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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	Docket Nos. 50-424-OLA-3
	)	50-425-OLA-3
GEORGIA POWER COMPANY, et al.	)	License Amendment (Transfer to Southern Nuclear)
(Vogtle Electric Generating Plant Units 1 and 2)	)	ASLBP No. 93-671-01-OLA-3

GEORGIA POWER COMPANY'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW ON DIESEL GENERATOR REPORTING ISSUES

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Georgia Power Company ("Georgia Power" or "Company") hereby submits its proposed findings of fact and conclusions of law relating to the second hearing in this proceeding, addressing Intervenor's diesel generator reporting issues. The proposed findings and conclusions below are presented in the form of a decision that could be issued by the Board. In accordance with the Board's request (see, e.g., Tr. 9737), Georgia Power has endeavored to propose balanced findings that consider the evidence advanced not only by Georgia Power, but also by Intervenor and the Nuclear Regulatory Commission ("NRC") Staff.

The proposed initial decision is organized as follows: Section I provides an introduction, including a brief identification of the proceeding and issues and an overview of the proposed decision. Section II provides background information on the issues. A time line of events

requested by the Board is also attached as Appendix A. See Tr. 12,201-02. Section III then provides findings on the accuracy of statements that were made concerning the number of diesel generator starts that occurred after the 1990 Site Area Emergency at Plant Vogtle; section IV provides findings on statements concerning air quality; and section V provides findings on the accuracy of statements concerning the suspected root cause of the diesel generator failures during the Site Area Emergency. Section VI provides an overall evaluation of these statements and considers their implications with regard to character. Section VII then provides the conclusions of law.

Prefiled testimony is cited in short form, such as "Mosbaugh at ___," in these findings. Appendix B to this decision cross-references these short-form citations with the full citation including transcript page where the prefiled testimony was bound into the record.

I. Introduction

A. Identification of the Proceeding, Parties, and Contention

This proceeding involves a proposed license amendment to transfer the operating authority for the Vogtle Electric Generating Plant ("Plant Vogtle" or "Vogtle") from Georgia Power Company to an affiliate, the Southern Nuclear Operating Company ("Southern Nuclear"). A former Vogtle employee, Allen L. Mosbaugh, intervened in this license amendment proceeding and has contended that the transfer should not be permitted because Southern Nuclear lacks the requisite character to operate a nuclear plant. The NRC Staff is also a party to this proceeding and supports the proposed transfer.

Intervenor offered two bases for his contention. One basis is that Georgia Power misled the NRC regarding who was in control of licensed activities at Plant Vogtle after formation of the SONOPCo Project in 1988. This issue was the subject of hearings in January, 1995, and led to our decision that Georgia Power has not transferred control of the Vogtle license without NRC authorization and did not mislead the NRC.

The second basis offered by Intervenor is that Georgia Power's management knowingly conspired to submit material false information to the NRC concerning the performance of the emergency diesel generators at Plant Vogtle following the Site Area Emergency at Plant Vogtle in March 1990. In this decision, we conclude that Georgia Power did not knowingly conspire to submit material false statements. We find instances where incomplete or inaccurate statements were made, but like the NRC Staff, we find no credible evidence that any of these inaccurate statements were made willfully or with deliberate intent to deceive the Commission. Nor do we find any misconduct that would so impugn Southern Nuclear's management as to prevent license transfer.

Our conclusions on the diesel generator reporting issue are based on a very comprehensive record. Hearing on this issue commenced in April and ran through September, 1995, covering approximately 60 actual hearing days. During this period, over forty witnesses appeared and testified, generating over 12,500 pages of transcript in addition to prefiled written testimony. In addition, over 500 exhibits were admitted into evidence.

B. Scope of the Diesel Generator Reporting Issue

The precise scope of the diesel generator reporting issue has itself been a contentious issue in this proceeding, resulting in a number of motions and rulings. To provide understanding of the scope of the issues we are deciding today, the pertinent pleadings and rulings are summarized below.

In his December 9, 1992 Amendments to Petition to Intervene and Request for Hearing, Intervenor pleaded four contentions. Contention 1 alleged in essence that The Southern Company had illegally transferred control of Plant Vogtle to Southern Nuclear. Contention 2 alleged that Southern Nuclear does not possess the requisite character to become a licensee, and Contention 3 added that, as a result, transfer of the license would represent an increased risk to the health and safety of the public. Contention 4 essentially alleged that The Southern Company lacks requisite character. Amended Petition at 4-5.

After pleading these four contentions, Intervenor specified the bases that he alleged to support each contention. With respect to Contentions 2, 3, and 4, Intervenor asserted that Southern Nuclear's management, knowing that LER 90-006 contained false statements, conspired to submit materially false information to the NRC that was significant to the regulatory process. Id. at 15-16. Intervenor identified tape recordings and an Office of Investigations ("OI") investigation as evidence supporting this assertion. Intervenor further alleged, as a basis for Contentions 2, 3, and 4, that Southern Nuclear's management had conspired to submit materially false information to derail the ongoing OI investigation. Id. at 16-19. In this regard, Intervenor referred to two specific sections of his prior July 8, 1991 2.206 petition: (1) Section I.1 of the 2.206

petition relating specifically to Mr. McDonald's statement that Mr. Hairston had not participated in an April 19, 1990 conference call and to Mr. McDonald's first-hand knowledge of diesel generator start information in LER 90-006; and (2) Section I.2 of the petition relating to Mr. McDonald's response regarding when Intervenor first alerted his management to inaccuracies in the diesel start data contained in the LER. Id. at 18 and n.14-15.

In our February 18, 1993 Memorandum and Order (Admitting a Party), we admitted Contentions 1 (in part), 2 and 3, and rejected Contention 4. LBP-93-5, 37 N.R.C. 96 (1993). We consolidated the admitted contentions into a single contention. Id. at 110. With respect to Contentions 2 and 3, we stated:

> As a basis for his contentions, Mr. Mosbaugh alleges that, "SONOPCO's highest levels of management conspired to submit and did submit materially false information to the NRC concerning critical safety-related information pertaining to a March 1990 Site Area Emergency." In support of this allegation, Mr. Mosbaugh describes evidence that, among other things, implicates Mr. R.P. McDonald -- an officer of Southern Nuclear -- in material false statements in Licensee Event Report 90-006. One of these alleged material false statements is the intentional falsification of data on diesel engine starts in order to persuade NRC to permit Vogtle to restart. . . .
>
> Mr. Mosbaugh also claims that he made tape recordings, currently in possession of OI, that provide irrefutable evidence that Mr. McDonald swore to a variety of other false statements before the NRC. . . .

Id. at 104-05 (footnotes omitted).

After the admission of the consolidated contention, we held a conference to discuss the scheduling of the case. At the outset of the conference, Georgia Power stated its understanding that the scope of the admitted contention related to two matters: (1) the LER and subsequent

statements about the LER made by certain company officials, and (2) the alleged illegal transfer of the license. Tr. 121. The Board referred the parties to a decision related to Diablo Canyon, LBP-93-01, which had concluded that the scope of a contention is not necessarily limited to its bases. Id. We cautioned, however, that we would not allow a pure fishing expedition, and consequently, there would be limits on discovery. Id. at 121-22.

In subsequent discovery, Intervenor proceeded to ask interrogatories and request documents related to topics such as diesel air quality, the FAVA system, miscalculation of shutdown margin, safeguards, and dilution valves.[4] On July 21, 1993, the Licensing Board, on its own motion, issued a Memorandum and Order (Case Management) deciding that at least during an initial phase of this proceeding, discovery would be restricted to matters related to the bases of the admitted contention. LBP-93-15, 38 N.R.C. 20, 22 (1993).

Intervenor subsequently took the position that the bases for its admitted contention included all facts set forth in his prior 2.206 petition, including numerous allegations that Georgia Power had violated Technical Specifications. In a Memorandum and Order (Georgia Power Motion to Reconsider Scope of Proceeding), dated September 24, 1993, we held that Intervenor's Amended Petition had not incorporated the entire 2.206 petition by reference, and specifically had not incorporated those portions alleging violations of Technical Specifications. LBP-93-21, 38 N.R.C. 143, 148 (1993). Rather, we concluded that Intervenor had voluntarily excluded allegations that were not specifically discussed in his Amended Petition in this proceeding. Id. at

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[4] See, e.g., Intervenor's First Set of Interrogatories and Requests for Documents to Staff of the U.S. Nuclear Regulatory Commission (June 24, 1993) at 11-22; Intervenor's Second Set of Interrogatories and Request for Documents to Georgia Power Company (June 27, 1993).

148. We ruled that Intervenor would not be precluded from moving to add additional matters as bases for its contentions, but would be required to demonstrate that the additional matters are relevant and newly discovered. Id. Otherwise, our Memorandum and Order stated,

> Matters that were not discussed in the Amended Petition, except by reference to Intervenor's prior section 2.206 petitions, shall not be considered to have been raised in the Amended Petition and shall not be included in Phase I of this proceeding.

Id. at 150.

On May 9, 1994, the NRC Staff issued a Notice of Violation ("NOV") against Georgia Power. The NOV asserted five violations: (1) that Georgia Power's April 9, 1990 presentation and April 9, 1990 letter to the NRC were inaccurate concerning the number of successful diesel generator starts; (2) that the April 9, 1990 letter was incomplete in stating that it had concluded that the diesel air system, including dew point control, was satisfactory, and in stating that initial reports of higher than expected dew points had been attributed to faulty instrumentation; (3) that LER 90-006 was inaccurate concerning the number of successful diesel generator starts; (4) that Georgia Power's June 29, 1990 letter was inaccurate and incomplete in failing to clarify the April 9 letter and in explaining the causes of the prior errors; (5) that Georgia Power's August 30, 1990 letter was inaccurate and incomplete in explaining the causes of the prior errors. This NOV prompted the Licensing Board to modify its prior ruling on the scope of the proceeding. In a Memorandum and Order (Scope of Proceeding) dated May 23, 1994, we held that all the allegations in the NOV are important to the admitted contention and should be included within the scope of the proceeding. LBP-94-15, 39 N.R.C. 254, 255-56 (1994).

In response to continuing disagreements among the parties prompted by further broad discovery requests by Intervenor, we issued another Memorandum and Order (Scope of Discovery) on June 2, 1994. Therein, elaborating on permissible discovery, the Board stated:

> 2. Questions About the Site Area Emergency or Violations of Technical Specifications. Mr. Mosbaugh has contended that Georgia Power has given to the Nuclear Regulatory Commission (NRC) false representations about the safety of diesel generators. We have interpreted this contention to include all of the communications to the NRC that are an object of concern in the final report of the Office of Investigations (Case No. 2-90-020R). Any questions related to whether the representations to the NRC were the whole truth may be raised in this proceeding. In particular, Mr. Mosbaugh may ask questions about how Georgia Power has attempted to fulfill its safety obligations with respect to diesel generators, including whether problems with the diesels should have prevented restarting the Vogtle reactor after the site area emergency. With respect to the diesel generators ... he may raise questions about what Georgia Power's safety obligations were, including obligations under the plant's technical specifications or its procedures. It may also raise pertinent facts about the diesel generators that were known to Georgia Power or its officials and that would question whether it told the whole truth to the NRC.
>
> On the other hand, Mr. Mosbaugh may not now raise new issues about "any Mosbaugh allegations" that are not related to the diesel generators, such as the granting by the NRC for permission to change Vogtle's mode of operation while the Vogtle diesels were both out of service. For example, Mr. Mosbaugh may not properly advance interrogatories about the site area emergency on the ground that those questions are relevant to who was exercising control of Vogtle during the site area emergency. He may expect answers to questions directed to discovering what different individuals learned during the site area emergency, providing that the answers may be expected to relate directly or indirectly to whether Georgia Power told the whole truth to the NRC about its diesel generators.
>
> 3. New Issues. If Mr. Mosbaugh seeks to raise new issues, he may file them as late-filed issues. We will consider whether: (a) those issues should be accepted as late-filed contentions, (b) whether adequate documentation has been presented for us to consider adjudication of the new issue to be necessary for an adequate

> record on the admitted contention, and (c) whether or not to postpone our determination about admitting new matters until after the pending matters have been adjudicated.

Id. at 2-4.

Shortly thereafter, the Board set a July 5, 1994 deadline for the identification of any additional issues that Intervenor wished to have considered in this proceeding. June 23, 1994 Prehearing Conference, Tr. 36-37. In response, Intervenor filed Intervenor's Motion to Accept Additional Factual Bases in Support of the Admitted Contention (July 6, 1994). Therein, Intervenor raised only one allegation, that the opening of the containment hatch on the day of the site area emergency violated technical specifications. The Licensing Board subsequently decided that this allegation was not meritorious and did not raise a significant issue that needed to be included in this proceeding. LBP-94-27, 40 N.R.C. 103, 114-15 (1994). Intervenor has not moved to introduce any other allegations or issues for consideration in this proceeding.

On April 27, 1995, we ruled on Georgia Power's motion for summary disposition of issues related to diesel air quality. Memorandum and Order (Summary Disposition: Air Quality) (April 27, 1995). After considering the motion and responses, we ruled that the following issues were in dispute:

> 1. Georgia Power's April 9, 1990 Confirmation of Action response letter (COA Letter) incorrectly states that air quality was satisfactory when it was not.
>
> 2. The COA Letter states that recently obtained high dew point readings were the result of faulty instrumentation.
>
> 3. Georgia Power's communications with NRC concerning high dew points were incomplete.
>
> We note, however, that in each instance, Intervenor must demonstrate that:

4. In making representations 1-3 to the NRC, the officials of Georgia Power were willful or were recklessly careless of the facts.

Id. at 6.

We were confronted with the issue of scope again when Mr. Mosbaugh provided his pre-filed testimony. In ruling on a subsequent Georgia Power Motion to Strike Partially Intervenor's Prefiled Testimony (April 25, 1995), we continued to hold that Intervenor's case shall be limited to the previously specified communications. However, we granted Intervenor considerable latitude to present "pattern" evidence to prove, circumstantially, whether or not misstatements were made willfully. Memorandum and Order (Motion to Strike Mosbaugh Testimony) (May 11, 1995) at 4-5. Thus, we allowed testimony that is relevant to the motives or extent of responsibility of Georgia Power officials with respect to the alleged misstatements, but denied testimony relating to technical issues that are not part of the proceeding. Id. at 7. We specifically rejected Intervenor's attempt to introduce as a purely technical issue the root cause of the diesel generator failures during the site area emergency. Id. at 21-22.

Our successive rulings have made it clear that the scope of Intervenor's contention is subject to certain limits. It encompasses those matters specifically raised in Intervenor's Amended Petition, but has also been expanded to include the communications relating to the diesel generators that were the object of concern in the May 9, 1994 NOV. In essence, the rulings above indicate that the primary issues that have been placed in controversy in this proceeding relate to the accuracy of the diesel start counts contained in the April 9, 1990 presentation and letter, the air

quality statement in the April 9, 1990 letter, the diesel start count in the April 19, 1990 LER, and the explanations given in the June 29 and August 30, 1990 letters.

As stated earlier, we have been generous in allowing Intervenor to introduce "pattern" evidence in order to show motive or intent with respect to the specific statements at issue in this proceeding. The introduction of this collateral evidence, however, does not expand the scope of the issues. Such evidence was admitted only to allow Intervenor a full opportunity to prove that the diesel generator statements were willfully false, not to introduce new allegations of misconduct to impugn Georgia Power's character without any nexus to the diesel generator reporting issues.

We have striven to apply these principles during the proceeding. Thus, for example, we allowed a limited inquiry into the handling of Mr. Mosbaugh's Quality Concern over the FAVA system to determine whether there was a real review of his concerns and whether PRB members were intimidated. Tr. 14121. We allowed this testimony based on Intervenor's representation that this limited inquiry was necessary to show Mr. Mosbaugh's frame of mind in April 1990 when the issue of the diesel start count was going forward. Tr. 14102. We did not allow, however, general questions relating to the "culture" at Plant Vogtle without connection to the specific misreporting allegations admitted as issues in controversy in this proceeding. Tr. 10615-16. We have similarly continued to maintain that root cause is not an issue in this proceeding except to the extent it relates to whether Georgia Power knowingly provided inaccurate information to the NRC in 1990. Tr. 14242-43, 14309 (J. Bloch).

Finally, we are mindful that Intervenor's contention is that Georgia Power management knowingly conspired to submit material false statements in these communications, thus evidencing a lack of requisite character. Our role in this proceeding is not to decide whether the enforcement action taken against Georgia Power was sufficient per se, but rather to decide whether the inaccurate statements that were made were so egregious (i.e. indicate such a deficient character) as to preclude the transfer of the license with current management.

C. Summary of Decision

It is uncontested in this proceeding that the specific statements at issue -- the April 9, 1990 presentation and letter, the April 19, 1990 LER, the June 29, 1990 letter transmitting the revised LER, and the August 30, 1990 letter -- contained inaccuracies or omissions. Such errors and omissions, however, are not sufficient in and of themselves to warrant denial of a proposed license transfer. As the NRC Staff witnesses testified, inaccuracies in communications between the NRC and its licensees occur. When they do, they are subject to NRC enforcement actions, such as the Notice of Violation and Civil Penalty that were imposed upon Georgia Power. That enforcement action, however, did not include a suspension or revocation of the existing operating license, and the Staff now supports the license transfer. In essence, in the NRC Staff's estimation, the errors and omissions simply do not rise to a level of misconduct that would warrant suspending Plant Vogtle from operating or Southern Nuclear from becoming the named licensee.

We give great weight to the NRC Staff's judgment in this matter. The NRC Staff witnessed the events directly in 1990, and conducted an extensive investigation after the fact. The Staff has devoted thousands of hours to this matter. The individual members of the Staff have

observed, interacted with, and know the Vogtle and Georgia Power managers. The Staff has participated actively in the proceeding and is familiar with all the evidence adduced by the parties. We kept the Staff testimony until last so that they could provide their views after hearing the testimony of all other witnesses. The testimony of the staff witnesses in this proceeding, and the actions that they have taken regarding the 1990 events, show that they are professional, experienced, no-nonsense regulators, with a balanced and broad insight into licensed activities and communications.

The NRC Staff is also an impartial third party much less affected than Georgia Power or Mr. Mosbaugh by the litigation that has surrounded Intervenor's allegations. It is clear from the contentiousness of this proceeding that five years of litigative dispute between Georgia Power and Intervenor -- in a Department of Labor proceeding, in a 2.206 proceeding, in the course of the OI investigation, before Congress, and in this proceeding now before the Board -- has tended to polarize their views. For this reason too, we accord weight to the Staff's views, including the Staff's determination that none of the errors or omissions by Georgia Power involved any deliberate intent to deceive.

