity I bring attention to the follow excerpts from the definition statement and its supporting examples. In part it states that Self-Revealing findings "require no active or deliberate observation by the licensee or NRC inspectors to determine whether a change in process or equipment capability or function has occurred." It goes on to state that some examples include findings resulting from "identification of large quantities of water in areas where you would not normally expect such a condition". Although this event was the identification of oil vice water I feel it is reasonable to apply this same example. It is my belief that based on the increasing amount of oil that was continually found in this instance supports this contention, but more importantly it did not require active or deliberate observation to determine a change had occurred. Therefore, this event meets the definition of Self-Revealing as described in IMC 0612 and thus would not meet the definition of Licensee-Identified. Based on discussions with other NRC personnel involved in the Reactor Oversight Process this logical progression used to assign the identification of findings is consistent with other Regions.

I do not concur with the omission of the TS violation based on the following:

The Chapter 7 of the NRC Enforcement Manual provides specific guidance regarding various reactor operations issues. Section 7.1 for actions involving inoperable equipment states in section a.2 (a) that "It is appropriate to cite directly against the Technical Specification requirement for operability". Section 7.1.b.1 (b)(1)(B) states that "A violation would exist when an LCO is not met and all necessary actions have not been completed within all applicable completion times." I bring attention to NCV 05000331/2007003-04 as discussed in Section 1R15 of DUANE ARNOLD ENERGY CENTER NRC INTEGRATED INSPECTION REPORT 05000331/2007003. In this instance a past operability evaluation of an EDG revealed that the EDG was inoperable for a period of time prior to the date of the event, at times in conjunction with another EDG that was inoperable for planned maintenance, and that the licensee had failed to enter the appropriate LCO within the allowed outage time. I also bring attention to a Region II example documented as NCV 05000259/2007008-01 and discussed in section 40A2 of BROWNS FERRY NUCLEAR PLANT - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT NOS. 05000259/2007008, 05000260/2007008 AND 05000296/2007008. In this instance investigation of a failed steam flow isolation instrument identified that the instrument had been inoperable for a period of time prior to discovery and thus the Technical Specification allowed outage time had been exceeded.

3. A draft NCV regarding the Unit 2 'B' service water pump, show below, was submitted by the resident inspectors for inclusion in NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001.

Failure to Adequately Establish Procedural Requirements for Service Water Motor Maintenance

Introduction: A self-revealing, Green, NCV of TS 5.4.1a was identified for the failure to adequately establish procedural requirements for the re-wind of service water (SW) motors that resulted in failure of the Unit 2 'B' SW pump motor which subsequently caused entry into TS 3.7.8.

Description: On February 15, 2008, the Unit 2 'B' SW pump breaker tripped open and caused the plant to enter TS 3.7.8 for one SW pump inoperable. The Unit 1 'A' SW pump was started to restore normal SW flow for Units 1 and 2, and SW flow to the component cooling heat exchangers was verified throttled. An initial evaluation by the licensee determined that the 'B' SW pump motor was grounded. Following this determination the 'B' SW pump motor was replaced with an auxiliary service water pump motor and returned to service on February 18, 2008. The inspectors reviewed root cause evaluation (RCE) 000222 and noted that although the 'B' SW pump motor failure was due to a ground fault on the motor stator caused by failure of the coil insulation which was characterized by the licensee as an end of life failure, the SW motors were not classified as 'run to failure.' The inspectors also noted that contributing causes identified frequent motor starts, bus voltage greater than nameplate motor voltage, and air quality affecting motor intake filters as negative factors impacting the service life. The inspectors reviewed ER-AA-MTR-1001, "Large Motor Program," Rev 0, effective April 21, 2006, and noted that section 3.3, "Preventive Maintenance (PM) Requirements," stated, "The Preventive Maintenance Program will include the development of a time based rewind schedule for all large motors in accordance with recommendations in EPRI Topical Report TR5-50. Motors are to be scheduled for rewind based on chronological

