U. S. NUCLEAR REGULATORY COMMISSION (NRC)

REGION II

Docket Nos. 50-424 and 50-425
License Nos. NPF-68 and NPF-81

Report No: 50-424/97-01, 50-425/97-01

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant (VEGP) Units 1 and 2

Location: 7821 River Road
Waynesboro, GA 30830

Dates: February 2 through March 15, 1997

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Enclosure 2

EXECUTIVE SUMMARY

Vogtle Electric Generating Plant Units 1 and 2
NRC Inspection Report 50-424/97-01, 50-425/97-01

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a six-week period of resident inspection. It includes the results of an announced inspection by a regional fire protection inspector. In addition, it includes the results of a special inspection conducted on January 29 and 30, 1997 by NRR personnel of the Instrumentation and Controls Branch, Division of Reactor Controls and Human Factors.

Operations

- In general, the conduct of operations was professional and safety-conscious (Section O1.1).

- Plant Review Board (PRB) discussions observed by the inspectors were thorough and appropriately focused on safety (Section O7.1).

- The Independent Safety Engineering Group (ISEG) assessment of configuration control deficiencies was a positive example of licensee self-assessment (Section O7.2).

- The inspectors' review of a licensee-identified issue associated with the quality of rounds performed by an operator on January 6, 1997, found that the rounds were of questionable quality (Section O8.1).

Maintenance

- Maintenance activities were generally completed thoroughly and professionally (Section M1.1).

- An example of poor work practices was identified for the inadvertent defeating of an automatic start feature for the Unit 1 engineered safety feature (ESF) 1A chiller during corrective maintenance (Section M1.3).

- A violation was identified as a result of the discovery by the inspectors that the positions of six valves in the Unit 2 auxiliary feedwater system were not being properly verified (Section M3.1).

Engineering

- The engineering evaluation associated with maintenance on valve 2-HV-3548, reactor coolant system hot leg sample line valve, was detailed, thorough, and appropriate (Section E1.1).

- The commercial grade item dedication process at Cooper Energy Services (CES) was not acceptable in that CES did not verify the adequacy of the 701 DSC design by the performance of an acceptable design review or by the performance of a suitable testing program (Section E7.1).

- The licensee failed to maintain records of safety-related equipment settings and calibration constants under configuration control for the diesel generator governor modifications (Section E7.2).

- The licensee performed appropriate point of installation Electromagnetic Interference (EMI) emissions testing. The 701 DSC EMI qualification was sufficient to ensure proper operation in the actual EMI environment in which it will be used (Section E7.3).

- The licensee's 10 CFR 50.59 safety evaluation and supporting documentation did not provide an acceptable basis to conclude that the 701 governor modification does not create a possibility for a malfunction of a different type than any previously evaluated in the UFSAR. The 10 CFR 50.59 safety evaluation did not provide adequate justification to conclude that installing the 701 governor does not involve an unreviewed safety question (Section E7.4).

Plant Support

- Appropriate action has been taken to resolve the Thermo-Lag issue at Vogtle (Section F1.1).

- The relatively low number of open maintenance work orders (MWO), minimal number of degraded fire barrier assemblies, and good material condition of the fire protection components and fire brigade equipment, indicated that appropriate emphasis had been taken on the maintenance and operability of the fire protection components (Section F2.1).

- Fire brigade radio communication transmission problems and one pre-action sprinkler system not being maintained to the design requirements were identified as program weaknesses (Section F2.1).

- Appropriate surveillance and test procedures were provided for the fire protection features. However, a violation was identified due to the failure to meet the 12-month operability test frequency required for the fire detection devices (Section F2.2).

- The fire protection program implementing procedures were adequate and met licensee and NRC requirements. Implementation of procedures was good. Control of ignition sources, transient combustibles, and general housekeeping was very good (Section F3).

- The fire brigade organization and training met procedure requirements. Performance by the brigade during a drill was good, except for radio communications problems between the fire brigade leader and brigade members. A well qualified state-certified fire brigade training instructor and good fire brigade training facilities were provided on site (Section F5).

- Thorough audits and assessments were made of the facility's fire protection program and appropriate corrective actions were taken to resolve the identified issues (Section F7).

- A violation was identified for the failure to revise the Updated Final Safety Analysis Report (UFSAR) to reflect as-built Appendix R fire protection related plant configurations (Section F8.1).

Report Details

Summary of Plant Status

Unit 1 operated at full power throughout the entire inspection period.

Unit 2 operated at full power throughout the entire inspection period.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

Using Inspection Procedure 71707, the inspectors conducted frequent reviews of ongoing plant operations. In general, the reviews indicated that the conduct of operations was satisfactory.

O2 Operational Status of Facilities and Equipment

O2.1 Safety-Related Walkdowns

a. Inspection Scope (71707)

The inspectors walked down the following engineered safety feature (ESF) systems as part of the routine inspection effort to verify availability and overall condition of the safety-related systems.

Unit 1 and 2 Residual Heat Removal (RHR) Systems

b. Observations and Findings

The inspectors verified proper system configurations both electrically and mechanically for the above ESF systems through walkdowns of selected portions of the system in the plant, walkdowns of main control room boards, and reviews of system drawings. The inspectors also observed the overall material condition of system components during the walkdowns. Minor issues identified were provided to the licensee for resolution.

c. Conclusions

The inspectors concluded that the systems reviewed were available to perform their intended function and that the systems were properly aligned. No significant items or discrepancies were noted during these inspections. The inspectors did note that the licensee has substantially improved the general area conditions in the four RHR pump rooms. These pump rooms have been decontaminated and are no longer posted as contaminated areas.

03 Operations Procedures and Documentation

03.1 Walkdown of Clearances (71707)

During the inspection period, the inspectors walked down the following clearances:

19600324	RHR, loop 1, isolation
29600289	RHR, pump A, downstream suction from hot leg
19700085	Parts removed from spare breaker
19700131	Emergency Hydraulic Control pump train B, repair oil leaks

b. Observations and Findings

The inspectors did not identify any problems during these walkdowns.

07 Quality Assurance in Operations

07.1 Plant Review Board (PRB) Meetings (40500)

The inspectors attended PRB meetings on February 4 and 5, 1997. The meeting on February 4 was a normally scheduled PRB and the majority of the items discussed were routine in nature. Included in the PRB review at this meeting was proposed temporary modification 96-V2T054. This temporary modification was developed as a contingency in the event that repairs were required to valve 2-HV-8812A, Refueling Water Storage Tank (RWST) to RHR Isolation Valve. The temporary modification was developed to install freeze seals on either side of the valve if repairs to the valve were necessary.

This temporary modification was also discussed at length during the February 5, PRB meeting.

The PRB discussions were thorough and appropriately focused on safety. In particular, the inspectors noted that questions raised by the PRB enhanced the quality of the safety evaluation performed for the temporary modification.

07.2 Configuration Control Self-Assessment (40500)

The inspectors reviewed an Independent Safety Engineering Group (ISEG) document titled, "Configuration Control Deficiency Card (DC) Assessment." It provided ISEG's review of the licensee's performance in the area of configuration control as documented in DCs generated between August 1995 and January 1997. The inspectors observed that the analysis contained in this assessment was extremely detailed and thorough. Further, specific recommendations for enhancements to improve licensee performance in this area were also included. The inspectors concluded that this was a positive example of licensee self-assessment.

