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

JUN 29 1987

Report Nos.: 50-424/87-34, 50-425/87-24

Licensee: Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Docket Nos.: 50-424, 50-425 License Nos.: NPF-68 and CPPR-109

Facility Name: Vogtle

Inspection Conducted: May 18-22, 1987

Inspector: P. G. Stoddart 6/19/87
P. G. Stoddart Date Signed

Accompanying Personnel: C. Hughey

Approved by: J. B. Kahle 6/19/87
J. B. Kahle, Chief Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine unannounced inspection was conducted in the areas of liquid and gaseous effluent processing, analysis and monitoring, and investigation of allegations.

Results: One violation was identified - failure to follow procedures, resulting in the inadvertent release of a portion of the contents of a waste gas decay tank.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*T. Greene, Plant Manager
*R. M. Bellamy, Plant Support Manager
*D. Smith, Superintendent, Nuclear Operations
*C. C. Miller, Superintendent, Outages and Planning
*R. M. Odom, Supervisor, NSAC
*S. C. Ewald, Manager, Radiological Safety
*W. F. Kitchens, Operations Manager
*D. F. Hallman, Superintendent, Chemistry
*P. H. Burwinkel, Engineering Supervisor, HVAC
*A. E. Desrosiers, Health Physics Superintendent
*C. E. Belflower, Quality Assurance Site Manager
*W. C. Gabbard, Senior Regulatory Specialist
A. Stalker, Health Physicist, GPC
J. Daniel, Supervisor, Radwaste Processing
P. Jackson, Engineer, Chemistry Department

Other licensee employees included engineers, technicians, operators, and office personnel.

Other Organization

R. Cislo,Engineer, Bartlett Corporation

Nuclear Regulatory Commission

*J. Rogge, Senior Resident Inspector - Operations
*R. J. Schepens, Resident Inspector - Operations
H. Livermore, Senior Resident Inspector - Construction
C. Berger, Resident Inspector - Operations

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 22, 1987, with those persons indicated in Paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

One violation was identified when on May 18, 1987, apparently as a result of operator error in failing to follow procedures, approximately one-half of the radioactive gas inventory of a waste gas decay tank was inadvertently released to the atmosphere concurrent with the release of the contents of another tank.

On May 18, 1987, the backflushing of a mechanical filter resulted in contamination of the demineralized water system and of a steam generator. Extensive flushing of these systems was necessary to minimize radioactivity levels and resulted in exceeding the capacity of available waste retention tanks and sumps. Automatic pump-over of an Auxiliary Building Sump to a Turbine Building sump, coupled with isolation of the Turbine Building sumps to prevent an uncontrolled release, resulted in flooding of the lower level of the Turbine Building to a level estimated at 18 inches by approximately 400,00 gallons of water.

The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Liquid Radwaste Process Systems (84521, 84723)

The inspector reviewed the startup and initial operation of the alternate liquid radwaste process system. The system was supplied under contract and consisted of eight demineralizer vessels and a prefilter unit. The demineralizer vessels were located within a shielded cubicle in the Alternate Radwaste Building (ARB). The vessels had hose connections on the input and output and at the time of inspection were configured in two trains of four series-connected vessels. The prefilter was located outside of the shield cubicle in a separate shielded container. As of May 19, 1987, the system had processed approximately 1.2 E+06 gallons of low specific activity liquid radwaste and had achieved decontamination factors (DFs) of between 50 and 100.

Training records for radwaste personnel were discussed with licensee representatives. All assigned personnel had been checked out on system operation; however, not all personnel had been checked out on all related activities. For example, only four of nine assigned personnel had been checked out on operation of the building crane. Licensee personnel stated that getting all assigned personnel into a fully-qualified status had a high priority.

One small liquid radwaste system spill, which was confined to a small portion of the Alternate Radwaste Building, occurred when a system pressure relief passed through a small opening apparently left by an installer. The pressure relief line had not been leak-tested under pressure as the balance of the system had been. The pressure relief line was subsequently hard-piped to a radwaste floor drain tank in the Auxiliary Building to prevent a recurrence of the spill.

In discussions between the inspector and the radwaste supervisor, it was noted that a problem had been encountered with a 5 micron backup filter, which was positioned downstream of the 25 micron main pre-filters and upstream of the input to the first demineralizer bed. This backup filter

had been added by the licensee as a means of providing additional protection for the demineralizer beds. In use, it was found that the backup filter had a low retention capacity and that as the capacity was approached, the pressure drop (delta-p) across the filter rose rapidly. Prior to the time this condition was recognized, Revision 1 to Procedure 13290-C, April 1, 1987, changed the maximum pressure drop from 25 psig to 40 psig, which was within the 50 psig rated capacity of the filter. After approximately one month of operating at pressure drops up to 40 psig, it was recognized that the rapid load buildup characteristic of the filter was such as to make the higher pressure drop of little benefit. Consequently the procedure was again revised, May 15, 1987 (Rev. 2), which changed the value for pressure drop back to 25 psig.

