

## Three Mile Island 1

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### Initiating Events



**Significance:** Nov 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Procedure Errors During Reactor Coolant System Cooldown and Mid-Loop Operation**

Control room operators did not properly follow plant operating procedures for a reactor coolant system cooldown and draindown to a mid-loop condition. The procedure errors resulted in exceeding the reactor coolant system temperature limit and prolonging the time spent in the higher risk mid-loop condition. The same plant operating procedures were inadequate and did not establish steps to positively control the pressurizer cooldown rate at all times. Consequently, the pressurizer cooldown rate technical specification limit was nearly exceeded. The procedure problems increased the risk for a loss of reactor coolant system inventory control while the plant was drained down in the mid-loop condition. The safety significance of this finding was very low (Green) because redundant safety measures were not affected and remained in place to prevent an inadvertent loss of reactor coolant system inventory control. Technical specification 6.8, "Procedures and Programs," requires that written procedures be established, implemented, and maintained to control refueling operations. The control room operators' failure to follow operating procedure 1103-11, "Reactor Coolant System Inventory Control," was a violation of technical specification 6.8, "Procedures and Programs."

Inspection Report# : [2001007\(pdf\)](#)



**Significance:** Jun 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Control Room Operators did not Properly Acknowledge a Computer Alarm Indicating a Leaking Reactor Coolant System Safety Relief Valve**

Control room operators did not properly acknowledge a computer alarm indicating a leaking reactor coolant system safety relief valve (SRV) for about 100 minutes. The safety significance of the operator delay was very low (Green) because the SRV seat leakage did not have an immediate affect on continued plant operation. The seat leakage also did not alter the opening characteristics of the SRV. 10 CFR 50, Appendix B, Criterion V, "Procedures," requires, among other requirements, that activities affecting quality shall be accomplished in accordance with procedures. TMI emergency procedure 1202-29, "Pressurizer System Failure," listed two existing symptoms that required a more timely implementation for this instance. The control room operators' untimely implementation of TMI emergency procedures 1202-29, "Pressurizer System Failure," constituted a violation of 10 CFR 50, Appendix B, Criterion V, "Procedures."

Inspection Report# : [2001004\(pdf\)](#)

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### Mitigating Systems



**Significance:** Feb 19, 2002

Identified By: NRC

Item Type: FIN Finding

#### **Failure to initiate prompt actions to identify an inoperable SSC**

Operators failed to initiate prompt actions to identify an inoperable intake structure bar rake and to evaluate the affect on plant risk from this emergent equipment issue. The intake structure is a support system for several safety-related river water cooling systems. The error resulted in AmerGen not taking appropriate risk management actions in response to the failed rake. The safety significance of AmerGen's failure to promptly initiate actions to investigate the inoperable 'C' bar rake was very low (Green), because the 'C' traveling screen, and the bar rakes and traveling screens in the 'A' and 'B' intake channels remained operable.

Inspection Report# : [2001013\(pdf\)](#)



**Significance:** Feb 19, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Take Adequate Corrective Actions for Monitoring Equipment Performance**

AmerGen failed to take adequate corrective actions to address previous ventilation system heater failures and allowed the auxiliary building temperature to fall below the design basis limit. The failure challenged the operability of the containment purge isolation valve and the boric acid heat trace system located in the auxiliary building. This problem also occurred in November 2000. The safety significance of AmerGen's failure to maintain auxiliary building temperatures above the design basis limit was very low (Green), because maintenance personnel restored the temperature above the 60 F limit prior to the operability of risk significant structures, systems, or components being adversely affected. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, AmerGen failed to identify auxiliary building temperature below the design limit in December 2001 and also failed to take adequate corrective actions in response to the November 2000 problem to assure that auxiliary building temperatures remained above the design basis limit at all times.