In contrast, the position that Intervenor has advanced in the bases for his contention is that the inaccuracies were made knowingly and as part of a criminal conspiracy by management. His position is remarkable in the breadth of wrongdoing alleged and the number of people it would require be involved. Given the seriousness of the charges, we were extremely liberal in allowing witnesses, exhibits and cross-examination. We took this approach because we recognized the seriousness of the allegations to the future of the plant and all those it impacts and as

well to the individual employees and managers accused by Mr. Mosbaugh of dishonesty. We do not, however, lightly endorse such serious accusations. We have insisted on hard proof. One result was that the case was far more extended and costly for all concerned than it might have been. Another result is that we are confident in our decision.[2/] Mr. Mosbaugh was given every opportunity to advance once and for all his evidence, his views, his perspectives, and his inferences. One would hope now the issues will be finally closed by this expensive case.

We have carefully considered Intervenor's serious charges and all of the circumstantial evidence that Intervenor has offered. After full consideration of the entire record, we are unable to and do not accept the inferences that Intervenor would have us draw.

1. April 9, 1990 Presentation and Letter

Mr. Mosbaugh contends that representations about the number of successful diesel generator starts that were made by Georgia Power in an April 9, 1990 presentation to the NRC and in an April 9, 1990 letter (in essence summarizing what was said during the presentation) were willfully false. He bases this allegation in large measure on his belief that a typed list of diesel generator starts was prepared as a backup slide for the April 9 presentation, was provided to the

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2/ One other result was that by allowing such far reaching evidence, we were exposed to a broad picture of how business was done at Vogtle in 1990. Although it was not strictly within the scope of this proceeding, we inquired into the levels of professionalism that certain practices suggested. Thus, for example, we inquired into the level of professionalism that would lead to pipe sealant and shavings being found in the sensitive Calcon sensors; we inquired into the scope and, indeed, existence, of proper root cause analyses of uncovered problems; and, we inquired into the adequacy of procedures and training where there appeared to us to be obvious shortcomings. The Board is aware that these are slices of the whole picture as it existed in 1990, that we do not know how representative they are of that time frame, or what efforts have been taken between 1990 and today to specifically address these issues.

We expect the Staff, however, to the extent they have not already done so, to take the record we have developed into account, including the evidence on professionalism, under their broader authority.

Plant General Manager and the corporate office before the presentation, and alerted high level managers to inaccuracy of the diesel start statements. There is no credible evidence that this list of starts was a presentation slide or that it was ever provided to the Plant General Manager or the persons in the corporate office who worked on the April 9 letter.

Mr. Mosbaugh also contends that a handwritten version of this list was provided to one of the diesel engineers who returned to Birmingham after the April 9 presentation. He therefore contends that this list was available to the managers and officers who were responsible for the April 9 letter. It is possible that a handwritten list of starts was given to this engineer, but there is no evidence whatsoever that this individual gave or showed the list to anybody in the corporate office or that he had any involvement in the April 9 letter.

Alternatively, Mr. Mosbaugh contends that the Plant General Manager and managers and officers in the corporate office possessed enough knowledge of the results of the diesel testing that they must have known that the statements were false. There is, however, no indication that either the Plant General Manager or any or the managers and officers in the corporate office had sufficient information to know that the number of successful diesel starts reported on April 9 was inaccurate. They were aware that there had been some problems involving the diesels, but they did not read or understand the letter to be suggesting that there had been no failures since March 20.

In summary, we find that the inaccuracies in the April 9 letter and presentation were not made intentionally or knowingly. We also find no evidence of any reckless disregard for the truth on the part of Georgia Power personnel. The inaccurate statements made on April 9 appear

the result of poor communication, and not indifference. The April 9 events do not involve a case where statements were made without effort or concern over their accuracy. Instead, it is clear that a considerable effort was being expended to support the representations. A licensed, senior reactor operator was asked to determine the start count, poured over two sets of logs to come up with lists and a number, and later typed his lists. It is clear that mistakes were made, but they simply were not the type of callous indifferent acts that would lead us to find character too deficient to allow the current management to operate the plant.

2. April 19, 1990 LER

Mr. Mosbaugh contends that a statement concerning the number of diesel starts in an LER submitted to the NRC on April 19, 1990 was intentionally inaccurate -- that high level Georgia Power personnel knew it was false but nevertheless conspired to submit this false information to the NRC in order to "cover up" the inaccuracy of the April 9 letter. He further contends that corporate personnel conspired to divert him from a conference call in which the statement was discussed; and that a recording of statements made during this call is a "smoking gun," evidencing the conspiracy to submit false information to the NRC.

Mr. Mosbaugh asserts that during the conference call on April 19, the Plant General Manager and the Vice President, Nuclear for Vogtle decided and intended to use the same statement that had been made on April 9, that they knew this statement was false because concerns over the April 9 letter had been communicated up the chain of command to the highest levels, and they nevertheless conspired to repeat the statement in order to cover up the inaccuracy of the April 9 letter. We find, however, that Georgia Power did not include in the LER the same statement that

was in the April 9 letter. Rather, Georgia Power personnel modified the wording to avoid implying that there had been no failures of the diesels during testing. While it turned out that the modified language introduced a new ambiguity that brought into question the reported number of diesel starts, the corporate personnel working on the LER believed that the final statement was correct based on the assurances of the Plant General Manager that the data had been previously verified and on further assurances from the plant staff that collected data was supportive. Further, the Vogtle Vice President spoke with an NRC Region II official that day and at a minimum made certain that the NRC understood there had been failures of one of the diesels during test runs after the event.

We also find no basis for Mr. Mosbaugh's assertion that various individuals conspired to divert him from the conference call. Mr. Mosbaugh finds it very suspicious that he was not informed of the conference call and also that shortly before the conference call he was asked to arrange another call (related to a different issue in the LER). His subordinate, however, was certainly aware of, and participated in, the conference call, and Mr. Mosbaugh's having been asked to arrange another call was not unusual because he was the plant Duty Manager that day.

Finally, we do not accept Mr. Mosbaugh's interpretation of the statements that he recorded during the conference call. Mr. Mosbaugh contends that when the Senior Vice President asked whether there had been any trips of the diesels, the Vice President for Vogtle replied "I'll testify to that" and the Corporate General Manager of Plant Support replied, "No, not not . . ." and "Just Disavow." Much of this portion of the tape is inaudible and is heavily disputed. More importantly, the statements that Mr. Mosbaugh attributes to the Vice President for Vogtle and the

corporate General Manager of Plant Support simply do not make sense. There is no conceivable reason why they would have told the Senior Vice President that there had been no trips, when the Plant General Manager had shortly before made it clear to everyone that there had been trips but before the start of his count. We also find it very significant that no witness, including Mr. Mosbaugh, has any recollection of either the Vice President for Vogtle or the corporate General Manager of Plant Support stating what Mr. Mosbaugh now claims they said. Even in 1990, when he submitted very detailed allegations and was interviewed by OI, Mr. Mosbaugh had no understanding that anybody had said anything inappropriate in response to the Senior Vice President's question.

For these reasons, we conclude that Georgia Power did not engage in any conspiracy to submit false information in the LER. The evidence does not support Mr. Mosbaugh's accusation that Georgia Power made the false statements intentionally. Rather, it is clear to us and we find that, with the apparent exception of Mr. Mosbaugh, the Georgia Power managers who finalized the LER on April 19 believed it to be correct when it was submitted.

We also conclude that these managers did not act with reckless disregard. Like the April 9 statements, the inclusion of the diesel start statement in the final LER was not an act of callous indifference, where nobody cared or sought to ensure its accuracy. It is clear from the record that a considerable amount of attention and effort to verify the statement was expended on April 19. The Senior Vice President instructed that the statement be verified. The Plant Review Board directed that the statement be verified. Numerous calls were held to discuss the statement and understand what it meant. Regulatory specialists were dispatched to review the logs and expended

a number of hours compiling a fairly comprehensive start list. The Vice President for Vogtle called the NRC to make sure they had not been misled by the April 9 statements and to discuss the basis for the statement that was going to be included in the LER. We therefore conclude that Georgia Power personnel were honestly trying to make a correct statement in the LER.

3. June 29, 1990 Letter Transmitting Revised LER

The June 29, 1990 letter transmitted a revised and correct LER. The cover letter, however, did not provide a complete and accurate explanation why errors had been previously made in the April 9 letter and April 19 LER. Mr. Mosbaugh again contends that the inaccuracies and omissions were willful -- that Georgia Power knew or should have known that the cover letter to the June 29th revision to the LER contained inaccurate statements or incomplete statements.

More specifically, he asserts that the Senior Vice President and the Vogtle Vice President knew better than what was included in the June 29th cover letter. He attaches some significance to his belief that they may have been personally involved in drafting one of the sentences in question. He also infers wrongdoing from the communications that he believes might have occurred between a licensing engineer and the Senior Vice President, and from a number of additional factors.

The record does not support Mr. Mosbaugh's position. There is no evidence that any concerns regarding the completeness of accuracy of the June 29 letter were ever brought to the attention of the Senior Vice President or the Vogtle Vice President on June 29. Rather, it is clear that these individuals relied on findings that had been made in a QA audit report, which they had carefully reviewed and believed to be reasonable.

Nor did they act recklessly. The Senior Vice President had directed the QA audit to develop accurate information, and this was a significant act. He intended for that audit to determine why Georgia Power was having trouble getting the correct numbers and why Georgia Power was having trouble counting starts. He received an audit that had explanations and, by focusing on the explanations which sounded reasonable, he included explanations in the draft cover letter. The Senior Vice President and the Vogtle Vice President reviewed the report with considerable care. They also communicated with the NRC, and the Senior Vice President instructed that a copy of the audit report be provided to the NRC resident inspector. The cover letters that were being drafted were provided to the site for review and the final version was approved by the PRB.

Concerns were brought to the attention of PRB members and the licensing engineer who was working on the letter on June 29, before it was issued. Again, the record does not establish any willful wrongdoing by these individuals. They too relied on the audit report's findings and believed that the June 29 letter was complete and accurate when it was submitted. These individuals acknowledge that they could and should have done more to address Mr. Mosbaugh's comments, but at the time they did not agree with him.

4. August 30, 1990 Letter

Georgia Power's August 30, 1990 letter was submitted at the request of the NRC in order to clarify the diesel starts statement in the April 9, 1990 letter. It was poorly worded and inaccurately suggested that the individual who counted starts in April was confused about successful

starts versus valid tests. Mr. Bockhold acknowledges his personal responsibility in generating this inaccuracy.

Mr. Mosbaugh contends that Georgia Power individuals knew or should have known that information contained in the August 30 letter was inaccurate or incomplete and that the motivation involved wrongdoing. He claims that such wrongdoing can be reasonably inferred from his assertions that (1) the August 30 letter was developed from the "top down," (2) Mr. McCoy made a public statement which contradicts the August 30 letter, and (3) Mr. Bockhold engaged in inappropriate "steering" of the PRB on August 30 concerning the language in a draft of the letter.

Intervenor's evidence falls far short of the strong showing we believe is necessary to find wrongdoing on the part of Georgia Power personnel. We see nothing inappropriate in the corporate office's involvement in the preparation of the letter. We would expect such involvement and, based on the taped discussions, the site was heavily involved in reviewing and approving the letter. While Mr. McCoy's public statement used different language than in the letter, based on the surrounding evidence, we do not find it is at odds with the August 30 letter. Mr. Bockhold's involvement in the PRB meeting in which the letter was approved, while not a typical occurrence, was also not inappropriate. While there was some evidence questioning Mr. Bockhold's actions at the August 30 PRB meeting, based on the totality of the evidence, we find that Mr. Bockhold did not unduly influence the PRB members during their review of the letter.

In sum, Intervenor's evidence concerning the preparation of the August 30 letter does not provide a sufficient basis to draw a negative inference against Georgia Power personnel with respect to their character or integrity.

5. *OSI White Papers and Response to 2.206 Petition*

As part of his conspiracy theory, Mr. Mosbaugh contends that Georgia Power knowing submitted additional false statements in order to cover up the involvement of executives with the diesel start statement in the April 19 LER. Mr. Mosbaugh alleges that certain answers to questions in "white papers" prepared for the NRC's Operational Safety Inspection (OSI) in August, 1990, were purposefully crafted to exclude reference to Georgia Power's executives as having participated in the April 19, 1990 telephone call during which the diesel start language of LER 90-06 was revised. Mr. Mosbaugh similarly alleges that Georgia Power made a false statement in an April 1, 1991 response to a 2.206 petition by asserting that the Senior Vice President was not a participant in the April 19 call that reviewed the LER language.

The responses in the white paper were based on the memory of a number of individuals who met in August, 1990 -- four months after the events in question and without the benefit of Mr. Mosbaugh's tape recordings. It is very clear from the transcript of this meeting, which was recorded by Mr. Mosbaugh, that there was considerable uncertainty in the various recollection of who had participated in the April 19 call. Memories were simply imprecise. We find no indication that there was a purposeful attempt to deceive the NRC with the responses that were compiled.

With respect to the response to the 2.206 petition, Georgia Power again did not have the benefit of the tape recordings and based its response on the same information gathered for the "white papers." Further, the failure of the Georgia Power personnel to identify the Senior Vice President is not surprising because he participated for only a brief portion of one of the calls and

not on any portion associated with the introduction of the wording that made the LER inaccurate. The NRC Staff has reviewed this matter and concluded that Georgia Power had a reasonable basis its statement.

6. Statements Concerning Air Quality

Mr. Mosbaugh alleges that Georgia Power knew or should have known several other statements, dealing with air quality, in Georgia Power's April 9 letter were inaccurate and incomplete. He asserts four bases for this allegation. First, he claims that, contrary to the statements in the letter, no air quality review was performed. This claim was not substantiated during the hearing. In fact, the record is replete with evidence demonstrating that air quality was in fact reviewed by both Georgia Power and the NRC Region II and Incident Inspection Team ("IIT") personnel.

Second, Intervenor claims that, contrary to the letter, air quality was not satisfactory because dew point readings were out-of-specification high. Intervenor took the position during the hearing that in-specification dew point readings were the only means by which Georgia Power could truthfully have stated that air quality was satisfactory. However, evidence provided both by Georgia Power and the NRC Staff revealed that in-specification dew points were not the exclusive means for demonstrating satisfactory air quality. Other reliable indicia of acceptable air quality were absence of moisture in the air receivers, absence of moisture or signs of corrosion in the air filters, absence of water in the control air filter bowl, and absence of evidence of moisture or corrosion in the diesel control air lines. Furthermore, we found no evidence in the record to suggest that Georgia Power in any way misrepresented to the NRC its basis for claiming that air

quality was satisfactory or represented that dew point measurements were always found in-specification.

Third, Intervenor claims there was no faulty dew point instrument as stated in the letter. Intervenor's position is founded on the premise that it is not credible that two different types of M&TE approved instruments were both in error but consistently giving similar readings. However, Intervenor failed to offer any rational explanation for why eight independent air systems would have their receiver dew points suddenly drift out-of-specification to the same high level. He similarly offered no explanation for why a proven method for lowering dew points over a short period of time (i.e., "bleed and feed" cycling) would have no effect over two days while taking readings with the suspected faulty instrument and then have a sudden and dramatic positive effect over one day when readings were taken with a suspected accurate instrument. In addition, he could not explain why there was no physical evidence of moisture effects associated with high dew points. Most importantly for our purposes, even if we concluded the "faulty" instrument was indeed accurate, Intervenor presented no evidence to controvert Georgia Power's position that it had communicated its good faith belief to the NRC.

Fourth, Intervenor claims that the letter erroneously states that an inspected air receiver exhibited no signs of corrosion. The statement in the letter regarding "no indication of corrosion" clearly referred to the control air filter inspections and not the receiver inspection. We find Intervenor's reading of this sentence to be strained and unreasonable.

Finally, Intervenor alleges that Georgia Power was willfully or recklessly careless when it provided incomplete dew point data to the NRC on April 11, 1990 because high dew point

readings obtained by Georgia Power in the April 5-7, 1990 time frame were not included on the list. Georgia Power presented evidence demonstrating a reasonable basis for not including this information. Georgia Power did not believe the omitted readings to be valid and also believed the NRC already was aware of those out-of-specification readings. Intervenor failed to controvert this evidence.

7. Statements Concerning Root Cause

During the course of the proceeding we ruled that the actual root cause of the March 20, 1990 1A diesel failure was not an issue. We ruled that evidence related to root cause was only relevant as to whether Georgia Power told the NRC the whole truth about what it reasonably believed to be the root cause.

Mr. Mosbaugh theorizes that the actual root cause of the event was water in the diesel air system -- brought on, he claims, by high dew point air which condensed in the system as a result of blasts of cold air in the diesel room. We have examined Mr. Mosbaugh's assertions in support of this claim to determine whether in 1990 Georgia Power misled the NRC about what it reasonably believed to be the root cause of the event. We find the evidence overwhelming that Georgia Power reasonably concluded the cause of the March 20 1A diesel failure was internal contamination of the Calcon jacket water temperature sensors and inadequate calibration of those sensors.

Mr. Mosbaugh asserts that calibration measurements of the failed 1A diesel Calcon temperature sensors taken after the event suggested that the root cause was not improper calibration.

The evidence does not support Intervenor's assertion. In any event, it is clear that Georgia Power candidly shared with the NRC the information it had concerning possible causes of the event.

Mr. Mosbaugh also claims Georgia Power found water in the diesel air system on more than one occasion. He is the only person among the many witnesses questioned at the hearing, including the diesel vendor representatives, who believes water was found. Moreover, the evidence establishes it is highly unlikely that the eight ounces of water which Mr. Mosbaugh contends he saw could have formed in the air system. Even if it did, we find that such an event would have manifested itself and would have been widely discussed. Furthermore, we question the credibility of Mr. Mosbaugh's claim because he did not raise this allegation with anyone until 1994.

Intervenor further contends that a technician's notation concerning later Calcon temperature sensor failures in May 1990 demonstrated that the root cause of the earlier failure of the 1A diesel during the SAE had not been calibration problems. The notation suggested that the Calcon jacket water temperature sensors did not vent at the time of the May trip. It is possible that the sensors had ceased venting (as they do a short time after a trip) before the technician could check them. Based on the evidence, including the timing of the failures (which occurred immediately after the sensors were replaced with ones that had been calibrated under a new procedure) and results of further testing by Wyle Laboratories, we believe Georgia Power reasonably concluded that the May 1990 failures were the result of problems with the new calibration procedure. Moreover, we find no evidence of any intent to deceive the NRC.