O8 Miscellaneous Operations Issues

O8.1 Review of Non-Technical Specification (TS) Operator Rounds

a. Inspection Scope (71707)

The inspectors reviewed an issue concerning rounds completed by a plant equipment operator (PEO) in Unit 2 on January 6, 1997. The NRC was informed of this issue by the licensee at the beginning of the report period. The licensee indicated that the performance of these rounds did not meet their expectations. An independent review of this issue was conducted by the inspectors. As part of this review, the inspectors also reviewed other PEO rounds documented during January 1997. The inspectors also discussed with plant management the circumstances surrounding the performance of the rounds on January 6, as well as, management's expectations in this area.

b. Observations and Findings

PEO non-technical specification rounds are grouped by specific buildings and areas. Auxiliary building rounds are performed in accordance with Procedure 11881-1/2, Auxiliary Building Round Sheets.

This issue involved PEO performance of the Unit 2 auxiliary building rounds. This effort requires general inspection and numerous readings (approximately 58) of gauges and other indicators regarding the status of various components within the building. A review of the completed Unit 2 auxiliary building rounds for January 6, 1997, indicated that data was recorded where appropriate. The rounds were completed in approximately 44 minutes. A review of three other documented PEO rounds examined by the inspectors indicated that the average length of time to complete a round was approximately 1 hour 20 minutes. Based on computer records, the January 6 rounds were entered into the hand-held computer used by building operators, when the PEO was in the technical support center and not in the auxiliary building.

The licensee documented this issue in deficiency card (DC) 2-97-033. The inspector's review of the DC identified that the initial disposition did not address the issue of the adequacy of the rounds performed by the PEO. The inspectors' observations of the initial disposition was discussed with plant management. As a result, the licensee revised the disposition. Disciplinary action was taken against the involved PEO. In addition, the licensee has and is currently counseling shift operators on management's expectations for the proper performance of TS and non-TS rounds.

c. Conclusion

The inspectors concluded that the rounds completed by a PEO in the Unit 2 auxiliary building on January 6, 1997 were of questionable quality.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Maintenance Work Order Observations

a. Inspection Scope (62707)

The inspectors observed portions of maintenance activities involving the following work orders:

19700757	Unit 1 alarm panel module change out
29602495	Reactor coolant system hot leg sample isolation valve 2-HV-3548 packing leak
29700212	2B Diesel Generator (DG) bypass line fuel oil leaks
29700474	2B DG left bank fuel oil leaks
29700476	2B DG fuel oil injection pump number 6, troubleshoot

b. Observations and Findings

The observed maintenance activities were performed satisfactorily.

M1.2 Surveillance Observation

a. Inspection Scope (61726)

The inspectors observed the performance or reviewed the following surveillances and plant procedures:

14420-1	Solid state protection system and reactor trip breaker train A operability test
14495-2	Motor driven auxiliary feedwater (MDAFW) pump train A flow path verification
14545-2	MDAFW train A pump operability test
14802-1	Nuclear service water cooling (NSCW) system train B pump (1-1202-P4-002) and check valve (1-1202-U4-027) inservice test (IST)
14807-2	Quarterly MDAFW pump train A IST
14980-2	DG 2B operability test

b. Observations and Findings

The observed surveillance activities were performed satisfactorily.

M1.3 Unit 1 Engineered Safety Feature (ESF) Train A Chiller Failed To Start

a. Inspection Scope (62707)

The inspectors reviewed an issue concerning a failure to start of the ESF 1A chiller on February 3, 1997.

b. Observations and Findings

On February 3, at 4:20 a.m., the ESF 1A chiller evaporator chill water low flow loop, 1-FI-22425, was removed from service to allow corrective maintenance to be conducted on flow indicator switch 1-FISL-22425 in accordance with maintenance work order (MWO) 19700319. At 4:39 a.m., ESF Chiller Train B was placed in "Stop," in accordance with Procedure 14400-1, Control Room Emergency Filtration Actuation Logic Test, Section 5.2, ESF Chiller Actuation Logic Test. At 4:46 a.m., during performance of a subsequent step in the procedure, operations personnel identified that the ESF 1A chiller failed to start. At 4:49 a.m., the ESF Train B chiller was restored to auto. Operations verified the auto start of ESF Train A chiller at 5:02 a.m.. No other adverse equipment conditions resulted during performance of Procedure 14400-1 or MWO 19700319. Limiting condition for operation (LCO) action statements for the ESF chillers were entered/exited as appropriate.

A review of the circumstances surrounding performance of MWO 19700319 indicated that there was a failure of the Unit Shift Supervisor (USS) and the instrument and controls (I&C) technician to properly communicate the scope of the work to be performed and the impact on plant equipment. A subsequent review of the single line electrical diagram revealed that upon removing the flow indicator loop from service, that a low flow chiller trip was generated, preventing the auto start. The electrical drawing was not reviewed by the USS prior to authorizing this work. In addition, other factors contributed to the failed chiller start. This included: the performance of the ESF 1A chiller surveillance simultaneously with the flow indicator MWO; the MWO being authorized on an opposite train week (i.e., Train A component being worked on a Train B week) indicating that the work may not have been scheduled properly or thoroughly pre-planned; the USS not following the plan-of-the-day schedule; and the MWO being removed from a work scheduler's desk prematurely rather than the package being issued to the field as is typically done.

During the review of this event, the inspectors learned that, in general, USSs were unaware of the impact of flow indicator loop on the chiller system (i.e., loss of the automatic start feature) when removed from service. As a result, the licensee has proposed a revision to Procedure 24362-1, ESF Chiller Chilled Water Flow Trains A and B 1F-22425/1F-22426 Channel Calibration, to include a precaution on the impact of removing the flow indicator from service on the ESF chiller system

c. Conclusions

The inspectors concluded that the inadvertent inoperability of a safety-related component due to a lack of understanding of the work authorized and poor communications between departments was an example of poor work practices.

M3 Maintenance Procedures and Documentation

M3.1 Technical Specification (TS) Surveillance Not Conducted

a. Inspection Scope (62707)

The inspectors reviewed the circumstances associated with the discovery that the positions of six valves in the Unit 2 auxiliary feedwater (AFW) system were not being properly verified. This included reviews of Procedure 11610-2, AFW System Alignment; Procedure 11867-2, Safety Related Locked Valve Verification Checklist; Procedure 14495-2, AFW System Flow Path Verification; Vogtle Electric Generating Plant Design Manual, Design Control Number DC-1302, AFW System; Technical Specifications (TSs); and Design Change Package (DCP) 95-V2N0019-1-1, AFW Miniflow Bypass Addition.

b. Observations and Findings

On February 13, 1997, the inspectors observed and notified operations personnel that valves 2-1302-U4-180 through -185, though properly positioned, were not locked. Following the licensee's confirmation of the inspectors' observation, the valves were locked in the proper position and a deficiency card (DC) was generated.