age, criticality of the individual application, and severity of the application." The inspectors determined that this established a licensee standard for SW motor preventative maintenance. The inspectors also determined that RCE000222 noted the root cause corrective action as, "Establish a 30 year PM for SW motor re-winds with the first performance late date of 12/31/2009 or sooner for the 1-SW-P-1A, 1-SW-P-1B, and 2-SW-P-1A motors." This demonstrates that the licensee had no previous actions in effect to establish a re-wind PM procedure. The inspectors concluded that the licensee failed to adequately establish procedural requirements as required by TS 5.4.1a for the re-wind of SW electric motors prior to failure of the Unit 2 'B' SW pump motor. The licensee initiated CR091169 for corrective action.

Analysis: The inspectors determined that the failure to adequately establish procedural requirements for the re-wind of SW electric motors to preclude end of life failures was a performance deficiency or finding due to noncompliance with TS 5.4.1a requirements. The inspectors reviewed IMC 0612, Appendix B, and determined the finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of procedure quality in that there were no PM procedures established for SW motor rewinds. The inspectors reviewed IMC 0609, Appendix A, and determined that the finding was of very low safety significance or Green because it did not result in a loss of operability due to a design or qualification deficiency, did not represent an actual loss of safety function, did not result in a train being out of service longer than allowed by TS, and was not potentially risk significant due to possible external events. The cause of this finding involved the cross-cutting area of human performance, the component of resources, and the aspect of documentation, procedures and component labeling, H.2(c), because the licensee failed to establish adequate procedures for re-wind of SW motors to preclude end of life failures.

Enforcement: TS 5.4.1.a, requires in part, that written procedures shall be established per Regulatory Guide 1.33, Appendix A, of which part 9 specifies procedures for performing maintenance. Contrary to this, on February 15, 2008, the licensee failed to adequately establish procedural requirements for re-wind of SW motors that resulted in the failure of the Unit 2 'B' SW pump motor. Because the finding is of very low safety significance and because the problem has been entered into the licensee's CAP as CR091169 respectively, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000339/2008003-02, Failure to Adequately Establish Procedural Requirements for Service Water Motor Maintenance.

NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT
05000338/2008003, 05000339/2008003, AND 07200056/2007001 as issued omitted this NCV.

I do not concur with the omission of this NCV based on the following:

IMC 0612 Appendix B states in Section 1 that a performance deficiency can exist "...if a licensee fails to meet a self-imposed standard..." As documented in the Description section above the licensee had established, nearly two years prior to the failure of the Unit 2 'B' service water pump motor, a large motor program that set forth a requirement to incorporate motor rewind requirements for large motors into the preventative maintenance program. This clearly established a self-imposed standard by the licensee. The licensee's root cause evaluation, as discussed in the Description section above, through the assigning of corrective actions

established the fact that the requirements set forth in the large motor program had not been implemented at the time of the Unit 2 'B' service water pump motor failure. The licensee's root cause evaluation also documented that an implementation plan existed for the motor rewind requirements and that this plan had never been executed. In aggregate these facts identify a standard, failure to meet said standard, and establish that the cause was foreseeable, correctible, and preventable. Thus meeting the definition of a performance deficiency as documented in IMC 0612 Appendix B. The remaining analysis of this issue relative to IMC 0612 Appendix B can stand on its own merit as described in the Analysis section above.

4. A draft NCV regarding the 2H and 2J emergency diesel generators, show below, was submitted by the resident inspectors for inclusion in NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001.

CR090845, '2H' and '2J' EDG Batteries Were Found Out of Spec

Introduction: A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI was identified for failure to take prompt corrective actions for a previously identified condition adverse to quality related to battery charger operation in low ambient temperatures which resulted in the inoperability of the Unit 2 '2H' and '2J' EDG.