In addition, Intervenor claims he observed rust on the hands and arms of the Maintenance Manager which rust, he asserts, came from diesel air start valve components found to be sticking and in need of repair. This, he states, provides further evidence that there was water in the diesel air system. Again, the overwhelming evidence is that Mr. Mosbaugh is wrong. The Maintenance Manager denies this assertion; no document records, and no one saw, rust or water on the air start valve components; and Georgia Power witnesses, including the diesel vendor representatives, provided convincing evidence that the cause of the sticking air start valves was due to manufacturing problems.

Finally, Mr. Mosbaugh asserts that Georgia Power did not conduct the root cause evaluation in good faith. This too is belied by the evidence. While the ultimate evaluation of the suspected cause of the March 20 1A diesel failure problems with the Calcon high jacket water temperature sensors was conducted by the corporate Maintenance Support Manager, rather than the Event Critique Team, we find no evidence of wrongdoing or bad faith.

Based on the above findings concerning Mr. Mosbaugh's assertions, we cannot draw any negative inference concerning the character or integrity of Georgia Power personnel with respect to their communications with the NRC about the root cause of the March 20 1A diesel failure.

8. Conclusion

We conclude that Georgia Power made mistakes, but they were unintentional, and thus we find no intentional or reckless misconduct -- no conduct that is so egregious -- that we should prevent Plant Vogtle management, as it currently exists or as it is proposed under the license

amendments, from operating Plant Vogtle. Accordingly, we authorize the NRC Staff to approve the license transfer and issue the associated license amendments.

II. Background on Diesel Generator Reporting Issues

A. 1990 Events at Plant Vogtle

1. Plant Vogtle Organization and Key Players

1. Plant Vogtle is located in Waynesboro, Georgia, 26 miles Southeast of Augusta, Georgia. Georgia Power is the licensed operator of Plant Vogtle, which is jointly owned by Georgia Power, Oglethorpe Power Corporation, the Municipal Electric Authority of Georgia, and The City of Dalton, Georgia. See Georgia Power Company's Proposed Findings of Fact and Conclusions of Law with respect to Intervenor's Illegal License Transfer Allegation, dated February 13, 1995 (hereinafter "ILT Findings"), at Finding No. 1.

2. The nuclear organization for Plant Vogtle consists of a plant staff at the site and a corporate group located in Birmingham, Alabama. The individuals who held pertinent positions in this organization are identified in Appendix C hereto.

2. The March 20, 1990 Site Area Emergency

3. On March 20, 1990, a Plant Vogtle worker accidentally backed a truck into a switchyard support column causing a loss of off-site power to Unit 1. At the time, Unit 1 was in a refueling outage, and one of the diesel generators (the "1B" diesel) had been removed from service for a maintenance overhaul. The other diesel generator ("1A") was available and was called

upon to start twice, but on both occasions failed to maintain running speed. On a third attempt, the diesel started, restoring power thirty-six minutes after the loss of off site power. McCoy at 1; Tr. 3234 (McCoy).

4. Immediately after the site area emergency, the NRC assembled an Augmented Inspection Team ("AIT"), which included Messrs. Ken Brockman from NRC Region II and Richard Kendall from NRC headquarters. The AIT arrived at Plant Vogtle on March 22, 1990. McCoy at 2.

5. On March 23, 1990, the NRC issued a Confirmation of Action ("COA") letter. GPC Exh. II-4. The letter provided, among other things, that Georgia Power was not to restart Unit 1 without NRC approval. Id.

6. The March 23 COA also provided for the quarantine of equipment involved in the incident, and a quarantine order was subsequently issued by the NRC concerning diesel generator equipment. GPC Exh. II-4; GPC Exh. II-65.

7. On March 25-26, 1990, the NRC replaced the AIT with an Incident Inspection Team ("IIT"), headed by Mr. Al Chaffee. Mr. Kendall carried over from the AIT to work on the IIT. Mr. Brockman was not an IIT member, but became the NRC Region II point of contact for the IIT. McCoy at 2.

8. On the same day as the event, Georgia Power conducted several troubleshooting starts on the 1A diesel generator to determine, if possible, the cause of the event. The diesel started

and ran without problems each of these times. The plant staff then shifted its attention to the 1B diesel in order to return it to service expeditiously. McCoy at 2.

9. After recovery from the site area emergency, Georgia Power assembled an Event Review Team to identify the root causes of the event and to determine appropriate corrective actions. The team was led by Mr. Ken Holmes, who at that time was Manager of the Training Department. McCoy at 2-3. The other members of the Event Review Team were Charles Coursey, Joe D'Amico, Jimmy Paul Cash, Paul Kochery, George Frederick, Indira Kochery, Tom Webb, and Glen McCarley. Int. Exh. 11-124 at 1.

10. As part of the effort to return the 1B diesel to service, there were a number of post-maintenance starts and tests between March 21 and March 24. During these tests, typical post-maintenance difficulties were experienced, including two failures to start on March 21 because of inadequate fuel in the fuel lines after diesel reassembly. In addition, during a run on March 22, the 1B diesel tripped on a high lube oil temperature signal; during a run on March 23, the diesel tripped on low jacket water pressure and low turbo lube oil pressure signals; and during a run on March 24, a high jacket water temperature alarm was received but the diesel continued to run. McCoy at 3.

11. On March 24, Mr. Shipman (General Manager - Plant Support) and Mr. McCoy (the Vogtle Vice President) discussed with site personnel, including Mr. Bockhold (Plant General Manager) and Mr. Mosbaugh (Assistant General Manager - Plant Support), concerns that these test results had raised about the pneumatic controls. The plant staff described their troubleshooting plan. Mr. McCoy instructed Mr. Bockhold to make sure the NRC and the IIT participated in

the troubleshooting and received any documentation, and to obtain NRC concurrence before anything was changed. Mr. Bockhold replied that he would inform Mr. Brockman of the troubleshooting plan later that morning. McCoy at 3-4.

12. The NRC was promptly informed of problems that occurred during the post-maintenance testing of the 1B diesel generator. In a hand-written memorandum, dated March 24, 1990 (GPC Exh. II-5), Mr. Kendall identified the March 23, 1990 trip (low jacket water pressure and low turbo oil pressure) as a significant development because these same alarms had actuated when the 1A diesel tripped during the March 20 event. Mr. Kendall discussed this trip further in a handwritten memorandum, dated March 25, 1990, to Mr. Brockman and Mr. Chaffee. GPC Exh. II-6. Mr. Kendall also drafted an instruction (GPC Exh. II-7) that was included with maintenance work orders and cautioned against any loss of information concerning the causes of the 1A diesel trip on March 20 or the 1B diesel trip on March 23. McCoy at 4.

13. After the IIT was briefed concerning the intended test program, Georgia Power conducted additional special testing of both the 1B diesel and the 1A diesel. An NRC Region II Inspector, Milt Hunt, was assigned to assist the IIT in observing this testing. McCoy at 4; Hunt at 1.

14. The additional testing for the 1B diesel was conducted on March 27 and March 28. It included sensor calibration and replacement, testing of the pneumatic logic controls, pneumatic leak testing, an under-voltage test, and an operational surveillance; and it resulted in the 1B diesel being declared operable on March 28. The additional testing for the 1A diesel, which was similar in scope, was performed between March 29 and April 1, at which time the 1A diesel was

again declared operable. Additional starts on both diesels occurred after these special tests, in order to establish the reliability of the diesels. McCoy at 4-5.

15. On April 6, a list (compiled by Mr. Kochery) of diesel starts from March 13 through March 23 was later provided to the IIT. This list showed the problem starts on March 22 and March 23, . McCoy at 5-6; GPC Exh. II-8.

16. At the NRC's request, Georgia Power also examined whether the diesel's control air system was the cause of the March 20 1A diesel failure. Georgia Power tested the diesel air system for moisture and conducted a review of the control air filters. Bockhold Supp. at 1. High dew point readings were recorded on the 1A diesel on March 29. Id. at 2; Briney Rebuttal at 5-8, 10-11. Additional readings were taken in the April 5-7 time frame, and high dew point measurements were again recorded. The high dew point readings were shared with the NRC. Bockhold at 4; Kitchens Rebuttal at 9; Hunt at 5. Georgia Power eventually decided that most of the high readings were inaccurate. Briney Rebuttal at 7-8; Bockhold Supp. at 3; Kitchens Rebuttal at 9.

3. The Diesel Statements

17. During the first week in April, NRC Region II requested a briefing from Georgia Power to address the issues in the COA letter and the restart approval. On April 9, Georgia Power made a presentation to the NRC at the Region II offices in Atlanta. McCoy at 6-7. The April 9, 1990 presentation at Region II was attended by Messrs. Hairston (then the Senior Vice President), McCoy, Bockhold, Bailey, Frederick, Burr and Cash from Georgia Power and a large number of NRC personnel, including IIT personnel who participated via telephone conferencing. See GPC Exh. II-12, Enclosure 1. A number of transparencies were used by Georgia Power

during the presentation, including one which contained information on the diesel testing and the number of successful starts. GPC Exh. II-21. A part of this transparency was inaccurate.

18. Later, on April 9, after the presentation, Georgia Power submitted a letter to the NRC addressing essentially the same information as had been presented at the Region II offices. GPC Exh. II-13. It included a statement concerning the number of times the diesels had been started after March 20 without problems or failures. Id. at 3. Like the transparency, this statement was inaccurate. The April 9 letter also stated that air quality was satisfactory and that initial reports of higher than expected dew points had been attributed to faulty instrumentation. GPC Exh. II-13 at 3.

19. After the April 9 presentation, NRC Region II, NRR and IIT officials, including Messrs. Stewart Ebneter, Al Chaffee, David Matthews, Jim Partlow, Steve Varga, and Ben Hayes, discussed whether to allow Georgia Power to restart Vogtle Unit 1. Mr. Hunt, who agreed with the restart decision, recalled that Mr. Ebneter relied heavily on his opinion of the operability of the diesels. Hunt at 7-8; Int. Exh. II-269 at 1, 4. While Mr. Matthews disagreed with the restart decision based on Georgia Power's management attitude, Mr. Ebneter made the decision in favor of restart. No one at that point had any technical reason why the plant should not be allowed to restart. Tr. 15096 (Matthews); Tr. 15310-11 (Reyes). NRC Region II officials issued a letter to Georgia Power on April 12, 1990, allowing restart of Unit 1. McCoy at 10.

20. In accordance with 10 C.F.R. § 50.73, a Licensee Event Report (LER 90-006) concerning the March 20, 1990 site area emergency was submitted to the NRC on April 19, 1990.

GPC Exh. II-14. The LER included a statement similar but not identical to the statement in the April 9 letter concerning the number of times the diesel generators had been started without problems or failures. GPC Exh. II-14 at 6. It too was partially inaccurate.

21. On April 30, 1990, Mr. Mosbaugh provided Mr. Bockhold a memorandum with an attached listing of 1B diesel starts, which when confirmed on May 2, 1990, showed that the start counts reported in the April 9 presentation, the COA response letter, and the April 19 LER were all incorrect. Bockhold at 14-15. This led to the preparation of a revised LER, which was submitted on June 29, as well as a cover letter transmitting it. GPC Exh. II-16.

22. An Operational Safety Inspection ("OSI") was conducted by the NRC at Vogtle between August 6 and August 17, 1990 to consider allegations raised by Mr. Mosbaugh. The OSI was assisted by the NRC's Office of Investigations ("OI"). One of the allegations investigated by the OSI was the issue of the number of diesel starts reported to the NRC in April 1990. McCoy at 22-23.

23. On August 17, Georgia Power personnel attended an exit meeting with the OSI team and the team leader, in which the error that had been made in the diesel generator starts reported in April was discussed, among other things. The OSI team leader informed the Company that they had concluded there were no intentional errors. The OSI team leader suggested, however, that Georgia Power should consider submitting an additional letter to clarify the April 9 letter, and the Vice President - Nuclear committed to do so. Tr. 3223 (McCoy). Georgia Power submitted the clarification letter to the NRC on August 30, 1990. GPC Exh. II-18.

B. Mr. Mosbaugh's Allegations

24. Mr. Mosbaugh began secretly tape-recording conversations at Plant Vogtle in February 1990 (Mosbaugh at 65) and continued until September, 1990, when his employment was terminated after discovery of his taping.

25. Mr. Mosbaugh first contacted the NRC concerning the Company's diesel generator statements in mid-June 1990. On June 13 and 14, 1990, he met with OI investigator Larry Robinson and provided him with written allegations which claimed, among other things, that the Company's statements in the April 9 letter and the April 19 LER were false. Tr. 5272 (Mosbaugh)

26. Beginning on June 13 and for many months -- even years -- thereafter, Mr. Mosbaugh provided Mr. Robinson with stacks of documents. Tr. 5231 (Mosbaugh).

27. On June 19, 1990, at Mr. Bockhold's request, Mr. Mosbaugh met with Mr. Bockhold and NRC Resident Inspector, John Rogge, to discuss Mr. Mosbaugh's technical allegations which were included in the Department of Labor complaint he had filed earlier that month. Mr. Mosbaugh tape recorded that discussion and another discussion he had later that day with Mr. Rogge in private. Tr. 9538 (Mosbaugh); GPC Exh. II-116.

28. On July 18 and 19, 1990, Mr. Mosbaugh was interviewed on the record by OI's Mr. Robinson and discussed his allegations concerning the diesel starts statements. Tr. 5282-83 (Mosbaugh).

29. In September of 1990, Mr. Mosbaugh turned over the tapes he had made to Mr. Robinson. Mr. Mosbaugh worked with Mr. Robinson in reviewing those tapes, and specifically in reviewing the April 19, 1990 tapes, towards the end of 1990 and the beginning of 1991. Tr. 8339-40 (Mosbaugh).

30. On September 11, 1990, Mr. Mosbaugh filed jointly with Mr. Marvin Hobby a petition pursuant to 10 C.F.R. § 2.206. This "2.206 petition" included, among other allegations, a statement that "both the [April 9] COAR and the [April 19] LER contained known false statements intended to mislead the NRC with false assurances about the reliability of the diesel generator whose failure resulted in the site area emergency." Tr. 8309-10 (Mosbaugh).

31. The 2.206 petition also alleged that on April 19, 1990 "SONOPCO senior vice president George Hairston signed LER 90-006-00 after he was advised that the information stated therein contained false information." Mr. Mosbaugh's basis for this statement is that "people in Birmingham were informed and acknowledged that there were trips and failures of the diesel with respect to the statement that had been made in the [April 9] confirmation of action letter. They then put that same statement with a minor modification in the LER. But, it was their intent that that information be the same." Tr. 8324 (Mosbaugh).

32. The 2.206 petition further alleged that "Mr. Hairston, the senior vice president, nuclear, had innumerable indicators and apparently direct knowledge that the information presented to him was suspect, if not outright false before he signed the LER." While Mr. Mosbaugh had a number of reasons for believing that the information got to Mr. Hairston, Intervenor admits that he had only one source of the information, his staff. Tr. 8379, 8388-92 (Mosbaugh).

33. In late May or early June of 1991, Mr. Mosbaugh submitted further allegations to Mr. Robinson which concerned the Company's April 1, 1991 response to the diesel generator allegations contained in the 2.206 petition. Tr. 8340-41 (Mosbaugh); GPC Exh. II-94.

34. In July 1993, Mr. Mosbaugh testified before the Senate Subcommittee on Clean Air and Nuclear Regulation. The prefiled testimony he provided to that subcommittee stated, in part:

> After the accident, I was able to record evidence demonstrating that management had engaged in a criminal conspiracy to conceal safety-related information pertaining to the site area emergency and intentionally submitted materially false statements to the NRC with respect to the site area emergency.
>
> I recorded statements made by Plant Vogtle Project Vice President Ken McCoy and GPC's Senior Vice President George Hairston and others demonstrating that they were aware that prior statements related to the reliability of the diesel generators were materially false and that they intentionally reiterated these same false statements when filing the Licensee Event Report to the Commission 30 days after the site area emergency had occurred.

Tr. 8410-12 (Mosbaugh).

35. Mr. Mosbaugh also testified orally, as follows:

> They went ahead and signed out the second written correspondence just like the first, with the same words, 'No problems or failures have occurred on any of these starts.'
>
> They did that after I told them that was false, after I told them the first written correspondence was false.
>
> I told them the dates and times of the specific failures, and I told these to important and high-level corporate people who were responsible for writing these LERs.

Tr. 8414-15 (Mosbaugh).

36. Mr. Mosbaugh testified in this proceeding that he believed his testimony to the Senate Subcommittee was accurate and stated that the basis for these statements was the tape recorded conversations on April 19, 1990, along with his understanding of "how a nuclear plant works, and what an expected reaction would be, and what lines of communications would be." Tr. 8410-19 (Mosbaugh).

37. In November 1993, Mr. Mosbaugh was again interviewed on the record by OI's Mr. Robinson during which he discussed his allegations concerning the diesel starts statements. Tr. 5302 (Mosbaugh).

C. NRC's Review of Mr. Mosbaugh's Allegations

38. NRC's OI investigated Mr. Mosbaugh's diesel generator allegations over the period from 1990 through December 20, 1993 when the OI Report (Case No. 2-90-020R) was issued. Int. Exh. II-39.

39. The OI investigation was delayed for approximately 12 months when OI referred the allegations to the Department of Justice. Tr. 11824-25 (Hayes). After completion of its investigation, the Department of Justice declined to take any action against Georgia Power. Staff Exh. II-11; GPC Exh. II-151.

40. The NRC Staff configured a Vogtle Coordinating Group ("VCG") comprised of NRR, Region II and Office of Enforcement personnel, including Messrs. David Matthews, Pierce Skinner and Darl Hood. The VCG reviewed the evidence collected by OI's investigation, as well as

other information the NRC identified regarding the allegations, and prepared a detailed analysis, dated February 9, 1994. Staff Exh. II-45. Matthews, Skinner, Hood at 4.

41. The VCG February 9 Analysis included a comparison of the OI and VCG conclusions for each matter addressed in the OI Report and a comparison of each OI conclusion with the conclusion reached by the VCG. The VCG did not agree with a single one of the OI conclusions, but found a number of instances where GPC failed to provide to the NRC information that was complete and accurate in all material respects. Specifically, the VCG concluded that:

- The information obtained and presented by GPC to the NRC during the April 9, 1990 presentation and in the April 9 letter was inaccurate with respect to the number of successful DG starts.

- Inaccurate information was provided to the NRC in the April 19, 1990 LER 90-006 with respect to the number of consecutive successful DG starts subsequent to completion of the comprehensive test program.

- Inaccurate and incomplete information was provided to the NRC in the June 29, 1990 cover letter to the revised LER, in three instances with respect to clarifying the DG starts count reported in the April 9 letter, and providing reasons for the error in the April 19, 1990, LER: (1) GPC failed to include information regarding the April 9, 1990, letter after being made aware that the letter failed to include information to clarify the April 9, 1990, DG start counts and despite the letter's stated purpose, in part, to provide this clarification; (2) GPC erroneously attributed DG start record keeping practices as a reason for

the difference between the DG starts reported in the April 19, 1990, LER and the June 29, 1990, LER revision; and (3) GPC failed to state that the difference between the DG start counts in the April 19, 1990, LER and the June 29, 1990, letter was due to personnel errors.