Inspection Report# : [2001013\(pdf\)](#)



**Significance:** Feb 19, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Follow Regulatory Requirements for Monitoring Equipment Performance**

AmerGen failed to establish proper inservice test (IST) reference values and acceptance criteria for the 'B' decay heat removal river water pump (DR-P-1B) following a modification that replaced the pump internals with an improved design. The errors resulted in establishing non-conservative acceptance criteria that would have allowed significant pump degradation to occur before requiring corrective actions to be taken. The safety significance of this finding was very low (Green) because DR-P-1B remained within the correct acceptable performance range and there was no undetected, negative trend in pump performance. TMI technical specification 4.2.2 requires inservice testing of DR-P-1B to be conducted in accordance with the American Society of Mechanical Engineers (ASME) Code. The IST engineers' failure to establish proper reference values and acceptance criteria for DR-P-1B following modification to improve pump performance was a violation of the technical specification requirement to conduct inservice testing in accordance with the ASME Code.

Inspection Report# : [2001013\(pdf\)](#)

**Significance:** N/A Feb 01, 2002

Identified By: NRC

Item Type: FIN Finding

#### **Summary Paragraph from the Supplemental Inspection for a White EFW Inspection Finding**

The inspectors concluded that, in general, AmerGen's root cause evaluation in response to the inoperable emergency feedwater pump was of sufficient detail to identify broad causes and appropriate corrective actions. Notwithstanding, the inspectors determined that implementation of some emergency feedwater pump corrective actions was not successful for two later risk significant equipment degraded conditions. Those implementation problems involved the 'B' decay heat closed cycle cooling water pump (DC-P-1B) and the 'A' decay heat removal pump (DH-P-1A). The DH-P-1A problems lingered because the inservice test program was not effectively used. The DC-P-1B excessive oil leak condition was not evaluated in a timely manner because the oil monitoring and trending program data was not being adequately reviewed by operation's shift management. Due to AmerGen's acceptable performance in evaluating the root causes and establishing adequate corrective actions for the inoperable emergency feedwater pump, the white inspection finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." The inspectors reviewed implementation of the associated corrective actions and as stated, identified two finding of very low safety significance (Green).

Inspection Report# : [2001014\(pdf\)](#)



**Significance:** Feb 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Oil Monitoring and Trend Program**

An emergency feedwater corrective action was not successfully implemented and allowed a significant oil leak on the 'B' decay heat closed cycle cooling water pump (DC-P-1B) to go unevaluated for 15 days. Increased oil additions to DC-P-1B were known and recorded in an operator database, but were not evaluated in a timely manner against established acceptance criteria for excessive loss. The safety significance of this finding was very low (Green) because DC-P-1B was ultimately determined to remain operable with the increased oil leakage. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, among other requirements, that measures shall be established to assure that conditions adverse to quality, such as deficiencies, are promptly identified and corrected. The operators' failure to identify a significant oil leak on DC-P-1B was a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Inspection Report# : [2001014\(pdf\)](#)



**Significance:** Feb 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Inservice Test Program**

An emergency feedwater corrective action was not successfully implemented and allowed increased inservice testing (IST) vibration results on the 'A' decay heat removal pump (DH-P-1A) to go unevaluated for four days. The increased vibration was also obtained during a post-maintenance test. DH-P-1A was returned to service and declared operable without establishing or evaluating new IST reference vibration values. An AmerGen investigation later determined that an improperly installed bearing support assembly was the cause for the increased pump vibration. The safety significance of this finding was very low (Green) because the redundant decay heat removal pump, DH-P-1B, remained operable for the duration. One decay heat removal pump satisfied technical specification (TS) requirements for the pertinent plant conditions. TS 4.2.2 required, among other requirements, that IST of ASME Code Class 2 pumps, such as DH-P-1A, shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(f). AmerGen's failure to establish new IST reference values after DH-P-1A maintenance was a violation of TS 4.2.2.

