UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

MARCH 24, 1994

[redacted]

Dear [redacted]

SUBJECT: RII-93-A-0191 - QUESTIONABLE EQUIPMENT AND HEALTH PHYSICS PRACTICES

This refers to your conversation on September 28, 1993, with [redacted] and our conversation on December 3, 1993, in which you expressed concerns related to equipment and health physics practices at the Vogtle Nuclear Plant.

Our review regarding a portion of your concerns has been completed and our review is documented in the enclosed Allegation Summary. A status is also included for the one remaining concern. Based on the information provided, we were able to partially substantiate the allegation.

This concludes the staff's activities regarding this portion of your allegation. We will advise you with the results of the remaining issue upon completion of our review. We appreciate your cooperation and assistance.

Sincerely,

Oscar de Miranda

Oscar DeMiranda
Senior Allegation Coordinator
Enforcement and Investigation
Coordination Staff

Enclosure:
Allegation Summary

Certified Mail No. P 291 117 045

Enclosure 2

ALLEGATION SUMMARY

VOGTLE NUCLEAR PLANT

RII-93-A-0191

QUESTIONABLE EQUIPMENT AND

HEALTH PHYSICS PRACTICES

1. SYSTEM ALIGNMENT PROCEDURES WERE NOT COMPLETED

In response to an allegation received at the resident inspector office at the Vogtle facility on September 28, 1993 the inspectors performed a review of Unit Operating Procedures and system alignment procedures to determine if system alignments were performed as required following recent refueling outages. This review was also discussed in NRC inspection report 50-424, 425/93-27 dated January 11, 1994.

The inspector determined that lineup program requirements are contained in procedure 10000-C, Conduct of Operations, and in the UOPs. Program requirements in procedure 10000-C establish administrative requirements for performing system lineups, maintaining a system status file and the performance of periodic lineups at least every 30 months. The UOPs direct the performance of selected system lineups following a refueling outage. Requirements for performing system lineups in the UOPs are provided in a checklist attached to the UOP. Systems that must have an alignment are designated on the checklist by the Manager of Operations or his designee. Systems are aligned using specific system alignment procedures.

The inspector after reviewing the system alignment procedures found some of the requirements unclear. UOP requirements did not clearly state the level of completion desired or give acceptance criteria and appeared to conflict with procedure 10000-C requirements. Guidance for the timeliness of lineup completion was not given in either 10000-C or the UOPs.

The inspector reviewed the completed UOPs 12001-C, Unit Heat Up To Hot Shutdown, for refueling outages 1R4, 1R3, 2R3 and 2R2 and a sample of completed system lineup procedures performed during 1R4. The inspector identified several systems in procedure 12001-C, Checklist 1, System Requirements for Unit Startup, completed for 1R4, that were not designated for lineup and were not signed off as being verified. Guidelines in checklist 1 require that systems not designated for alignment must be verified by ensuring that a current alignment is on file in the system status file. A sample of safety related system lineups were reviewed by the inspector and found to be current.

The inspector also identified several systems where partial lineup procedures were performed during outage 1R4 and were not completed promptly following 1R4. The licensee's normal practice has been to perform partial lineups to support an evolution during an outage and complete the remainder of the lineup shortly after the outage. The inspector did not identify any discrepancies on the completed procedure 12001-C checklists reviewed for the other refueling

outages. The inspector also verified with the licensee that the lineups performed during 1R4 were reviewed by the licensee to assure they would support the desired evolutions and the exceptions left did not warrant additional action.

The inspector's review also found that the signature continuation sheets were not always used when the signature/comment page was out on the system lineup procedures. Operations personnel completing the signatures used the comments and resolution section for signoffs. Comments and exceptions were documented in the body of the field copies of the alignment procedures which were not retained.

CONCLUSION:

The inspector considered the issues described above as documentation and administrative problems and of no safety significance. There were no systems found out of alignment and the licensee maintains several other programs to ensure configuration control. These include the clearance and tagging program, safety related locked valve manipulation controls, system operating procedures, operator rounds, and surveillance procedures which are performed prior to mode changes and periodically as required by TS. In addition, the inspectors have observed no significant events following recent refueling outages which indicate a configuration control problem. However, failure to initial and date the applicable line entries for nondesignated systems on checklist 1, System Requirements for Unit Startup, of procedure 12001-C to indicate a current system status was verified is a violation of procedure 12001-C requirements. This NRC identified violation was not being cited because criteria specified in section VII.B of the enforcement policy were satisfied. This item was identified as Non Cited Violation NCV 50-424/93-27-01, Failure to Document Verification of Alignment Status Prior to Unit 1 Startup. The inspector determined that these problems were isolated to Unit 1 refueling outage 1R4.

