



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

Report No.: 50-424/85-51

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

Docket No.: 50-424

License No.: CPPR-108

Facility Name: Vogtle Unit 1

Inspection Conducted: October 21 - 25, 1985

Team Leader:

F. R. McCoy
F. R. McCoy

12/10/85
Date Signed

Team Members: S. D. Stadler
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Accompanying Personnel: G. Schneider, NRC Technical Training Center Instructor

Approved by:

C. Julian for
B. T. Debs, Acting Section Chief
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Division of Reactor Safety

12/11/85
Date Signed

SUMMARY

Scope: This routine, announced inspection entailed 258 inspector-hours on site in the area of readiness review of module 2. This involved an assessment of licensed operator training, equipment operator training, shift technical advisor training, general employee training, quality assurance and quality control training, engineer training, maintenance training, simulator development and performance, mitigating core damage training, and INPO accreditation efforts. Additionally, this involved a review of commitment implementation and evaluation of Vogtle readiness review team findings. This inspection effort also reviewed the applicant's implementation of NUREG 0737 items I.A.1.1, I.A.2.1, I.A.2.3, and II.B.4.

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *D. O. Foster, Vice President - Project Support
- *D. G. Smith, Assistant Deputy Project General Manager
- *H. P. Walker, Manager, Unit Operations
- *C. W. Hayes, Vogtle Quality Assurance Manager
- *W. C. Ramsey, Manager, Readiness Review
- *P. D. Rushton, Superintendent - Nuclear Training
- *D. Moore, Corporate Nuclear Training Coordinator
- *J. F. D'Amico, Superintendent - Regulatory Compliance
- *W. F. Kitchens, Superintendent - Operations
- *W. P. Wagner, Superintendent - Quality Control
- *G. F. Trudeau, Assistant Program Manager, Readiness Review
- *G. E. Spell, Quality Assurance Engineering Supervisor
- *M. A. Gibson, Simulator Modification Supervisor
- *G. C. Bell, Readiness Review Quality Assurance Representative
- *P. T. Ciccanesi, Regulatory Compliance
- *C. F. Meyer, Operations Supervisor

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

NRC Resident Inspectors

J. Rogge
R. Schepens
H. Livermore

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 25, 1985, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings.

Based on the findings delineated in the following paragraphs, the inspection team was able to develop the following three general conclusions with respect to the Vogtle training program:

- With the exception of specific weaknesses in systems, mitigating core damage, and Technical Specification training; training content, quality of training provided, and effectiveness of training presentations appeared to be satisfactory.

- Efforts towards INPO accreditation have been initiated and appear to be progressing in an adequate direction.
- Serious administrative deficiencies were noted to exist which should have been resolved at this stage of development and which require resolution in order to assure adequate program administration.

These general conclusions, as well as the specific findings, were presented to the applicant at the exit interview. Conclusions with respect to adequacy of readiness review of module 2 could not be developed without further review and consequently were not presented at the exit interview. This further review has since been completed, and an assessment of readiness review of module 2 with respect to this training assessment is presented in paragraph 5 of this report.

No dissenting comments were received from the applicant.

The applicant did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. Assessment Of Georgia Power Company's Readiness Review of Module 2 With Respect To This Training Assessment

The assessment team reviewed the applicant's efforts associated with the readiness review of operations training and qualification presented in module 2 in light of findings derived from this training assessment. This involved a review of the applicant's verification process and findings and comparative analysis of this data with training assessment findings. The assessment team considers that two weaknesses in the applicant's readiness review of module 2 exist based on the results of this review.

- Discrepancies within the implementation matrix as described in paragraph 10 of this report were not identified as findings. The assessment team does not consider the review process itself to be inadequate but does consider that if the discrepancies in the matrix had been addressed as findings, the assessment team's concern that some FSAR commitments are in uncontrolled documents with no mechanism to preclude inadvertent deletion may have been identified by the applicant during its readiness review.
- The applicant's readiness review also identified significant administrative deficiencies and weaknesses, though perhaps not to the extent of this training assessment. The assessment team considers, in

light of this training assessment, that the applicant's response to readiness review finding 2-8 was weak. Additionally, the assessment team considers that readiness review acceptance of the project's response was not appropriately justified.

The assessment team considers that the applicant should evaluate these weaknesses in order to determine reasons for their existence and determine the need for required corrective action. Resolution of this concern is identified as an inspector follow-up item (424/85-51-01).

6. Assessment Of Licensed Operator Training

An assessment of licensed operator training was performed by selected review of: (1) individual training records, lesson plans, training texts, and examinations; (2) observation of selected license candidates during system walkthroughs and simulator operations; and (3) interviews with selected license candidates.

a. Program Definition for Initial Licensing, Record Retention, and Handling of Examinations

Training procedures failed to delineate a comprehensive course of study for initial licensing training. Consequently, a clear description of how required courses and training interrelated, how instruction would be presented, and what examinations and evaluations determined satisfactory completion of the training were not procedurally evident. It was noted that the applicant's FSAR delineated general course requirements with integral durations of classroom or self study. There was no indication of relative contact hours required for classroom lectures for the required courses nor were the courses sequenced. It was also noted that course outlines were developed for each course for the various license training groups. These course outlines were not consistent from group to group, and again, the relative contact hours for classroom lecture attendance were not delineated. The applicant has individual checklists for requisite cold license training, but these simply verify that each element delineated in the FSAR is completed. They do not ensure that requisite contact hours of lecture attendance are identified as completed nor do they sequence the various courses. Additionally, there was no specification of required examinations and evaluations necessary to demonstrate satisfactory completion of training. Because of the lack of a course of study, there was little consistency in what materials were retained for any given individual's record of training. The use of a course of study is considered mandatory in order to standardize required training, identify and quantify the specific methods of instruction, and standardize and identify those items necessary for evaluating performance to determine whether a candidate has satisfactorily completed training. Proper specification of these factors will establish the basis for determining those items necessary for retention in training records. This, in turn, will result in providing a readily accessible record of any given operator's progress towards licensing.

The assessment team considers that procedural establishment of a course of study as defined herein is mandatory in order to assure proper administration of a training program. Resolution of this concern is identified as an inspector follow-up item (424-85-51-02).

The inspectors noted that FSAR Section 13.2.1.3.2 states that records of requalification shall be maintained for two years. This is in compliance with 10 CFR 55, Appendix A. The inspectors also noted, however, that proposed Technical Specifications require records of training and qualification to be retained for the duration of the plant operating license. The applicant was informed that the requirements contained in the Technical Specifications must be complied with regardless of less conservative FSAR commitments.