Description: On February 10, 2008, Unit 2 entered TS 3.8.4, "DC Sources - Operating," and 3.8.1, "AC Sources - Operating," and declared the '2H' EDG inoperable when the respective battery voltage was found to be 128 volts DC (VDC) which was contrary to the TS required value of greater than or equal to 129VDC. After the licensee adjusted voltage to above the TS limit they determined that the '2J' EDG was inoperable for the same condition and adjusted voltage to within TS limits. The licensee initiated CR090845 for the events and subsequently completed ACE013643.

The inspectors reviewed the ACE and noted that the licensee selected the apparent cause categories of "Inadequate Written Instructions/Communications," "Mindset (Intentions)," and "Lack of Proficiency/Inexperience." The inspectors performed a review of the licensee's CAP for previous related problems within the last two years and identified the following issues:

- Plant Issue N-2006-0228 dated January 18, 2006: All 4 EDG battery chargers were adjusted because strong winds and low temperatures caused voltage to decrease. The inspectors noted licensee comments stating that "this is a known problem," and "REA R2005-070 is in progress to replace these battery chargers to improve stability.
- CR003203 dated October 25, 2006: The corrective action requested the annunciator setpoints for all EDG battery charger low voltage be raised to 130VDC in order to provide warning prior to the TS limit of 129VDC. The licensee initiated action to include this change in design change package (DCP) 06-103 which will replace all of the battery chargers. The inspectors reviewed a previous Plant Issues, N-1999-2245 and N-2005-0845, which also noted the same problem.

- CR006814 dated January 26, 2007: Cooler outside air temperature reduced room temperature resulting in a reduction of '2J' EDG battery voltage to approximately 130VDC. The licensee noted that Plant Issue N-2005-0845 was tracking upgrades to eliminate this problem.

The inspectors also searched the CAP for any related issues in 2005 and identified Plant Issues N-2005-0675, N-2005-0830 and N-2005-0845 initiated during February and March respectively. All three Plant Issues identified negative impacts of weather changes or wind and temperature on EDG battery charger voltage that required adjustments to maintain operability. Specifically, N-2005-0845-E1 stated in the section for impact on equipment operability, "The wind affects have made the diesel inoperable on low battery voltage and lube oil temperature." While this Plant Issue was initiated based on inoperability of '2H' EDG due to low lube oil temperature, this plant issue also initiated a request for engineering action (REA) 2005-070, to upgrade the battery charger to minimize temperature affects on charger which causes battery voltage to decrease and a REA to address a setpoint change of the battery voltage annunciator from 110 VDC to 130 VDC. From this REA design change process (DCP) 06-103 was initiated to implement the modification for battery charger upgrade and alarm setpoint change.

Further reviews of the CAP identified Plant Issue N-2002-0262 which documented inoperability of '2H' EDG for low battery voltage resulting from cold temperatures and wind gusts. Moreover, from 1999 through 2001 there were nine Plant Issues involving EDG battery low voltage, occurring during the months of September through May that had general causes related to poor voltage regulation coupled with aging of components, and involved five instances of battery voltage less than the TS limit.

The inspectors also reviewed other indications of EDG battery voltage available to the control room operators and noted a chart recorder with the same alarm setpoints as the aforementioned annunciators. The inspectors also identified that the Unit 2 plant computer system (PCS) has indications, V2BY011A and V2BY012A, for 2H and 2J batter voltage respectively. The inspectors noted that these indications have low and low-low alarm setpoints of 129.5VDC and 129VDC respectively. However, the alarms had been defeated due to nuisance alarms with uncompleted work requests initiated on November 9, 2005. The inspectors determined that the alarms were due to brief, intermittent decreases of indicated battery voltage for which the licensee initiated CR091336 to evaluate and correct. The licensee also initiated CR093473 to evaluate why the PCS alarm problem had not been corrected because they could have been used to provide an early warning of battery voltage problems.