On May 19, 1987, contamination of the demineralized water system and the need to flush contaminated water out of affected systems resulted in an abnormally high volume flowrate of contaminated water into the radwaste retention tanks and sumps (see Paragraph 7 of this report for additional details). When the first batch of this water was processed through the radwaste demineralizer system (Train B, with two cation beds and two mixed beds, in series), the processed water came through at approximately input radioactivity concentration, indicating resin depletion. When the processed water was recycled through Train B, the demineralizers again had little or no effect on the radioactivity content of the water. As of the end date of the onsite portion of this inspection, the contaminated water cleanup problem had not been resolved. In subsequent telephone discussions with licensee representatives on June 8-9, 1987, the inspector was informed that changeout of depleted resin in two of the four beds had allowed processing to be resumed with a satisfactory product being obtained.

No violations or deviations were identified.

5. Gaseous Radwaste Processing and Effluent Monitoring (84521, 84524, 84724)

The inspector reviewed selected aspects of the licensee's gaseous radwaste processing system and of the gaseous effluent monitoring system.

On May 18, 1987, as a result of an apparent operator error, approximately one-half of the contents of Waste Gas Decay Tank No. 2 (Unit 1) were accidentally released during the time period in which the contents of Waste Gas Decay Tank No. 4 were being released under a radioactive gaseous effluent release permit. Tank No. 2 had been routinely isolated on May 16, 1987, and the contents had been sampled and analyzed for possible release at a later date.

The release of Tank No. 4 was interrupted twice to accommodate system problems, which required opening or closing valves, in accordance with Procedure No. 11202-1, Rev. 0, June 6, 1986, Gaseous Release Alignment, No. 13202-1, Rev. 1, January 27, 1987, Gaseous Releases, and No. 36020-C, Rev. 0, January 7, 1987, Radioactive Gaseous Effluent Release Permit Generation and Data Control. The release of Tank 4 was initiated at

12:47 pm on May 17, 1987, and was interrupted at 1:02 pm the same date. Release was resumed at 9:17 am on May 18, 1987, and interrupted at 10:25 am. Release resumed again at 12:47 pm and was completed at 7:53 pm on May 18, 1987.

Valve No. 1-1902-U4-073, which controls discharge from Tank No. 2 was found partially opened at about 6:00 pm on May 18, 1987 by an operator on a routine rounds check. This occurred during the time period during which the contents of Tank No. 4 were being discharged. The valve was closed promptly, reported to a supervisor, and a Deficiency Card No. 1-87-1318 was prepared. The resident inspector was notified of the uncontrolled release on May 19, 1987. A licensee representative reported that the pressure in Tank No. 2 had dropped from 65 psig to 36 psig as a result of the release.

A licensee representative reported that the analysis of the sample taken on May 16, 1987, from Tank No. 2, showed 5.3 E-4 uCi/cc of Xe-133, 8.7 E-6 uCi/cc of Xe-133m, and 1.7 E-6 uCi/cc of Xe-135. The release was made through a monitored release path and apparently did not significantly affect the monitor readings which had been anticipated for the concurrent release of the contents of Tank No. 4.

No Technical Specification release rate limits or offsite dose commitments were exceeded as a result of the inadvertent release.

Although it could not be ascertained at which point in time the valve for Tank No. 2 was opened, or by whom it was opened, it was considered likely that the valve was inadvertently opened sometime between the interruption of the second portion of the discharge of Tank No. 4, at about 10:25 am on May 18, and the resumption of discharge at 12:47 pm on the same date. Had the valve been opened prior to 10:25 am, a drop in pressure in Tank No. 2 would have occurred during the release of gases from Tank 4 in the time frame 8:17 am - 10:25 am on May 18; if such a change occurred, it was neither observed nor reported.

The inspector notified the licensee, both prior to and at the exit, that this event was considered to be a probable violation of Technical Specification 6.7.1, failure to follow written procedures. Nuclear Operations Procedure No. 13202-1, Gaseous Releases, Step 4.1.4, requires closure and tagging, with independent verification, of valves 1-1902-U4-059, 1-1902-U4-073, 1-1902-U4-106, and 1-1902-U4-090. Contrary to the above, valve 1-1902-U4-073 was found open at approximately 6:00 pm on May 18, 1987, resulting in an inadvertant release of radioactive gases from Waste Gas Decay Tank 1-1902-V6-002, otherwise referred to as Waste Gas Decay Tank No. 2.

(Opened) Violation 50-424/87-34-01, Failure to follow procedure for waste gas releases.