The inspectors noted that current Vogtle procedures do not require the maintenance and retention of completed examinations as records of individual training and qualification. The applicant stated that it was their intent to computerize examination grades and retain only the master examination and answer key. The inspectors stated that this was unacceptable and that completed examinations which determine qualification status are considered to be quality assurance records which must be maintained pursuant to 10 CFR 50 Appendix B, 10 CFR 55 Appendix A, and Technical Specifications. The applicant was able to provide, in those cases requested, completed examinations for selected license candidates. However, the applicant also indicated that there may be cases where completed examinations were not retained for some license candidates. The assessment team considers that Vogtle procedures should identify what examinations and evaluations are used to determine satisfactory completion of training, and require retention of each individual's completed examinations and evaluations as training records when they are used to determine satisfactory completion of training. Resolution of this concern is identified as an inspector follow-up item (424-85-51-03). Additionally, the assessment team considers that the applicant should define and implement corrective actions associated with individual training records where completed examinations were not retained. Resolution of this concern is identified as an inspector follow-up item (424-85-51-04).

The inspectors identified numerous examples of examinations being regraded with no justification given for either additional points awarded and, in some cases, no indication of who regraded the examination. In some cases, correction tape was used to delete the old grades and the new grades were written over the correction tape. In one case, regrading resulted in an individual's grade being raised 10% on one section of the examination and, in many cases, the regrading resulted in individuals who had initially failed, being brought up to a passing level. The applicant stated that as a result of readiness review, action was initiated to have the person regrading the examination to initial his corrections and to make corrections by lining out. Additionally, the applicant stated that they had recently been directed by corporate management to implement a program similar to that in place

at the Hatch facility which provided for documenting the bases for changing grades or deleting questions. The assessment team considers that these criteria for regrading examinations should be established in procedures and that the practice of regrading examinations should be controlled such that it is not the common mode of operation. Resolution of these concerns with regard to regrading of examinations is identified as an inspector follow-up item (424-85-51-05). The assessment team also considers that where regrading was previously accomplished without documentation of the bases of the regrading and where such regrading resulted in personnel being upgraded from failing to passing, that management reevaluate these specific examinations in order to ascertain acceptability of the examinations in demonstrating satisfactory completion of the training. Results of these evaluations should be documented and retained in training records. Resolution of this concern is identified as an inspector followup item (424-85-51-06).

The inspectors noted numerous cases where the reviewer block on the examination cover sheet was not signed, thus indicating that a review of the grading or point tabulation had not been conducted. In two cases, the inspectors noted that points had been totaled incorrectly resulting in the recorded grade being higher than it actually should have been. The proper totaling of points for one candidate's senior reactor operator (SRO) certification, annual requalification examination resulted in the candidate's grade being reduced from passing to failing. The assessment team considers that attention to detail should be paramount in handling of licensed operator qualification examinations and that grading should be correct and verified correct through independent review. Additionally, since the NRC review was a sampling review, other examinations required for evaluation should be reviewed to determine accuracy. Resolution of these concerns is identified as an inspector follow-up item (424-85-51-07). In the case of the individual who failed his SRO certification, annual requalification examination, required remedial training and reexamination should be identified and documented when completed. Resolution of this concern is identified as an inspector follow-up item (424-85-51-08).

The inspectors noted one case where a candidate's reactor operator (RO) audit examination had been regraded twice to new, higher grades; yet the grade was still below the minimum passing criteria of 80 percent for that examination. However, the individual was considered to have passed based on a committee review as specified in an applicant letter dated March 1985 on grading criteria. The assessment team considers that the practice of allowing individuals to pass examinations where minimum grade criteria is not met is unacceptable and should not be allowed. When minimum criteria is not met, retraining which is defined by the applicant on a case by case basis and reexamination should be required. The assessment team also considers that grading criteria should be defined procedurally rather than in policy memorandum. Resolution of these concerns is identified as an inspector follow-up item (424-85-51-09).

Several cases were noted where individuals failed examinations and there was no indication in the records presented for these individuals that any remedial training had ever been required and/or completed or that any retesting had been required and/or satisfactorily completed. In some cases, failures in a given area such as systems training were repeated with still no indication of remedial training. The inspectors were unable to identify procedural requirements stating the criteria required for remedial training and retesting of individuals failing major training. The assessment team considers that criteria for remedial training and retesting should be established in procedures and implemented. The applicant provided a copy of a new standardized retraining package which, if standardized in procedures and properly implemented, appears to be a satisfactory method for documenting remedial training. The assessment team considers that in all cases where individuals have failed required examinations, remedial training and retesting should be identified and documented upon completion. Resolution of these concerns for establishing procedure requirements and for identifying retraining and retesting for failed tests is identified as an inspector follow-up item (424-85-51-10).

A review of the 1985 SRO certification, annual requalification examination administered to one group of candidates on June 14, 1985, was compared to that administered to another group of candidates on June 21, 1985. This review determined that the examination questions were the same except for some minor reordering. Similar problems were noted with GET and quality control examinations as described later in this report. This assessment team considers this to be unacceptable in that different groups of candidates should not be administered the same test questions which are in close proximity at different times. Resolution of this concern is identified as an inspector follow-up item (424-85-51-11).

The inspectors noted that examination security was weak. Access to question bank questions and answers and, in some cases to examinations themselves, could easily be obtained through a training clerical office. During the course of the inspection, the office was observed to be unlocked and unmanned with the examination material accessible. Increasing security for examinations is identified as an inspector follow-up item (424-85-51-12).

The inspectors noted that there were no individual records of control manipulations performed on the simulator for any license candidate. Additionally, the inspectors were unable to find procedural requirements associated with maintaining individual records of control manipulations. The applicant stated that they intended to maintain individual records for control manipulations for annual requalification training in accordance with 10 CFR 55 Appendix A and that this would be addressed in the procedure governing requalification training when developed. The applicant also stated that they had not intended to maintain individual records of control manipulations during initial license training and that documentation of a candidate's participation

in simulator training was maintained in a simulator log. The inspectors consider that the use of the simulator log does not specifically address a given individual's active participation in specific simulator exercises. Individual records of control manipulations are desirable in that they more fully demonstrate the actual simulator training received by a given individual and further substantiate evaluations of an individual's performance during simulator training. Procedural definition and implementation of control manipulation records for annual requalification training and evaluation, and resolution of the concern associated with maintaining records of control manipulations associated with initial license training is identified as an inspector follow-up item (424-85-13).