Finally, the inspectors also reviewed the licensee's use of local meteorological information available on the PCS and via their internal communications. These indications are relied upon to know when the appropriate adverse weather procedures should be entered. The inspectors noted that on the day of the event the licensee entered 0-AP-41, "Severe Weather," due to a high wind advisory from the National Oceanic and Atmospheric Administration (NOAA). Additionally, the licensee had a standing entry in their risk program for 0-AP-41 due to freezing/icing conditions. The inspectors also noted that the licensee initiated more frequent local monitoring of the battery chargers during cold weather conditions including work orders to allow electrical

maintenance to periodically adjust voltage as required. However, the inspectors determined that these actions did not preclude inoperability of the respective EDG.

The inspectors concluded that the licensee had prior knowledge of a condition adverse to quality which was the EDG battery charger reduced voltage output in low temperature ambient conditions. The inspectors also concluded the licensee had reasonable opportunity to take prompt corrective actions to ensure the battery chargers remained within ambient temperature conditions to ensure operability. An example is the licensee action to install a fan-heater component per GOP to ensure the EDG governor temperature remains greater than the low limit of 60 degrees Fahrenheit. The inspectors determined that the licensee's actions for increased monitoring during cold weather periods was insufficient to preclude EDG inoperability.

Analysis: The inspectors determined that the failure to implement prompt corrective actions for a known condition adverse to quality as required by 10 CFR 50, Appendix B, Criterion XVI, is a performance deficiency. The inspectors reviewed IMC 0612, Appendix B, and determined the finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of equipment performance because prompt corrective actions were not implemented to preclude inoperable EDGs due to low battery charger voltage. The inspectors reviewed IMC 0609, Appendix A, and determined that the finding was of very low safety significance or Green because it did not result in a loss of operability due to a design or qualification deficiency, did not represent an actual loss of safety function, did not result in a train being out of service longer than allowed by TS, and was not potentially risk significant due to possible external events. The cause of this finding involved the cross-cutting area of problem identification and resolution, the component of the CAP and the aspect of appropriate corrective action, P.1(d), because no corrective actions were taken to ensure the battery chargers operated in an adequate temperature environment.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part that conditions adverse to quality are promptly identified and corrected. Contrary to this, on February 10, 2008, both '2H' and '2J' EDGs were discovered inoperable due to low battery voltage because the licensee failed to take prompt corrective actions for a previously identified condition adverse to quality related to battery charger operation in low ambient temperatures. Because the finding is of very low safety significance and because it has been entered into the licensee's CAP as CR 090845, this violation is being treated as a Green NCV, consistent with Section VI.A .1 of the NRC Enforcement Policy: NCV 05000339/2008003-03, Inoperable Unit 2 Emergency Diesel Generators Due to Failure to Implement Corrective Actions for Battery Chargers.

NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT
05000338/2008003, 05000339/2008003, AND 07200056/2007001 as issued omitted this NCV.

I do not concur with the omission of this NCV based on the following:

The draft NCV can stand on its own merits as documented above. However, I bring attention to IMC 0612 Appendix E, Section 2, Example a

While performing a review of a completed surveillance test, the

system engineer determines that operators performing the test had made a calculation error when determining the leak rate of a power-operated relief valve's nitrogen accumulators. When calculated correctly, the actual check valve leakage exceeded the surveillance leakage rate's acceptance criterion in the surveillance procedures (but not the Technical Specifications surveillance requirement). The surveillance had been completed a week earlier and the system had been returned to service. The allowable leakage rate was below that used in the design assumptions for sizing of the accumulators and it was determined that with the identified leakage, the valves would be able to perform the required number of strokes assumed in the accident analysis.

The violation: The Technical Specification surveillance test's allowable check valve leakage rates were exceeded and the system was returned to service.

Minor because: The limit exceeded was an administrative limit. Actual check valve leakage rates, based on testing history, have always been significantly low enough to meet the required number of valve strokes.

Not minor if: Maintenance records indicated that historical check valve leakage rates were too high bringing the ability of the valves to meet the required number of valve strokes into question or Technical Specification limits were exceeded.