6. Contamination of Demineralized Water System and Cross-Contamination of Appurtenant Systems (84723)

The demineralized water system and the steam generator blowdown system became radioactively contaminated on May 18, 1987, as a result of an operator initiated routine backflush of a mechanical filter. Contaminated water flowed into a number of appurtenant systems from the demineralized water header before the full nature of the occurrence was recognized and before the systems could be isolated.

The mechanical filter involved was a stacked metal etched-disc type. To maintain flow and to reduce pressure drop across the filter media, the filter was periodically isolated from the system it serviced and was backflushed with nitrogen gas to dislodge accumulated "crud." The "crud" was then sluiced with water to a "crud" tank. The "crud" tank would normally be filled to about one-third of tank capacity. A spray nozzle at the top of the tank was periodically used to spray down the inner tank wall with demineralized water to minimize crud buildup on the tank wall.

It was postulated by licensee representatives that at the time of the occurrence, the "crud" tank was either full or almost full of accumulated crud and water and that the valve controlling the input of spray water from the demineralized water system was either open for spraying or had failed in the open position. When nitrogen gas was used to clean the mechanical filter, the gas pressure was apparently sufficient to pressurize the "crud" tank and force part of its contents back into the demineralized water header, into the demineralized water storage tank and into the steam generator blowdown system. A licensee representative estimated that approximately 300 gallons of contaminated water from the "crud" tank had been transferred to the demineralized water system and the steam generator blowdown system.

The first indication that a problem existed came when two PERMSS (Process and Effluent Radiological Monitoring and Sampling System) radiation monitors alarmed or indicated high levels of radioactivity when demineralized water was used to flush PERMSS Monitor #21 (servicing steam generator blowdown liquid effluent), preparatory to initiating a release via the normal radwaste release path. Readings of approximately 30,000 cpm were observed on both PERMSS Monitor 21 and on PERMSS Monitor 18 (which is the monitor for the liquid radwaste release path). When indication of an abnormal release was seen, all plant liquid effluent release pathways were promptly isolated, pending identification and resolution of the problem.

When further investigation revealed that the steam generator blowdown system and the demineralized water header and demineralized water storage tank were contaminated, action was undertaken to flush the systems. The large amount of water which was flushed-out rapidly filled the available retention tankage and overflowed into sumps and leak control features of the plant. Some of the water flowed into a normally non-radioactive sump and was automatically pumped to the turbine building sumps. Normally, the

turbine building sumps would have been automatically pumped to an environmental release point through a radiation monitor (with the capability of automatically terminating the discharge in the event a pre-established limit was exceeded) but previous operator actions prevented any discharge. The result was an accumulation of a volume of water in the turbine building such as to overflow the turbine building sumps and cover the floor of the lowest turbine building floor level to a depth estimated at 18 inches.

Prompt and efficient action on the part of plant personnel prevented an uncontrolled release of radioactive material.

No violations or deviations were identified.

7. Allegation Followup (99014)

The material presented in the following paragraphs was transmitted to appropriate investigative organizations by copy of this inspection report.

a. The inspector conducted a review of circumstances surrounding Allegation RII-87-A-0071 on May 19-21, 1987, during this inspection and in telephone conversations with licensee representatives on June 8-9, 1987.

An anonymous allegation received by a Resident Inspector on March 27, 1987, stated that radwaste operators in the Alternate Radwaste Building (ARB) had been instructed by their supervisor to raise the limit on pressure drop (delta-p) across the liquid radwaste system particulate filter from 25 psig, as provided by Procedure No. 13290-C, to a maximum of 40 psig. This action was alleged to be in violation of plant procedures.

The inspector reviewed Procedure No. 13290-C, "Portable Demineralization System," and in discussions with licensee personnel discussed changes incorporated in the procedure on April 1, 1987, and on May 15, 1987.

The basic radwaste system parameters and operating ranges were specified in Table 3 of Procedure 13290-C. The pressure drop across the radwaste system particulate filter, the topic of the allegation, was specified in Table 3 (p. 31 of 34). Revision 0, dated October 5, 1986, specified filter pressure drop as 0 to 25 psig for normal operation and recommended changeout of filter cartridges in the event that pressure drop exceeded 25 psig. Revision 1, dated April 1, 1987, changed the value for pressure drop to 0 to 40 psig, with changeout of cartridges if pressure drop exceeded 40 psig. Revision 2, dated May 15, 1987, changed the numbers back to the original values.

Under Procedure 13290-C, Section 2, "Precautions and Limitations," Section 2.2.2 stated: "When the pressure differential exceeds (25)(40) 25* psig, the cartridge filters shall be replaced with new ones."

Procedure 13290-C, Section 4, "Instructions," Section 4.2.1.5, stated: "Continue demineralizer system operations as long as the parameters in Table 3 are within the normal operating ranges as listed on the table, or as directed by the Radwaste Foreman."