Inspection Report# : [2001014\(pdf\)](#)



**Significance:** Dec 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions for Safety-Related Inverter Problems**

AmerGen failed to adequately correct a 120Vac safety-related inverter unreliable condition. A modification to eliminate rapid cycling of the 120Vac inverters between ac and dc sources during transient ac source conditions was inadequate and ineffective for some potential engineered safeguards actuation system initiation scenarios. The safety significance of the inverter unreliable condition was more than minor because five ac inverters that support vital instrumentation and control were returned to service with an inadequate modification and an unreliable condition. The inverter problems could have prevented the fulfillment of the emergency feedwater system. The safety significance of this finding is not yet finalized pending review of AmerGen's licensee event report to provide more details about the operability and availability of the emergency feedwater system while the plant was in hot shutdown conditions. AmerGen's failure to fully evaluate an unreliable safety-related inverter problem and assure adequate corrective actions to preclude repetition is an apparent violation of 10CFR50, Appendix B, Criterion XVI, "Corrective Action."

Inspection Report# : [2001008\(pdf\)](#)

Inspection Report# : [2002002\(pdf\)](#)



**Significance:** Dec 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to Follow Procedure During Decay Heat Pump Reassembly**

Technical Specification 6.8, Procedures and Programs, requires written procedures be established, implemented, and maintained in accordance with Regulatory Guide 1.33, Quality Assurance Program Requirements. Appendix A to Regulatory Guide 1.33 requires, among other items, maintenance that can affect the performance of safety-related equipment be performed in accordance with written procedures, documented instructions, or drawings. Contrary to this requirement, maintenance technicians improperly reassembled the A decay heat pump bearing stiffener after pump seal repairs using insufficient instructions. The pump was returned to service and the improperly assembled bearing stiffener impacted pump vibration. This issue was more than minor because long term operation of the risk-significant pump was jeopardized. AmerGen entered this problem in the corrective action process (CR 00081907).

Inspection Report# : [2001008\(pdf\)](#)



**Significance:** Nov 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions for Emergency Feedwater Pump Maintenance**

AmerGen failed to take adequate corrective actions to ensure the bearing housing cover bolts on the 'B' emergency feedwater (EFW) motor driven pump were properly installed following maintenance. In February 2001, system engineers found loosening of the cover bolts to be the root cause for an extended period of pump inoperability. Adequate corrective actions were not established to ensure the cover bolts were properly tightened following corrective maintenance activities. The safety significance of this finding was very low (Green) because AmerGen took immediate corrective actions to ensure proper cover bolt installation prior to returning the pump to service. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires that for significant conditions adverse to quality corrective action shall be taken to preclude repetition. AmerGen's failure to assure the EFW motor driven pump outboard bearing cover housing was properly reassembled was a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Inspection Report# : [2001007\(pdf\)](#)



**Significance:** Nov 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

### Procedure Errors During Main Steam Safety Valve Surveillance Testing

Maintenance and test supervisors failed to properly implement surveillance procedure 1303-11.3, "Main Steam Safety Valves." The procedure error resulted in the setpoints for two safety valves being left outside the tolerance prescribed by the test procedure. The safety significance of this finding was very low (Green), because AmerGen took immediate corrective action to retest the two valves. Technical specification 6.8, "Procedures and Programs," requires that written procedures shall be established, implemented and maintained covering surveillance and test activities of equipment that affects nuclear safety. The supervisors' failure to implement the main steam safety valve test procedure as written was a violation of technical specification 6.8, "Procedures and Programs." Inspection Report# : [2001007\(pdf\)](#)

 Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

### Inoperable Turbine Bypass Valves

Auxiliary operators did not properly follow an operating procedure for starting a main condenser vacuum pump. This error challenged main condenser vacuum and locked out automatic operation of the turbine bypass valves. The control room operators did not properly follow an alarm response procedure for low main condenser vacuum. The control room operators' procedure errors unnecessarily maintained the turbine bypass valves locked out for an additional six-and-a-half hours. The safety significance of the degraded main condenser vacuum and inoperable turbine bypass valves was very low (Green) because operators were able to restore the main condenser vacuum and the turbine bypass valves were inoperable for less than the technical specification allowed outage time. The control room operators' failure to follow the low main condenser vacuum alarm response procedure as written was a violation of technical specification 6.8, "Procedures and Programs," which requires, among other requirements, that written procedures be implemented for applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2. Appendix "A" of Regulatory Guide 1.33 requires a procedure for loss of condenser vacuum. Inspection Report# : [2001006\(pdf\)](#)