The licensee has acknowledged the problems identified and committed to review and revise their guidance for performing system lineups. This allegation was substantiated.

2. DIESEL GENERATORS ARE UNRELIABLE

This issue has already been address in NUREG 1410 which is publicly available in the Document Control Room. No further action required.

3. CLOCK IS NOT RESET DURING DIESEL GENERATOR 100 HOUR MAINTENANCE

In response to an allegation received at the resident inspector office at the Vogtle facility on September 28, 1993 the inspector performed a review of documentation of Diesel Generator (DG) runs to determine if DG runs conducted for surveillance or post maintenance testing during Unit 1 refueling outage 1R4 were performed in accordance with procedures. The inspector also reviewed documentation of DG runs to determine if maintenance or surveillance runs with

a duration of 100 hours have been performed. This review was also discussed in NRC inspection report 50-424,425/93-29 dated February 15, 1994.

The inspector reviewed Technical Specification (TS) surveillance records for 24 hour DG Engineered Safety Features Actuation System (ESFAS) runs performed in March 1993. Diesel generator surveillance runs of 24 hours duration are required by TS 3/4.8.1.1, A.C. Sources. The inspector reviewed completed Procedures 14666-1 and 14667-1, Train A and Train B Diesel Generator and ESFAS Test, and verified that the 24 hour surveillance runs were completed per section 5.1 of the procedures. The inspector reviewed table 1, DG 24 Hour Run, an hourly log completed during the surveillances, and verified that the DGs were operated at required loads for the full 24 hour duration of the surveillances.

The inspector reviewed documentation of end of cycle maintenance for the 1A and 1B Dgs respectively in Maintenance Work Orders (MWOs) 19203304 and 19203305 for maintenance performed during the last Unit 1 refueling outage. The review included work completion sign off sheets for the maintenance procedures used during the maintenance activities. From discussions with system engineering personnel and review of MWO 19203305 the inspector determined that the 1B DG was shut down during a 35% load break-in run. MWO documentation stated that the engine was shutdown to repair an intake elbow air leak. The inspector reviewed copies of the Unit 1 DG start log for start numbers 1B-93-288 and 1B-93-289 and noted that the engine was maintained at 35% load for 40 minutes stopped for approximately two hours and then operated for 30 minutes at 35% load.

The inspector was initially concerned that stopping the 1B DG prior to completing the entire one hour run did not meet the intent of maintenance procedure requirements. Procedure 28708-C, Alternate End of Cycle (EOC) Diesel Checkout, step 4.46.5.ee requires that the DG be loaded from the control room at 35% load for one hour, however the procedure does not state that the DG must be continuously run at this load for one hour. The inspector verified, by reviewing the DG start logs, that the DG was loaded to 35% load for a total of one hour and ten minutes and determined that this met the requirements of procedure 28708-C.

CONCLUSION:

Based on the sample of records reviewed the inspector concluded that surveillance and maintenance runs for the diesels were performed appropriately. One example was identified where the Unit 1B DG was shut down during a 1 hour maintenance run prior to completing the entire 1 hour. The inspector's review determined that the licensee's actions were acceptable and met the requirements of Procedure 28708-C. The inspector did not identify any examples where a DG run with a duration of 100 hours was performed or any procedural requirements or vendor recommendations to perform a 100 hour DG test. This allegation wa not substantiated.

4. EXHAUST LEAK IN UNIT 1 DIESEL GENERATOR THAT HAS NOT BEEN REPAIRED

In response to an allegation received at the resident inspector office at the Vogtle facility on September 28, 1993 the inspectors performed a review of the maintenance history of an exhaust leak on the 1B Diesel Generator (DG). This review was also discussed in NRC Inspection Report 50-424, 50-425/92-27 dated January 11, 1994.

A review of this issue with the DG system engineer and maintenance personnel identified that a minor exhaust leak was discovered on the 1B DG during refueling outage IR4. The leak has discolored the exterior casing of the DG turbo charger with soot. The inspector performed a walkdown of the 1B DG and observed evidence of the leak. The inspectors review of this issue did not identify any impact on engine performance or its ability to function as an onsite emergency power source.

The inspectors were also concerned that the exhaust leak could impair local operation of the 1B DG. Two Plant Equipment Operators (PEO) present in the 1B DG room on December 1, 1993 during a surveillance test of the DG were interviewed by the inspector. Neither PEO identified any significant exhaust leakage. The inspectors also have been present in the room while the 1B DG is running and have not detected exhaust leakage in the room. In addition, during DG operation the diesel building heating ventilation and air conditioning system is running which is constantly moving a large volume of air through the building.