Procedure 13290-C, Section 4.2.5.a, "NOTES," read: "... When the pressure differential exceeds (25)(40) 25* psig, the dirty filter cartridges shall be replaced."

A review of licensee records indicated that Revision 1 to Procedure 13290-C was submitted for approval on March 27, 1987, and was approved on April 1, 1987. Revision 2 was submitted on May 15, 1987, and approved on May 15, 1987.

With reference to the allegation that the Radwaste Supervisor had directed an increase in the value for pressure drop across the filter in violation of procedures, a licensee representative stated that the Radwaste Supervisor, acting under the provisions of Section 4.2.1.5 of Procedure No. 13290-C ("CONTINUE demineralizer system operations as long as the parameters in Table 3 are within the normal operating ranges, as listed on the table, or as directed by the Radwaste Foreman") did in fact direct foremen to instruct operators to exceed the 25 psig value specified in Procedure No. 13290-C by directing continuance of operation until a pressure drop of 40 psig had been reached. This action was considered by the licensee to be permissible and in accordance with provisions incorporated in Section 4.2.1.5 of the referenced procedure. In support of the safety aspects of the change to a greater pressure, it was stated that the rated design pressure drop (delta-p) across the filter input and outlet was 50 psig and that the system had been hydrostatically tested to over 200 psig.

The ARB Radwaste Operating Log for the period March 3-26, 1987, was reviewed by the inspector. The log indicated filter pressure drops in excess of 25 psig in six separate entries between March 17, 1987, and March 26, 1987. Two of those entries indicated that pressure drops were in excess of 40 psig (log entries for March 22, 1987, and March 25, 1987).

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* The values given are, left to right, Revision 0, 1 and 2.

The ARB Radwaste Operating Log for March 17, 1987, indicated operation at pressure drops in excess of 25 psig from 1930 hours to 2032 hours but there was no record or notation that this had been in accordance with instructions from the Radwaste Supervisor or the Radwaste Foreman. A log entry for March 22, 1987, at 1653 hours, recorded a pressure drop of 70 psig but did not indicate how long the parameter was out-of-specification. At 0050 hours on March 25, 1987, a log entry stated "Gone to write MWO (Maintenance Work Order)* on demin inlet filter" (presumed due to high but unquantified pressure drop)*. At 0350 hours on March 25, 1987: "... filter delta-p (pressure drop)* was 60 (psig)* ..." At 0642 hours on March 26, 1987, filter pressure drop was 38 psig. At 0651 hours on March 26, 1987, filter pressure drop was 28 psig and at 1543 hours, filter pressure drop was 27 psig. In the ARB log at 1543 hours on March 26, 1987, this note was entered: "Please operate demins at 25 gpm with booster pump running. If suction pressure is below 5, need to backflush (backflush operation pertains to mechanical filters upstream of the radwaste system filter -- the radwaste system filter cannot be backflushed).* (If)* delta-p (is)* less than 40 (psig pressure drop across the filter)*, drop (reduce)* flow in 5 gallon (5 gallons per minute)* increments until it (pressure drop)* drops below 40 delta-p (40 psig pressure drop)* per (Radwaste Supervisor)**." The last entry above was the only record found of the alleged instruction by the Radwaste Supervisor to increase the value of the parameter specified in the procedure.

At 1731 hours on March 26, 1987, the following notation appeared: "MWO (maintenance work request)* has been generated on demin prefilter. Filter delta-p is above proceducers (sic)* limits." This entry was typical of entries noting that a request had been submitted for replacing the filter cartridges.

Revision 0 of Procedure 13290-C specified in three places that the liquid radwaste filter cartridges were to be replaced when the pressure drop exceeded 25 psig but did not specify an upper limit which was not to be exceeded. These appeared in Section 2.2.2, Section 4.2.1.5 (by reference to Table 3), and in Note "a" of Section 4.2.5. Section 4.2.1.5 allowed the continuance of demineralizer system operations as long as the pressure drop across the filter was either within the normal range of 0 to 25 psig (per Table 3), or at any other limit or value directed by a Radwaste Foreman. The "exception" of Section 4.2.1.5 was cited by a licensee representative as authority for the order of March 26, 1987, to raise the limit for differential pressure across the filter to 0 to 40 psig.

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* Parentheticals added for clarity.