This example and its associated more than minor criteria are quite similar to the above issue regarding the 2H and 2J emergency diesel generator battery chargers. Both involve failure to meet a Technical Specification required value and a history that brings into question the ability of the equipment to perform its intended function.

Additionally, the nearly 9 year history of cold weather issues with these pieces of equipment, the defeating of alarms with setpoints specifically established at the Technical Specification required limit, and the licensee's effective implementation of other methods to combat the effects of cold ambient temperatures on equipment support this NCV as drafted.

ISSUE: Failure of an Air Start Check Valve on the '1H' EDG

Violation Proposed by the Inspectors

The Inspectors proposed that the issue be classified as a self-revealing non-cited violation (NCV) of Technical Specification 5.4.1.a (Administrative Controls - Procedures) and a Green finding.

Re-Classification of the Violation

The report, to be issued, classified the issue as a self-revealing non-cited violation (NCV) of Technical Specification 5.4.1.a (Administrative Controls - Procedures) and a Green finding.

Basis for Re-Classification in the Inspection Report

The finding and violation remain classified as in the original report. However, the cross-cutting issue was re-assessed and subsequently removed from the report. The procedure deficiencies were not indicative of current performance in any manner, including the aspects associated with the operating experience review.

ISSUE: '2H' EDG Standby Lube Oil Pump

Violation Proposed by the Inspectors

The Inspectors, in their original submittal on July 7, 2008, proposed that the issue be classified as an NRC identified non-cited violation (NCV) for failure to comply with Technical Specification 3.7.8 (Service Water System) and a Green finding; as well as a licensee identified violation (LIV) of 10 CFR 50, Appendix B, Criterion V (Instructions, Procedures, and Drawings) for not prescribing adequate work instructions for maintenance on the '2H' emergency diesel generator (EDG) standby lube oil pump.

Discussions between the inspectors and regional management occurred throughout July, which resulted in the issue being re-characterized by the inspectors in a subsequent revision of the report that was submitted on July 28, 2008.

On July 28, 2008, the Inspectors proposed that the issue be classified as a self-revealing NCV of 10 CFR 50, Appendix B, Criterion V, for not prescribing adequate work instructions for maintenance on the '2H' EDG standby lube oil pump and a Green finding.

Re-Classification of Violation

The report, to be issued, will not include a violation of Technical Specification 3.7.8, but will include an LIV of 10 CFR 50, Appendix B, Criterion V for not prescribing adequate work instructions for maintenance on the '2H' EDG standby lube oil pump.

Basis for Re-Classification in the Inspection Report

The basis for not including the violation of Technical Specifications in the report was that the licensee staff correctly implemented Technical Specifications from the time the '2H' EDG inoperability was discovered until the unit 1 service water pump (SWP) 'B' and '2H' EDG were returned to operable status; therefore, there was no performance deficiency.

The following timeline describes the events:

- 03/29/2008: Licensee installed the wrong impeller on the '2H' EDG standby lube oil pump. At this time the licensee did not know that an incorrect impeller had been installed. The EDG passed its post maintenance test.

NORTH ANNA 2008-003 NON-CONCURRENCE
NRC FORM 757 SECTION C – TO BE COMPLETED BY DOCUMENT SPONSOR

- 04/01/2008: Unit 1 SWP 'B' was removed from service and the correct service water Technical Specification action statement was entered (assuming '2H' EDG was operable).
- 04/01/2008: According to the inspectors oil leakage was initially observed on '2H' EDG.
- 04/04/2008: Oil leakage continued to be observed and condition reports were written to address the leakage.
- 04/05/2008: System engineering was contacted. Operators performed an air roll of the EDG at the system engineer's request. Excessive oil leakage was identified on the '2H' EDG during the air roll and the EDG was declared inoperable. Operators correctly declared the EDG's associated SWP inoperable also and correctly applied Technical Specifications.
- 04/05/2008: Further investigation revealed that the wrong impeller had been installed on the standby lube oil pump.
- 04/06/2008: Unit 1 SWP 'B' was returned to operable status.
- 04/09/2008: '2H' EDG was returned to operable status.