- GPC failed to provide complete and accurate information to the NRC in the August 30, 1990, letter in two instances regarding the reasons for the April 9 errors: (1) the August 30, 1990 letter inaccurately stated that the errors in the April 9, 1990, letter and presentation and the April 19, 1990, LER were caused, in part, by confusion in the distinction between a successful start and a valid test, even though Mr. Bockhold had admitted that Mr. Cash was not confused about the distinction when he collected the data; and (2) the August 30, 1990, letter was incomplete in attributing the error in the April 9, 1990 letter and presentation and the April 19, 1990 LER to an error by the individual who performed the count in that the letter failed to also identify personnel errors by Mr. Bockhold that also contributed to the problem.

- GPC failed to provide complete information regarding control of DG air quality (i.e., dew point) in the April 9, 1990 letter to the NRC by only stating that initial reports of high dew points were attributed to faulty instrumentation. The letter failed to state that high dew points for Vogtle Unit 1 were also attributable to system air dryers occasionally being out of service for extended periods and to system repressurization following maintenance.

42. In addition, the VCG concluded that (1) there was a reasonable basis for the information submitted by GPC in its April 1, 1991 response to the 10 C.F.R. § 2.206 petition and allegation of Messrs. Mosbaugh and Hobby regarding whether or not the Senior Vice President, Mr. George Hairston participated in an April 19 phone call; and (2) there was insufficient evidence to conclude that GPC exhibited a poor attitude toward the NRC. Matthews, Skinner, Hood at 4-7.

43. Based on the VCG analysis, on May 9, 1994, the NRC issued to a Notice of Violation and Proposed Imposition of Civil Penalties (Staff Exh. II-46) identifying the five violations as constituting a Severity Level II problem, and issued three Demands for Information concerning the performance of Mr. C.K. McCoy (Staff Exh. II-47), Mr. George Bockhold (Staff Exh. II-48), and Messrs. Greene, Frederick, Majors and Horton (Staff Exh. II-49). The DFIs requested information concerning the performance failures of these individuals to enable the NRC to determine whether additional enforcement actions should be taken with respect to their individual performances. In addition, these individuals were given the opportunity to submit separate responses to the DFIs. Matthews, Skinner, Hood at 7-8.

44. The VCG evaluated Georgia Power's NOV Response and the Company's and individual responses to the DFIs and forwarded its November 4, 1994 conclusions and recommendations to NRC management. Staff Exh. II-50. The VCG concluded that, with the exception of Violation B (regarding air quality), the violations occurred as stated in the NOV. With respect to air quality, the VCG determined that the April 9, 1990 letter was not intended to present

historical information concerning air quality and that it was reasonable to present information contemporaneous with the event. Matthews, Skinner, Hood at 9.[3/]

45. After reviewing the VCG's November 4, 1994 evaluation, and supplemental responses provided by Georgia Power (GPC Exh. II-202) and Mr. Bockhold (GPC Exh. II-203), dated February 1, 1995, the NRC, on February 13, 1995, issued a Modified Notice of Violation and Proposed Imposition of Civil Penalties (Staff Exh. II-51) and forwarded copies to the individuals identified in the DFIs. The NRC concluded that, except for the violation associated with air quality, the violations occurred as described in the NOV. The NRC concluded in the Modified NOV that the associated performance failures occurred as stated in the NOV and DFIs. After careful consideration as to whether additional actions should be taken with regard to these individuals, the NRC decided that the actions taken by Georgia Power and the lessons learned by the Company and the individuals as a result of being exposed to the NOV and DFI process would result in Georgia Power and the individuals conforming their conduct to avoid being the subject of similar NRC enforcement action. The NRC further recognized certain acknowledgments by Mr. Bockhold in letters dated August 5, 1994, and February 1, 1995. The NRC, therefore, concluded that no further action would be taken regarding these individuals. The NRC also issued letters to each of the individuals providing them a copy of the Modified NOV to emphasize the seriousness with which the NRC views the violations and associated performance failures. Matthews, Skinner, Hood at 9-10; Zimmerman, Reyes at 6.

[3/] The NRC Staff's witnesses supplemented the Staff's view at the hearing to say, based on evidence adduced at the hearing, that Georgia Power should have pointed out that inaccuracies were due not only to faulty instrumentation but also to misuse of dew point reading instruments. Tr. 14756-57 (Matthews). They stated that this did not change the NRC's enforcement position. Tr. 14757, 15090-92, 15111-12 (Matthews).

46. The NRC Staff concluded that inaccurate and incomplete information was provided to the NRC by GPC managers regarding the diesel generator testing after the site area emergency, and to this extent, the allegation was partially substantiated. These deficiencies resulted from the performance failures by various GPC managers who were notified of problems but failed to take steps necessary to assure that the requirements of 10 C.F.R. § 50.9 were met. The NRC Staff did not conclude that GPC intentionally provided inaccurate, incomplete or misleading information. Therefore, the allegation that senior GPC managers intentionally provided inaccurate and incomplete information to the NRC was not substantiated. Matthews, Skinner, Hood at 10; Zimmerman, Reyes at 5.

47. The NRC Staff did not conclude that the circumstances surrounding the diesel generator reporting issue reveal a lack of character and integrity as alleged in Intervenor's contention. Given that a number of Georgia Power management officials also are officers of the proposed transferee, Southern Nuclear, and that other individuals identified in the Modified NOV would be employed by Southern Nuclear if the proposed transfer were granted, the Staff has no basis for concluding that the proposed transferee lacks the requisite character, competence, integrity, truthfulness and candor to operate a nuclear facility. Zimmerman, Reyes at 7.

III. Statements Concerning the Number of Diesel Starts

A. The April 9 Letter and Presentation

1. NRC's Request

48. NRC Region II requested a briefing to address the issues in the COA letter and the re-start approval. Mr. Brockman telephoned Mr. McCoy on April 3, 1990, about the preparation for the meeting, which was scheduled for April 9. One of the issues he asked Georgia Power to address was the logic and basis for operability of the diesel generators, and a summary of the short term corrective action. McCoy at 6; GPC Exh. II-11; Tr. 2841 (McCoy).

49. There is no indication that Georgia Power was asked to provide diesel generator start data. Tr. 3800 (Bockhold). Mr. Bockhold's decision to present information on the number of successful starts (discussed below), however, was likely influenced by a meeting he had had with the IIT on April 2. During that meeting, Mr. Bockhold had discussed, and Mr. Chafee had been interested in and inquired about, the number of successful starts that had occurred after Georgia Power replaced the Calcon sensors on the diesels. GPC Exh. II-77 at 43-44, 47; Tr. 3782 (Hairston).

2. The Diesel Testing Transparency and Its Intended Purpose

50. Mr. McCoy directed Mr. Bockhold to prepare the entire presentation. Mr. Bockhold and his plant staff put together a set of slides addressing the relevant issues, including diesel operability. McCoy at 7; Bockhold at 5.

51. In order to address the operability of the diesel generators and also to provide some discussion of the suspected cause of the 1A diesel generator failure during the SAE (thought to be problems with the Calcon sensors), Mr. Bockhold decided to present an overview of the special testing of the diesel generators that had been conducted after the SAE. Two transparencies were prepared addressing the diesel generators -- one describing the sequence of testing of the diesel generators and containing at the bottom a statement as to the number of successful starts for the 1A and 1B diesels (hereinafter the "diesel testing transparency"), and the second setting forth the quarantined components and identifying the various temperature and pressure switches that had malfunctioned following the SAE. Bockhold at 5. See GPC Exh. II-21.

52. The diesel testing transparency is reproduced below:

DIESEL TESTING

- NORMAL 36 MONTH OVERHAUL AND INSPECTION
- SPECIAL TESTING

1A	1B
3/20 EVENT	IN OVERHAUL
5 STARTS, TROUBLESHOOTING	
	SENSOR CALIBRATION
	LOGIC TESTING
	E-RUN BUBBLE TESTING
	MULTIPLE STARTS (14)
	UV RUN TEST
	6 MONTH RUN SURVEILLANCE
	DIESEL OPERABLE
UV RUN TEST	
SENSOR CALIBRATION	
LOGIC TESTING	
E-RUN BUBBLE TESTING	LUBE OIL DCP RUN
MULTIPLE STARTS (5)	DCP UV RUN FUNCTIONAL
UV RUN TEST	
6 MONTH SURVEILLANCE	
DIESEL OPERABLE	
HI JACKET WATER RUNS (3)	
DCP UV RUN TEST	
18 SUCCESSFUL STARTS	19 SUCCESSFUL STARTS

GPC Exh. II-21.

53. With respect to the diesel generator testing transparency, Mr. Bockhold intended to present a number of consecutive successful starts as support for the proposition that the diesel generators would perform their intended function. Bockhold at 6.

54. The diesel testing transparency was inaccurate because there had been only 12, not 19, consecutive successful starts of the 1B diesel as implied by the transparency.[4] See GPC Exh. II-18 at 2. The transparency also did not point out that there had been problem starts in the "In Overhaul" period for the 1B diesel.

3. How the Transparency Was Prepared (Mr. Bockhold's Instructions)

55. Mr. Bockhold was the architect of the diesel testing transparency (Tr. 3906 (Bockhold)), but he obtained the information that was included on the slide from Mr. Cash and Mr. Burr as discussed below.

56. Mr. Burr provided to Mr. Bockhold the sequence of the diesel testing. Tr. 3339, 3349, 3836, 3854, 3857, 3906 (Bockhold); Tr. 10852-53, 10859 (Burr). Mr. Burr was not involved with the count of successful starts, but he likely provided the numbers in parentheses next to the various tests and runs listed above the line on the diesel testing transparency. Tr. 3346-51, 3855-57 (Bockhold); Tr. 4456 (Cash).[5] Mr. Bockhold may have asked Mr. Burr for the successful start count, but Mr. Burr did not know the exact number. Tr. 3837, 3906 (Bockhold).

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[4] There were also considerably more than 18 consecutive successful starts of the 1A diesel. See GPC Exh. II-18 at 2 indicating 29 successful consecutive starts of the 1A diesel.

[5] Mr. Burr cannot remember providing the numbers in parentheses on the diesel testing transparency. Tr. 10859 (Burr).

57. Mr. Bockhold assigned Mr. Jimmy Paul Cash, an Operations Superintendent who was a senior member of the Event Critique Team and a degreed and licensed SRO, to provide him with the diesel generator start data. Bockhold at 5. Mr. Bockhold chose Mr. Cash for this task because Mr. Bockhold was aware that the Engineering Start log was not up to date and it would therefore be necessary to use the Operations Department logs. Bockhold at 7; Tr. 3834 (Bockhold). Mr Bockhold believed that Mr. Cash would be able to obtain the information because of Mr. Cash's experience in operations and because Mr. Cash had previously reviewed the control room logs to obtain diesel generator start information for the Event Critique Team. Bockhold at 7; Tr. 3842 (Bockhold).

58. Mr. Bockhold believes he instructed Mr. Cash to review the operators' logs and determine how many consecutive,[6] successful diesel generator starts had been made with no significant problems. Bockhold at 6; Tr. 3407-08 (Bockhold). Mr. Bockhold considered a start successful if the diesel started and did not experience any problem like the one associated with the failure during the SAE (i.e., it ran for approximately a minute). He believes that Mr. Cash shared this same understanding. Tr. 3831-33, 3844-45 (Bockhold). Mr. Bockhold also believes he talked about the fact that there had been problems in the overhaul phase and therefore that the count should start after that, but he cannot recall what specific words he used. Tr. 3407,

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[6] Mr. Bockhold could not remember in his 1990 OSI interview or 1993 OI interview whether he specifically told Mr. Cash to count consecutive starts. Tr. 3407-12 (Bockhold). Today, too, he cannot recall exactly what he asked Mr. Cash or whether he used the term "consecutive." Tr. 3415, 3422, 3873 (Bockhold). He believes, however, that he intended to obtain a count of consecutive starts and that Mr. Cash had the same intent. Tr. 3408, 3414, 3873 (Bockhold). Mr. Bockhold's belief that Mr. Cash understood he was to provide consecutive starts is buttressed by an affidavit Mr. Cash executed in support of an interrogatory response indicating that Mr. Cash intended to provide consecutive starts. Tr. 3412-13, 3415, 3873, 3909-10 (Bockhold); Int. Exh. II-57 at 13.

3851-53, 3870-72 (Bockhold). Mr. Bockhold believed at the time that Mr. Cash had understood the instructions and was able to obtain the information requested. Bockhold at 10.

59. Mr. Cash recalls Mr. Bockhold asking him to review the Operations Department log books to determine how many starts had occurred on the diesel generators without significant problems. Cash at 2; OI Exh. 9 at 3 (admitted at Tr. 4446). He understood starts without significant problems to mean starts that would not have prevented the diesel generators from operating in an emergency. Cash at 2; Tr. 4403, 4444-45, 4524-25 (Cash). He recalls discussing with Mr. Bockhold the limitations of the records available to obtain the requested data. Cash at 2; Tr. 4442-43 (Cash). He also believes he discussed exactly what Mr. Bockhold wanted him to look for, and both he and Mr. Bockhold understood the definition of what he subsequently counted. Tr. 4475, 4551 (Cash).

60. Mr. Cash reviewed the Unit Control logs and the Shift Supervisor logs. Bockhold at 7; Cash at 3. He prepared a handwritten list of starts. Cash at 3.

61. Mr. Cash believes that he did not count some starts that occurred right after March 20 when the 1B diesel generator was still in overhaul. Cash at 7-8; Tr. 4460-61, 4509-10 (Cash). He testified that he started his count after overhaul, and he added that [the 1B diesel] came out of maintenance on March 21. Tr. 4509 (Cash). He is not sure whether he excluded any failures after March 21. Cash at 5. He believes he may have counted the trips of the 1B diesel on March 22 and March 23 as starts without problems because they were non-essential trips.[2] Cash at 5-6;

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[2] Mr. Cash's statement to Mr. Mosbaugh on April 19 tends to support this belief. Mr. Cash told Mr. Mosbaugh that he was not sure if he found the failures or not. GPC Exh. II-2 at 36.

Tr. 4470-71 (Cash). He may also have counted start number 136 of the 1B diesel on March 24 as a successful start. Tr. 4470-72 (referring to this start as the no. 14 on Int. Exh. II-41 at 2), 4506-08 (Cash).[8]

62. Mr. Bockhold recalls that Mr. Cash provided the 18 and 19 successful starts below the line on the diesel testing transparency. Bockhold at 7; Tr. 3349 (Bockhold); Int. Exh. II-57 at 3. Mr. Cash testified that he either gave Mr. Bockhold the numbers 18 and 19 or higher numbers -- he is no longer sure -- and also assisted in formatting the transparencies.[9] Cash at 3-4; Tr. 4453 (Cash).

63. Mr. Bockhold was aware that Mr. Cash had a handwritten list containing information on the starts (he recalls Mr. Cash carrying some crumpled-looking paper), but Mr. Bockhold did not look at it. Tr. 3377, 3491 (Bockhold). Mr. Bockhold testified that Mr. Cash simply gave him the numbers. Tr. 3411 (Bockhold). See also GPC II-122 at 10. Mr. Cash also testified that he gave Mr. Bockhold the numbers. Cash at 3; Tr. 4457-58 (Cash). He does not recall showing Mr. Bockhold the list.[10] Tr. 4458 (Cash). He does not recall whether he discussed what he had counted when he returned to Mr. Bockhold with the count. Tr. 4609 (Cash).

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[8] Mr. Cash told Mr. Ajluni in late 1990, after they reviewed the logs together, that he had missed the March 24 entry referring to the alarm and consequently had made a mistake in counting this start as a successful start without a problem or failure. Tr. 10781 (Ajluni); Int. Exh. II-120.

[9] At one point in the proceeding, Mr. Cash testified that he believes that he provided the 18 and 19 numbers. Tr. 4533 (Cash). Later, however, he testified that he believed that he would have given Mr. Bockhold greater numbers. He added that he had no clear recollection. Tr. 4541 (Cash).

[10] Mr. Cash testified at one point that he could not recall whether he gave Mr. Bockhold the list or whether Mr. Bockhold looked at it, or whether Mr. Bockhold just asked for totals. Tr. 4548 (Cash). However, Mr. Cash told Mr. Aufdenkampe on April 19, 1990, that he had just given Mr. Bockhold totals. GPC Exh II-2 at 36; Tr. 4548 (Cash). We accept as accurate this more contemporaneous recollection, confirmed by Mr. Bockhold's statements in August, 1990. See OI Exh. 12 at 8 (admitted to supplement Int. Exh. II-13), ff. Tr. 3915.

64. Mr. Bockhold can no longer recall whether he knew the exact point where Mr. Cash began count. At the time, however, he understood that the starting point was after the overhaul and after sensor calibration and logic testing. Bockhold at 8. This understanding is consistent with the Diesel Testing transparency. With respect to the 1B diesel, the slide lists "In Overhaul," "Sensor Calibration" and "Logic Testing" before listing starts and tests involving starts. Id.

65. Mr. Bockhold's current belief is also consistent with the sworn testimony he provided to the OSI in August 1990. There, he explained that when he made the presentation, he knew what the starting point was, because he had discussed it with Mr. Cash. OI Exh. 12 at 8, ff. Tr. 3915 (Bockhold). After reviewing documents, he testified:

> The 1-B engine was in overhaul, and during the overhaul period, right at the end of the overhaul period, we started to -- we tried to start this engine and we received some failures to start and we changed some components. Then after the overhaul period when we went into this extensive calibration and logic testing and bubble testing and multiple starts, that's when we started counting these nineteen -- that's when Jimmy Paul started counting these nineteen starts and I think that was part of the original discussion that Jimmy and I had up in here, when do we start counting, okay, in relationship to these columns.

Id. at 18.

66. The fact that Mr. Cash excluded from his count certain starts during the overhaul period tends to corroborate Mr. Bockhold's belief that he instructed Mr. Cash to begin the count after the overhaul period. It does not appear, however, that Mr. Bockhold and Mr. Cash had the same understanding of the overhaul. Mr. Bockhold apparently believed that the overhaul period

for the 1B diesel extended though start 136 on March 24, whereas Mr. Cash believes he only excluded a few starts (not associated with any tests) on March 21 (Tr. 4460-61 (Cash)). Mr. Cash in fact testified that he believes the problem was where he started the count, not the definition of what he was counting. Tr. 4551 (Cash). It thus appears that there was insufficient communication.