** Name deleted

A licensee representative stated that the changes in Revision 1, submitted on March 27, 1987, and approved April 1, 1987, were made to formalize the instructions given the previous day to the system operators to increase the allowable pressure drop across the filters to 40 psig before filter cartridges were to be changed. This change was made in an effort to prolong the effective life of the filters. However, licensee representatives stated that it was subsequently found that the raising of the value to 40 psig did not result in significantly extending system operation. This was attributed to the characteristic performance of filters of this type, which once having accumulated sufficient particulate matter to raise the differential pressure drop above a value on the order to 20 to 25 psig, continuation of operation resulted in rapid increases in pressure drop with attendant decrease of flow rate. After approximately one month of operation in this mode, it was determined that there was no significant benefit to be gained by operating at the higher pressure drop and the procedure was again revised to incorporate the original values.

It was the conclusion of the inspector and of the inspector's supervisors that the alternative provision of Section 4.2.1.5 of the procedure was meant to be applicable to all references in Procedure No. 13290-C to the changing of the filter cartridges in the event that pressure drop exceeded 25 psig.

As previously noted, the ARB log showed that the Radwaste Supervisor's instruction to change the value of pressure drop was entered at 1543 hours on March 26, 1987. There was no entry in the ARB log for March 26, 1987, to indicate that pressure drops had been maintained in excess of 25 psig subsequent to the order. On March 27, 1987, a request for revision to the procedure was submitted through plant administrative channels and contained a safety evaluation of the revision. The revision was approved on April 1, 1987, in accordance with plant procedures.

Based on the information described above, the inspector concluded that there appeared to be no basis for citing the licensee for violation of Procedure 13290-C and that while the circumstances of the allegation were essentially correct, the Radwaste Supervisor's actions were within the intent of the procedure and that no violation had occurred. On the basis of the above findings, the allegation was not substantiated.

b. A second part of Allegation RII-87-A-0071 stated that a Radwaste Supervisor had instructed contractor personnel, specifically, Chicago Bridge and Iron mechanics, to torque bolts to 20 foot-pounds more than specified in Plant Procedure No. 13290-C.

The allegation did not specify the time period in which the alleged violation occurred and did not give the names of individuals concerned, with the exception of naming the individual against whom the allegation was made. On March 27, 1987, a revision to Procedure No. 13290-C was submitted and was approved on April 1, 1987. Revision 1 changed the value for torquing the filter cover bolts from 45 to 60 foot-pounds. The change represented an increase of 15 foot pounds, whereas the allegation specified an increase of 20 foot pounds. The inspector reviewed the ARB Radwaste Operating Log for the period of March 3-26, 1987, the time period immediately preceding the filing of the allegation at 0636 hours, on March 27, 1987. No entries pertaining to torquing of bolts appeared in the ARB log for that period.

There was insufficient time available for the inspector to followup on the part of the allegation concerning Chicago Bridge and Iron mechanics. Therefore, the inspector's review of the portion of Allegation RII-87-A-0071 was considered incomplete. This matter was considered an Inspector Followup Item and will be further reviewed during a future inspection.

(Opened) Inspector Followup Item 50-424/87-34-02: Review allegation of procedural violation involving order for mechanics to torque radwaste filter lid hold-down bolts to 20 foot pounds above specified value.

c. The inspector conducted a limited-scope review of certain aspects of Allegation RII-87-A-0069 during this inspection. The review was limited to the obtaining of information concerning the licensee's academic and on-the-job training and experience requirements for promotion, assignment, or hiring of persons to fill chemistry positions at Plant Vogtle and Georgia Power Company. The inspector was instructed not to contact the person or persons making the allegation.

In the allegation and in supporting material, two significant points were raised or stated concerning academic, training or experience requirements. These points were essentially as outlined below:

(1) Requirements for qualification and certification of Nuclear Chemistry technicians are specified in the ANSI Standard and are as follows:

Level I - 6 months to 1,000 hours; Level II - 1,000 hours; Level III - 4,000 hours.

(2) "... that unqualified workers are testing drinking and reactor cooling water ... " and "... unqualified technicians without college degrees in chemistry are running tests on potable and reactor cooling water at Vogtle."

The details of the inspector's findings concerning the above allegations are discussed in the following paragraphs.

The current ANSI (American National Standards Institute, Inc.) standard presumed to be referred to is ANSI/ANS-3.1-1981, "American Standard for Selection, Qualification and Training of Personnel for Nuclear Power Plants," issued December 17, 1981. The standard was reviewed by the inspector and pertinent information from and about the standard is presented below.

Information concerning requirements of Plant Vogtle and/or of the Georgia Power Company relative to chemistry, chemistry technicians, and chemists was obtained in discussions between the inspector and senior staff of Plant Vogtle and of the corporate offices of Georgia Power Company.

Section 4.4.3, "Chemistry and Radiochemistry", of ANSI/ANS-3.1-1981, relative to the individual responsible for supervision of radiochemistry groups, requires that a supervisor shall have a Bachelor Degree in Chemistry or related science and shall have two years experience in chemistry, of which one year shall be nuclear power plant experience in radiochemistry.