 Significance: Aug 11, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

### Operator Error During Emergency Feedwater Automatic Start Circuit Surveillance Testing

Equipment operators failed to verify that a turbine-driven emergency feedwater pump steam admission valve operated consistent with surveillance procedure requirements. The safety significance of the procedure error was very low (Green) because AmerGen reperformed the missed portion of the surveillance and verified proper operation of the valve. Technical specification 6.8, "Procedures and Programs," requires, among other requirements, that written procedures shall be established and implemented for surveillance activities of equipment that affect nuclear safety. The emergency feedwater system is important to safety because it provides a method of decay heat removal during a loss of main feedwater. The operators' failure to perform the surveillance test as written constituted a violation of technical specification 6.8. Inspection Report# : [2001005\(pdf\)](#)

Significance: N/A Aug 11, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

### Intermediate Building Operation Above Design Basis Temperature

10 CFR 50, Appendix B, Criterion III, "Design Control," requires in part that measures be established to assure applicable design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to this requirement, operators removed the intermediate building ventilation system from service for planned maintenance without assessing the impact of the loss of ventilation on building temperatures. The issue was more than minor because equipment important to safety was affected by elevated temperatures above design basis considerations. AmerGen engineers performed an analysis to determine the impact on the environmental qualification of critical components. AmerGen entered this problem in the corrective action process. Inspection Report# : [2001005\(pdf\)](#)

 Significance: Jul 13, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

### Cross Connecting of Nuclear River Water and Secondary River Water

The NRC found that design assumptions, in the form of administrative controls, were not correctly translated into plant procedures for cross connecting the safety related nuclear service river water system (NR) to the non-safety related secondary river water system (SR) in the event of a total loss of SR. The absence of the administrative controls represented a credible impact on safety in that the NR system pumps could have been operated in a runout condition and thus jeopardize the ability of the NR system to perform its safety related function. This issue affects the mitigating cornerstone since the NR system is used during engineered safety operations to provide cooling water to required heat loads. This issue was determined to be of very low safety significance



using the SDP because there was no actual loss of safety function, the very low probability of operating the SR and NR system in a cross connected alignment, and the seismic qualifications of the non-safety related SR system. The failure to incorporate design basis assumptions into procedures for the NR system was considered a non-cited violation of 10 CFR 50, Appendix B. Criterion III, Design Control.

Inspection Report# : [2001010\(pdf\)](#)



**Significance:** Jul 13, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Pump Surveillance Acceptance Standards**

The NRC identified that inadequate acceptance criteria were used in surveillance procedure 1300-3D, "IST of Decay Heat River Water Pumps and Valves," for testing the decay heat (DH) river water pumps after they were replaced in late 1999. The inadequate surveillance acceptance criteria occurred by not correctly translating the design basis parameters of the replacement pumps. As a result, the testing did not assure the pumps would deliver the design basis required flow of 6000 gallons per minute as specified in the Updated Final Safety Analysis Report. The lack of proper acceptance criteria in surveillance procedure 1300-3D had a credible impact on safety because the pumps could have unknowingly degraded below the real acceptable performance limit. Since there was no actual degradation of the DH river water system subsequent to the installation of the new pumps, this issue was determined to be of very low safety significance by the SDP. The failure to incorporate design assumptions into procedures for the DH river water pumps was considered a non-cited violation of 10 CFR 50, Appendix B. Criterion III, Design Control.