The inspectors reviewed student system texts and noted that the system texts currently being used by the Vogtle staff are well written and should prove very useful to the plant operating personnel. There was, however, no procedure written to ensure the review and update of these texts on a regular basis. The assessment team considers that procedural control of review and update is necessary to provide quality, technically correct learning materials to plant operators for their qualification. The assessment team also considers that composition of a book containing drawings of all the plant's mechanical, electrical, instrumentation, and logic drawings would be a great asset to the qualification process at the Vogtle station. Resolution of these recommendations is identified as an inspector follow-up item (424-85-51-14).

The inspectors reviewed heat transfer and fluid flow and mitigating core damage instructional lesson plans. The heat transfer and fluid flow lesson plans were in satisfactory format with clearly defined objectives. These lesson plans were well written in an easy to follow instructional outline. SRO mitigating core damage instructor's lesson plans were examined and were determined to either not be dated or were dated October 17, 1985. Further investigation determined that the lesson plans were in the process of being rewritten. The format of approximately half of the lesson plans was unacceptable; there were no written objectives and the lesson plans were merely copies of a General Physics student mitigating core damage text. The other SRO mitigating core damage lesson plans were written in revised format. These were determined to be very well written. The revision of the SRO mitigating core damage lesson plans in this new format should improve the effectiveness of instruction. A review of RO mitigating core damage lesson plans revealed that they were merely the old copies of the unacceptable SRO lesson plans and, as such, were also in an unacceptable format. The applicant stated that the RO lesson plans had not yet been revised. The inspectors noted that formal procedural definition for revising and approving revisions to lesson plans was not evident and that such procedural control should be implemented. Resolution of this concern is identified as an inspector follow-up item (424-85-51-15).

The inspectors noted some problems with the computerized list of training records appearing incomplete. The applicant indicated that the computerized listing had not yet been validated and that when such validation was accomplished, this type of problem would be rectified. Completion of the performance of this validation is identified as an inspector follow-up item (424-85-51-16).

The inspectors noted that provisions existed for the Superintendent of Training to grant waivers of training without pretesting. The applicant also stated that such waivers not only included the course training but also included the course examination. The inspectors noted that one such vehicle for waiver is if a similar course was completed at another utility. In this case, the waiver can be granted without consideration of time duration since that course was given, or even time duration when the candidate may have been away from nuclear work. The assessment team considers that when waivers of training are dispensed, this should not include waiver of the course examination, and that all candidates should complete all course examinations satisfactorily. Resolution of this concern is identified as an inspector follow-up item (424-85-51-17). Additionally, the assessment team recommends that the applicant considers restricting the basis for waiver to pretesting.

b. Simulator Operations

The inspectors observed performance of a select group of license candidates in response to a simulated steam generator tube rupture on the plant simulator. Some weaknesses in operator action were noted during this evolution which were indicative of inexperience in control room operation. For example:

- There was a definite lack of formal communication between the SRO and the ROs on the simulator during emergency and abnormal operations.
- There was a lack of communication between all operators when operators were performing manipulations of the simulator.
- There was a great amount of uncertainty evident as the operators were performing normal evolutions during a load increase. This indicated that more normal operations training was needed.
- There was an overly excessive tendency on the part of the ROs to address only problems that occurred on sections of the control boards which were under their direct control.
- There was a clear lack of knowledge as to what was to be checked after the initiation of a safety injection. Also, a lack of knowledge of the immediate actions to be taken during abnormal events was observed.

The assessment team does not consider these observations to be unusual at this stage of the applicant's training program. However, it is considered that additional simulator training, systems training, emergency and abnormal procedure training, and normal plant operations training are required to ensure readiness for licensing.

During observation of the simulator exercise, several hardware problems were noted with the simulator. Annunciator tones were different from that in the plant's control room. These need to be compatible to ensure no confusion on the part of operators with respect to alarms. The applicant indicated awareness of this and indicated action would be taken to make the annunciator tones compatible. NSCW valve cycling was noted to be excessive. The operators stated that the simulator valve cycling for these valves was far longer than plant valve cycling. The applicant indicated that a deficiency report had previously been initiated on this problem and that it was programmed for correction. The inspectors noted that radiation panels are not present in the simulator. The applicant indicated awareness of this and stated that planning was in progress to provide for radiation panels in the simulator. Completion of these simulator upgrades is identified as an inspector follow-up item (424-85-51-18).

c. Systems Training

A review of selected records indicated that failing grades on systems examinations were quite common and that remedial training documentation was lacking in this area. The inspectors walked down plant systems with selected license candidates to determine operator familiarity with systems. Although the candidates knew the location of major components, they were unable to satisfactorily describe interconnections and system flow paths. Additionally, the candidates exhibited weaknesses in turbine and pump classifications, operating characteristics of turbines and pumps, generator excitation, switchgear layout, and electrical distribution. The inspectors noted that the applicant has recently instituted a new system walkthrough checklist which is described in paragraph 6.d below. Proper implementation of this checklist, coupled with additional classroom training on systems and structured participation in preoperational and hot functional testing, should correct these types of weaknesses and ensure adequate preparation to support licensing. This subject is discussed further below.

d. Hot Participation Training, Observation Training, and Walkthrough Training

The applicant has programmed license candidates for participation in six weeks of hot participation training where the candidates participate as an extra shift person at a similar type operating plant. Additionally, candidates are to participate in six weeks of on shift assignment at Vogtle. In conjunction with the on shift assignment at Vogtle, walkthrough training is conducted for a minimum three-week

duration where candidates are acquainted with equipment locations using structured checklists. Time spent in walkthrough training can be counted towards part of the six weeks of on shift assignment. A review of initial walkthrough training checklists indicated several system and building walkthroughs were signed off in a single day. As evidenced by observation of simulator operations and actual system walkthroughs, this training, as conducted to date, does not adequately demonstrate the degree of knowledge or experience necessary for proper plant operation.