These six valves are in the recirculation piping for the Unit 2 AFW pumps and are downstream of three normally locked open valves. These valves were installed during the fifth refueling outage (2R5) by DCP 95-V2N0019-1-1. Two valves are installed in parallel in each of the three Unit 2 AFW recirculation lines. The valves were installed to permit AFW pump recirculation flow to be directed to the Unit 2 condensate storage tank (CST) serving as the AFW suction source.

TS SR 3.7.5.1 requires verification that each AFW manual valve in each water flow path that is not locked, sealed, or otherwise secured, is in the correct position every 31 days. Likewise, prior to implementation of improved technical specification (ITS) on January 23, 1997, TS surveillance 4.7.1.2.1 required a similar verification once per 31 days on a staggered test basis.

Procedure 14495-2, AFW System Flow Path Verification, is used to accomplish the current surveillance requirement. Prior to implementation of ITS it was also used to satisfy TS surveillance

4.7.1.2.1. The six AFW valves in question were not included in this surveillance.

The inspectors determined that the positions of the six valves were verified following installation during a valve lineup conducted near the end of Unit 2 Fifth Refueling Outage (2R5) on October 5, 1996. The positions of all six valves were verified again on February 13, 1997, in the process of installing locks on the valves. (The positions of five of the six valves were verified on February 6, 1997, during an AFW system lineup verification.)

c. Conclusion

The inspectors concluded that the licensee failed to update Procedure 14495-2 or install locks on the valves following installation of the valves during 2R5. As a result, the licensee failed to conduct TS required surveillance testing for approximately 4 months. This is identified as Violation (VIO) 50-425/97-01-01, AFW System Surveillance Not Conducted As Required By TS.

III. Engineering

E1 Conduct of Engineering

E1.1 Engineering Seismic Evaluation

a. Inspection Scope (37551)

The inspectors reviewed an engineering evaluation performed to support maintenance on the reactor coolant system (RCS) hot leg sample line valve, 2-HV-3548.

b. Observations and Findings

Maintenance to correct a packing leak on 2-HV-3548 was conducted per maintenance work order (MWO) 29602495. To support this activity, engineering personnel performed an evaluation to seismically restrain the valve actuator during the maintenance. The valve stem packing work required that the actuator be removed using a chain-fall connected to an I-beam located in the overhead in the general vicinity of the valve. The licensee was concerned that if a seismic event occurred during the performance of the maintenance activity, with the valve actuator unrestrained, surrounding equipment could be susceptible to damage.

The valve maintenance was completed on February 7, 1997, without incident.

c. Conclusions

The inspectors reviewed and discussed the evaluation with onsite engineering personnel prior to commencement of the work activity. The inspectors concluded that engineering personnel appropriately addressed equipment concerns while developing this evaluation. The inspectors concluded that this engineering evaluation was detailed, thorough, and appropriate.

E7 Quality Assurance in Engineering Activities - Woodward 701 Digital Governor Modification

a. Scope

The inspectors reviewed the licensee's software quality assurance measures related to the Woodward 701 governor modification to the emergency diesel generators (DGs). Specifically, the inspectors reviewed the commercial grade item dedication process for the 701 governor, startup test procedures and tuning results, electromagnetic interference (EMI) qualification testing results, and the 10 CFR 50.59 safety evaluation. The licensee installed the Woodward 701 governor in Units 1 and 2 in 1994 to replace analog type Woodward governors. The digital governor comprises a generator loading control (GLC), generator load sensor (GLS), and a microprocessor-based digital speed control (DSC) that contains approximately 12,000 lines of software code.

b. Observations and Findings

The following paragraphs (E7.1 through E7.4) address the inspectors' observations, findings, and conclusions.

E7.1 Commercial Grade Item Dedication of Woodward 701 Governor

a. Inspection Scope (52002)

The inspectors reviewed the commercial grade item dedication activities that were performed to qualify the Woodward 701 DSC software for a safety-related application. Cooper Energy Services (CES) qualified the Woodward 701 DSC under their 10 CFR 50 Appendix B program.

b. Observations and Findings

In May 1994, CES audited the Woodward Governor Company (WGC) software development process for the 701 DSC. The NRC inspectors reviewed the CES software audit checklist and found that it provided a comprehensive plan for evaluating the WGC software development process. CES identified several deficiencies during the audit, which were documented in four vendor program deficiency notices dated September 13, 1993. The deficiency notices described important software quality assurance functions that were not performed or documented during the development

of the 701 DSC software. Specifically, the audit report and deficiency notices revealed that there was no formal software requirements specification, no source code and unit module testing, no traceability of the source code back to requirements, no regression testing, no controls on supplier software, minimal verification and validation (V&V) activities, and no notification of software modifications to external users. CES also identified weaknesses in the WGC software configuration management process.

In response to the audit findings, WGC placed the 701 DSC source code and the supporting software development tools under configuration control prior to shipment of the deliverable software product to CES. Additionally, WGC revised and developed several software development procedures and indicated that future software development would be performed according to the revised procedures. However, WGC did not apply the revised software development processes to the existing 701 DSC software version.

CES found that WGC did not perform source code validation testing or regression testing of the 701 DSC software. Instead, WGC relied on early prototype testing and functional testing of the integrated hardware-software product to confirm coding accuracy. Vendor program deficiency notice 953829-02 recommended that WGC perform V&V of the software by means of comprehensive testing of the source code and unit modules, including all decision points, loops, and range of conditions. WGC did not perform this structural (white box) source code testing, but instead indicated that the current version of the 701 DSC software has been validated based on extensive non-nuclear field experience (over 800 units in service). Subsequently, at the request of CES, WGC performed a design review of the software. The inspectors reviewed the WGC software design review documentation provided to CES but could not conclude from the available documentation that the review was of acceptable detail.

In CES Engineering Report GO-01-1994, "Software Verification and Validation Plan for a Woodward 701 Governing System," dated April 15, 1994, and Engineering Report GO-02-1994, "Software Validation Test Report for a Woodward 701 Digital Speed Controller," dated May 23, 1994, CES described the V&V activities to be performed as part of the 701 DSC software qualification. Since the 701 DSC software had been previously developed, CES used the Software Verification and Validation Plan (SVVP) primarily to validate, rather than verify, the software product. Software validation was accomplished through WGC factory testing and CES bench (simulation) type testing. The SVVP also stated that site installation testing would be performed and would serve as additional validation. The inspectors found that the factory acceptance and bench type tests did not appear to sufficiently test the entire design envelope, including bounding conditions, of the Woodward 701 DSC. CES did not perform a detailed analysis of the abnormal conditions and

events that could potentially interfere with the software accomplishing its safety function. Section E7.2 describes the inspectors' review of the site installation testing results.

Lastly, CES credited the operating history of the 701 DSC in commercial applications for providing a statistical basis for historical software validation. However, documentation supporting this statistical basis was not available for review. Therefore, the inspectors could not conclude that there was sufficient data available to credit 701 DSC field experience as part of the software validation.

c. Conclusion

Based on the review of the CES audit report and the software audit checklist, the inspectors concluded that the software audit was well-planned and very thorough. However, WGC corrective actions for the problems identified in the vendor program deficiency notices were not applied to the existing 701 DSC software version. The inspectors concluded that the WGC design review of the software was too cursory to resolve the issues identified in the audit and that there was not adequate analysis of historical commercial experience to credit validation based on successful operating history. In addition, the inspectors concluded that the factory acceptance and bench simulation type tests do not appear to satisfy the system validation requirements since they do not address abnormal conditions that could potentially interfere with the software accomplishing its safety function. Consequently, the inspectors concluded that the lack of a structured software development process and lack of source code validation presents a vulnerability for introduction of a previously unanalyzed software failure mechanism for the 701 DSC.