Section 4.5.2 of ANSI/ANSI-3.1-1981, relative to technicians, requires a high school diploma and three years working experience "in their specialty." It is further required that technicians shall have demonstrated their ability to perform assigned tasks and their knowledge of the significance of these tasks on plant operation.

Chemists at Georgia Power's Plant Vogtle fall under two broad categories -- "Management Staff" and "Chemistry Technicians." A chemistry "Technician I" is an entry level technician position. A "Technician II" is rated above "Technician I" and is the minimum considered by Georgia Power to be an "ANSI Qualified" position. A "Senior Technician" is rated above "Technician II" and is the highest non-management technician category. "Senior Technician" was presumed to be the "Level III" referred to in the allegation. A "Foreman" is a management staff representative, ranking higher than "Senior Technician" and is the lowest level of management supervision. Over the "Foreman" is the Chemistry Supervisor, also a management staff representative.

Georgia Power's "Technician I" or entry level trainee position requires either a college degree (not necessarily in chemistry) or the passing of a written and verbal college "equivalence" test administered by a (senior) corporate staff member. There is no ANSI or Georgia Power requirement for prior experience at either a nuclear or non-nuclear facility for entry level positions.

Progression to the "Technician II" level requires satisfactory completion of 2,000 hours of laboratory work or technical training in plant chemistry. The licensee considers "Technician II" chemistry personnel to fully meet the criteria of ANSI/ANS-3.1-1981 for radiochemistry technicians.

The position of "Senior Technician" requires at least 4,000 hours experience as a "Technician II," or equivalent prior nuclear experience. Licensee representatives pointed out that promotion to "Senior Technician" involves substantially more than just the accumulation of 4,000 hours of experience and includes such items as completion of specific training modules or skill tests, consistency and accuracy of analyses, and job performance ratings.

ANSI/ANS-3.1-1981 does not categorize technicians as I, II, III, or "Senior."

A foreman ranks higher than a Senior Technician and represents the lowest level of staff or management supervision. There are no specific ANSI/ANS-3.1-1981 requirements for this position. However, Georgia Power Company equates the foreman position to that of supervisor of radiochemistry in ANSI/ANS-3.1-1981, which requires a bachelor degree (field not specified) and a minimum of 2 years experience in chemistry, of which 1 year must be in radiochemistry.

Summaries of personnel records of 20 unidentified chemistry technicians were reviewed. Fourteen had bachelor degrees, four had Associate Degrees (2 yr college), one had a 4-year technical school diploma as a Chemistry Technician, and one had a high school diploma with no college but had successfully passed the licensee's "equivalence" test.

Records showed four persons (as of the date of this inspection) in the "Technician I" category. One person, a new hire, had no experience on the training record as of the date of the inspection. Two persons had ten months of experience, and a fourth had 16 months of experience. All had college degrees.

Records of six "Technician II's" showed two persons with 14 months experience, one person with ten months on the present assignment and one year prior Georgia Power experience, one person with 10 months experience, one person with eight months experience, and one person with four months experience in the present assignment, but with ten years prior nuclear experience and a diploma in Chemical Technology. With the exception of the last person listed, all of the above had college degrees.

Qualifications of seven "Senior Technicians" were as follows:

- 6 years in present assignment, Bachelor of Science Degree in Biology, 6 years with Georgia Power

- 5 years in present assignment, Bachelor of Science Degree in Biology, 5 years with Georgia Power

- 4 years in present assignment, Bachelor of Science Degree in Chemistry, 4 years with Georgia Power

- 1 year in present assignment, Bachelor of Science Degree in Physics, 4 years with Georgia Power

- 1 year in present position, Bachelor of Science Degree in Biology, 2 years and 8 months with Georgia Power

- 3 years in present assignment, Associate in Science (2-year) Degree in Nuclear Engineering, 3 years with Georgia Power

- 3 years in present assignment, Bachelor of Science Degree in Chemistry, 3 years with Georgia Power.

Records of six Chemistry foremen were reviewed with the following results:

- 4 years experience in current position, Associate (2-year college) Degree, 10 years total nuclear plant experience, Georgia Power Employee since 1983

- 3 years in current position, Associate Degree, 3 years total nuclear plant experience, and Georgia Power employee since 1984

- Recent promotion from Tech II, Bachelor of Science Degree in Chemistry, 2 years nuclear plant experience

- 3 years in present position, 5 years prior nuclear experience (Navy), 4 years of college electronics - no degree (passed GPC college-equivalence test)

- 3 years in present position, Bachelor of Arts Degree in History, 3 years nuclear experience (Georgia Power)

- 3 years in present position, Bachelor of Science Degree in Biology, 3 years nuclear experience

The above information was compiled in accordance with instructions, as previously noted. The inspector did not assess the qualifications of the individuals concerned and did not evaluate the validity of the portion of the allegation concerning qualifications of chemistry technicians and foremen as to nuclear plant experience and the need for a college degree in chemistry.