67. At some point,[11] Mr. Cash had his handwritten list of starts typed up by a secretary, Ester Dixon. Tr. 8113-14 (Dixon); GPC Exh. II-23. Mr. Cash is not in fact sure that the typed lists are his. He has no recollection of having them typed, and is surprised at some of the extra information that they contain. Tr. 4429, 4447, 4454 (Cash).

4. Review of the Transparency Prior to the Presentation

68. Mr. Bockhold was aware of the general testing activities and knew that there had been numerous diesel generator starts, but an exact number was beyond his knowledge at the time. Bockhold at 6; Tr. 3830 (Bockhold). He therefore relied on Mr. Cash to obtain the information that was needed. Bockhold at 9-10. He asked both Mr. Cash and Mr. Burr if the slide was correct, expecting that Mr. Cash would respond with respect to the number of successful starts and Mr. Burr would respond about the test sequence and the type of testing. Tr. 3346 (Bockhold). They indicated that the slide was correct, though Mr. Cash was checking his numbers further. Id.; Tr. 3867-68 (Bockhold).

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[11] The timing of the preparation of this list is addressed below. Ms. Dixon testified that she initially worked on the typing of Mr. Cash's list on Friday, April 6. Tr. 8113-14 (Dixon).

69. Mr. Bockhold knew that there had been problem starts in the "In Overhaul" period. Tr. 3360-63, 3368, 3468-69 (Bockhold). He believed, however, that the NRC was aware of the problems that had occurred while the 1B diesel was in overhaul (Tr. 3361-62, 3366 (Bockhold)), and his purpose in presenting the diesel testing transparency was to present a summary showing that after replacement of the switches, sensor calibration and logic testing there were a large number of successful starts. Tr. 3358-59, 3363 (Bockhold). He chose the format of the slide based on his awareness of the level of NRC involvement in the testing in order to summarize the information. Tr. 3490 (Bockhold). Mr. Bockhold felt that the Quarantine Component transparency showed problems that had occurred with both engines. Tr. 3361, 3367 (Bockhold).

70. Prior to the April 9 presentation, the slides were telecopied to the Birmingham office. Tr. 2853 (McCoy); Tr. 3401 (Bockhold). Mr. McCoy believes he reviewed the slides. His understanding of the diesel testing transparency's message was that there was sufficient data to indicate that the diesels would start and carry a load in the event of an emergency, and he believed this to be true. McCoy at 7. He understood the slide to indicate that there had been 18 and 19 consecutive successful starts on the 1A and 1B diesels, though the slide does not use the word consecutive. Tr. 2896-97 (McCoy). He also understood "successful starts" to be referring to the ability of the diesel to start in an emergency and carry an emergency load, and not to the narrower definition used to log starts pursuant to plant operating procedure. Tr. 2903, 2923, 3148 (McCoy).[12/] The number of successful starts on the "diesel testing" transparency did not seem

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12/ The Board incorrectly suggested, during its questioning of Mr. McCoy, that he did not define successful starts as including the ability to carry a load until the end of his second day of testimony on April 18th. See Tr. 3281-82. Upon review of Mr. McCoy's testimony, it is clear that he consistently testified that this was his understanding of the term as it was being used on April 9. See Tr. 2903, 2923, 3148 (McCoy). See also McCoy at 7.

unreasonable to him, and he assumed that the numbers had been carefully checked by the plant staff. McCoy at 7.

71. Mr. Hairston also briefly looked over the transparencies, either on the morning of April 9 or late in the afternoon the day before, but was not otherwise involved in the preparation for the meeting. Hairston at 1; Tr. 3598-3601 (Hairston). He too interpreted the diesel testing transparency as indicating a number of successful consecutive starts. Hairston at 4. His understanding of a successful start was one which got past the approximately 60-second trip bypass. Tr. 3602-04 (Hairston).

5. The April 9 Presentation

72. At the April 9 presentation, Mr. McCoy made the opening and closing remarks. and Mr. Bockhold gave the rest of the presentation. McCoy at 8; Hairston at 2. Mr. Bockhold does not think the NRC staff asked a lot of questions about, or that a lot of time was spent discussing, the transparencies related to the diesel generators. Tr. 3368-69 (Bockhold); Tr. 3442-46 (Bockhold); Int. Exh. II-25, ff. Tr. 3446. See also GPC Exh. II-122 at 10. Mr. Hairston, who attended the meeting, recalls that the issue of diesel reliability and testing, as well as the Calcon sensors, was addressed but was not a principal focus of the meeting. Hairston at 3; Tr. 3545-46 (Hairston). He perceived the discussion relating to diesel generators as being a broad overview indicating what had been found with the sensors; what testing had shown; that the diesels had started a number of times after the event, sensor calibrations and overhaul; and confidence that the diesels would perform. Tr. 3543, 3545 (Hairston).

73. Mr. Cash attended the April 9 presentation. Tr. 4477 (Cash). The only concern that he expressed after the presentation was that the NRC needed to understand that the starts on the transparency were not "valid successful tests." Mr. Bockhold had not intended the number of diesel starts to relate to the "valid test" terminology used in Regulatory Guide 1.108 (Bockhold at 8) and he responded to Mr. Cash that everyone was aware of that because a number of the starts shown on the transparency were clearly prior to the time the diesel was declared operable. Bockhold at 10-11; Cash at 6-7; Tr. 4392, 4421 (Cash).

74. The NRC Staff's testimony supports this understanding. Upon hearing Mr. Bockhold recite the successful start data (i.e., 18 and 19 successful starts), Mr. Matthews asked Mr. Bockhold if he could draw a comparison between that terminology and the valid successful test terminology with which the NRC was more familiar. Tr. 14791-92 (Matthews). Mr. Bockhold responded that they had not counted the starts that way. Tr. 14792 (Matthews).

6. Preparation of the April 9 Letter

75. The April 9 letter was prepared under the direction of the corporate licensing manager, Mr. Bailey. It is not known who on his staff may have worked on the letter, though it appears from the "blue sheet" that Mr. Stringfellow may have initiated the document.[13] The letter addressed essentially the same items covered in the presentation. The letter was apparently modified during the plane ride back to Birmingham after the April 9 presentation.[14] It attempted

[13] Mr. Stringfellow recalls that his only role was assisting in getting the letter typed, not in drafting or reviewing it. Tr. 3932, 4088 (Stringfellow).

[14] Mr. Stringfellow and Mr. Aufdenkampe recall Mr. Bailey remarking that they had rewritten the letter on the corporate plane returning to Birmingham after the April 9 presentation. Tr. 3932 (Stringfellow); Tr. 4745 (Aufdenkampe). However, a copy of an earlier draft sent to the site on April 7 shows that the statement concerning diesel starts was not changed. Int. Exh. II-40 at 3.

to summarize the information that was being verbally presented. McCoy at 8-9; Tr. 2972 (McCoy); Bockhold at 11.

76. The April 9 letter stated, among other things,

> Since March 20, 1990, GPC has performed numerous sensor calibrations (including jacket water temperatures), extensive logic testing, special pneumatic leak testing, and multiple engine starts and runs under various engine conditions. Since March 20, the 1A DG has been started 18 times, and the 1B DG has been started 19 times. No failures or problems have occurred during any of these starts. In addition, an undervoltage start test without air roll was conducted on April 6, 1990 and the 1A D/G started and loaded properly.

GPC Exh II- 13 at 3. Mr. McCoy believed at the time that the language in this statement was intended to refer to consecutive successful starts. Tr. 3208 (McCoy). So did Mr. Hairston. Hairston at 4. Mr. Hairston signed the letter. He is sure he read the letter before signing it, but does not have a firm recollection today of his review. Tr. 3610-11 (Hairston).

77. The statement in the April 9 letter was incorrect in two respects. First, it suggested that all starts after March 20 had been successful and without problems, which was not the case. Second, the number of starts was wrong. McCoy at 9.

78. Mr. McCoy reviewed the letter in draft form before it was signed. Mr. McCoy did not recognize the inaccuracy when he reviewed the April 9 letter. At the time, he did not read the letter as suggesting that there had only been successful starts since March 20. It was common knowledge that there had been problem starts when the 1B diesel was coming out of maintenance, and it did not occur to him that the letter might be read to suggest otherwise. He simply read the letter as reporting a string of successful starts that had occurred sometime in the interval

since the event. At the time, he had no reason to doubt the number of such starts as reported in the April 9 letter. McCoy at 9-10. He states he did not intentionally provide inaccurate information. Tr. 3151 (McCoy).

79. Mr. Bockhold also reviewed a draft of the COA Response letter containing the diesel start statement on or about April 7. Tr. 3406 (Bockhold); Int. Exh. II- 40. He also looked at the April 9 letter on the afternoon of the 9th. Tr. 3455 (Bockhold). He was comfortable with the diesel start language, which he understood to be consistent with the numbers Mr. Cash had given him and with the transparencies. Tr. 3406 (Bockhold).

80. Mr. Cash testified that the letter should not have stated that there were 18 and 19 starts without problems, because he counted starts without "significant problems." He does not recall anybody asking him about his count on April 9 and was not involved in the preparation of the April 9 letter. Cash at 7; Tr. 4485-86, 4546 (Cash)

7. Willfulness

81. Mr. Mosbaugh contends that the errors in the April 9 presentation and letter were not innocent, but rather were intentional. Tr. 8315-16 (Mosbaugh). For example, he has stated that the April 9 letter "contained known false statements intended to mislead the NRC with false assurances about the reliability of the diesel generator whose failure resulted in the site area emergency." Tr. 8310-11 (Mosbaugh). As discussed below, he maintains that the number of starts reported in the presentation and letter did not originate from Mr. Cash, but rather were introduced into the transparency and letter before Mr. Cash performed his count. He further maintains that after Mr. Cash performed his count, a typed version of his list was prepared as a backup

slide and provided to Mr. Bockhold and the corporate office. Mr. Mosbaugh therefore concludes that a number of high level managers knew that the numbers being presented were wrong, but nevertheless intentionally proceeded to provide the NRC with false information. He suggests that the lack of PRB review and failure to complete a "blue sheet" are further evidence of wrongdoing.

82. The record does not support these theories. As discussed below, Mr. Mosbaugh's belief that somebody other than Mr. Cash provided the numbers that were used in the slide is simply speculation that is not supported by the weight of the evidence. The assertion that a typed version of Mr. Cash's list was a back-up slide provided to Mr. Bockhold and the corporate office is even more fanciful and speculative. We will not infer wrongdoing from such unsupported suspicions.

(a) Origin of the "18 and 19" Numbers

83. Mr. Mosbaugh contends that the number of successful starts presented on the slide and in the April 9 letter did not originate from the plant staff, but instead was either provided by Mr. Bockhold or someone at the corporate office before Mr. Cash performed his count. Mr. Mosbaugh infers this from three facts: (1) that Mr. Aufdenkampe remembers being asked by Mr. Bockhold late Friday if one of his subordinates could count diesel starts for the April 9 presentation; (2) that the last entry on Mr. Cash's typed list for the 1A diesel related to an entry at 2:13 a.m. on the morning of April 7;[15/] and (3) that a draft of the COA response letter, containing essentially the same misstatement concerning the number of successful starts, was telecopied from

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15/ Tr. 4432; GPC Exh. II-23 (sixth page).

the corporate office to the plant on the morning of Saturday, April 7.[16] Mr. Mosbaugh infers from these facts that Mr. Cash must have been asked to count starts sometime after Mr. Bockhold spoke to Mr. Aufdenkampe, that Mr. Cash must have counted the starts after the Saturday morning entry, and that it is inconceivable that he could have done so prior to the draft COA response letter being received from the corporate office. Therefore, he concludes that Mr. Bockhold or someone at the corporate office provided the numbers initially.

84. These inferences are plausible but not persuasive. First, the precision of Mr. Aufdenkampe's memory is not established by the record. More importantly, there is a considerable body of evidence that Mr. Cash performed his count for the transparency on Friday and probably updated his list later. See Findings 87-92 infra.

85. Mr. Aufdenkampe recalls receiving a call from Mr. Bockhold on Friday, April 6, asking if Gus Williams could count the starts for the April 9 presentation. He recalls this occurring in the late afternoon. Tr. 4741 (Aufdenkampe). Mr. Aufdenkampe suggested that Mr. Bockhold talk to Mr. Horton, and Mr. Bockhold indicated that he would. Tr. 4744, 4749, 4762 (Aufdenkampe).

86. This evidence is inconclusive. Mr. Aufdenkampe could be mistaken about the day of the week, which after all is now over five years ago.[17] Mr. Bockhold might also have been

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[16] Int. Exh. II-40. See also Tr. 3402-03 (Bockhold).

[17] For example, in August 1990, Mr. Aufdenkampe recalled that the April 19, 1990 telephone call pertaining to the LER occurred on a Friday (GPC Exh. II-122 at 11), whereas April 19, 1990 was in fact a Thursday. Similarly, when Mr. Mosbaugh was interviewed by OI in July 1990, he told OI that the main conference call discussing the LER (addressed later in this decision) had occurred on April 18, whereas in fact it occurred on April 19. Tr. 8320-22 (Mosbaugh). If Mr. Mosbaugh could confuse the date of a call that has so much significance to him, it is equally possible that Mr. Aufdenkampe could be incorrect in his recollection of when Mr. Bockhold called him.

trying to find someone else to back up Mr. Cash. It is also not clear what start information Mr. Bockhold was calling about. It could have been the start count that Mr. Cash eventually performed, but it might also have been starts for SPPI data which GPC had at one point considered including in the COA response letter. See Int. Exh. II-91 at 2.

87. Mr. Cash is uncertain of when he performed his count. He testified that he believes the count occurred on a Friday or Saturday. Tr. 4404, 4406 (Cash). Similarly, in his August 1990 OSI interview, he could not remember the date, though be believed it might have been the day before the meeting in Atlanta. Tr. 4407-08 (Cash). However, both in this proceeding and in his 1990 OSI interview, he specifically recalls assisting Gloria Walker (Mr. Bockhold's secretary) with the format for presentation transparencies. Tr. 4409, 4453-54, 4456, 4529 (Cash). Ms. Walker worked on the presentation only on Friday. Tr. 8103 (Dixon). She did not work that weekend. Id. Thus, Mr. Cash initially must have worked on the presentation on Friday.

88. Mr. Cash also testified that when he made the count, he was in his office in the service building within the protected area. Tr. 4559 (Cash). Security records indicate that Mr. Cash did not enter the protected area on Saturday, April 7. GPC Exh. II-124 at 3. Mr. Cash entered the protected area on Friday and on Sunday. Id.

89. Other witnesses confirm that Mr. Cash performed his count on Friday. Mr. Eckert, who was also asked to prepare one of the transparencies on Friday, has a vivid recollection of Mr. Cash working on the diesel start count on Friday, April 6. He went to Mr. Cash's office that day and noticed Mr. Cash pouring over a number of documents and a hand-written list. Mr. Cash told Mr. Eckert that he had been asked to count diesel starts. Eckert Rebuttal at 2. Security

records show that Mr. Eckert was present in the protected area, where Mr. Cash had his office (Tr. 4559 (Cash)), on Friday but not on Saturday or Sunday. GPC Exh. II-124 at 3.

90. Ester Dixon, a secretary who took over Gloria Walker's work on the presentation materials on Friday (Tr. 8103 (Dixon)),[18] also remembers that Mr. Cash developed his list of diesel starts on Friday. Ms. Dixon recalls that Gloria Walker had started the diesel testing transparency on Friday, and when Ester Dixon took over on Friday, she finished typing the transparency. Tr. 8104-05, 8148-51 (Dixon).

91. The documents that Ms. Dixon worked on were stored on a Memory Writer system (Tr. 8175 (Dixon)), which automatically assigns a Base System number to each document created on replaceable disks.[19] The diesel testing transparency has Base System number 059 on one disk and was the next to last document on that disk.[20] The Cash list has Bates System numbers 005 and 006 on the next disk. See Int. Exh. II-158. To the best of Ms. Dixon's recollection, she typed all the documents through Base System number 006 (including the Cash list as it then existed) on Friday. Tr. 8110-11 (Dixon). Ms. Dixon specifically recalls typing the lists for Mr. Cash. She remembers his having a handwritten list. She remembers he was having trouble with

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18/ Ms. Dixon worked on presentation materials for 2 1/2 hours on Friday and for several hours on Saturday and Sunday. Tr. 8101-02 (Dixon).

19/ The Base System numbers do not allow one to determine on what date a document was created or whether revisions were later made to a document. Tr. 8110 (Dixon).

20/ The last document on the disk, with Base System number 060, was a presentation slide pertaining to the Unit 2 issues raised by the Site Area Emergency. This was the slide that Mr. Eckert was working on (Tr. 8136-37 (Dixon)), supporting his recollection concerning the timing of Mr. Cash's efforts.

the document, adding and making changes while she typed it. And she recalls this occurring on Friday. Tr. 8113-14, 8121, 8130 (Dixon).[21]

92. Mr. Bockhold recalls that after the transparency was complete, he met with both Mr. Burr and Mr. Cash in Mr. Bockhold's office at Vogtle to ask whether the diesel testing transparency was correct. Tr. 3868 (Bockhold). Ms. Dixon recalls seeing Mr. Burr in the vicinity when she was working on the presentation materials on Friday. Tr. 8151-52 (Dixon). Moreover, since Mr. Burr left for Birmingham on the morning of April 7 (Tr. 3868 (Bockhold); Tr. 10851 (Burr)), both the transparency and the start count must have been complete before this time.

93. The fact that the typed Cash list refers to a start early on the morning of Saturday, April 7, does not negate the abundance of evidence that Mr. Cash performed his count for the transparency on Friday. Rather, it simply appears that Mr. Cash subsequently updated his start list after he gave Mr. Bockhold the 18 and 19 numbers. Tr. 3406 (Bockhold). When Mr. Bockhold asked Mr. Cash whether the slide was correct and Mr. Cash indicated it was, Mr. Cash was also in the process of checking his numbers further. Tr. 3867 (Bockhold). Ms. Dixon also recalls that Mr. Cash's list was revised, making numerous corrections and changes, though she cannot remember when. Tr. 8123, 8128, 8154-56 (Dixon). She testified that Mr. Cash may have given her revisions on Sunday. Tr. 8130 (Dixon). The typed list in fact includes information that could not have come from the logs that Mr. Cash used to provide his start count (Tr. 4601 (Cash)), further indicating that it may have been subsequently edited. Since the security records

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[21] In an earlier deposition, Ms. Dixon was not sure whether she typed Mr. Cash's list on Friday or the weekend. Tr. 8116-20 (Dixon). However, after going back over the documents (which included review of time sheets) and preparing for hearing, she remembered doing most of the typing on Friday. Tr. 8121, 8126 (Dixon).

show that Mr. Cash entered and exited the protected area three times on Sunday between 7:45 and 10:20 a.m. (and was not there on Saturday), it appears very likely that he made changes updating his list at that time.