The applicant provided new checklists which have recently been issued and which require candidates to walkdown systems with an instructor in a manner which demonstrates adequate knowledge of the systems, as well as component location. These checklists are utilized after system turnover to operations, and supplement the initial walkthrough checklist. The assessment team considers that proper implementation of these checklists for all license candidates will substantially help in achieving sufficient knowledge of systems necessary for proper plant operation. The assessment team also considers that implementation of the new walkthrough checklists should be coupled with a structured program for active participation of all license candidates in preoperational testing and hot functional testing in order to achieve sufficient operational knowledge for proper plant operation. The applicant stated that except for backup licensees, all licensed operators would complete the new systems checklists. The applicant stated that backup licensees would receive systems training which was comparable to that provided with completion of the new systems walkthrough checklists. The applicant acknowledged the assessment team's comment with respect to structured participation in preoperational testing and hot functional testing. The inspectors interviewed selected license candidates who had utilized these new systems walkthrough checklists and confirmed that the candidates considered the walkthrough by instructors conducted with these checklists to be thorough and positive, and use of these checklists resulted in development of confidence with respect to systems knowledge. The inspectors observed a variance in the number of systems each selected candidate had completed. With approximately 40 systems turned over, some candidates had completed in excess of 20 systems while others had only completed as few as 5 systems. It was noted that individuals with little progress were already working overtime and were heavily involved in plant preparations such as secondary hydrostatic testing. There appeared to be no driving force managing completion of this walkthrough program; accomplishment of system walkthroughs appeared to be student initiated. The inspectors noted that the work load for operations personnel at Near Term Operating License reactors tends to increase geometrically as the project approaches licensing and that if the system walkthroughs are not properly managed to ensure early initiation and orderly progress, such training can be overcome by events and result in an ineffective program. In summary, the assessment team considers that improvements should be fully implemented for on

shift/walkthrough training as described below to ensure operational readiness for licensing.

- (1) Provide proper management direction for ensuring orderly completion of new system walkthrough checklists for license candidates.
- (2) If backup licensees are not to be required to complete new systems walkthrough checklists, develop and implement additional systems training for these individuals comparable to that afforded by completion of the checklists.
- (3) Implement a formal structured program for participation in preoperational testing and hot functional testing for all license candidates.

Resolution of concerns with walkthrough and on shift experience training and subsequent evaluation of the applicant's progress in improving this training is identified as an inspector follow-up item (424-85-51-19). The assessment team also recommended that a method be developed by the applicant to provide the operations supervisors with a readily available status of which individuals are qualified on what systems.

With regard to hot participation, the inspectors noted that the Vogtle FSAR requires that prior to achieving 20 percent power, applicants for a cold license shall have six weeks of hot participation experience, as defined in generic letter 84-16, at a same type plant. During a review of individual training records associated with this training, the inspectors identified one individual who, during the six weeks of observation training, spent one day at general employee training (GET), one day working at Vogtle, one day on holiday leave, and one day on vacation leave. This represents approximately one week of the six-week period. The assessment team considers that the amount of hot participation experience received by this particular individual should be evaluated by the applicant to determine acceptability. Additionally, the applicant should document the results of this evaluation. The applicant committed to perform such an evaluation. Completion of this action is identified as an inspector follow-up item (424-85-51-20).

e. Instructor Qualification

NUREG 0737, Items 1.A.2.1 and 1.A.2.3, and NRC (H. Denton) letter of March 1980, on reactor operator qualifications require that instructors who teach systems, integrated responses, transient, and simulator courses shall demonstrate their competence to the NRC by successful completion of a senior reactor operator examination. Section 13.2.1.3.3 of the FSAR and Commitment 13.2.1.3.3.A do not contain the "systems" section of this NUREG requirement. A review of the applicable training procedures and training schedules indicates

that teaching of systems is actually being performed by certified instructors; however, the above references do allow non-certified instructors to teach systems and should be revised in order to properly implement NUREG-0737.

Training procedure 60100-C, Revision 1, contains a statement allowing non-certified members of the training staff to teach licensed personnel in their area of expertise. This exception may be applied to such areas as health physics, reactor theory, or GET, but cannot include the teaching of systems, integrated responses, transient or simulator courses. NUREG 0737, Item 1.A.2.3, also provides that experts on particular subjects may act as guest lecturers in license training without an SRO certification. This exemption for guest lecturers, however, does not apply to full-time members of the training staff or contract license training instructors attached to the training staff. A review of course records and internal training audits indicates that certified instructors are presently being utilized to teach areas addressed in Item 1.A.2.3 of NUREG 0737, although non-certified instructors had previously taught license candidates very early in the training program.

It was noted by the inspectors that one contract instructor who teaches the simulator course and other areas covered under Item 1.A.2.1 has never been certified on Plant Vogtle but was certified on a similar Westinghouse Plant. Outside of self-study, his training record contained no plant specific training or evaluation by GPC prior to teaching license candidates. Interviews with license candidates, however, indicated that this particular instructor is one of the most capable and technically proficient on the training staff. In the future, the applicant should provide formal plant specific training and evaluation for instructors certified or licensed at other plants prior to their utilization as initial license or license requalification instructors. This requirement should be procedurally defined, and the training should be concentrated on the differences in the plants and include in-plant and control room familiarization.

Records indicate that the NRC has certified 32 individuals as SRO instructors at Vogtle. Because the applicant desired to certify additional shift personnel as instructors in October 1985, and because the NRC Region II Licensing Group is frequently resource limited, the applicant was granted a waiver to certify 12 additional individuals themselves. This was a one-time waiver for those 12 specific individuals and was contingent on the candidates successfully completing the applicant's SRO training program. The letter of waiver dated September 14, 1985, noted that certified instructors who will later apply for an NRC cold license, "must apply and be examined in accordance with the applicable provisions of 10 CFR 55." The NRC license examinations will include written, oral, and simulator sections as are standard for a cold license examination.

NUREG Item 1.A.2.3 requires that instructors who teach systems, integrated responses, transient and simulator courses be enrolled in appropriate requalification programs. This requirement is essential to ensure that instructors teaching licensee personnel remain technically competent, and that the information provided to students is correct and accurate. Item 1.A.2.1 and WRC (H. Denton) letter of March 1980, also requires that instructors be enrolled in appropriate requalification programs to ensure they are cognizant of current operating history, problems, and changes to procedures and administrative limitations. Since license instructors often tend to specialize (i.e., teach one or two specific subjects for long periods of time in license or requalification training), they can lose proficiency in other areas in which they are qualified, by virtue of their certification, to teach. Licensed and certified instructors who teach systems, integrated responses, transient and simulator courses should attend all requalification lectures and simulator sessions for which they are not responsible to teach. At the very least, these instructors should be required to successfully complete the lecture examination for the segment of requalification training which they do not teach or cannot attend. This requirement should be proceduralized. To ensure continued proficiency and successful completion of requalification training, these licensed and certified instructors should also be required to satisfactorily pass the annual requalification examination. Training Procedure 60100-C appears to exempt instructors from the annual requalification examination if they conduct a comprehensive examination. Assuming the comprehensive examination addressed is the annual requalification examination, exempting instructors who prepare, administer, and grade the examination is acceptable with certain restrictions. The number of instructors exempted annually should be a reasonable number of no more than two or three. Additionally, the exemption assignment should be rotated annually in order that all licensed and certified instructors will demonstrate continued proficiency by successfully completing at least one requalification examination in each two-year requalification cycle. These requirements should be clearly defined in the applicable procedure.