Based on these findings, the inspectors concluded that the commercial grade item dedication process at CES was not acceptable. Specifically, the inspectors concluded that, contrary to 10 CFR 50, Appendix B, Quality Assurance Criteria, Section III, Design Control, CES did not verify the adequacy of the 701 DSC design by the performance of an acceptable design review or by the performance of a suitable testing program. This is identified as an example of Violation (VIO) 50-424, 425/97-01-04, Inadequate Testing of 701 Governor - Two Examples.

E7.2 Vogtle Site Acceptance Testing of Woodward 701 Governor

a. Inspection Scope (52002)

The inspectors reviewed the CES startup test procedures for the Woodward 701 governor to determine whether all safety functions and appropriate input/output combinations were tested. Additionally, the inspectors

compared the current system setpoints for the 701 DSC in the Train 1A DG to those contained in the dynamic tuning procedure data sheets.

b. Observations and Findings

The startup test procedures contained both static and dynamic test procedures for the 701 governor system. The static test procedure was intended to verify that the 701 governor components were correctly installed and operating. Specifically, this procedure contained instructions for presetting the GLC and GLS and for verifying the 701 DSC field device inputs and parameter settings. The dynamic test procedure provided methods for tuning the 701 governor for optimal performance. The objective of the dynamic adjustments was to obtain the optimal, stable engine speed response from minimum load to full load. All setpoints are saved permanently in a nonvolatile memory, which does not require batteries or other power sources to retain data. Entries can be changed using a removable hand-held programmer. The inspectors found that the startup tests did not appear to sufficiently test the entire design envelope, including bounding conditions, of the 701 governor.

The licensee accompanied CES to witness 701 governor tuning procedures on a diesel generator operated by the City of Springville, Utah. The licensee stated that this trip provided many insights into the 701 governor tuning process. The licensee used this experience to develop better tuning practices on the Vogtle DGs. The licensee stated that WGC 701 governor tuning does compensate for some DG performance characteristics; however, tuning alone did not resolve all DG idiosyncracies. For example, differences in compression pressures between the DG pistons and the location of the speed sensing magnetic pickup units also affected governor performance.

Using the 701 DSC hand-held programmer, the licensee downloaded the 701 DSC setpoints from the Train 1A DG. The inspectors compared these setpoints to the setpoints in the original startup test procedure data sheets dated September 30, 1994. The documented setpoints did not agree with the downloaded setpoints. The licensee indicated that the magnetic pickup unit for sensing engine speed was relocated from the front of the engine to the generator side of the engine shortly after the completion of the original startup test procedure and, as a result, the original data sheets had been updated. The licensee was unable to locate the revised data sheets during the inspection period.

The licensee obtained a record of the 701 DSC calibration constants for the Train 1A DG from CES dated March 24, 1996. The inspectors compared the CES data with the data downloaded from the Train 1A DG. Table 1 lists parameter values which the inspectors found to be inconsistent with the CES recorded values. In a conference call with the inspectors

on February 11, 1997, the licensee could not explain the reason for the data discrepancies; however, none of the data discrepancies affect system performance within the design specifications of the Train 1A DG.

Table 1. Calibration Constant Variations

Variable	As Found by NRC	As Recorded by CES
Window Width 1*	13.0	15.0
Gain 2*	0.1064	0.07270
Reset 2**	1.00	0.90
Compensation 2**	0.10	0.050
20 mA Tach*	490	458
4 mA Tach*	440	442
Torque Limit Breakpoint*	447	450

* Identified by licensee
** Identifed by inspectors

c. Conclusions

The inspectors found the licensee's actions to dynamically tune the 701 governor for optimal performance to be acceptable. However, the inspectors concluded that the startup test procedures did not test an acceptable range of input/output combinations, including conditions that bound the 701 governor design envelope. Therefore, the inspectors concluded that the licensee tests do not appear to satisfy the software and integrated system validation requirements. Based on these findings, the inspectors concluded that, contrary to 10 CFR 50, Appendix B, Quality Assurance Criteria, Section III, Design Control, the licensee did not verify the adequacy of the 701 governor design by the performance of an acceptable design review or by the performance of a suitable testing program. This is identified as an example of VIO 50-424, 425/97-01-04, Inadequate Testing of 701 Governor - Two Examples.

In addition, contrary to 10 CFR 50, Appendix B, Quality Assurance Criteria, Section XVII, Quality Assurance Records, the licensee failed to maintain records of safety-related equipment settings and calibration constants under configuration control. Tests of the Train 1A DG have shown that the settings in question have had no adverse affect on system performance. The discrepancies between the current 701 DSC setpoints for the Train 1A DG and the setpoints contained in the test data sheets

is identified as VIO 50-424, 425/97-01-05, Failure to Maintain Records of 701 DSC Setpoints.

E7.3 Electromagnetic Interference Qualification of Woodward 701 DSC

a. Inspection Scope (52002)

The inspectors reviewed EMI testing results to verify that the Woodward 701 DSC EMI qualification was sufficient to ensure proper operation in the actual EMI environment in which it will be used.

b. Observations and Findings

WGC performed laboratory EMI testing of the Woodward 701 DSC using the guidance in MIL-STD-461C, "Electromagnetic Emission and Susceptibility Requirements for Control of EMI." Specifically, WGC performed radiated susceptibility testing using MIL-STD-461C test methods RS01 and RS03 and conducted susceptibility testing using MIL-STD-461C test methods CS01, CS02, and CS06.

As documented in Test Report 31319-94M, "Test Report for Point of Installation EMI Mapping of Diesel Generator Room," National Technical System (NTS) performed an EMI point of installation mapping of DG room 2A at Vogtle. The EMI mapping presented the actual EMI levels the 701 DSC would be exposed to when installed. Specifically, NTS performed emissions measurements using MIL-STD-462 test methods CE01 (30 Hz to 15 kHz), CE03 (15 kHz to 50 MHz), and CE07 (switching transients, time domain) and radiated electric and magnetic field emission measurements using test methods REXX (DC magnetic field), RE01 (30 Hz to 50 kHz), RE02 (14 kHz to 1 GHz), and RE02.1 (hand-held radio profile). Tests CE01, CE03, CE07, RE01, and RE02 were performed with the diesel generator shutdown and with the diesel generator operating at 0%, 50%, and 100% generator power. Test RE02.1 was performed with hand-held radios.