94. Mr. Mosbaugh also bases his allegation that Mr. Bockhold or the corporate office were the initial source of the 18 and 19 numbers on Mr. Cash's testimony that he may have provided higher numbers to Mr. Bockhold, as well as the fact that a higher start count can be derived from the typed version of Mr. Cash's list. As stated earlier, Mr. Cash cannot recall whether he provided the 18 and 19 numbers or higher numbers. See Finding 62 above.

95. Mr. Cash indeed speculates that it is possible that he may have provided numbers higher than 18 and 19, and that somebody noticed that the numbers above and below the line did not add up and adjusted them accordingly. Tr. 4467 (Cash). This speculation, however, is prompted solely by the typed lists that he understands are his, but has no recollection of. Tr. 4534 (Cash). Mr. Cash simply understands that if he had used his typed list to determine the number of starts and counted every consecutive start without significant problems (using his definition), he might have provided a higher number. See Tr. 4463-64, 4536-39 (Cash).

96. We cannot give much weight to that speculation for a number of reasons. First, Mr. Cash does not recall the typed list and is not sure if it was the same as the handwritten list he used as the basis for the numbers that he gave to Mr. Bockhold. Tr. 4428-29, 4534-35, 4454 (Cash). As we noted above, it appears that Mr. Cash revised his list and may have added additional starts to the list at some point after he had provided totals to Mr. Bockhold. The fact that a higher count can now be derived from the typed list is therefore not particularly probative.

Second, Mr. Cash can no longer recall the specific starting point for his count. Tr. 4464 (Cash). Without knowing where the start counted, it is in fact not possible to determine what he might have counted even if he had used his typed list.

97. Most importantly, this speculation is inconsistent with much more contemporaneous statements by Mr. Cash. On April 19, 1990, when Mr. Mosbaugh was asking Mr. Cash what he had counted, Mr. Mosbaugh stated, "Those were 18 and 19 as of that date George presented it," and Mr. Cash replied, "Right." GPC Exh. II-2 at 37; Tr. 4564-65 (Cash). Mr. Cash was also asked in his August 1990 OSI interview, "Do you have a number -- is the eighteen and nineteen the number that's represented?" and he replied, "Those were the numbers that I came up with at the time, yes, sir." OI Exh. 9 at 8 (admitted at Tr. 4451); Tr. 4464-65 (Cash). In this proceeding too, despite his uncertainty and speculation, Mr. Cash testified that he believes he provided the numbers at the bottom of the diesel testing transparency. Tr. 4533 (Cash). We therefore accept that Mr. Cash provided the 18 and 19 numbers.

98. Based on this evidence, we are unable to accept the inference that the 18 and 19 numbers were supplied in the first instance by Mr. Bockhold or some unnamed person in the corporate office. We have a strong practical reason for rejecting this inference as well. Mr. Mosbaugh provides no indication that anyone other than Mr. Cash was capable of supplying a start count. Although we asked a number of people whether anyone kept a personal list of starts, it does not appear that this type of detailed information existed. Therefore, it seems far more likely, and consistent with the weight of the evidence, that Mr. Cash provided the "18 and 19" numbers on Friday, April 6, that they were incorporated into the transparencies on Friday, and that the

numbers in the draft letter that was telecopied from the corporate office to the site on the morning of April 7 originated from the transparencies, as Mr. Bockhold believes. Tr. 3404-05, 3450 (Bockhold).

99. We also find that this topic is of relatively little relevance. Even if we were to accept the suggestion that Mr. Cash provided higher numbers than were shown in the slide (either because the numbers in the slide were adjusted downwards later or because Mr. Cash's count was confirmatory of some prior input), we would not find any wrongdoing on anybody's part. A higher count by Mr. Cash would simply indicate that the diesel testing transparency was conservative. It would not have alerted anybody that Georgia Power was inaccurately reporting more consecutive successful starts than had in fact occurred.

(b) Whether the Cash List Was a "Backup Slide"

100. Mr. Mosbaugh's assertion that the typed Cash list was a backup slide which provided actual notice to Mr. Bockhold and the corporate office that the numbers in the April 9 presentation and letter were inaccurate is more significant. As discussed below, we find Mr. Mosbaugh's assertion wholly speculative and unsubstantiated.

101. Mr. Mosbaugh alleges the typed Cash list was in fact a back-up slide initially provided to the corporate office before the presentation and cut from the presentation. Mosbaugh at 44. He testified that the Cash list was "typical 'backup' material." Mosbaugh at 43. He therefore contends that Mr. Bockhold, Cash, Hairston, McCoy and Bailey had a detailed diesel start

list prior to the April 9 presentation demonstrating that the data was false and therefore engaged in "wrongdoing." [22/]

102. To support this theory, Intervenor asked Mr. McCoy whether it was not uncommon, when the site or some other group had made slides for a presentation, for Mr. McCoy to decide which slides would be presented. Mr. McCoy, however, responded that such a review would be uncommon, particularly in this case where Mr. Bockhold had been charged with making the presentation and there were so many other things (e.g., the event review, the refueling outage, the Unit 2 restart) going on. Tr. 2854-55 (McCoy). Mr. McCoy has no recollection of reviewing any slides that were not presented and thinks that in this particular case he would not have given any direction on removing slides. Tr. 2856-57 (McCoy). Mr. McCoy also had no recollection of seeing Mr. Cash's typed list of starts and does not believe it was one of the slides that was tele-copied for his review. Tr. 2862-3 (McCoy).

103. Mr. Bockhold testified that to his knowledge, Mr. Cash's list was not made or used as a back-up slide for the presentation. Bockhold Rebuttal at 27. At the time of the presentation, Mr. Bockhold was not even aware that Mr. Cash had prepared a typed list of starts. Tr. 3376 (Bockhold). The set of slides that were retrieved do not include the Cash list. Bockhold Rebuttal at 27.

104. The theory that the typed version of the Cash list was a transparency is further belied by Mr. Cash's testimony. Mr. Cash testified that Mr. Bockhold did not ask him to prepare a

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[22/] Mr. Mosbaugh expressed this belief in argument which was stricken from his original prefiled testimony. See Prefiled Testimony of Allen L. Mosbaugh (as filed on April 4, 1995) at 60.

table, but just to get the number of starts. Tr. 4425 (Cash). In addition, the typed list is not in the same format as the transparencies. Compare GPC Exh. II-23 with GPC Exh. II-21 and Int. Exh. II-71.

105. Apparently to bolster his theory that backup slides were prepared and circulated, Intervenor also appears to contend, based on an entry in Mr. Ward's notebook (Int. Exh. II-17 (at project no. 48001)), that there was a meeting on Sunday, April 8, for a "dry run" of the presentation. See Tr. 2857-62. Mr. McCoy does not recall any such meeting. Tr. 2857 (McCoy). Mr. Bockhold testified that Mr. McCoy had the slides in advance, but that they did not have any face to face meeting on April 8. Tr. 3374 (Bockhold). Mr. Ward's explanation of the notes confirms that the entry had nothing to do with any "dry run" of the presentation. He recalls that he was duty manager that day, that Mr. Bockhold had asked him to call Mr. McCoy, Mr. Shipman, and Mr. Rushton to find out when would be a good time to review the draft of the COA response letter, that Mr. Ward called each of them and determined that they would be available for a call at 1:30 that afternoon. He did not arrange the call or any meeting beyond that. Tr. 7797-99 (Ward).

106. In sum, there is no probative evidence which supports Mr. Mosbaugh's assertion that the typed Cash list was a backup slide provided to Mr. Bockhold and corporate personnel in advance of the hearing. It is simply speculation which we cannot accept.

(c) Whether Georgia Power Personnel Knew the Numbers Were Wrong

107. Mr. Mosbaugh also claims that corporate personnel working on the April 9 letter during the plane ride back to Birmingham after the presentation knew that the diesel start statement in the letter was wrong, because Mr. Cash's list had been given to Mr. Burr who returned to Birmingham on the same plane. Again, this is simply speculation. First, it is not clear whether Mr. Burr even had Mr. Cash's list. While Mr. Cash believes that Mr. Burr asked for and he gave to Mr. Burr a copy of his handwritten list at the end of the presentation (Tr. 4480-81 (Cash)), Mr. Burr does not recall ever seeing a list of starts. Tr. 10872 (Burr). Second, while Mr. Burr rode back to Birmingham on the corporate plane (Tr. 10872 (Burr)), there is no evidence that he had any involvement with the wording of the April 9 letter. There is not even any indication that the diesel start statement was ever discussed on the plane ride back to Birmingham. The statement had in fact already been introduced into a prior draft of the letter two days earlier. Int. Exh. II-40.

108. In the alternative, Intervenor suggests that Georgia Power personnel had independent knowledge of the falsity of the diesel testing transparency and letter. First, Mr. Mosbaugh contends that Mr. Bockhold knew or should have known that the start count in the presentation and letter was wrong -- that the maximum number of successful starts was 12. Mosbaugh at 44; Tr. 10407-08 (Mosbaugh) To support this thesis, Mr. Mosbaugh refers to the April 2, 1990 IIT meeting. Mosbaugh at 44.

109. The transcript of the April 2 meeting does not support this view. Both Mr. Stokes and Mr. Owyoung stated during that conversation that there had been anywhere from a dozen to

fourteen or fifteen starts after replacement of the sensors on the 1A diesel (GPC Exh. II-77 at 43-44), and Mr. Bockhold was aware that the 1A diesel had been started a number of times after April 2. Bockhold Rebuttal at 24.[23/] The meeting also contains no discussion of the number of starts on the 1B diesel, which was the number that was too high in the April 9 letter and presentation.

110. The numbers that Mr. Cash provided to Mr. Bockhold did not indicate to Mr. Bockhold that there might be something wrong with the count. Mr. Bockhold knew the general type of testing that had been performed, but he did not know how many starts there had been on any particular day or related to the different types of tests. Tr. 3438-39 (Bockhold). He did know that there had been a large number of starts. Tr. 3831 (Bockhold).

111. Mr. Mosbaugh contends that the corporate office also knew the numbers in the slide were wrong. As evidence of this, he testified that the problems found on the diesels were relayed up the management chain to the highest corporate executives. Mosbaugh at 23. He specifically recalls making a duty report to Mr. McCoy in which the problem encountered during start 136 was discussed, and similarly made reports of the diesel trip on start 134 to Mr. Shipman and Mr. Rushton. Mosbaugh at 45; Int. Exhs. II-50 and II-51.

112. Mr. McCoy acknowledged that he had been briefed daily on the progress of the tests and was involved in a number of daily discussions with the NRC. He had not, however, had any occasion to review any logs or lists of starts in March or April. McCoy at 8. Nor did the

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23/ The references to six or eight starts in the transcript refer to starts witnessed by the Cooper representatives, and not to a complete number of starts. GPC Exh. II-77 at 47-48; Bockhold Rebuttal at 23.

numbers seem unusually large to Mr. McCoy. He was aware that there had been an intense effort to get to the bottom of the problem and therefore that it would not be unlikely that there had been many stops and starts. Tr. 3237 (McCoy). The number of consecutive successful starts for the 1A diesel through April 9 illustrates this well; for the 1A diesel, there had in fact been 29 consecutive successful starts though April 9. See GPC Exh. II-18 at 2.

113. Mr. McCoy's practice was to give Mr. Hairston a daily briefing on occurrences at Vogtle (Tr. 2844 (McCoy); Tr. 3579 (Hairston)), but there is no evidence that Mr. Hairston would have had any greater information on the diesel starts than Mr. McCoy. It is in fact unlikely that all the details that the site communicates to the corporate office in the morning calls would be passed on to Mr. Hairston. Tr. 10914 (Shipman). When the COA response was being prepared, Mr. Hairston did not take any special interest in the number of diesel starts reported in that letter. Tr. 2967, 69 (McCoy).

114. Mr. Mosbaugh states that the statement about no problems or failures "jumped out at [him] as being suspect" because he was aware there had been failures. Mosbaugh at 32. See also id. at 46; Tr. 5154 (Mosbaugh). He appears to suggest that it should also have been immediately recognized as suspect by others.

115. There is no evidence that anybody read the letter, before it was issued, as indicating or implying the absence of any problems or failures after March 20. Even Mr. Mosbaugh does not appear to have read the statement this way. On April 11, he told Mr. Kochery, ". . . if we started the machines a total of 25 times, and those 18 and 19 are the last 18 and 19, and the

failures, as I recall, may be one of the first set, you know, maybe this is still a true statement."[24] GPC Exh. II-108 at 22. He made no effort at this time to inform either Mr. Bockhold or the corporate office that the April 9 letter was incorrect.

(d) The Significance of No PRB Review

116. The April 9 letter was not approved by the Plant Review Board before it was issued. Tr., 2947 (McCoy); Tr. 3448-49 (Bockhold); Tr. 4746 (Aufdenkampe). Mr. Mosbaugh asserts that this was extremely unusual and "raises questions." Mosbaugh at 31, 44. However, such review was not required. Staff Exh. II-20, ff. Tr. 3138; Tr. 2946, 3138-48 (McCoy). Nor would such review be expected if the Plant General Manager was involved and decided that such review was unnecessary. Tr. 10899-90 (Shipman).

117. In any event, a draft of the COA response letter was distributed on April 5 to plant managers who were members of the PRB (as well as to the NRC Resident Inspector). Int. Exh. II-126, ff. Tr. 3120; Tr. 3122-23, 3130-33 (McCoy). A later revision of the draft, with essentially the same statement concerning diesel starts as was included in the final letter, was telecopied to the plant on the morning of April 7, presumably so that the changes could be reviewed. See Int. Exh. II-40. We do not infer any wrongdoing based on these facts.

(e) The Significance of the Blue Sheet

118. The "blue sheet" which the corporate office uses to track correspondence was not completed for the April 9 letter. Int. Exh. II-47. While this was somewhat unusual (Tr. 2951

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[24] See GPC Exh. II-1 at 75 (where Mr. Mosbaugh again indicated that the letter would not be false if there were sufficient starts after March 23).

(McCoy); Tr. 3934 (Stringfellow)), the blue sheet is simply a trailer to provide some history for the documents and track them. It is not a means of deciding who is responsible for particular documents or retained for any legal purpose, and is not governed by any written procedure. Tr. 2953 (McCoy); Tr. 3935 (Stringfellow). Mr. McCoy believes that the blue sheet was not completed for the COA response letter because it was not handled like a routine piece of correspondence in that there was more hand-carrying and faxing of the document back and forth in an attempt to transmit it in a timely fashion. Tr. 2958 (McCoy). Again, we draw no negative inference from these facts.

(f) Conclusion

119. As discussed above, the record does not support Mr. Mosbaugh's contention that inaccurate diesel start statements in the April 9 presentation and letter were made willfully. There does not appear to have been any attempt or intent to mislead the NRC.

120. Of particular significance is the absence of any motive for the inaccurate statements. It is undisputed that the NRC knew that there had been problem starts after March 20. Tr. 15309-10 (Reyes). See Findings 12, 15 above.[25/] Some of those problems were reflected in the very next slide after the Diesel Testing transparency. This slide, entitled "Quarantine Components," identified the problems with Calcon sensors that had been identified on quarantined components after the SAE. GPC Exh. II-21 (second page); Tr. 2893-96 (McCoy).

25/ The Regional Administrator later expressly acknowledged the cooperation which Georgia Power gave the IIT. Hairston at 4; GPC Exh. II-17.

121. The specific number of starts was also unimportant. Tr. 2906 (McCoy); Bockhold at 9. See also Tr. 4829 (Aufdenkampe). A half dozen or a dozen tests would have satisfied Mr. Bockhold and the Staff. Tr. 3436-37 (Bockhold); Tr. 15311, 15340-42 (Reyes). Georgia Power's judgment that the testing of the diesel was sufficient to establish its operability was not based on the number of starts. Tr. 3238 (McCoy). The runs prior to the April 9 presentation included operability tests meeting the technical specification criteria. Tr. 3433-35 (Bockhold). The diesel start count was in essence additional information indicating that a lot of tests had been performed successfully before the diesel was operable. Tr. 3435 (Bockhold). It was just one factor that Mr. Bockhold considered showed, or provided some extra sense, that the diesels were reliable. Tr. 3833, 3836 (Bockhold). See also Tr. 4487-89 (Cash) (the start count number had no statistical value in determining diesel reliability).

122. We also find no evidence of any reckless disregard for the truth on the part of Georgia Power personnel. The inaccurate statements made on April 9 appear predominantly the result of poor internal communication, and not indifference. The April 9 events do not involve a case where statements were made without effort or concern over their accuracy. Instead, it is clear that a considerable effort was being expended to support the representations. A licensed, senior reactor operator was asked to determine the start count, poured over two sets of logs to come up with lists and a number, and later had his lists typed. It is clear that mistakes were made, but they simply were not the type of callous indifferent acts that would lead us to find deficient character and call into question the continued safe operation of the plant.

123. Moreover, the individuals involved have acknowledged their performance failures. Mr. Bockhold acknowledges that he had a responsibility to assure he understood the factual basis of the information which Mr. Cash subsequently provided and that he failed to ensure that the provided information was what was asked for and intended. Bockhold at 10. He acknowledges he did not do enough verification of the diesel testing transparency. Tr. 3364 (Bockhold). He did not work with Mr. Cash well enough to fully understand the data he was presenting. Tr. 3454, 3848-49 (Bockhold). He also relied too much on the NRC's knowledge of the diesel testing program. Tr. 3366 (Bockhold).

124. Mr. Cash also acknowledges that he did not communicate well enough with Mr. Bockhold -- that he did not effectively communicate what he counted. Tr. 4396, 4545-46 (Cash). However, he has never presented any information about the diesels which he knew was inaccurate. Tr. 4583 (Cash).

125. The current recognition by these individuals that they communicated poorly and never had a meeting of the minds does not mean that these individuals recognized that their conduct was deficient on April 9 or acted recklessly. Everyone appears to have had confidence in what they were doing at the time. Everyone involved thought they understood the numbers and their meaning. In retrospect, after the microscopes were turned up and everyone meticulously reviewed the figures, nobody really knew what the numbers meant or where they came from. To ascribe personal, intentional wrongdoing, however, would require more evidence than the inference and speculation advanced by Mr. Mosbaugh.

B. Events Between April 9 and April 19

126. On April 10, Mr. Bockhold described the April 9 presentation during a staff meeting at the plant. Mr. Mosbaugh read the final letter and questioned a statement concerning air quality. He does not appear to have questioned aloud the statement concerning diesel starts. Int. Exh. II-25.