Inspection Report# : [2001010\(pdf\)](#)



**Significance:** Jun 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **System Engineers did not Promptly Initiate Corrective Actions to Understand the Cause of a Reactor Trip Breaker Failure to Reclose Following Testing**

System engineers did not promptly initiate corrective actions to understand the cause of a reactor trip breaker failure to reclose following testing and to investigate the potential for a common mode failure that could have adversely affected the reactor protection system's capability to rapidly shut down the reactor. The safety significance of the delay in initiating corrective actions to understand the failure mechanism of the faulty breaker was very low (Green) because subsequent investigation revealed the breaker's capability to perform its safety-related function to trip open was not compromised. The failed breaker was immediately replaced with a spare and was retested prior to returning the reactor protection system to service. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," requires, among other requirements, that conditions adverse to quality be promptly corrected. The system engineers' failure to promptly initiate corrective actions and have the faulty reactor trip breaker investigated constituted a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Inspection Report# : [2001004\(pdf\)](#)



**Significance:** Jun 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **AmerGen Failed to Establish New Reference Values for the 'B' Decay Heat Removal Pump Prior to Returning the Pump to Service Following a Modification to the Pump Bearing**

AmerGen failed to establish new inservice testing reference values for the 'B' decay heat removal pump following pump modification in August 2000. The safety significance of the non-conservative reference values was very low (Green) because subsequent vibration measurements never exceeded a level requiring corrective action. Technical specification 4.2, Reactor Coolant System Inservice Inspection and Testing, require inservice testing of the decay heat removal system to be conducted in accordance with the American Society of Mechanical Engineers (ASME) Code. The ASME Code requires that when a test reference value is affected by maintenance or repair, a new reference value shall be determined prior to declaring the pump operable. AmerGen's failure to establish new reference values for the 'B' decay heat removal pump prior to returning the pump to service following a modification constituted a violation of the technical specification requirement to conduct inservice testing in accordance with the ASME Code.

Inspection Report# : [2001004\(pdf\)](#)



**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Adequately Assess the Increase in Risk that Resulted from Proposed Maintenance on the 'C' Traveling Screen and the 'A' Bar Rake**

AmerGen failed to assess the increase in risk that resulted from proposed maintenance on the 'C' traveling screen and the 'A' bar rake in the intake screen house. The safety significance of the absent risk evaluation was very low (Green) because the 'C' traveling

screen was never rendered inoperable before a risk evaluation was performed. The inspectors considered that the operators would have been able to restore both the 'C' traveling screen and 'A' bar rake to automatic operation in a relatively short time because only administrative tagouts prevented automatic operation. 10 CFR 50.65 (a)(4) requires before performing maintenance activities, including preventive maintenance, that licensees shall assess and manage the increase in risk that may result from proposed maintenance activities. Failure to assess the increase in risk that resulted from proposed maintenance on the 'C' traveling screen and the 'A' bar rake constituted a violation of 10 CFR 50.65 (a)(4).

Inspection Report# : [2001003\(pdf\)](#)



**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Promptly Identify an Out-of-Specification Emergency Diesel Fuel Oil Sample**

Chemistry supervisors did not promptly report an out-of-specification emergency diesel fuel oil storage tank bottom sediment sample to the main control room and did not initiate a corrective action process (CAP) form for more than 24 hours. The timeliness for senior reactor operators evaluating the out-of-specification result was important because both emergency diesel generators were supplied by the single diesel fuel oil storage tank. The safety significance of the delayed report was very low (Green) because the emergency diesel generation operation was never adversely affected. 10 CFR 50, Appendix B, Criterion XVI., "Corrective Action," requires, among other requirements, that deficiencies, deviation, and defective material be promptly identified. The chemistry supervisors' delay in reporting the out-of-specification fuel oil sediment result to the main control room supervisors and delay in submitting a CAP form constituted a violation of 10 CFR 50, Appendix B, Criterion XVI., "Corrective Action."

Inspection Report# : [2001003\(pdf\)](#)



**Significance:** May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

#### **Failure to Obtain the Proper Torque Value When Reassembling the 'A' Nuclear Service Closed Cooling Water Pump Coupling Bolts**

Technical Specification 6.8, Procedures and Programs, requires written procedures be established, implemented, and maintained in accordance with Regulatory Guide 1.33, Quality Assurance Program Requirements. Appendix A to Regulatory Guide 1.33 requires, among other items, maintenance that can affect the performance of safety-related equipment be performed in accordance with written procedures, documented instructions or drawings. Contrary to this requirement, maintenance technicians failed to obtain the proper torque value when reassembling the 'A' nuclear service closed cooling water pump coupling bolts. The pump was returned to service with the coupling bolts torqued to a value less than required by the vendor technical manual. This issue was more than minor because operability of the pump was affected. AmerGen entered this problem in the corrective action process (CAP T2001-0347).