In Test Report 31319-94M-1, "Test Report for Analysis of Point-of-Installation and Generic Emissions EMI Mapping Data," NTS compared the measured EMI emission levels to the EMI susceptibility test results obtained during the WGC laboratory EMI testing. As indicated in this test report, NTS recommended at least a six-decibel (dB) safety margin between the measured EMI emission level and the EMI susceptibility test results. The inspectors confirmed that the worst case signal spectra from the conducted susceptibility tests (CS01, CS02 and CS06) is at least 69 dBs greater than the conducted emissions levels found during the site survey. In addition, the worst case signal spectra from the radiated electric field susceptibility tests (RS03) is at least 16 dBs greater than the radiated electric field emission levels. However, the worst case signal spectra from the radiated magnetic field

susceptibility tests (RS01) was only five dBs greater than the radiated magnetic field emissions level in the frequency range of 30 to 60 Hz. Including the plus or minus two-dB measurement amplitude accuracy error of the test equipment resulted in only a three-dB margin. The safety margin increases to the recommended six-dB safety margin at 85 Hz and continues to increase from that point until a frequency of 50 kHz is reached. Based on these test results, NTS proposed that the radiated magnetic field susceptibility test be repeated at a level of 170 dBs to verify that a six-dB safety margin exists above the measured emission level.

WGC originally performed the radiated magnetic field susceptibility test at a level of 166 dBs. The original susceptibility test was not performed at the level prescribed in MIL-STD-461C (180 dB at 50 Hz) because the WGC test equipment did not have the capability to test at that level. WGC indicated that they were confident that the 701 DSC would pass a 170-dB test between 30 and 85 Hz and that they would perform the test at 170 dBs if requested. However, CES and the licensee concluded that the existing three-dB safety margin provided sufficient conservatism and that a revised susceptibility test was not necessary.

Subsequent to the inspection, CES and NTS confirmed the 3-dB margin was associated with the level measured at the generator control panel, bay 1-2 rear. However, the licensee indicated that the 701 DSC was actually installed in bay 3. As supported by Test Report 31319-94M, the specific measurements at bay 3 show at least a 23-dB safety margin between the radiated magnetic field susceptibility and emissions levels. Based on this information, by letters dated February 18 and February 27, 1997, CES and NTS concluded that additional testing is not necessary since the recommended six-dB safety margin is met at the specific point of installation (bay 3).

c. Conclusions

The inspectors concluded that the licensee performed appropriate point of installation EMI emissions testing. The recommended six-dB safety margin between the radiated and conducted susceptibility and emissions tests was satisfied for the specific point of installation of the 701 DSC. Therefore, the inspectors concluded that the 701 DSC EMI qualification was sufficient to ensure proper operation in the actual EMI environment in which it will be used.

E7.4 10 CFR 50.59 Safety Evaluation

a. Inspection Scope (52002)

The inspectors reviewed the licensee's 10 CFR 50.59 safety evaluation to determine whether the licensee addressed digital equipment failures including software common mode failure considerations, and to determine whether an unreviewed safety question was associated with the 701 DSC modification.

b. Observations and Findings

The licensee's 10 CFR 50.59 safety evaluation, associated with Design Change Package (DCP) 93-V1N0050-0-1, dated February 28, 1994, stated that the system level failure modes for the Woodward 701 governing system were the same as for the analog governing system: (1) fail in a manner where the engine speed increases, (2) fail in a manner where the engine speed decreases, and (3) fail as is. In the case of a failure causing the engine speed to increase, a backup mechanical ball head governor would automatically assume control of the engine speed. Should the mechanical governor fail, the engine overspeed trip would stop the engine. The licensee concluded that in the cases of a failure causing the engine speed to decrease or to fail as is, the opposite train DG would be available.

In addition, the licensee did not view software common mode failure as being credible, based on the qualification of the software and the results of EMI, seismic, and 300 start tests. The inspectors did not concur with the licensee's conclusion that software common mode failure is not credible. The inspectors noted that the identical software versions are loaded in each 701 DSC.

c. Conclusions

In reviewing the licensee's 10 CFR 50.59 safety evaluation and supporting documentation, the inspectors concluded that the licensee did not consider software common-mode failure in their 10 CFR 50.59 evaluation as a possible different type of malfunction than any previously evaluated in the Updated Final Safety Analysis Report. The licensee's determination that software common mode failures are not credible based on the software qualification performed by CES and the results of EMI, seismic, and 300 start tests is not considered acceptable. Therefore, the inspectors concluded that there is no basis for the licensee's conclusion that, for the DG failure modes where the engine speed decreases or fails as is, the opposite train DG would be available.

Based on this information, the inspectors concluded that the licensee's 10 CFR 50.59 safety evaluation and supporting documentation did not provide an acceptable basis to conclude that the 701 governor modification does not create a possibility for a malfunction of a different type than any previously evaluated in the FSAR. As a result, the inspectors concluded that the 10 CFR 50.59 safety evaluation did not provide adequate justification to conclude that installing the 701 governor does not involve an unreviewed safety question. This is identified as VIO 50-424, 425/97-01-06, 10 CFR 50.59 Unreviewed Safety Question Determination for Woodward 701 Governor.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) Unresolved Item (URI) 96-02-05: Condensate storage tank (CST) minimum water volume required by Technical Specifications (TSs)

URI 50-424, 425/96-02-05 documents inspector concerns with a discrepancy between the minimum CST volume required by TSs and that determined from analysis of possible accident scenarios. The inspectors reviewed revisions to TS 3.7.6 and 3.7.6.a and the following: Procedures 11610-1 and 11610-2, Auxiliary Feedwater System (AFW) Alignment; Procedures 17017-1 and 17017-2, Annunciator Response Procedures for ALB 17 on Panel 1B2 on Main Control Board; Procedures 14000-1 and 14000-2, Operations Shift and Daily Surveillance Logs; and drawings 2X4DB161-1, Condensate Storage and Degasifier System and 2X4DB161-2, AFW System. The inspectors concluded that the changes made to these documents resolve this discrepancy. This item is closed.

IV. Plant Support

P1 Conduct of Emergency Preparedness (EP) Activities

P1.1 EP Exercise

a. Inspection Scope (71750)

On March 10, 1997, the licensee conducted an EP drill. The inspectors reviewed the EP procedures prior to commencement of the drill and discussed the critique findings with plant management at the completion of the scenario.

b. Observations and Findings

The inspectors observed and reviewed the manning of the emergency facilities. All facilities were manned in a timely manner and as appropriate. Emergency organization manager positions were filled by qualified personnel and, except for some telephones supplied for Nuclear

Regulatory Commission (NRC) use, the facilities were arranged in accordance with the site plan.

At the conclusion of the exercise, the licensee performed a critique that identified a number of exercise objectives which were not met. Most notably, the classification of the event and accountability did not meet their stated objectives. As the event progressed, the emergency director declared a GENERAL emergency although the conditions did not warrant the classification. Also, although the accountability was completed in the required time, there were 21 missing personnel 30 minutes after the SITE AREA EMERGENCY declaration.

c. Conclusions

The licensee did not meet all its stated drill objectives. However, the inspectors concluded that performance of the drill to identify EP deficiencies accomplished its purpose and was therefore useful. The licensee informed the inspectors that as a result of the unsatisfactory objectives, additional drills will be conducted in the near term.

F1 Control of Fire Protection (FP) Activities

F1.1 Resolution of Thermo-Lag Fire Barrier Issue (64704)

a. Inspection Scope

The inspectors reviewed the action taken to resolve the degraded Thermo-Lag fire barrier issues at Vogtle to determine if this action was consistent with licensee and NRC requirements.

b. Observations and Findings

In 1991, the NRC found that Thermo-Lag fire barrier material did not perform to the manufacturer's specifications. The NRC issued NRC Bulletin 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free from Fire Damage," and requested licensees with Thermo-Lag fire barriers to take the appropriate compensatory measures for the areas where the Thermo-Lag fire barriers were installed.