127. Also on April 10, during a telephone call between the IIT and Georgia Power, Mr. Kendall stated that he could not count as many starts as had been reported during the April 9 presentation and requested a complete list of starts. GPC Ex. II-31 at 5; Aufdenkampe at 4-5. Mr. Kendall stated that he had a list that Mr. Kochery had provided but it only went through the first phase of troubleshooting.[26/] Mr. Kendall suggested that Mr. Stokes should call him. GPC Exh. II-31 at 5.

128. Mr. Aufdenkampe has some recollection of Mr. Beacher putting together information for the IIT including a list of starts. Tr. 4756-57 (Aufdenkampe). He believes that a list of starts through April 1 was provided to the IIT on May 9, 1990. Aufdenkampe at 18; Tr. 4757-58, 5650-51 (Aufdenkampe); GPC Exh. II-10 (IIT Document No. 336). He is also confident that Mr. Stokes would have called Mr. Kendall following through on the April 10 request. Tr. 4757 (Aufdenkampe).

129. On April 11, Mr. Mosbaugh spoke with Mr. Kochery. He read to Mr. Kochery the diesel start statement from the April 9 letter and stated:

26/ The Kochery list that had been sent to the IIT identified starts through March 23. See GPC Exh. II-8.

> Now, if that's -- if those 18 and 19 starts include all of the starts since the 20th, I know we had problems and failures.
>
> Now if those 19 -- if we started the machines a total of 25 times, and those 18 and 19 are the last 18 and 19, and the failures, as I recall, may be one of the first set, you know, maybe this is still a true statement.

GPC Exh. II-108 at 22. Mr. Mosbaugh asked Mr. Kochery if he had a log or something that would show all the starts. Id. Mr. Kochery replied that he did not. Id. Mr. Kochery appears to have given Mr. Mosbaugh a list of starts up through March 23, but informed Mr. Mosbaugh he did not have data after the 23rd.[22/] See id. at 25-27. Mr. Mosbaugh asked who had the rest of the starts, and Mr. Kochery answered that Mr. Cash did. Id. at 32-34. Mr. Mosbaugh stated, "All right, maybe I'll get with him." Id. at 34.

130. It does not appear that Mr. Mosbaugh made any attempt to speak with Mr. Cash until April 19 or to obtain the start data which Mr. Cash had generated.

C. LER 90-006

1. Preparation of Initial Drafts

131. The Vogtle Nuclear Safety and Compliance Group (NSAC) was primarily responsible for preparing the LER. This group reported to the Technical Support Manager (Mr. Aufdenkampe), who in turn reported to Mr. Mosbaugh. McCoy at 11. NSAC probably began working on LER 90-006 in March shortly after the SAE. Tr. 4762 (Aufdenkampe); Webb at 3.

22/ We believe this "Kochery list" to be the same as the list that had been telecopied to the IIT on April 6 (GPC Exh. II-8) and to which Mr. Kendall referred on April 10. See Findings 12, 127 supra.

132. The initial drafts of LER 90-006 were prepared by Tom Webb. After the April 9 letter was submitted, Mr. Aufdenkampe provided a comment to Mr. Webb that the LER should include the same statement about the diesel starts. Webb at 3; Tr. 4763, 5601-02 (Aufdenkampe); Tr. 13121-22, 13182-83 (Webb). The same diesel start language that was included in Georgia Power's April 9 letter was subsequently incorporated into a draft of the LER. See GPC Exh. II-171-B. The PRB reviewed a draft of the LER on April 12 and returned it to Mr. Webb with instructions to rewrite the LER so that it would be no longer than eight pages. Webb at 3-4. Mr. Webb completed another draft which was shorter but retained the diesel start statement, and provided it to Mr. Aufdenkampe on April 13. Id. at 4; GPC Exh. II-171-D. At this point, Mr. Aufdenkampe questioned[28] the 18 and 19 numbers, and at Mr. Webb's suggestions, the draft LER was revised by Tom Webb to replace the reference to 18 and 19 starts with a general reference to "several starts." Webb at 4; Tr. 13107, 13114, 13178, 13183-87 (Webb); Aufdenkampe at 2; Tr. 4750 (Aufdenkampe).[29]

133. On April 18, 1990, the PRB reviewed the draft LER and voted unanimously to approve it with certain comments. One of the PRB comments was that the draft LER language referring to "several starts" of the diesels should be changed to state the numbers of starts rather than several. GPC Exh. II-28 at 2, 4; Aufdenkampe at 2; Webb at 5; Tr. 4674, 4752, 4779, 5603-04 (Aufdenkampe); Tr. 13114, 13195-96 (Webb). Mr. Mosbaugh attended this meeting,

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[28] The questions may have been prompted by the IIT's remarks on April 10. Tr. , 4753, 5605-06 (Aufdenkampe). Mr. Webb did not understand at this point that the April 9 letter was inaccurate, but only that Mr. Aufdenkampe did not want to specify the numbers. Tr. 13184 (Webb). Mr. Webb felt that the 18 and 19 numbers were probably right. Tr. 13187 (Webb).

[29] Between April 13 and April 18, there were additional drafts and comments, including some provided by the corporate office. These drafts and comments are not germane to this decision and are not discussed further. See Webb at 4.

and voted for its approval. See GPC Exh. II-28 at 2. There is no indication that he provided any comment on the diesel starts statement. See id. at 4.

134. As approved by the PRB, the diesel start statement read:

> Numerous sensor calibrations (including jacket water temperatures), special pneumatic leak testing, and multiple engine starts and runs were performed under various conditions. Since 3-20-90, DG 1A and DG 1B have been started more than twenty times each and no failure or problems have occurred during any of these starts. In addition, an undervoltage start test without air roll was conducted on 4-6-90 and DG1A started and loaded properly.

Aufdenkampe at 3. The "more than twenty times each" language was derived by Mr. Webb who reviewed the control room logs and spoke with Mr. Stokes to determine the number of diesel starts occurring after April 9 and added the additional starts to the 18 and 19 previously reported in the April 9 letter. Webb at 5; Aufdenkampe at 3; Tr., 4679, 4780 (Aufdenkampe); Tr. 11314-16 (Webb).

135. Mr. Bockhold signed off on the draft LER before it was transmitted to the corporate office. GPC Exh. II-171-K; Webb at 5-6; Tr. 4774 (Aufdenkampe). This was somewhat unusual, but because of the significance of the SAE, the corporate office wanted to make sure Mr. Bockhold had reviewed the LER in detail. Tr. 4775 (Aufdenkampe).

2. Corporate Review and Comments

136. By April 18, Mr. Stringfellow had received from Tom Webb the PRB-approved comments on the draft LER. Mr. Stringfellow had the draft LER retyped, incorporating those comments. At this point, the draft LER stated:

> Since 3-20-90, DG1A and DG1B have been started several times (more than twenty times each) and no failures or problems have occurred during any of these starts.

Mr. Stringfellow then circulated the revised draft for corporate comments. Stringfellow at 2.

137. Either on the afternoon of April 18 or early morning of April 19, Mr. Hairston received the draft LER. He reviewed this draft relative to his personal knowledge of the SAE, which was based in part on the April 9 presentation. Hairston at 6-7. He read it very thoroughly, as was his practice. Tr. 3613 (Hairston). He identified several issues requiring clarification, including a question about the number of diesel starts. The draft he was reviewing stated that there had been greater than 20 starts, but Mr. Hairston remembered the "18 and 19" numbers from the April 9 presentation and saw a difference. He therefore asked that the "greater than 20" be verified. Hairston at 6; GPC Exh. II-25 (Project No. 057942). He passed these comments on to Mr. Stringfellow for resolution. Tr. 3621 (Hairston); Tr. 3945-46 (Stringfellow). Mr. Hairston subsequently went to Atlanta for a grievance proceeding on the morning of the 19th and did not return to his Birmingham office until about noon. Hairston at 6.

138. Mr. Stringfellow telecopied a revised draft LER with the comments from corporate personnel back to the Vogtle site early in the morning of April 19. The comments included Mr. Hairston's instruction to verify the greater-than-20-starts statement. Stringfellow at 2; Tr. 4058 (Stringfellow); Aufdenkampe at 3; Tr. 4786-87 (Aufdenkampe); Webb at 6.

139. After seeing the corporate comment, Mr. Aufdenkampe instructed Mr. Webb to verify the greater-than-20 statement.[30/] Mr. Webb worked with Mr. Beacher (another NSAC employee) in this regard. Tr. 4787-88, 4790, 4818, 5530, 5597-98, 5615 (Aufdenkampe); Webb at 6; Tr. 13123 (Webb). Mr. Webb and Mr. Beacher proceeded to review the control room logs (the Unit Control log and the Shift Supervisor log), because Mr. Webb knew that the Engineering Support Department's Diesel Start log was not up to date.[31/] Webb at 6.

3. The PRB Meeting on April 19

140. On April 19, from 1:25 to 2:45 p.m., the PRB met again to review and approve the corporate comments on the LER. Aufdenkampe at 3; GPC Exh. II-29.[32/] Mr. Mosbaugh joined this meeting in progress and asked Mr. Aufdenkampe if he had corrected the diesel starts, stating that he had given Mr. Aufdenkampe a comment on the diesel starts. Mr. Aufdenkampe replied that there was a comment in the PRB minutes to either verify the sentence, reword the sentence, or delete it, and that is what they were doing. GPC Exh. II-1 at 15; Tr. 5124 (Mosbaugh). Mr. Webb was not in attendance. See GPC Exh. II-29.

141. Mr. Kitchens also stated that Mr. Aufdenkampe was going to either verify or take out the numbers, and take out the wording that said there had been no problems or failures. GPC Exh. II-1 at 16. Mr. Frederick referred to some tally of the numbers before the NRC which had

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30/ Mr. Aufdenkampe may have passed this instruction to Mr. Webb through Mr. Odom. See Webb at 6; Tr. 13123 (Webb); Tr. 5597 (Aufdenkampe).

31/ Mr. Webb also did not have the diesel start completion sheets available to him. Webb at 6-7.

32/ Mr. Mosbaugh testified that this meeting occurred on the morning of the 19th. Mosbaugh at 33. The PRB minutes, however, indicate that the meeting was in the afternoon of the 19th (GPC Exh. II-29), as does Mr. Mosbaugh's tape recording of discussions on the 19th. See GPC Exh. II-1 at 11.

produced a different number. Id. at 15. Mr. Kitchens stated that the numbers could be checked from the log, and again indicated that Mr. Aufdenkampe had this action item. Mr. Kitchens also noted that George [Frederick] had pointed out that there had been a failure of 1B diesel right after maintenance work on it. Id. at 16. Mr. Mosbaugh stated that that was his comment too. Id. at 16. Mr. Kitchens then stated that they did not want to make a statement with no failures or problems, and Mr. Mosbaugh agreed that they could not make that statement. Id. Mr. Kitchens suggested that the LER should state that "since March 20th, the diesels have been started more than 20 times, each, successfully" or words like that with whatever the number comes out to be. Id. Mr. Mosbaugh abstained from voting purportedly because of his late arrival. Id. at 17; Aufdenkampe at 4; Tr. 5125 (Mosbaugh).

142. The dialog during the PRB meeting indicates that Mr. Mosbaugh's concern was that it would be incorrect to state that there had been no problems or failures since March 20. There is no indication that Mr. Mosbaugh raised any concern with the accuracy of the number of starts that was being reported. There was a recognition that the numbers needed to be verified, apparently prompted by Mr. Hairston's comments and some prior discussion with the NRC, but there is no indication that a specific error had been identified.

4. Concerns Relayed From the Site to the Corporate Office

143. Sometime after the PRB meeting, Mr. Aufdenkampe, Mr. Stringfellow, and Mr. Mosbaugh spoke on the phone to discuss the comments on the draft LER, going though it page by page. When they reached the page with the diesel start statement, Mr. Aufdenkampe told Mr. Stringfellow that he was struggling with that statement, that he was still trying to verify it, but

that "we think that's basically a material false statement." GPC Exh. II-1 at 45. Mr. Aufdenkampe explained that they knew that the 1B diesel had tripped at least once after March 20th, and Mr. Mosbaugh added that actually it tripped twice after March 20 or had had at least two separate problems. Mr. Stringfellow asked whether they needed to take the more-than-20 statement out of the LER. Mr. Aufdenkampe replied that was what they were thinking, but that Tom Webb was in the process of reviewing the reactor operators' log and counting. Id. Mr. Stringfellow indicated that he was going to pass these comments on to Mr. Shipman. Mr. Aufdenkampe acknowledged this, and added that he was still looking for words to provide to Mr. Stringfellow on this item but that the sentence was going to have to change. Id. at 45-46. See also Stringfellow at 5; Aufdenkampe at 5-6.

144. Again, from this dialog, it appears that the main concern with the draft LER was that it could be interpreted as suggesting that there had been no problems or failures since March 20. Tr. 4672 (Aufdenkampe). This was Mr. Stringfellow's understanding. Stringfellow at 5. It was recognized that the language needed to be changed to avoid this suggestion, but as of this time there had been no determination that the start count numbers needed to be changed.

145. After addressing other comments in his call with Mr. Stringfellow, Mr. Aufdenkampe put Mr. Stringfellow on hold and called Mr. Odom to check on Tom Webb's progress counting the diesel starts. Mr. Odom reported that Mr. Webb was going to the control room because he was missing two or three days of the logs.[33/] Mr. Odom pointed out that Mr. Webb would not be

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33/ Presumably, Mr. Webb and Mr. Beacher had initially sought duplicates of the logs that are distributed to various departments. The originals are always maintained in the control room. Tr. 5599-5600 (Aufdenkampe).

counting valid tests. Mr. Aufdenkampe replied that they were not looking for valid tests, and Mr. Mosbaugh added that the LER was not using the word "valid." GPC Exh. II-1 at 49-50.

146. Mr. Aufdenkampe then reconnected Mr. Stringfellow. Mr. Stringfellow indicated that he now understood the concern about the diesel start statement -- "if we say, 'and no failures or problems have occurred in any of these starts,' you are saying that that's not true." GPC Exh. II-1 at 50. Mr. Aufdenkampe agreed. Mr. Aufdenkampe added that this language had already been written to the NRC once, and Mr. Stringfellow replied that was exactly what he was thinking.[34/] Mr. Aufdenkampe stated he was working on that, and Mr. Stringfellow stated that he would be waiting. At that point, the call ended. Id. at 50-51. See also Aufdenkampe at 6.

147. Again, these statements indicate that the concern was with the statement that there were no failures or problems. As Mr. Aufdenkampe testified, they had not determined at that time that the numbers reported in the April 9 letter were inaccurate. Aufdenkampe at 6.

148. After the call, Mr. Mosbaugh asked Mr. Aufdenkampe if he had the April 9 letter, because that was the letter where the statement had been made previously. GPC Exh. II-1 at 51. Mr. Aufdenkampe characterized this letter as the one where they lied. Id. He testified, however, that he did not intend to use this term pejoratively. Tr. 4791-92 (Aufdenkampe). Mr. Mosbaugh then indicated he was going to see if he could obtain some diesel information from Mr. Kochery. GPC Exh. II-1 at 51.

34/ This statement reflects Mr. Stringfellow's apparent recognition that, if the information being provided by Mr. Aufdenkampe and Mr. Mosbaugh turned out to be true, the April 9 letter would contain a false statement. Tr. 3980 (Stringfellow).

149. Mr. Stringfellow does not have a specific recollection of his actions after this call, but he believes he would have passed along to Mr. Shipman his understanding that the draft LER and April 9 letter were inaccurate because of the fact there were failures of the 1B diesel after March 20. Because he understood that Mr. Odom and Mr. Webb were in the process of counting starts, he did not believe that the number of starts had been determined to be inaccurate. Stringfellow at 5-6. Mr. Shipman also believes that Mr. Stringfellow briefed him concerning the questions raised by the site and also Mr. Stringfellow's belief that they might not get a timely resolution of those questions. Shipman at 3.

150. Sometime later, Mr. Shipman spoke with Mr. Mosbaugh on the telephone to seek his help with two items in the LER to resolve Mr. Hairston's comments. GPC Exh. II-1 at 54; Shipman at 2-3. Mr. Shipman believes he made this call because of Mr. Stringfellow's concern that he might not be able to get some of Mr. Hairston's questions answered. Shipman at 2. The first question related to whether the operator who first responded to the diesel failure during the SAE had observed the annunciators at the time. Mr. Shipman asked if the operator were available. Mr. Mosbaugh offered to find the operator and get him on the telephone. GPC Exh. II-1 at 55-58; Shipman at 2-3.

151. The second question raised by Mr. Shipman was whether they could assure Mr. Hairston that there had been more than 20 starts since March 20 as stated in the draft LER. GPC Exh. II-1 at 58. Mr. Mosbaugh responded that there was a problem with the way it was stated [in the draft LER] because, while they had a person (referring to Mr. Webb[35/]) trying to find the total

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35/ Tr. 5176 (Mosbaugh).

number of starts, there had been failures. Id. Mr. Shipman stated that the problem was that the data in the draft LER was what had been presented to the NRC on April 9. Id. Mr. Mosbaugh replied that if anybody said there weren't any failures, that just was not true. Id. at 58-59. Mr. Shipman noted that Mr. Bockhold's outline presented in Atlanta had stated that there had been 18 and 19 starts without a failure, and that somebody must have given Mr. Bockhold that information. Id. at 59. Mr. Shipman asked whether they had had a failure subsequent to the April 9 presentation. Mr. Mosbaugh responded no, but that on the 1B diesel, there had been a trip on high lube oil temperature on March 22 and a trip on low jacket water temperature on March 23. Id. at 59-60. After some discussion of how the draft LER had gotten through the PRB, Mr. Shipman stated "what we need to do is find out what is correct and make sure we only say what's correct." Id. at 61. Mr. Mosbaugh indicated that he had a tabulation of diesel activities early on by Mr. Kochery,[36/] and Mr. Shipman stated his understanding that the diesel generator log was not up to date. Id. Mr. Shipman then asked Mr. Mosbaugh to try to get the correct information for the LER. Id. at 62. Mr. Mosbaugh replied he did not have any better information than the two trips he had told Mr. Shipman about. Mr. Shipman stated:

> I guess at the point where we're in now where this thing, it's been to PRB several times and we have several review cycles up here and everybody has gotten accustomed to the data. If we can use

[36/] Mr. Kochery had compiled a list, which had been provided to the NRC on April 6, showing starts through March 23. It identified the problem starts on the 1B diesel generator on March 22 and March 23. GPC Exh. II-8. Mr. Mosbaugh states that he received a list from Mr. Kochery sometime between April 9 and April 19. Tr. 5152 (Mosbaugh). He believes, however, that he had a handwritten version of Mr. Kochery's list and that it may have included some starts up to early April. Tr. 5156, 5158 (Mosbaugh). This is unlikely, because if Mr. Mosbaugh had a list that went past March 23, he presumably would have been aware of the third problem start (start 136 on March 24). Mr. Mosbaugh also testifies that he recalls the handwritten list having less detail than GPC Exh. II-8. The description of the trips in GPC Exh. II-8, however, is virtually identical to the description of the problem starts that Mr. Mosbaugh recounted in his discussion with Mr. Shipman. Compare GPC Exh. II-8 (DG1B list at 2-3) with GPC Exh. II-1 at 59-60. Perhaps Mr. Mosbaugh is confusing the Kochery list with the Webb list, discussed later in these findings. It seems apparent, based on the dates covered and the description of the problems, that Mr. Mosbaugh in fact had the list that had been given to the IIT.