Revisions to training procedures covering licensed and certified instructor qualifications and active participation in license requalification training is identified as inspector follow-up item (424-85-51-21).

f. Instructor Evaluations

Interviews of license candidates including reactor operators, senior reactor operators, and STAs indicated a high degree of confidence in instructor expertise. Observations by the inspectors of classroom and simulator training lend support to the conclusion that license training instructors appear well qualified and dedicated. Interviewees indicated a higher degree of confidence in contract instructors, as compared to applicant instructors, due to the fact that contract instructors have more plant operation experience. This concern

regarding a lack of experience among applicant instructors should be self-correcting as the plant becomes operational. A review of the instructor evaluation practices by the applicant, both on a technical as well as instructional technique basis, indicated that they have not been formal or proceduralized in the past. A recent training procedure revision now requires that instructor evaluations be performed semiannually for all license instructors.

The inspector requested that the applicant provide past instructor evaluations for review. Subsequent to this request, however, a number of these evaluations were discarded by the applicant, who later indicated that a misunderstanding resulted in the loss of these evaluations. The assessment team cautioned the applicant on the implications of such action whether advertent or inadvertent and the seriousness of consequence which could result from this type of incident. In the case of the evaluations in question, it is considered by the assessment team that findings associated with these evaluations would not have contributed significantly to the results of this inspection effort. Consequently, the assessment team has recommended that no further action be taken with regard to this incident.

The inspectors did review a small number of recent informal instructor evaluations. One deficiency noted on several of the evaluations was the presentation of incorrect or "made-up information" to students when the instructor does not know the correct information or response. It is essential to the safety of the plant, as well as the credibility of the instructor, that only correct and accurate information be provided. An instructor who is not sure of, or does not know the answer to a student's question must recognize his lack of immediate knowledge and provide commitment to obtain the correct answer and provide feedback to the students.

Evaluations of instructor teaching techniques and of technical proficiency should be performed by staff personnel who are qualified in each of these specific areas. The minimum acceptable qualifications for these instructor evaluators should be procedurally defined. The acceptable standards for each criteria of evaluation should also be procedurally defined under performance based training. Additionally, the addition of a section for instructor response on the evaluation form could be beneficial in assessing the effectiveness of the evaluation.

The inspectors were unable to identify procedural requirements for retention of instructor evaluation records. The assessment team considers that these evaluation records should be retained for a reasonable time frame to allow evaluative trending.

Subsequent review of the semiannual evaluations of instructors who teach license or license requalification training is addressed as an inspector follow-up item (424-85-51-22).

g. Mitigation of Core Damage Training

NUREG 0737, Item II.B.4, requires applicants to develop a program to teach the use of installed equipment and systems to control or mitigate accidents in which the core is severely damaged. The applicants must then implement this program. The course which has been developed and implemented at Vogtle is an eight-hour course which appears to be primarily self-study. Although the inspectors were not able to sit through this course and perform an evaluation of the content, they had definite concern as to whether this subject could be covered to the depth intended in just eight hours. The applicant maintained that the course was adequate and covered sufficient material for licensed personnel. While the course may cover all general areas listed in Item II.B.4 (this was not verified by the inspectors), the question remains as to whether an eight-hour course which appears to be primarily self-study can provide the same level of training as the forty-hour lecture courses taught at most other utilities. These courses normally contain lecture sessions, discussions, problem solving and calculations, simulator training, and use of the process computer. The Westinghouse vendor course on mitigation of core damage is also a comprehensive forty-hour course. The shortest course observed by the inspectors in Region II, prior to Vogtle, contained 16 hours of lecture. This licensee had to justify to the NRC in the SER why 16 hours was adequate because past guidance has been 80 hours of combined training between mitigation of core damage and heat transfer, fluid flow, and thermodynamics. With eight hours of mitigating core damage training and 40 hours of thermo-fluid flow training, Vogtle is nearly 50 percent below this guideline. The applicant should compare the content, depth of coverage, and training effectiveness of their abbreviated program with the requirements in NRC (H. Denton) letter of March 1980, and with either the Westinghouse mitigation of core damage course or courses taught at other utilities. Effectiveness could be determined by administration of a comprehensive examination such as that given by Westinghouse at the end of the course. The interviews with ROs and SROs indicated that additional training in mitigation of core damage was needed. Specifically, the interviewees indicated that increased lecture and simulator usage was needed, coverage of smaller accidents in addition to the major design basis accidents was needed, and more emphasis on the applied aspects of instrumentation and control usage was needed.

The inspectors were informed that the last group of SRO candidates who participated in cold license training did not receive mitigating core damage training due to lack of time. Although the use of training and qualification checklists should ensure that all license candidates will have this training prior to submittal of license or certification applications, the inspectors have concern with the applicant's apparent lack of formal programming for this training.

Resolution of concerns associated with course content adequacy, assurance that all required personnel receive this training, and formal

implementation of this training in the licensing curriculum is identified as an inspector follow-up item (424-85-51-23).

h. Technical Specification Training

The inspectors noted that Vogtle has not established and implemented a formal Technical Specification training course. Technical Specification training in the applicant's cold license training program appears to have been addressed in systems training and only to the degree that the system LCOs were discussed as each system was taught. Interviews indicated that even this LCO training was primarily self-study. Technical Specifications are a very complex and interrelated set of requirements and often require judgemental interpretation. Training should not be limited to single system LCOs, but should include the structure and general use, definitions, motherhood action statements, administrative requirements, record keeping and action statements, tracking, and the use of tables, particularly in the instrumentation section. Open book work sessions should be conducted with the emphasis on the loss of systems or equipment which affect multiple LCOs and require an SRO to determine which course of action is required. Work sessions should also be utilized to ensure that SROs can utilize the graphs, tables, and formulas, such as those contained in the reactivity control, power distribution limits, and radioactive effluent sections to determine appropriate actions. Although the STAs may in reality perform most of these calculations and evaluations, it is essential that the responsible SROs also understand and are capable of performing these actions independently.