Following the installation of the wrong impeller, the EDG passed its post maintenance test, thereby providing the licensee assurance that the maintenance was successful and that the EDG would be able to perform its intended safety function. The licensee noted oil leakage from the EDG and continued to monitor the leakage. At the time that the first SWP was removed from service, the licensee had not declared the EDG inoperable, which was determined to be reasonable at the time that the leakage was first identified. The licensee continued to monitor the oil leakage and contacted the system engineer, who recommended an air roll of the EDG. When operators performed the air roll, excessive oil was apparent, at which time the EDG was declared inoperable. Because the unit 1 'B' SWP was previously inoperable, the operators correctly declared the EDG and associated SWP (second inoperable SWP) inoperable as well. Therefore, no Technical Specification violation existed from the time the '2H' EDG was discovered to be inoperable.

The licensee determined that the cause of the oil leakage was the installation of an incorrect impeller on the standby lube oil pump. The exact time at which the EDG would not have been able to perform its intended safety function is not known; however, the licensee did write an LER stating that the EDG had the potential for hydraulic lock beginning on March 29, 2008, which was based on an engineering evaluation completed on April 17, 2008. The licensee also stated in the LER that they conservatively considered the EDG to be inoperable from March 29, 2008 after the maintenance was performed. It was determined that the licensee did not miss opportunities to question the EDG operability because the oil leakage was identified by the licensee and pursued as the condition worsened, which resulted in the licensee entering the condition into their corrective action program. After the air roll was performed, the EDG was appropriately declared inoperable.

Furthermore, a phase 1 significance determination screening was performed by regional inspectors resulting in a significance of Green. A Region II Senior Risk Analyst (SRA) was consulted to ensure that the phase 1 screening performed by the regional inspectors was performed correctly. Also the SRA performed a preliminary calculation that also supported a significance of Green. The SRA's conclusion confirmed the licensee's probabilistic risk assessment as was documented in their LER which was submitted in June 2008.

The report, to be issued will include an LIV of 10 CFR 50, Appendix B, Criterion V for not prescribing adequate work instructions for maintenance on the '2H' EDG standby lube oil pump,

NORTH ANNA 2008-003 NON-CONCURRENCE
NRC FORM 757 SECTION C – TO BE COMPLETED BY DOCUMENT SPONSOR

as it was initially proposed for inclusion in the report. The oil leakage was discovered through routine walkdowns of the EDG, which is part of a normal licensee process or program. The subsequent oil leakage prompted the licensee to review the maintenance that was performed. The licensee's review of the completed maintenance determined that the wrong impeller had been installed in the standby lube oil pump due to inadequate work instructions. Manual Chapter (MC) 0612, "Power Reactor Inspection Reports," states that most LIVs are discovered through a licensee program or process. Therefore, it was determined appropriate to classify the issue as an LIV, consistent with the guidance in MC-0612.

ISSUE: '2H' and '2J' Emergency Diesel Generator (EDG) Batteries Found Out of Spec

Violation Proposed by the Inspectors

The Inspectors proposed that the issue be classified as a self-revealing non-cited violation (NCV) 10 CFR 50, Appendix B, Criterion XVI (Corrective Action) and a Green finding for a failure to take prompt corrective actions for a previously identified condition adverse to quality.

Deletion of Violation/Finding

The report, to be issued, does not include the proposed violation or finding.