Inspection Report# : [2001003\(pdf\)](#)



**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: VIO Violation

#### **Emergency Feedwater Pump Found Inoperable**

AmerGen failed to promptly identify and correct a significant condition adverse to quality for an oil leak and vibrations on the 'A' emergency feedwater pump (EF-P-2A) of sufficient magnitude to cause the pump to be inoperable. An excessive oil leak was known by auxiliary operators to have existed for more than ten days before initiating corrective action to identify the cause. System engineers failed to investigate an unexplained step change in pump vibrations during the most recent pump inservice test. The increased vibrations were later determined to be directly related to the condition causing the oil loss. AmerGen's failure to promptly identify and correct this significant condition adverse to quality constituted a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." This finding was evaluated as low to moderate safety significance (White). The oil loss and increased pump vibrations resulted from loose bolts on the pump bearing housing. The condition that resulted in the loosening of the bolts during pump operation existed for 39 days. The significance determination process (SDP) Phase 2 analysis evaluated EF-P-2A being inoperable for greater than 30 days as low to moderate safety significance. An SDP Phase 3 analysis was performed to confirm this result. On July 5, 2001, the finding was determined to be White following a June 25, 2001, regulatory conference.

Inspection Report# : [2001002\(pdf\)](#)



**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Procedure for Nuclear Service Closed Cooling Water Pump Maintenance**

AmerGen used an inadequate maintenance procedure to change the pump bearing oil on the "A" nuclear service closed cooling water system pump (NS-P-1A). The procedure used by the maintenance technicians did not ensure the bearing was refilled to the

proper level following the oil change. Additionally, the functionality and alignment of the bearing automatic oiler were not verified following corrective maintenance. AmerGen's failure to have adequate procedures to ensure maintenance activities conducted on NS-P-1A were satisfactorily accomplished, constituted a violation of 10 CFR Part 50, Appendix B, Criterion V, "Procedures." The safety significance of the procedure inadequacies was very low because operability of NS-P-1A was not compromised. However, if left uncorrected, and similar maintenance practices are continued, improper bearing lubrication may result and pump operability could be affected.

Inspection Report# : [2001002\(pdf\)](#)



**Significance:** Feb 10, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to Ensure Turbine Driven Emergency Feedwater Pump Main Steam Trap Remained in Continuous Service**

Technical Specification 6.8, Procedures and Programs, requires written procedures be established, implemented and maintained in accordance with Regulatory Guide 1.33, Quality Assurance Program Requirements. Appendix A to Regulatory Guide 1.33 requires, among other items, written procedures be established for operating the main steam system. Three Mile Island Unit 1 (TMI) equipment operators failed to ensure that a main steam trap remained in continuous service to support operation of the turbine driven emergency feedwater pump. This failure was contrary to operating procedure "Main Steam System", 1106-14. This problem was described in TMI corrective action program number T2001-0082.

Inspection Report# : [2000009\(pdf\)](#)



**Significance:** Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement Compensatory Measures for an Inoperable Battery Room Fire Door**

Control room operators were not prompt to follow-up on a safety-related battery room fire door problem. Control room operators made a nonconservative operability determination for the fire door. AmerGen's failure to implement compensatory measures for the battery room fire door problem is a violation of TMI operating license condition 2.c.(4), Fire Protection. The safety significance of this problem was very low because fire propagation between the safe shutdown trains protected by the battery room fire door was not credible.