Interviews with license candidates indicated that they considered that additional Technical Specification training was required prior to licensing and plant operation. They appeared to be most concerned with the proper actions to take where multiple LCOs are involved, and with management's interpretation of various Technical Specification LCOs, action statements, and definitions. Management interpretations of some Technical Specifications will evolve as plant operations progress; however, it would be very beneficial to provide some philosophy input to SROs prior to plant operation. Some areas which might be stressed would include definitions such as "operability," expected course of action when an action statement requires shutdown in a given time frame such as four hours, interpretation of instrument tables and associated action statements, and interpretation of concurrent multiple LCOs and action statements. Observation of a simulator exercise also indicated a need for additional training in this area. An instrument failure placed the plant in an action statement which had two alternative courses of action. One action required limiting reactor power to 75% and reducing the trip setpoints on a safety system to 85% and the other simply required performance of flux tilt calculations every 12 hours. The SRO elected to restrict power to 75% and adjust the trip setpoints, a rather involved evolution. The flux tilt readings require only about five minutes to complete and verify actual flux tilt, with no

restriction on power level. The SRO's decision was conservative and would not be an NRC concern; however, this action may not have been the most desirable for the utility. Although the training addressed here is not a regulatory requirement, it can significantly enhance the safe and efficient operation of the plant and has been addressed as a licensing issue at most Near Term Operating License reactors in the recent past. The inspectors note that an increase of LERs has been observed in the region which are directly attributable to Technical Specification training deficiencies. Examples include failure to recognize entry into LCOs and complete action statement requirements, particularly where multiple LCOs or the loss of supporting systems to equipment not directly covered by Technical Specifications are involved. Additionally, examples include failure to adequately meet time constraints with respect to LCO action statements, and misinterpretation of Technical Specification action statement requirements. The development and conduct of additional Technical Specification training prior to licensing and plant operation is addressed as an inspector follow-up item (424-85-51-24).

i. Emergency Planning Training

The inspectors noted that emergency planning training was only a two-hour overview of emergency planning and consider that more training is required in event classification, notifications, and other applied aspects of emergency planning. The applicant stated that license candidates would receive more training in the emergency plan operating procedure during interim requalification. Evaluation of the adequacy of this training when administered is identified as an inspector follow-up item (424-85-51-25).

7. Shift Technical Advisor (STA) Training

A review of Vogtle's FSAR, implementing procedure, qualification checklist, interviews with three STAs, and a review of select training records were conducted. The STA training program was noted to be based on the SRO training program. The STA must complete the SRO program and the additional requirements as outlined in procedure 11955-C, Shift Technical Advisor Qualification Checklist. The overall program appears adequate in providing STAs with the required training. However, since the major portion of the training is tied to SRO training, the program experiences the same weaknesses noted in the license operator training program.

Interviews with STAs indicated that they considered that the program was providing adequate training with the exception of mitigating core damage training. One STA stated that mitigating core damage training was not conducted for his cold license training group due to a lack of time and that it would be taught at a later date. Other STAs indicated that more training in mitigation of core damage was required with increased lecture and simulator usage time. Additionally, they indicated that smaller accidents should be covered in addition to the major design basis accidents and that more emphasis on the applied aspects of instrumentation and control usage

was required. These comments were observed to be the same as those expressed by operators and senior operators interviewed. This concern is adequately addressed through inspector follow-up item 424-85-51-20.

8. Non-Licensed Training

a. General Employee Training

The inspectors conducted a review of the GET program as defined by the FSAR and Vogtle's Administrative Procedure 00700-C, General Employee Training. Additionally, the inspector reviewed all GET lesson plans, tests, and observed one class room lecture. The inspector noted the following:

- Lesson Plan GE-LP-017, Quality Assurance Orientation, lacks information concerning what employees can do if their reported quality concern is not answered to their satisfaction by the Quality Concerns Program Committee; that is, to report the concerns to higher management or to the NRC. The GET instructor informed the inspector that this information is provided to the students even though it is not specified in the lesson plan.
- The inspector observed a lecture entitled, Exposure Control (Part 1). The lecture was well prepared, the class was attentive, and the material presented was accurate and informative. Additionally, the instructor administered a quiz at the end of the lecture to reinforce the material covered.
- There are seven GET final examinations which are administered to different GET classes, each consisting of 100 site specific and INPO generated questions. A review of the questions reflected that all of the site specific questions were the same in each of the final examinations and approximately 80 percent of the INPO generated questions were the same. Each final examination consisted of three subsections and each subsection has associated with it, a makeup examination. The makeup examinations associated with two of the subsections were noted to have the same identical questions as each of the final examinations (all site specific questions). The makeup examination associated with the third subsection had the same identical site specific questions and approximately 80 percent identical INPO generated questions as each of the final examinations. The inspectors were informed that the GET question bank was being expanded to include a greater variety of questions. The inspection team considers that the final examinations, and particularly the makeup examinations, need to be more diverse in question makeup when administered at different times in close proximity to one another. Resolution of this concern is identified as an inspector follow-up item (424-85-51-26).

b. Maintenance Training

The inspectors conducted a review of Vogtle's FSAR in the areas of instrumentation and control, mechanical maintenance, and electrical maintenance training. Additionally, the inspectors reviewed the proposed implementing maintenance training procedures, interviewed six maintenance personnel, and observed an electrical maintenance class in session. The inspectors noted the following:

- The Vogtle FSAR allows maintenance personnel who meet the education and experience requirements of ANSI N18.1-1971 to perform independent tasks if they complete GET and one week of on-the-job (OJT) training. A review of the proposed one week OJT checklist indicated it was an administrative procedure review list. It did not require the maintenance personnel to perform or demonstrate ability as maintenance technicians or repairmen. Additionally, the FSAR states that those maintenance personnel who do not meet the ANSI N18.1-1971 requirements must complete initial training in order to demonstrate their ability to perform specific tasks. The initial training for I&C consists of approximately five weeks; for mechanical maintenance, approximately six weeks; and for electrical maintenance, approximately nine weeks of training. The inspectors expressed the concern that the training requirements specified in the FSAR for ANSI N18.1-1971 experienced personnel and non-ANSI N18.1-1971 personnel is very minimal and would not ensure an adequately trained maintenance force. The Vogtle Safety Evaluation Report (SER) (NUREG 1137) addressed the concern of non-ANSI qualified personnel, which stated that the provision for an alternate qualification program is unacceptable to the staff because such a program has not been described or justified. The applicant should revise its FSAR to eliminate reference to an alternative qualification program or provide a detailed discussion of the alternate program to demonstrate a level of equivalency to ANSI N18.1-1971. The alternate qualification method still remains an open item in the SER. Discussions with the plant training supervisor and a review of the proposed implementing training procedures indicates that the training program will be performance based and exceeds the commitment listed in the FSAR. This program will require ANSI N18.1-1971 qualified personnel and non-ANSI qualified personnel to complete certain training and demonstrate maintenance abilities prior to performing independent job duties. The program is still in the developmental phase and the complete program structure has not been determined yet. It appears that once developed, this program will ensure adequate training for maintenance personnel. The assessment team considers that resolution of the open item in the FSAR will resolve the concern with the alternate qualification program for non ANSI N18.1-1971 personnel. The assessment team further considers that training specified in the FSAR for ANSI N18.1-1971 personnel is inadequate and in essence represents no training. Action should be taken to delineate acceptable training criteria in the FSAR for all maintenance personnel. Resolution of this concern and review of the performance based training program,

once developed, is identified as an inspector follow-up item (424-85-51-27).