Based on the unfavorable results of Thermo-Lag fire barrier installation tests performed during 1993 and 1994 by the nuclear industry, the licensee elected to remove the Thermo-Lag fire barriers installed at Vogtle. Design Change Package (DCP) 94-V1N0061 and DCP 94-V2N0062 were prepared which provided a design to either re-route the electrical raceways enclosed within Thermo-Lag fire barriers or to replace the Thermo-Lag fire barriers with fire barriers which had been reviewed, tested and approved by a nationally recognized testing laboratory, such

as Underwriters Laboratories, Inc. These DCPs provided separation between safe shutdown components which met the separation requirements of 10 CFR 50, Appendix R, Section III.G.

Work on these DCPs had been completed except for the replacement of the Thermo-Lag on one electrical raceway in the Unit 1 reactor building. This work was scheduled to be completed during the Fall 1997 refueling outage.

The replacement fire barriers consisted of several different types of 3-hour fire rated designs, including: hollow concrete block, gypsum board, Carboline Pyrolite, WR Grace Monokote, and 3M Interam.

The inspectors reviewed the DCP work packages, performed walkdown inspections of the rerouted cables and new fire barriers, and verified that the required changes had been completed. During these walkdown inspections, the inspectors noted that the 3-hour Monokote fire barriers installed around the required redundant circuits for the raceways in Room B77 of the Unit 1 control building and around the redundant cables in the raceways above the mezzanine of Room B31 of the Unit 2 control building contained a number of cracks. The licensee determined that these barriers were degraded and implemented the required compensatory actions. The compensatory measures included an hourly fire watch. The inspectors verified that this required fire watch had been implemented.

c. Conclusions

Appropriate action had been taken to resolve the Thermo-Lag issue at Vogtle.

F2 Status of Fire Protection Facilities and Equipment

F2.1 Operability of FP Facilities and Equipment (64704)

a. Inspection Scope

The inspectors reviewed open fire protection related maintenance work orders (MWOs), the maintenance department's list of fire protection deficiencies, and operation's list of out-of-service fire protection equipment to assess the licensee's performance for returning degraded fire protection components to service. In addition, walkdown inspections were made to assess the material condition of the plant's fire protection systems, equipment and features.

b. Observations and Findings

Maintenance of FP Equipment and Components:

As of February 13, 1997, there were approximately 29 fire protection related open work requests. Most of these work requests involved minor corrective maintenance work items which did not affect the operability of the components or involved systems in non-safety related areas. Two items were related to degraded fire barriers that were identified during this inspection. One item involved a pre-action sprinkler system for the Unit 1A emergency diesel generator (DG) building which was not being maintained in its design configuration, i.e., valve was set wet and water flow alarm had been disconnected. In this configuration, inadvertent sprinkler actuation could go undetected and result in water damage to the emergency DG. This condition had existed since October 1995 due to an exhaust leak on the diesel engine. This leak activated the fire detection system which tripped the sprinkler system each time the diesel engine was operated. During the exit interview, the licensee stated that this situation would be promptly resolved and the sprinkler system restored to its design configuration.

The inspectors toured the plant and noted that, with the exception of the two degraded fire barriers and the one sprinkler system not being maintained in conformance to the design requirements, the fire protection systems were operational, material condition was very good, and components were well maintained.

Fire Brigade Equipment:

The fire brigade turnout gear was stored in the control building adjacent to the control room. Sufficient sets of turnout gear, consisting of coats, pants, boots, helmets, etc., were provided to equip the fire brigade members expected to respond in the event of a fire or other emergency. The equipment was properly stored and well maintained.

During recent fire brigade drills, the fire brigade experienced problems with radio communication. On one drill, the brigade had to rely on runners in order for the fire brigade leader to communicate with the fire brigade members. The licensee determined that this arrangement was not satisfactory. To resolve this issue, the licensee appointed a task force to identity the extent of the problem, and to implement appropriate corrective actions. Pending correction, the poor radio communication problem is identified as a program weakness. Otherwise, the fire brigade equipment was operable, properly stored, and well maintained.

c. Conclusions

The relatively low number of open MWOs, minimal (two) degraded fire barrier assemblies, and good material condition of the fire protection components and fire brigade equipment, indicated that appropriate emphasis had been placed on the maintenance and operability of the fire protection components. However, the problems associated with the poor fire brigade radio communications and the one pre-action sprinkler system not being maintained to the design configuration were identified as weaknesses.

F2.2 Surveillance of FP Features and Equipment

a. Inspection Scope (64704)

The inspectors reviewed the following completed surveillance and test procedures:

- 14951-C, Fire Suppression System Operability Test (Fire Pumps), Monthly. Completed February 4, 1997.

- 14952-C, Fire Suppression System Operability Test (Fire Pumps), Annually. Completed June 26, 1996.

- 14956-C, Fire Suppression - 3-Year Flow Verification. Performed under T-OPER 95-003, Revision 0, Fire Suppression System REA VG-2720 Flow Verification. Completed October 10, 1995.

- 29227-1 and -2, Fire and Smoke Detector Operational Test (Panel LZIP 2-1813-Q3-F27. Completed January 22, 1997.

- 29231-1 and -2, Fire and Smoke Detector Operational Test (Panel LZIP 1-1813-Q3-F31. Completed October 4, 1996.

b. Observations and Findings

The completed fire protection surveillance tests reviewed by the inspectors had been appropriately completed and met the acceptance criteria. The test procedures were good. The data obtained and recorded for each fire pump included multiple points on the pump curve to verify pump performance. The completed test procedures included an evaluation of the test data by the site fire protection system engineer which provided good technical oversight of the tests on the fire protection systems.

The inspectors noted that the surveillance tests for the two fire detector panels included two specific work tasks. These two tasks were initially scheduled to be performed every two years on a staggered test basis. One task performed an operability test on the fire detectors

supplied by the fire alarm panel. The second test included preventive maintenance and sensitivity adjustments for each fire detector followed by an operability test. These tests had initially been scheduled on an annual staggered test frequency to meet the 12-month test frequency specified by Updated Final Safety Analysis Report (UFSAR) Table 9.5.1-10, FP Operability Requirements, Section 1.4.1. However, recently the staggered test frequency had been changed such that the required 12-month test frequency was not being performed. For example, the time between the current test for Panel LZIP 2-1813-Q3-F27, completed on January 22, 1997, and the previous test completed on November 1, 1994, was approximately 25 months and 22 days. The time between the last two tests for Panel LZIP 1-1813-Q3-F31, completed on October 4, 1996, and the test completed on February 11, 1996, was 9 months but the time between this test and the previous test completed on June 17, 1994, was approximately 19 months 11 days.

Paragraph 2.G of the operating license for Units 1 and 2 requires the licensee to implement and maintain in effect all provisions of the approved fire protection program as described in the UFSAR. The failure to perform an operability test at least once per 12 months, as required by UFSAR Table 9.5.1-10, Section 1.4.1, for the fire detectors supplied by these two panels is identified as Violation (VIO) 50-424, 425/97-01-02, Failure to Demonstrate Fire Detectors Were Operable at Least Once per 12 Months.