Basis for Deletion of Violation/Finding

The low battery voltage (condition adverse to quality) was corrected by the licensee before exceeding the Technical Specification Allowed Outage Time (AOT); therefore, it did not represent a performance deficiency or violation of 10 CFR 50, Appendix B, Criterion XVI for failure to promptly correct a condition adverse to quality. The licensee had interim corrective actions / compensatory measures in place, in the form of more frequent monitoring by Operations personnel, of the EDG battery voltages, during periods of high winds and low temperatures. The licensee discovered the issue when voltage was only one volt below the Technical Specification limit as a direct result of their increased monitoring. The licensee took immediate and effective corrective action to bring the battery voltage back to within specifications. According to the inspectors, the licensee brought the respective battery voltages to within specifications approximately five minutes from the point of discovery, thereby complying with the Technical Specification AOT and promptly correcting the condition adverse to quality. The licensee did not declare both EDGs inoperable at the same time; however, if the licensee would have declared both EDGs inoperable at the same time prior to correcting the battery voltages, the short period of time that was required to elevate the battery voltages above the Technical Specification limit would have been within the Technical Specification AOT.

Furthermore, the licensee had long term corrective actions in place at the time of the inoperability of the EDGs. The licensee had developed engineering packages to replace all four EDG battery charges as a permanent solution to the adverse weather consequences relating to low battery voltage. At the time of this report, the licensee had already completed three out of four battery charger replacements with plans to complete the fourth this summer. The long term corrective actions, coupled with the short term compensatory measures, constituted actions that were effective in promptly identifying and correcting conditions adverse to quality.

Lastly, the inspectors did not document any EDG inoperabilities due to adverse weather affects on battery voltage during the period of 2002 to February 2008. This supports the adequacy of the compensatory measures for monitoring the EDG batteries voltages.

ISSUE: Large Electric Motor Maintenance Program

Violation Proposed by the Inspectors

The Inspectors, in their original submittal on July 7, 2008, proposed that the issue be classified as a self-revealing Green non-cited violation (NCV) of Technical Specification 5.4.1.a (Administrative Controls - Procedures) for not establishing procedural requirements for testing of large electric motors to identify insulation degradation on unit 2 service water pump (SWP) 'B' and unit 2 reactor coolant pump (RCP) 'B'.

Discussions between the inspectors and regional management occurred throughout July, which resulted in the issue being re-characterized by the inspectors in a subsequent revision of the report that was submitted on July 28, 2008.

On July 28, 2008, the Inspectors then proposed that the issue be classified as a self-revealing Green NCV of Technical Specification 5.4.1.a for not establishing procedural requirements for rewinding motors that resulted in the failure of unit 2 SWP 'B'.

Deletion of Violation/Finding

The report, to be issued, does not include the proposed violation or finding because more inspection is needed to determine if a performance deficiency exists.

Basis for Deletion of Violation/Finding

It was determined that no performance deficiency or Technical Specification 5.4.1.a violation existed for not performing optional testing for motor insulation degradation. The licensee had procedural requirements in place to test for insulation degradation. Testing for insulation degradation using other methods beyond what the licensee had in place was a licensee optional program enhancement, which is not required by Technical Specification 5.4.1.a. Based on testing requirements in place at the time of the failure, and previous performance of large motors at North Anna, it was not reasonable for the licensee to be expected to foresee the failure of the SWP or the RCP.

When the issue was re-characterized by the Inspectors on July 28, 2008 as a failure to establish procedure requirements for rewinding motors, there was not sufficient time to ensure that the issue was properly evaluated and correctly classified. Due to the timing of the re-characterization and content of the material presented, it was determined that the issue was not yet ready for inclusion in the report. More inspection is needed to ensure that a performance deficiency exists and that it is accurately characterized.

Mark Bates

From: Rodney Clagg
Sent: Tuesday, August 12, 2008 4:20 PM
To: Mark Bates
Cc: Leonard Wert; James Moorman
Subject: Non-Concurrence

All,

I wish to have my non-concurrence package for NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000338/2008003, 05000339/2008003, AND 07200056/2007001 made publicly available.

Regards,
Rodney

Rodney L. Clagg
Resident Inspector
Region II, Division of Reactor Projects

North Anna Power Station Office: 540-894-5421
P. O. Box 490 Fax: 540-894-5650
Mineral VA 23117 Email: Rodney.Clagg@nrc.gov
 Pager:800-272-5643 / 7080