- A 125V DC switchgear class was observed in progress. The class was performing a breaker alignment in a laboratory setting. The laboratory facilities were excellent. The instructor was well prepared and the course material appeared adequate.
- The instrumentation and control training program requires a course in mitigating core damage. At present, this course is in the developmental stage and has not been implemented. The inspector was informed by the instructor who is developing the course that it was going to be approximately eight-hours long and that INPO guidelines for training to recognize and mitigate the consequences of core damage were being used to develop the course. The inspector was concerned that the course which was under development appeared to lack practical factors such as demonstration of the various actions that they may be required to be performed in order to mitigate core damage. Additionally, the planned eight hours of instruction appear, on the surface, insufficient to adequately cover all the needed subject material. Further evaluation of this training, once developed, is addressed as an inspector follow-up item (424-85-51-28).
- Interviews with the maintenance personnel indicated that they considered the training provided by the training center to be adequate and beneficial and aided them in performing their required jobs. Additionally, the personnel considered that the systems training was very useful to them.
- A review of procedures and interviews with maintenance personnel was conducted to determine the status of operating experience training for the maintenance department. Vogtle's procedure 00414-C, Operations Assessment Program, requires that Regulatory Compliance provide operational experience information to each department. Each department is required to evaluate the information to determine the appropriate actions. A review of maintenance procedures indicated that a method for ensuring that operational experience information is provided to all maintenance personnel has not been developed. The inspector was informed by the Plant Engineering Supervisor that a procedure was under development for the maintenance department. The operational experience information would be covered by a maintenance news letter that would be produced on a routine basis and that this information would be presented to all maintenance personnel. The inspector was informed that the above process would be proceduralized to ensure that a program is implemented and that the presentation of the information would be documented. The verification of program implementation and an evaluation as to its effectiveness will be addressed as an inspector follow-up item (424-85-51-29). Training department procedure 60005-C,

Incorporation of Changes in Training Material and Simulator, is the implementing procedure for ensuring that feedback of operating experience is factored into future lesson plans. The incorporation of this information is documented to ensure it receives the appropriate actions.

c. Quality Assurance (QA) Auditor Training

The inspectors reviewed the applicants training program for QA auditors contained in corporate procedure QA-03-02, Training and Personnel Qualification. The procedure was reviewed for completeness, adequacy for development of competent auditors, and for implementation of the appropriate requirements of ANSI N45.2.12-1977.

The inspectors noted that phase VI of the training program in QA-03-02, which covers continuing education, has not been implemented at the site. Although the minimum requirements of ANSI N45.2.12 for continuing education are met and are documented in individual records pursuant to another procedure, QA-03-01, the inspectors consider that the current program does not meet QA-03-02 requirement and the applicant must take additional actions to either revise or implement these requirements. Resolution of this concern is identified as an inspector follow-up item (424-85-51-30).

The inspectors noted with concern that the Quality Assurance certification examination questions for both phase III and phase V examinations are not revised with each new group to which it is administered. The assessment team considers it unacceptable in that different groups should not be administered the same test questions at different times which are in close proximity. Additionally, the inspectors identified that a completed phase V certification examination was accidentally released to an individual at the completion of his oral boards and was being maintained at the individual's desk. The assessment team considers that this represents a lack of control of examination security which is particularly significant since the same examination is administered from group to group. Additionally, this type of incident precludes the maintenance of adequate training records. Resolution of this concern is identified as an inspector follow-up item (424-85-51-31).

d. Quality Control (QC) Inspector Training

FSAR Section 13.2.2.1.10, Quality Control Training Program, describes the requirements for qualification and certification of QC inspectors. The NRC inspectors had two concerns with this section. As stated, the FSAR allows new inspection personnel to become certified without meeting the requirements of ANSI N45.2.6-1978 by completing an initial training program. The Quality Control Superintendent agreed with the inspectors that this was inadequate and stated that the wording would be changed such that the requirements of ANSI N45.2.6-1978 would be met in all cases. Additionally, there is concern over who should attend

the initial training program. The current FSAR commitments only require personnel who do not meet the level 1 inspector verification requirements to attend initial training. However, the initial training program covers basic system training, training on fire protection, and codes, standards, and procedures training. The inspectors consider that this type of training should not be eliminated from the curriculum of certified personnel coming from another industry or another vendor's plant. The applicant agreed with the inspectors and committed to require all permanent QC employees to receive this training. The inspector performed a records review of 25 percent of the operations' QC personnel and found their training to be well documented and complete. The inspectors also reviewed procedure 85001-C, Qualification and Certification of Quality Control Inspection Personnel; 85002-C, Quality Control Departmental Training; and 85003-C, Training and Qualification of Quality Control Non-Destructive Testing Personnel. These procedures appeared to adequately meet the requirements of ANSI N45.2.6. The inspectors interviewed several of the QC inspection personnel. All individuals indicated that they had sufficient training when they had entered the section. Current training on systems and components was considered to be highly satisfactory by the interviewees.

The inspectors identified that in the past, the same certification by examination tests was given to different groups at different times. The applicant indicated that because of concern with individuals discussing examination questions, action was taken to revise the tests monthly. The potential for individuals being administered the same examination at different times in close proximity to one another still exists; consequently, it is not considered that monthly revision of the test is sufficient. The assessment terms considers that use of an expanded question bank and question rotation in making up examinations is necessary to ensure proper examination administration.

Resolution of concerns with FSAR commitments and examination administration for QC personnel are identified as an inspector follow-up item (424-85-51-32).

e. Support Engineer Training

The applicant's commitments on the training of professional personnel are documented in FSAR Section 13.2.2.1.11, Engineering and Technical Support. The inspectors reviewed the current lesson plans for the engineer training program. These lesson plans appear to be adequate and appear to meet the FSAR commitments; however, there are currently no procedures developed to govern this program. The applicant has designated procedure 0743-C for future preparation in order to delineate requirements for engineering and technical support training. The inspectors noted that no pass/fail criteria currently exists for either individual courses or the entire program. Examples were noted where individuals had received less than 50 percent on weekly tests. There was no indication of these individuals having received remedial

training or re-examination. Other examples were noted where grades in the low to mid seventies were received for the entire training program. There was no indication of whether this constituted satisfactory training completion or whether remedial training and re-examination was required. The inspectors noted with concern that all examinations from previous courses had been returned to the individual or destroyed. As stated previously, the assessment team considers that completed examinations used to determine qualification of an individual are training records that are required to be maintained in accordance with 10 CFR 50, Appendix B, and Technical Specifications. Until the applicant's procedure 0743-C is implemented and the concerns addressed herein have been resolved and this resolution evaluated, this is identified as an inspector follow-up item (425-85-51-33).