The licensee has determined that the leak is located under the jacket water shroud at the top of the engine. The licensee suspected that a flexible connection under this shroud is the source of the leak. Since the leak did not impact operation of the DG the licensee postponed repair because extensive disassembly of the jacket water shroud is required to access the leaking coupling. The licensee intends to repair the leak during the ten year DG checkouts or earlier if conditions deteriorate. In addition, the current revision of procedure 27578-C, Ten Year Diesel Generator Checkouts, section 4.21, requires that the exhaust flex connection be visually inspected for evidence of cuts, holes, and dents.

CONCLUSION:

Based on this review the inspector concluded that the existing leak on the 1B DG is not safety significant and does not pose a threat to the operation of the diesel or the personnel that would operate the diesel at the local panel. The inspector also determined that the licensee is aware of the condition and will repair it during a future periodic DG checkouts. This allegation was substantiated.

5. UNSAFE HEALTH PHYSICS PRACTICES

This issue is still open pending completion of staff review.

6. INCORRECT VIBRATION PROBE FOR FIRST SURVEILLANCE ON SAFETY RELATED PUMPS

In response to an allegation received at the resident inspector office at the Vogtle facility on September 28, 1993, the inspector performed a review of the operating characteristics of vibration monitors used to perform Inservice Test (IST) surveillances on safety-related pumps. The inspector also reviewed training, completed IST surveillances, and interviewed plant personnel to determine if IST procedural requirements were met, and to determine the acceptability of using a hand-held pencil probe type vibration monitor for obtaining vibration measurements with the IRD-820 vibration monitor. This review was also discussed in NRC inspection report 50-424,425/93-29 dated February 15, 1994.

The IRD-820 Vibration Monitor is a microprocessor controlled, portable, battery operated vibration meter that has been used at Vogtle for several years. Two probes can be used with the 560 velocity pickup; a pencil probe or a magnetic base probe.

Training lesson plan EL-LP-07017-00, Revision 0, IRD-820 Vibration Meter, specified the use of the magnetic base "when possible," and also stated it "provides a more stable reading." The lesson plan included instructions on the correct use of the hand-held pencil probe. Job Performance Measure EL-JP-07013, IRD-820 Vibration Meter, states that "The magnetic pickup should be used if possible. If the probe is used, it must be held perpendicular to the surface of the machine with just enough pressure to prevent chattering."

The inspector reviewed surveillance procedure 14801-1, Nuclear Service Cooling Water (NSCW) Transfer Pump Inservice Test, performed on August 23, 1993, for Unit 1, Train A, and on August 17, 1993, for Unit 1, Train B. Procedure 14801-1 required the use of an IRD-820 Vibration Monitor with a 560 velocity pickup. The surveillance procedure did not specify which probe to use for taking measurements. The data sheets for completed surveillance procedures did not indicate which probe was used to acquire the vibration data. Discussions with several Plant Equipment Operators (PEOs) and electrical/maintenance workers who performed vibration measurements with the IRD-820 indicated that the choice of probe was usually left to the discretion of the individual taking the measurements. In some instances, a Unit Shift Supervisor (USS) would request a specific probe be used, particularly if the reported measurements were inconsistent with previous results.

The inspector found that a wide variation in vibration results could be obtained if the magnetic base probe was incorrectly seated on the component being measured, or if the pencil probe was held incorrectly. Licensee personnel indicated that vibration measurements would be repeated when the results were significantly different than previously obtained reference values; and that the hand-held pencil probe would normally be used when the test surface was not large or flat enough to correctly place the magnetic probe.

The licensee's current IST vibration procedures state a preference for the CSI-2110 Vibration Monitor. The CSI monitor is a later model, is digital. is programmable, and allows for data trending. The magnetic probe for the CSI-

2110 is smaller than the magnetic probe for the IRD-820. The licensee indicated that the CSI-2110 was easier to use and eliminated much of the variability exhibited by the IRD-820. Licensee procedures contain the option of using the IRD-820 Vibration Monitor. The resident inspectors have previously reviewed the use of the CSI-2120 Vibration Monitor (see NRC inspection report 50-424,425/93-02).

The inspector also reviewed IST vibration trending data maintained by the IST engineer for the Unit 1 NSCW pumps and Unit 1 Safety Injection pumps from January 1990 to the present. The inspector did not identify any pump inoperability determinations due to vibration measurements during this time frame.

CONCLUSION:

The inspector concluded that the use of the pencil probe to obtain vibration measurements was acceptable. The use of the pencil probe provided more reliable data than the magnetic base when measurements were taken on irregular or small surfaces where the magnetic base would not fit. The inspector did not identify any significant problems with vibration measurement procedures or with the vibration measurements reviewed. The inspector also determined that in no instance did licensee personnel interviewed feel that either probe was purposely used in an incorrect manner to obtain false data. This allegation was not substantiated.