Inspection Report# : [2000008\(pdf\)](#)



**Significance:** Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Promptly Identify and Correct a Deficiency in a Turbine Driven Emergency Feedwater Governor Oiler**

System engineers failed to initiate corrective actions and ensure that a new turbine-driven emergency feedwater (TDEFW) pump governor oiler would not become deficient in the same manner as the replaced oiler. System engineers also failed to identify in the corrective action program that oil drained from the governor oiler was reused in the system. These problems are a violation of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action. The safety significance of this problem was very low because previous inservice testing provided reasonable assurance that the TDEFW pump remained operable with the deficient oiler. The oil that drained from the governor had been visually inspected prior to reusing it to refill the oiler.

Inspection Report# : [2000008\(pdf\)](#)



**Significance:** Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish Adequate Controls and Ensure Battery Room Temperatures were Maintained Above the Design Basis**

AmerGen failed to maintain battery room temperatures within the values assumed in design basis calculation. The condition affected both station storage batteries. AmerGen's failure to establish controls to verify battery room temperatures is a violation of 10 CFR Appendix B, Criterion III, Design Control. The safety significance of this finding was very low. Subsequent analysis by Engineering showed both station storage batteries remained operable at the lower battery room temperatures.

Inspection Report# : [2000008\(pdf\)](#)



**Significance:** Dec 15, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Include Two Nuclear Services Closed Cooling Water System Valves in the Inservice Testing Program per**

**Technical Specification 4.2.2**

A non-cited violation of Technical Specification 4.2.2 was identified associated with the failure to include nuclear services closed cooling water system (NSCCWS) valves NS-V-84 and NS-V-85 in the inservice testing program. The valves are required to be leak tight to ensure that the NSCCWS can perform its heat removal functions without excessive loss of inventory to the reactor building emergency cooling water system during accident conditions. The risk associated with the failure to include the NSCCWS valves in the inservice testing program was determined to be very low safety significance because during the last refueling outage the licensee had obtained reasonable indication that the valves had adequate leak tightness and would perform their function.

Inspection Report# : [2000010\(pdf\)](#)



**Significance:** Jul 01, 2000

Identified By: NRC

Item Type: FIN Finding

**Inadvertent Draindown of the Sodium Hydroxide Tank**

While restoring from a scheduled outage on the A train of the building spray system, operators inadvertently left open a vent valve on the sodium hydroxide tank supply line. Water drained from the sodium hydroxide tank into the auxiliary building sump, resulting in an unplanned entry into a Technical Specification (TS) limiting condition for operation. The issue had very low safety significance because operators took prompt action to isolate the open drain path, and the level in the sodium hydroxide tank was restored within the TS allowed outage time. This was considered a minor violation.

Inspection Report# : [2000004\(pdf\)](#)



**Significance:** Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish an Adequate Testing Procedure for Letdown Line Modification**

A non-cited violation was identified in that AmerGen did not establish an adequate test procedure to periodically verify the operability of a recently modified letdown system isolation valve closure circuit. The modified circuit performs a safety function and, as such, required periodic testing. Failure to establish an adequate testing program is a violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The inspectors determined that the safety significance of this issue was very low because: (1) post-installation testing of the modified circuit verified that it would function as designed; and, (2) periodic verification of the functionality of similar circuits is normally performed during refueling outages. AmerGen entered this into its corrective program. As such, this issue was treated as a non-cited violation.

Inspection Report# : [2000004\(pdf\)](#)

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## Barrier Integrity



**Significance:** Dec 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to Follow Procedure During Reactor Coolant System Heatup**

Technical Specification 6.8, Procedures and Programs, requires written procedures be established, implemented, and maintained in accordance with Regulatory Guide 1.33, Quality Assurance Program Requirements. Appendix A to Regulatory Guide 1.33 requires, among other items, that operating from cold shutdown to hot standby be performed in accordance with written procedures. Contrary to this requirement, operators did not adhere to operating procedure 1102-1, "Plant Heatup to 525°F" and did not reduce plant heatup rate after once through steam generator tube to shell differential temperature exceeded +50°F. This issue was more than minor because plant operators exceeded a limit designed to protect the reactor coolant system boundary. AmerGen entered this problem in the corrective action process (CR# 00084683).