9. Efforts Towards INPO Accreditation

The inspectors reviewed the applicant's efforts towards INPO accreditation in the area of licensed operator training. The applicant had identified approximately 700 training modules for licensed operator training and has approved approximately 14 percent of the task analyses associated with these modules and approximately 2 percent of the modules themselves. Administration procedures governing job task analysis and performance based training are, for the most part, in draft format; however, if implemented as presently conceived, it appears these procedures will ensure systematic development of task analysis and performance based training materials. The inspectors noted that most of the material being developed is in a self-paced format which appears to lend itself more easily to self study rather than lectures. Since the majority of modules approved deal with either on the job or simulator training, and since the quantity of material approved is so small, there is insufficient data to draw conclusions from this observation. The applicant stated that they intended to maintain objectivity with regard to selection of instructional methods. The assessment team considers that further NRC evaluation of instructional methods employed by the applicant is warranted following additional development in this area. The necessity for this evaluation is identified as an inspector follow-up item (424-85-51-34).

The inspectors reviewed implementation of course evaluations with the Superintendent of Training. The applicant stated that implementation of course evaluations had not yet been established; however, it was intended, conceptually, that the following elements be included in course evaluations:

- Feedback from job incumbent through job survey questionnaires. The applicant indicated that this could not be accomplished until incumbent expertise through job experience was in place.
- Feedback from supervision of job incumbents by utilizing them as special training committee members involved in course evaluation.
- Independent evaluations of course effectiveness by corporate training personnel.

- Instructor interviews.

The assessment team considers these elements to be positive attributes for course evaluation. Additionally, the assessment team considers that once conceptually established, techniques and methods for evaluation of courses and documentation of results of these evaluations should be defined in procedures.

Establishing criteria for course evaluation in procedures is identified as an inspector follow-up item (424-85-51-35).

10. Review of Module 2 Implementation Matrix

The inspectors reviewed the applicant's commitments and implementing documents pursuant to the readiness review module 2 implementation matrix. A sample of approximately 70 percent of those commitments where implementing documents were specified in the matrix to have been approved and issued were selected for review. One concern was noted with procedure 00700-C which addresses GET. The implementation matrix indicated that commitments with regard to radiation protection, ALARA, and operational risk were implemented in procedure 00700-C, when, in fact, this procedure merely stated that the radiation protection orientation would include information necessary for employees who will enter or work in radiation control areas. This is a brief "umbrella" statement that does not adequately implement the commitments. The inspectors were able to ascertain that the commitments were, in fact, fully addressed in lesson plans GE-LP-001 through 009. These lesson plans are not controlled documents and, consequently, do not appear to be an appropriate vehicle for implementation of FSAR commitments. A review of checklists used by Vogtle reviewers during readiness review reflects that they confirmed the commitments to be in lesson plans rather than the stipulated document, but did not report this as a finding. The assessment team considers that the review was satisfactory; however, it is considered that this circumstance should have represented a finding. The inspectors were informed that responsibility for radiation protection, ALARA, and occupational health training is programmed to come under the cognizance of the Health Physics department and that procedures associated with this training would be developed by the Supervisor of Chemistry and Health Physics Training. The assessment team considers that the applicant should evaluate the appropriateness of delineating FSAR commitments solely in lesson plans or other uncontrolled documents. Where commitments are required to be proceduralized, they should be implemented in procedures. Where commitments are not considered necessary to be proceduralized and are delineated in uncontrolled documents, measures must be established to ensure these documents are reviewed against the commitment tracking system to ensure they are not changed without reviewing applicable commitments for impact. Resolution of this concern is identified as an inspector follow-up item (424-85-51-36).

11. Qualifications of Key Operations Personnel

During the week of September 30, 1985, an independent evaluation was undertaken to verify that key applicant operations personnel were in conformance with the requirements of ANSI N18.1-1971, Standard for Selection and Training of Personnel for Nuclear Power Plants. Module 2 indicates that the applicant has committed to this standard as delineated in FSAR Sections 13.1 and 13.2.

In order to verify full conformance with the ANSI standard, the following key operations positions were evaluated with respect to essential education, experience, and certification requirements:

- General Manager - Nuclear Operations
- Manager - Unit Operations
- Superintendent of Operations*
- Superintendent of Plant Engineering and Services*
- Superintendent of Maintenance*
- Superintendent of Engineering Liaison
- Superintendent of Regulatory Compliance*
- Superintendent of Quality Control
- Superintendent of Health Physics
- Superintendent of Chemistry
- Operations Supervisor
- Plant Engineering Supervisor (Maintenance)
- Plant Engineering Supervisor (Engineering Services)
- Quality Control Supervisor
- HP & Chemistry Supervisor

For each of the above, a resume was obtained and reviewed indepth to ensure full conformance with the experience and education requirements of ANSI N18.1-1971. Furthermore, within the text of the ANSI standard, each position that had specific specialized experience or licensing requirements was reviewed to ensure compliance. In each case, for these specialized requirements, the applicable resume contained the needed experience or certification to ensure compliance.

In making these determinations each resume was rated separately for the applicable years of total power, nuclear power plant, other applicable experience, academic training, as well as possession (or progress in training towards possession) of an RO or SRO license as needed. A separate determination was then made of the needed amounts of experience, education, and licensing required by functional position through an indepth review of all applicable ANSI N18.1-1971 requirements for the given positions. For each of the 15 key operations managers and supervisors identified above, these checklists of personal qualifications were compared with the position requirements of ANSI N18.1-1971. In each case, to varying degrees, it was determined that the minimum requirements of the ANSI standard were met. As further verification, the personnel folders of those individuals asterisked above were reviewed in the Vogtle personnel department (operations), and it

was confirmed that the resume of each was accurately supported by personnel records. As a result of this review it was determined that personnel currently filling the positions reviewed, meet the requirements of ANSI N18.1-1971.

In selecting the positions to be reviewed, the inspectors included the current Plant Review Board members. In each case, these individuals were determined to meet the ANSI N18.1-1971 requirements of the department superintendent whom they represented.