The second allegation point concerned unqualified workers testing drinking and reactor cooling water and unqualified technicians

without college degrees in chemistry running tests on potable and reactor cooling water at Plant Vogtle.

Relative to unqualified workers testing reactor cooling water, the inspector considered this matter to be fully discussed in the foregoing paragraphs on ANSI/ANS-3.1-1981 qualifications for chemistry personnel.

ANSI/ANS-3.1-1981 does not address testing of drinking water. Relative to unqualified workers testing drinking/potable water, the inspector contacted the Water Protection Branch, Natural Resources Department of the State of Georgia. There are various State of Georgia certifications required for persons performing laboratory tests. Without going into detail as to the specific requirements for each type of State certification, the only academic requirement for any of the State certifications for laboratory testing of drinking/potable water is that a person to be certified shall be a high school graduate or possess a high school equivalence certification (G.E.D.). In other words, a college degree in chemistry is not required for State certification as a drinking/potable water analyst.

As previously noted, the above information was compiled in accordance with instructions. The inspector did not assess the qualifications of the individuals concerned and did not evaluate the validity of the portion of the allegation concerning qualifications of chemistry technicians responsible for analyzing drinking/potable water.

8. Licensee Action on Previously Identified Inspector Followup Items Unit 1 (84521, 84523, 84524)

(Closed) 50-424/86-34-01, Install shielded prefilter in TSC ventilation (Vogtle Readiness Review finding). The design and construction of this item were previously reviewed in 50-424/87-09, Paragraph 6. During this inspection, the inspector verified the installation of the system, which was located in an alcove next to the HVAC system for the TSC. The system appeared to be adequately shielded. The prefilter had not been tested at the time of the inspection due to excessive vibration of the system blower; however, IFI 50-424/87-09-02 was previously opened for review of DOP and freon leak tests of all TSC HEPA filters and charcoal adsorbers, which included the prefilter. On the basis of the above discussion, IFI 50-424/86-34-01 is considered closed.

(Closed) 86-37-02: Review licensee and plant procedures to delete reference to inplant "efficiency" testing of HEPA filters or equipment, and 86-37-03: Review revised implementing procedures to specify correct leakage values for HEPA filter banks.

Both of the above items represented a common error or misconception on the part of licensees, i.e., that an inplace test for bypass leakage in a HEPA filter system may be interpreted in terms of percent efficiency of the

HEPA filter media. ANSI N510-1980, Section 10.1,"Purpose", states "The in-place test is a leak test of the installed system and should not be confused with the efficiency test of individual filters." Similarly, the halogenated hydrocarbon leak test of carbon adsorber beds is not a measure of the efficiency of the system for retention of radioiodine.

Both in the FSAR and in plant procedures, reference was made to "efficiency" in referring to leak testing. While this practice was technically incorrect, it is a relatively common practice in the industry and it was not considered to be a significant safety concern. On this basis, both of the IFIs listed above were considered closed.

(Open) 86-137-06: Review applicant (licensee) evaluation of mechanisms of sample line transport for iodine in long sampling lines. Licensee representatives stated that the evaluation had not yet been completed. This item remains open.

(Open) 87-09-01: Evaluate PASS operation after plant has operated at least 30 days at full power and correlate analytical measurements against normal sample results. The plant had not been operated for 30 days at full power at the time of this inspection. This item remains open.

(Open) 87-09-02: Review results of DOP and freon leak tests of TSC filters and charcoal adsorbers. This system was inoperative at the time of the inspection. A licensee representative stated that the preoperational test had not been completed due to excessive vibration of the system blower or drive motor. The DOP and freon tests could not be run until the vibration problem had been corrected. This item remains open.

(Closed) 86-37-01: Review licensee FSAR update to reflect ASTM D3803 criteria for carbon testing. The FSAR, as amended up to the date of this inspection, continued to reference Regulatory Guide 1.52, Rev. 2 (March 1978) for criteria for carbon testing. This reference did not accurately reflect currently acceptable criteria for carbon testing, except through an intricate reference path. Regulatory Guide 1.52, Rev. 2, referenced ANSI N510-1975; ANSI N510-1975, in turn, referenced an obsolete DOE standard, RDT M16-1T (October 1973) which formerly contained specific test methods and criteria. The current version of RDT M16-1T deleted the test methods and criteria of RDT 16-1T (October 1973) in favor of referencing ASTM D3803 test methods and criteria. The current ANSI N510-1980 also similarly referenced ASTM D3803. This IFI suggested a shortcut of the reference path to ASTM D3803 which the licensee did not elect to adopt. Since all U.S. testing laboratories known to the NRC had converted their test procedures to comply with ASTM D3803 and no longer follow the older RDT procedure, the point is considered moot and of no significant safety consequence. On this basis, this item is considered closed.