Inspection Report# : [2001008\(pdf\)](#)



**Significance:** Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow the Procedural Requirements for Collecting and Measuring Emergency Core Cooling System Leakage**

Auxiliary operators failed to follow procedure requirements for measuring and recording emergency core cooling system (ECCS) leakage outside containment. Senior reactor operators further failed to take action to investigate recorded ECCS leakage readings above the technical specification limit. The failure to follow procedure requirements is a violation of Technical Specification 6.8.b, Procedures and Programs. The safety significance of this finding was very low because actual ECCS leakage never exceeded the



technical specification limit.  
Inspection Report# : [2000008\(pdf\)](#)

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## Emergency Preparedness



**Significance:** G May 25, 2001

Identified By: NRC

Item Type: FIN Finding

### **Technical Support Center Weaknesses During an Emergency Preparedness Exercise**

The Technical Support Center (TSC) Coordinator did not exhibit command and control over all TSC activities and resources. Further, the exercise observers and participants did not identify the command and control problems as an exercise weakness or an area requiring corrective action. This finding, although not a violation of NRC requirements, was evaluated by the significance determination process (SDP). TSC weaknesses during an Emergency Preparedness (EP) exercise, if left uncorrected, could affect the entire emergency response organization during an actual plant event. The TSC critique problems screened to Green in phase one of the EP SDP because the issues did not involve any risk significant planning standards.

Inspection Report# : [2001009\(pdf\)](#)

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## Occupational Radiation Safety

**Significance:** N/A Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

### **Failure to Repair and Maintain Respiratory Protective Equipment in Accordance with 10 CFR 20.1703**

10 CFR 20.1703 requires, in part, that the licensee implement and maintain a respiratory protection program that includes written procedures regarding maintenance and repair of respiratory protective equipment. On June 16, 2001, the licensee determined that it had failed to replace ruptured discs in accordance with specified guidance for repair and maintenance of self-contained breathing apparatus. The issue involving this matter was addressed by various corrective actions and entered into the corrective action process (CAP Nos. T2001-481, 0331, and 0606). This issue is being treated as a Non-Cited Violation.

Inspection Report# : [2001006\(pdf\)](#)

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## Public Radiation Safety

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## Physical Protection

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## Miscellaneous

**Significance:** N/A Mar 22, 2002

Identified By: NRC

Item Type: FIN Finding

### **Summary Conclusion from the Problem Identification and Resolution Inspection Regarding Effectiveness of the PI&R Program**

Based on the sample selected for review, the NRC concluded the implementation of the corrective action program at Three Mile Island Unit 1 was adequate. The licensee was generally identifying problems and entering them into the corrective action program at an appropriate threshold. Problems were evaluated and corrected in a timely fashion based on the risk significance of the issue. However, some instances were identified where lower risk significant equipment problems were not entered into the corrective action program for resolution. The licensee's evaluations were generally of sufficient detail to reasonably identify the problem causes and provide for effective corrective actions. The evaluations of significant problems were of sufficient depth to identify likely root or apparent causes, and address the potential extent of the circumstances contributing to the problem. Corrective actions were specified to address the causes of problems. However, instances were identified where evaluations were not sufficiently detailed to

assess the impact of equipment deficiencies or delayed maintenance on plant systems. One instance, regarding an incomplete evaluation of the impact of inoperable service water traveling screen control instruments, was determined to be a finding of very low safety significance (Green).

Inspection Report# : [2002003\(pdf\)](#)

**Significance: N/A** Jul 01, 2000

Identified By: NRC

Item Type: FIN Finding

**Inadvertent Draindown of the Sodium Hydroxide Tank**

The inadvertent draindown of the sodium hydroxide tank and unplanned entry into a Technical Specification limiting condition for operation represented a continued recurrence of very low safety significant human performance errors in Operations and indicates that corrective actions for resolving some prior human performance issues were not totally effective.

Inspection Report# : [2000004\(pdf\)](#)

Last modified : July 22, 2002