The licensee reviewed the current test completion data on the approximately 60 fire alarm panels installed within the power block and concluded that there were no current operability concerns. All of the panels had been tested within the past 12 months. However, the two 24 month surveillances for at least 12 panels had been completed on the same date or within 30 days of each other. This resulted in the next scheduled surveillance for 24 months. This would have exceeded the required 12-month test frequency. The licensee was also reviewing historical test data to determine if the 12-month test frequency had been exceeded on additional fire detectors.

c. Conclusions

Appropriate surveillance and test procedures were provided for the fire protection features. However, a violation was identified due to the failure to meet the 12 month operability test frequency required for the fire detection devices.

F3 Fire Protection Procedures and Documentation

a. Inspection Scope (64704)

The inspectors reviewed the following procedures for compliance with the NRC requirements and guidelines:

- 92000-C, Fire Protection Program
- 92005-C, Fire Response Procedure
- 92010-C, Control of Ignition Sources
- 92015-C, Use, Control and Storage of Flammable/Combustible Materials
- 92035-C, Fire Protection Operability Requirements
- 92040-C, Fire Protection Limiting Condition for Operation (LCO) Program

Plant tours were performed to determine procedure compliance.

b. Observations and Findings

The above procedures were the principle procedures issued to implement the fire protection program at Vogtle. These procedures contained the requirements for program administration, controls over combustibles and ignition sources, fire brigade organization and training, and operability requirements for the fire protection systems and features. The procedures were satisfactory and met the licensee's commitments to the NRC.

The inspectors performed plant tours and noted that implementation of the site's fire prevention program for the control of ignition sources, transient combustibles, and general housekeeping was very good.

The coordination and oversight of the facility's fire protection program were good and met the licensee and NRC requirements.

c. Conclusions

The fire protection program implementing procedures were adequate and met licensee and NRC requirements. Implementation of procedures was good. Control of ignition sources, transient combustibles, and general housekeeping was very good.

F5 Fire Protection Staff Training and Qualification

a. Inspection Scope (64704)

The inspectors reviewed the fire brigade organization and training program, and the site's fire fighting preplans to determine if these were in compliance with the facility's fire protection program and the NRC guidelines and requirements.

b. Observations and Findings

The organization and training requirements for the plant fire brigade were established by Procedures 92000-C, FP Program, and 92030-C, Fire Drill Program. The fire brigade for each shift was composed of a fire brigade leader and at least four brigade members from operations. The fire brigade leader was a shift supervisor or shift support supervisor. The other members from operations were plant equipment (non-licensed) operators.

Each fire brigade member was required to receive initial, quarterly and annual fire fighting related training and to satisfactorily complete an annual medical evaluation and certification for participation in fire brigade fire fighting activities. In addition, each member was required to participate in at least two drills per year.

As of the date of this inspection, there was a total of 35 operations trained fire brigade leaders and 41 operations personnel on the plant's fire brigade .

The inspectors reviewed the training and medical records for the fire brigade members and verified that the training and medical records were up to date. A well qualified state-certified fire brigade training instructor and good fire brigade training facilities were provided on site.

During this inspection, the inspectors witnessed a fire brigade drill involving a simulated fire in a charcoal filter unit on Level 3 of the control building. The response of the fire brigade to the simulated fire was good, except for radio communication problems noted between the fire brigade leader and fire brigade members. At times the leader's radio transmissions to the brigade were not received. A critique to discuss the brigade performance and identified weaknesses was held following the drills.

c. Conclusions

The fire brigade organization and training met the requirements of the site procedures. Performance by the brigades during a drill was very

good, except for minor radio communications problems between the fire brigade leader and brigade members. A well qualified state-certified fire brigade training instructor and good fire brigade training facilities were provided on site.

F7 Quality Assurance (QA) in Fire Protection Activities

a. Inspection Scope (64704)

The following audit and self assessment reports were reviewed:

- QA Audit OP20-96/14 — Annual/Biennial FP Audit of June 5, 1996
- QA Audit OP20-95/15 — Annual/Triennial FP Audit of May 1 - 12, 1995
- NML Inspections — Loss Prevention Reports for inspections conducted June 1996 and November 1996

b. Observations and Findings

The QA audits of the site's fire protection program were comprehensive and identified a number of findings, observations and issues to enhance the facility's fire protection program. The inspectors reviewed the audit findings from each QA report and the corrective actions taken on the identified discrepancies. These items had been resolved.

c. Conclusions

Thorough audits and assessments were made of the facility's fire protection program and appropriate corrective actions were taken to resolve the identified issues.

F8 Miscellaneous Fire Protection Issues (64704) (92904)

F8.1 FP Related NRC Information Notices (INs)

The inspector reviewed the licensee's evaluation for the following NRC INs:

- IN 92-18, Potential Loss of Shutdown Capacity During a Control Room Fire
- IN 92-28, Inadequate Fire Suppression System Testing
- IN 93-41, One Hour Fire Endurance Tests Results For Thermal Ceramics, 3M Company FS 195 and 3M Company E-50 Interim Fire Barrier Systems

- IN 94-28, Potential Problems with Fire Barrier Penetration Seals
- IN 94-31, Potential Failure of WILCO, LEXAN-Type HN-4-L, Fire Hose Nozzles
- IN 94-58, Reactor Coolant Pump Lube Oil Fire
- IN 95-36, Emergency Lighting

The licensee's evaluations and corrective actions for these INs were appropriate, except that the evaluation for IN 92-18 had not been completed.

The licensee's review of this issue identified a number of UFSAR discrepancies. Most of these discrepancies were related to 10 CFR 50 Appendix R safe shutdown components and their performance following an Appendix R fire. A number of apparent errors were identified related to the safe shutdown components listed in UFSAR Table 9.5.1-1. Following the identification of these apparent errors in June 1994, the reviewing organization initiated Licensing Document Change Request (LDCR) No. 94-029, to complete an evaluation and provide appropriate UFSAR changes to correct these errors. These UFSAR changes to reflect actual plant design conditions were not made.

Procedure 00402-C, Licensing Document Change Request (LDCR), requires the person identifying plant or licensing discrepancies to complete LDCR Figure 1. The originating department manager is required to implement appropriate action to provide a safety evaluation on the identified issue. This procedure was issued to provide instructions for making changes to licensing documents such as the UFSAR. 10 CFR 50.71(e) requires the UFSAR to be maintained to properly describe actual plant conditions. Revision 5 of the UFSAR was issued September 1995 but did not address these items. In addition, since an LDCR had not been issued to address these discrepancies, the revision currently being made to the UFSAR did not include these changes. The failure to implement the LDCR to maintain the UFSAR up to date for these Appendix R fire protection issues is identified as Violation 50-424, 425/97-01-03, Failure to Revise UFSAR to Conform to As-Built Appendix R Plant Configurations.

The inspectors reviewed the LDCR Coordinator's logbook and noted nine additional requests for LDCR change numbers in which appropriate action had not been taken for resolution. All of these involved items identified prior to 1996, as follows: one in 1989, one in 1990, three in 1991, one in 1992, three in 1994, and one in 1995. The safety significance on these issues were not known since safety evaluations for these items had not been completed.