10. Licensee Action on Previously identified Inspector Followup Items Unit 2 (84521, 84523, 84524)

(Closed) 50-425/86-18-33, Complete all procedures required for post accident liquid effluent sampling. The NRC does not require that the applicant establish procedures specifically for liquid effluent sampling under post accident conditions. Since there is no requirement for a procedure such as was indicated in the appraisal, this item is withdrawn and is considered closed.

(Open) 86-18-82, Completion of procedures for PASS calibrations and verification and troubleshooting. The Unit 2 PASS was not ready for inspection as of the date of this inspection and will be inspected during the preoperational inspection program at a later date to be determined. This item remains open.

(Open) 86-18-83, Completion of PASS training once the system becomes operational and updating tracking system to reflect this. The Unit 2 PASS was not expected to become operational until at least 1989. This item will be reviewed during preoperational inspections at the appropriate time. This item remains open.

(Closed) 50-425/86-18-84, Complete "flagging" process on training tracking system for PASS personnel requiring semi-annual retraining. The inspector reviewed the PASS training program, examined individual training file jackets, examined course material, examined course training records, and observed operation of the computerized training records and tracking system. The tracking system was judged to be adequate; on this basis, this item was considered adequate and is considered closed.

(Closed) 86-18-85: Final placement of designated equipment at local panel, TSC (Technical Support Center) storage cabinet, and radiochemistry cabinet. During a walkdown of the PASS, the inspectors determined that equipment, supplies, and procedures were in-place at the local PASS control panel, in the PASS TSC storage cabinet and in the radiochemistry lab cabinet. Based on the foregoing inspection and discussions of Unit 1 PASS operation with applicant personnel, this item is considered closed.

(Open) 86-18-86, Completion of final PASS operational testing. Final Unit 2 PASS preoperational testing, necessary prior to fuel load of Unit 2, had not been scheduled as of the date of this inspection. This item remains open.

(Closed) 86-18-87: Revise procedure 33016-C to include missing instructions on valve numbers, activity curves, and data sheets. The inspectors reviewed Procedure 33016-C, Rev. 2, November 14, 1986. Valve numbers had been entered on appropriate drawings. Appropriate tabular data were provided for (1) gaseous noble gas activity versus zero iodine activity and (2) expected iodine activity versus flow rate versus sample time. Figures were also developed for grab sampling equipment items and building locations. The procedure calls for results to be logged in the

Lab notebook as directed by Procedure 31045-C, "Chemistry Logkeeping, Filing and Record Storage;" for this reason, no data sheets were provided or deemed necessary. The inspector found the revised procedure to be adequate and on the basis of that determination, this item was considered closed.

(Open) 86-18-88: Assure volume of vent air representative of actual effluent activity; or that correction factors developed compensate for sample scavenging mechanisms. The inspectors reviewed applicant Procedure 33610-C, Rev. 2, November 14, 1986. The procedure appeared to be adequate as to the volume of vent air being representative of actual effluents for sampling of noble gases. However, the procedure did not adequately address several areas of concern in the collection of representative samples of radioiodines and particulates. Specifically, the procedure did not address (or provide a satisfactory reference for) the representative sampling or extraction of iodines and particulates from the exhaust stream and did not address losses, or correction factors for losses, of iodines and particulates in the sample transport of the sample through long lines from the point of withdrawal from the exhaust steam to the point of collection on the filter medium or absorber medium. Guidance on this matter acceptable to the staff appears in ANSI N13.1-1969 and in the proceedings of the bi-annual nuclear air cleaning conferences sponsored by the Department of Energy. This item remains open.

(Closed) 86-18-89: Complete Implementing Procedure 33065-C. The inspectors reviewed 33065-C, "Gamma Spectroscopy Analysis under Accident Conditions," and discussed the procedure with applicant representatives. Actual verification of sampling and analysis under radioactivity conditions will be accomplished at a later date during the NRC evaluation, which will be performed at such time as the reactor attains a minimum of 30 continuous full-power days of operation immediately prior to the date of the evaluation. Since the evaluation is listed under IFI 86-18-86 as requiring inspector followup, this item is considered closed.

(Closed) 86-18-90: Develop and implement a procedure for safely and accurately analyzing liquid effluent samples. There are no formal NRC requirements that the applicant must have established procedures for the safe and accurate sampling of liquid effluents. This item is withdrawn and is considered closed.

(Closed) 86-18-91: Develop procedures for safely and accurately analyzing liquid effluent samples. There are no NRC requirements that the applicant must have established procedures for safely and accurately sampling and/or analyzing liquid effluents. This item is withdrawn and is considered closed.