F8.2 (Closed) VIO 50-424, 425/96-09-05, Control of transient combustibles.

This violation identified two examples of inadequate control over the storage of combustibles within the plant. The inspector verified that the corrective action initiated by the licensee on this issue was complete, appropriate and adequate to prevent recurrence.

V. Management Meetings and Other Areas

X Review of Updated Final Safety Analysis Report (UFSAR)

A recent discovery of a licensee operating its facility in a manner contrary to the UFSAR description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR descriptions. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspectors verified that the UFSAR wording was consistent with the observed plant practices, procedures and/or parameters.

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on March 19, 1997. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

X2 Pre-Decisional Enforcement Conference Summary

On March 10, 1997, a pre-decisional enforcement conference was held at the Nuclear Regulatory Commission (NRC) Region II office to discuss potential enforcement issues identified in Inspection Report (IR) 50-424, 425/96-14. Discussion focused on configuration control issues identified in that report as well as others identified over the last eighteen months.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Beasley, Nuclear Plant General Manager
B. Brown, Plant Training and Emergency Preparedness Manager
W. Burmeister, Manager Engineering Support

J. Gasser, Plant Operations Assistant General Manager
P. Rushton, Plant Support Assistant General Manager
S. Chestnut, Manager Operations
K. Holmes, Manager Maintenance
M. Sheibani, Nuclear Safety and Compliance Supervisor
C. Tippins, Jr., Nuclear Specialist I

REFERENCED PROCEDURES AND DRAWINGS

- Drawing 2X4DB161-1, Revision 24, Condensate Storage and Degasifier System
- Drawing 2X4DB161-2, Revision 21, AFW System
- T-OPER 95-003, Revision 0, Fire Suppression System REA VG-2720 Flow Verification
- Procedure 00402-C, Revision 15, LDCR
- Procedure 11610-1, Revision 13, AFW System Alignment
- Procedure 11610-2, Revision 15, AFW System Alignment
- Procedure 11867-2, Revision 20, Safety Related Locked Valve Procedure 11881-1/2, Auxiliary Building Round Sheets.
- Procedure 14000-1, Revision 57, Operations Shift and Daily Surveillance Logs
- Procedure 14000-2, Revision 41, Operations Shift and Daily Surveillance Logs
- Procedure 14495-2, Revision 3, AFW System Flow Path Verification
- Procedure 14951-C, Revision 5, Fire Suppression System Operability Test (Fire Pumps), Monthly
- Procedure 14952-C, Revision 5, Fire Suppression System Operability Test (Fire Pumps), Annually
- Procedure 14956-C, Revision 2, Fire Suppression - 3-Year Flow Verification
- Procedure 17017-1, Revision 10, Annunciator Response Procedures for ALB 17 on Panel 1B2 on Main Control Board
- Procedure 17017-2, Revision 7, Annunciator Response Procedures for ALB 17 on Panel 1B2 on Main Control Board
- Procedure 24362-1, Revision 10, ESF Chiller Chilled Water Flow Trains A and B 1F-22425/1F-22426 Channel Calibration Verification Checklist
- Procedure 29227-1 and -2, Revision 1, Fire and Smoke Detector Operational Test (Panel LZIP 2-1813-Q3-F27
- Procedure 29231-1 and -2, Revision 2, Fire and Smoke Detector Operational Test (Panel LZIP 1-1813-Q3-F31
- Procedure 92000-C, Revision 11, Fire Protection Program
- Procedure 92005-C, Revision 8, Fire Response Procedure
- Procedure 92010-C, Revision 10, Control of Ignition Sources
- Procedure 92015-C, Revision 14, Use, Control and Storage of Flammable/Combustible Materials
- Procedure 92030-C, Revision 6, Fire Drill Program

- Procedure 92035-C, Revision 9, Fire Protection Operability Requirements
- Procedure 92040-C, Revision 12, Fire Protection LCO Program

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 40500:	Effectiveness of Licensee Controls In Identifying, Resolving, and Preventing Problems
IP 52002:	Digital Retrofits not Receiving Prior Approval
IP 61726:	Surveillance Observations
IP 62707:	Maintenance Observations
IP 64704:	Fire Protection/Prevention Program
IP 71707:	Plant Operations
IP 71750:	Plant Support Activities
IP 92904:	Followup - Plant Support

ITEMS OPENED AND CLOSED

Opened

50-425/97-01-01	VIO	AFW System Surveillance Not Conducted As Required By TS (Section M3.1).
50-424, 425/97-01-02	VIO	Failure To Demonstrate Fire Detectors Were Operable At Least Once Per 12 Months (Section F2.2).
50-424, 425/97-01-03	VIO	Failure to Revise UFSAR To Conform to As-Built Appendix R Plant Configurations (Section F8.1).
50-424, 425/97-01-04	VIO	Inadequate Testing of 701 Governor - Two Examples (Sections E7.1 and E7.2).
50-424, 425/97-01-05	VIO	Failure to Maintain Records of 701 DSC Setpoints (Section E7.2).
50-424, 425/97-01-06	VIO	10 CFR 50.59 Unreviewed Safety Question Determination for Woodward 701 Governor (Section E7.4).

Closed

50-424, 425/96-02-05	URI	CST Minimum Water Volume Required By TSs (section E8.1)
50-424, 425/96-09-05	VIO	Control Of Transient Combustibles (section F8.2)

LIST OF ACRONYMS USED

AFW	- Auxiliary Feedwater System
CES	- Cooper Energy Services
CFR	- Code of Federal Regulations
CST	- Condensate Storage Tank
dB	- decibel
DC	- Deficiency Card
DCP	- Design Change Package
DG	- Diesel Generator
DSC	- Digital Speed Control
EMI	- Electromagnetic Interference
EP	- Emergency Preparedness
ESF	- Engineered Safety Feature
FP	- Fire Protection
GLC	- Generator Loading Control
GLS	- Generator Load Sensor
I&C	- Instrumentation and Controls
IN	- Information Notice
ISEG	- Independent Safety Engineering Group
IST	- Inservice Test
ITS	- Improved Technical Specifications
LCO	- Limiting Condition for Operation
LDCR	- Licensing Document Change Request
MDAFW	- Motor Driven Auxiliary Feedwater
MWO	- Maintenance Work Order
NPF	- Nuclear Power Facility
NRC	- Nuclear Regulatory Commission
NSCW	- Nuclear Service Cooling Water
NTS	- National Technical System
NUREG	- Nuclear Regulations
PEO	- Plant Equipment Operator
PDR	- Public Document Room
PRB	- Plant Review Board
QA	- Quality Assurance
RCS	- Reactor Coolant System
RHR	- Residual Heat Removal System
RWST	- Refueling Water Storage Tank
SR	- Surveillance Requirement
SVVP	- Software Verification and Validation Plan
TS	- Technical Specifications
UFSAR	- Updated Final Safety Analysis Report
URI	- Unresolved Item
USS	- Unit Shift Supervisor
V&V	- Verification and Validation
VIO	- Violation
WGC	- Woodward Governor Company
2R5	- Unit 2 Fifth Refueling Outage