> that data we probably ought to. Certainly, if it's not a valid statement, we need to get it the heck out of here regardless of what George [Bockhold] told [NRC Region II Administrator] Ebneter. So, you know, of there is anything you need to do to check to make sure the data you have from Paul [Kochery] is correct and valid, we would ask that you do that, or if you feel very confident that it is correct now, I just need to see what I need to do about striking this statement.

Id. at 62. Mr. Mosbaugh again stated that he felt that the data he had was accurate, but committed to verify it with Mr. Kochery. Id. at 62-63. Mr. Mosbaugh understood that Mr. Shipman was giving him an action item to verify the diesel start statement in the LER. Tr. 5145-46 (Mosbaugh).

152. The discussion between Mr. Mosbaugh and Mr. Shipman again indicates that the concern over the accuracy of the diesel start statement centered on its implication that there had been no failures. The list of starts which Mr. Kochery had compiled and given to the IIT on April 6 (GPC Exh. II-8) included starts only through March 23, and therefore did not contain enough data to determine how many successful starts there had been either as of April 9 or April 19. Stringfellow at 6-7.

153. At the end of this discussion, Mr. Shipman stated that he and Mr. Stringfellow were going to go to Mr. Hairston's office to go over Mr. Hairston's comments and what they had been able to do with those comments. GPC Exh. II-1 at 63. Mr. Stringfellow, however, cannot recall what exactly may have been relayed to Mr. Hairston, or in fact, even if or when they may have spoken to Mr. Hairston. Tr. 3953, 4032-33 (Stringfellow).

154. Mr. Mosbaugh proceeded to speak to Mr. Kochery and Mr. Stokes, but apparently only talked to them briefly about valid tests and valid failures. Id. at 64-65.[37/] He also made arrangements for Mr. Hairston to question a plant equipment operator concerning his observation of the annunciators on the diesel control panel during the SAE. Id. at 65-72.

155. Sometime later, Mr. Mosbaugh spoke with Mr. Aufdenkampe and Mr. Odom (who was apparently on the speaker phone). Mr. Mosbaugh told them briefly of his call with Mr. Shipman and asked them if they wanted to see the trips. GPC Exh. II-1 at 72. Mr. Aufdenkampe replied that Mr. Odom had already talked to him about the trips, and that there were two of them. Id. Mr. Mosbaugh agreed and referred to the March 22 and March 23 trips. Id. Mr. Aufdenkampe stated that Birmingham [i.e. the corporate office] was now thinking that they had made a material false statement in the April 9 letter. Id. at 72-73. After reading the April 9 letter, however, Mr. Odom announced that he did not think it was a material false statement. Id. at 73. Mr. Mosbaugh stated he had read the letter and thought it was very marginal. Id. Mr. Odom then read the statement aloud and stated that it was not wrong. Mr. Aufdenkampe stated it was misleading, but Mr. Mosbaugh asked Mr. Odom to read it aloud once more. After hearing it again, Mr. Mosbaugh stated that the statement in the letter would be true if there had been 19 starts on the 1B diesel after the March 23rd trip. Id. at 74. Mr. Odom pointed out that the letter meant "since March 20th." Mr. Mosbaugh stated that he had no problem with that because they could dismiss the period of time between March 20 and March 23. "It's merely since that date. . . ." Id.

37/ Mr. Mosbaugh testified that he assumed he checked with Mr. Kochery and did not find anything that contradicted what he had told Mr. Shipman. Tr. 5130-31 (Mosbaugh). There is no such discussion recorded on tape 57, however. It is possible that Mr. Mosbaugh did not record this conversation fully. See Tr. 5170-72 (Mosbaugh) (acknowledging there may have been conversations that he did not record).

at 75. Mr. Odom agreed. Mr. Mosbaugh pointed out, however, that if there had not been 19 starts since March 23, it would still be false. Mr. Odom again agreed. Mr. Mosbaugh then stated that verifying if there had been 19 starts since the 17:31 trip on March 23 was critical to knowing whether the statement is true or false. He told Mr. Odom that Mr. Webb should concentrate on the 1B diesel and get the start information. Id. at 75. He pointed out that all they needed was the logs between March 23 and April 9, inclusive. Id. at 76. Mr. Aufdenkampe, Mr. Odom, and Mr. Webb (who had apparently joined Mr. Odom at the other end of the line) all suggested at this point that LER statement simply be removed. Id. at 77.[38] Mr. Mosbaugh, however, stated that they needed to get the information quickly that he had mentioned. Id. at 77-78; Aufdenkampe at 6-7.[39]

156. Mr. Aufdenkampe does not know whether he or his staff called Mr. Stringfellow again to advise him of this further discussion. Aufdenkampe at 7. It is certainly possible.

157. After the operator who was to talk with Mr. Hairston was located, a call to Mr. Hairston was placed. Tr. 5131-32 (Mosbaugh). Mr. Mosbaugh listened to this call, but did not participate actively. GPC Exh. II-2 at 1-6; Tr. 5132 (Mosbaugh).

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[38] Mr. Webb referred to the "misconception that started nine days ago." GPC Exh. II-1 at 77. He was referring to the April 9 letter, and the "misconception" that he meant was that there were no problems or failures. Tr. 13228-29 (Webb). He does not recall if he had decided that the April 9 letter was erroneous, but felt that it had the potential to mislead people. Tr. 13228, 13231 (Webb).

[39] Mr. Odom indicated that they were missing some days in their copies of the logs. Mr. Williams apparently overheard this statement and told Mr. Mosbaugh that he had all of the logs -- both the reactor operators' logs and the shift supervisor logs. Mr. Aufdenkampe then called Mr. Odom to pass along this information. GPC Exh. II-1 at 78-79; Tr. 4795-96 (Aufdenkampe). Mr. Williams provided the logs to Mr. Webb so he could complete his count. Tr. 5525 (Aufdenkampe).

158. Mr. McCoy had been out of town on the morning of April 19, as well as the early afternoon, and did not return to his office in Birmingham until about 2:30 or 3:00 p.m. He had previously reviewed a draft of the LER, but does not recall any concerns or comments about the accuracy of the diesel testing description prior to his return to Birmingham on the afternoon of the 19th. When he returned, the plant staff and personnel in the corporate office were working on the final draft of the LER. At that time, Mr. Shipman told Mr. McCoy that there were some concerns about the accuracy of the diesel generator testing described in the draft LER, that Mr. Mosbaugh had raised a concern about the numbers of starts referenced in the LER, and that they were working on it. McCoy at 11-12; Tr. 2976-78 (McCoy).

5. The Main Conference Call (Call A)

159. Some time later, Mr. McCoy participated in a conference call between the plant and corporate staff. A portion of this call was taped by Mr. Mosbaugh, but it is clear that there was some discussion prior to the time that Mr. Mosbaugh joined the call. See GPC Exh. II-2 at 7; Aufdenkampe at 7. Mr. McCoy's recollection is that he joined a group of people in one of the conference rooms after the call had commenced (he had entered looking for Mr. Shipman), and the tape transcript indicates that Mr. Mosbaugh joined the call after this. Mr. Mosbaugh joined the call in the middle of a discussion concerning the statement in the draft LER on the number of diesel starts. McCoy at 11-12.

160. Mr. McCoy believes that prior to the portion of the call taped by Mr. Mosbaugh, Mr. Shipman identified the concern that had either been raised by Mr. Mosbaugh or Mr. Aufdenkampe regarding the language in the draft LER. Mr. McCoy believes that the concern that Mr.

Shipman recounted was that the statement appeared inaccurate because there were some problem starts when the diesels were coming out of maintenance. Mr. McCoy also believes that Mr. Bockhold had clarified that the successful starts occurred after the "comprehensive test program." McCoy at 12-13.

161. Mr. Mosbaugh agrees that there appears to have been some discussion prior to his joining the conference call, as evidenced by statements recorded later in the day. Tr. 5392-93 (Mosbaugh). In the final call (call B, infra) discussing the LER, Mr. Shipman summarized what Mr. Bockhold had earlier said -- that the trips on the 1B diesel should not be included because they were part of the return to service of the diesel coming out of overhaul, and the count included only those starts after all the sensors had been calibrated. GPC Exh. II-2 at 22-25. Mr. Bockhold stated he started counting after the instrument recalibration. Id. at 24. Mr. Shipman and Mr. Aufdenkampe both understood from Mr. Bockhold's prior comments that he intended to present the number of successful starts that had occurred after the plant staff had realized that they needed to do a complete recalibration, and that the three trips had occurred before this point -- before "all the bugs had been worked out." Id. at 26. Mr. Bockhold stated that the comprehensive test program of the control systems ended after the third trip. Id. at 34.

162. These statements appear consistent with Mr. Bockhold's understanding of the term comprehensive test program. Mr. Bockhold understood this phrase to refer to the testing that ended with the recalibration of the sensors[40] and the logic testing, though he did not know the

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[40] Mr. Bockhold was referring to the calibration of sensors that was performed prior to the logic testing, as depicted on the Diesel Testing transparency. Tr. 3466 (Bockhold). Such testing was completed for the 1A diesel before start 148 on March 30 and for the 1B diesel before start 137 on March 27. Int. Exh. II-57 at 3; Tr. 3466-68

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actual date associated with the completion of this testing. Bockhold at 13; Tr. 3356, 3459, 3464-65, 3468, 3497-98 (Bockhold).[41/] He believed at the time of the April 19, 1990 discussions that his intended meaning of the term was clear. Bockhold at 14; Tr. 3355 (Bockhold).

163. The phrase "comprehensive test program" of the control systems appears to have been coined in this call. Tr. 10973 (Shipman). Mr. Bockhold believes he had used this phrase before in a number of presentations, but he acknowledges that this term was not clearly defined. Tr. 3470 (Bockhold). Mr. Aufdenkampe had not heard the term prior to this main conference call on April 19. Tr. 5532 (Aufdenkampe).

164. Mr. Mosbaugh entered Mr. Aufdenkampe's office and joined the conference call after the call between Mr. Hairston and the operator was completed. Tr. 5132 (Mosbaugh). By the time Mr. Mosbaugh joined the call (GPC Exh. II-2 at 7), the subject had shifted to the need to confirm the number of starts. McCoy at 13. Mr. Aufdenkampe explained that the "greater than 20" number had been derived by adding the number of starts that had occurred after April 9 to the numbers reported in the April 9 letter, and Mr. Bockhold expressed his agreement with those numbers. GPC Exh. II-2 at 7; Aufdenkampe at 7-8. Mr. McCoy stated that they needed to know what the number of starts were after completion of the comprehensive test program. GPC Exh.

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(Bockhold). See also GPC Exh. II-105. Mr. Bockhold, however, did not know these dates on April 19, 1990; they were identified after the fact in response to Intervenor's interrogatory, using Mr. Bockhold's definition. Tr. 3464, 3467-68 (Bockhold). There was some calibration of switches after March 30 (for example, on March 31, when a sensor was found venting), but these were not part of the test program of the control systems to which Mr. Bockhold was referring. Tr. 3478-81, 3498-99 (Bockhold).

41/ He expressed this same understanding to OI in 1993 (before hearing tape 58). See OI Exh. 13 at 45-6, ff. Tr. 3915 ("... the control systems of both engines have been subjected to a comprehensive test program that is this sensor calibration [and] logic testing in my mind.").

II-2 at 8. In response to Mr. McCoy's statement that the numbers needed to be confirmed, Mr. Aufdenkampe informed Mr. McCoy and the other participants in the call that his staff was reviewing the operators' logs. In addition, Mr. Bockhold informed Mr. McCoy and the group that the numbers presented to the NRC on April 9 had been verified to be correct by Mr. Cash after review of the operators' logs. GPC Exh. II-2 at 8; McCoy at 13; Bockhold at 12; Aufdenkampe at 8.

165. Based on Mr. Bockhold's assurance that the numbers had been verified -- which Mr. McCoy understood to mean that the Mr. Cash had gone back a second time to verify the numbers -- Mr. McCoy suggested that they use the numbers that had been previously presented to the NRC. GPC Exh. II-2 at 8; McCoy at 13; Tr. 2988-90 (McCoy).

166. Mr. McCoy also sought assurance from Mr. Bockhold that the number of successful starts that had been used on April 9 were after completion of the comprehensive test program, not before that time. Mr. Bockhold replied, "That is correct. Those numbers were not before that time." GPC Exh. II-2 at 8. Mr. Stringfellow then asked:

> Are we going to say -- I just want to make sure I'm clear -- are we going to say "Since 3/20/90, DG1A and DG1B have been subjected to a comprehensive test program?"

GPC Exh. II-2 at 8. Mr. Bockhold replied, "Yes, you can say that." Id.

167. Mr. Stringfellow understood that the reference to the comprehensive test program was introduced to clarify that the successful starts occurred after the failures, and that the numbers were correct as of April 19 and as of April 9. Tr. 4038, 4040 (Stringfellow). He did not believe

they were providing anything different from what had already been provided to the NRC. Tr. 4041 (Stringfellow).

168. With respect to the number of starts, Mr. Shipman suggested stating greater than 18, consistent with the April 9 presentation. GPC Exh. II-2 at 9. Mr. Bockhold stated that would be good. Mr. McCoy pointed out, however, that it would not be more than 18 on one of them -- it would be 18. Mr. Stringfellow then suggested simply 18. Id.; Aufdenkampe at 8.

169. Mr. Stringfellow believed that the participants in this call had agreed on the accuracy of the revised language which was incorporated into the final LER, based on the assurances that had been provided by Mr. Bockhold. Stringfellow at 7.

170. The language in the LER was not finalized in this call. It was left to Mr. Shipman to modify the draft language along the lines discussed during the conference call and to Mr. Mosbaugh and Mr. Aufdenkampe to complete verification of the language and determine whether another review by the Plant Review Board was necessary. GPC Exh. II-2 at 17-18; McCoy at 15; Aufdenkampe at 9.

6. The Call to Mr. Brockman

171. Mr. McCoy telephoned Ken Brockman to make sure he understood that the numbers presented to the NRC on April 9 had not included problem starts. Mr. McCoy believes that Mr. Brockman replied that the NRC understood that the 1B diesel had experienced problems and failures in the process of coming out of maintenance,[42] and understood that the data Georgia

[42] Mr. Mosbaugh asserts that the failures on the 1B diesel (starts 132, 134 and 136) did not occur coming out

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Power had presented reflected starts after repairs had been made. Mr. McCoy also believes that he discussed with Mr. Brockman the reference that would be made in the LER to the comprehensive test program and confirmed that Mr. Brockman understood what that meant. McCoy at 16; Stringfellow at 9-10; Tr. 4065-67 (Stringfellow). See also GPC Exh. II-2 at 28-29.

172. Mr. Brockman did not appear as a witness, but his interrogatory responses and deposition statements were discussed on the record in some length. Mr. Brockman stated in an interrogatory response that Mr. McCoy did confirm that the 1B diesel generator had experienced problems and failures in the process of coming out of maintenance, and Mr. Brockman understood this. Int. Exh. II-58 at 7. Mr. Brockman understood that after repairs had been made, all the starts were successful and no failures were experienced that required the analysis and repair process to be re-entered or re-initiated. Id. at 8.

173. Mr. Brockman also testified in his deposition that he understood that the diesel testing program consisted of two phases -- an analytical phase and a verification phase -- and he understood the comprehensive test program phase was a reference to the first phase. Tr. 9926, 9928-29 (Mosbaugh). This understanding by Mr. Brockman supports Mr. McCoy's recollection that he discussed what the reference to the comprehensive test program meant. The understanding that it referred to an "analytical phase" is generally consistent with Mr. Bockhold's statement and understanding that the phrase was intended to refer to the logic testing of the diesels.

Footnote continued from previous page

of maintenance. Mosbaugh at 70. As support for this proposition, he refers to a taped discussion of a start list, where Mr. Horton explained that starts 120 to 124 were post maintenance starts. See id; Int. Exh. II-53. Intervenor's assertion is not convincing. The fact that starts 120 to 124 were post maintenance starts does not exclude other starts also from being post maintenance starts. And in fact, in the very list that Mr. Horton was preparing in his own handwriting (Tr. 5957 (Horton)), Mr. Horton also lists starts 127-129, 132-136, and 146 as post maintenance tests. See Int. Exh. II-54 at 2.

Although Mr. Brockman no longer has a specific recollection of what Mr. McCoy told him, we presume that his understanding derives from Mr. McCoy's discussion with him on April 19, because there is no evidence in the record of any other means by which he would have developed this understanding.

7. The Last Conference Call (Call B)

174. Sometime in the late afternoon of April 19, a list prepared by Mr. Webb of diesel starts (hereinafter the "Webb list") was delivered to Mr. Aufdenkampe and Mr. Mosbaugh. Webb at 7; Tr. 13123-25, 13236-27 (Webb). Mr. Aufdenkampe believes that the list may have been delivered to him and Mr. Mosbaugh at the end of the main conference call. Tr. 5567, 5571, 5704-05 (Aufdenkampe) (referring to Mr. Webb's appearance in GPC Exh. II-2 at 16, line 24). The list recorded 32 starts of the 1A diesel and 27 starts of the 1B diesel between March 20 and April 19. GPC Exh. II-71; Tr. 13208-10 (Webb). With respect to the 1B diesel, it identified three problem starts, on March 21, March 22, and March 23.[43] Id. It listed 18 consecutive successful starts of the 1B diesel after the third failure through April 19, but only 14 such starts between the third failure and April 9. GPC Exh. II-71.

175. Mr. Shipman, Mr. Mosbaugh, Mr. Aufdenkampe, and Mr. Stringfellow spoke once again late on April 19 to discuss the final language before it was signed. GPC Exh. II-2 at 22-33.

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[43] A fourth problem start is shown in red ink on GPC Exh. II-71. The writing in red ink, as well as some writing in black ink, is not Mr. Webb's handwriting and was not on the list delivered on the 19th. Webb at 7-8.; Tr. 13208-09 (Webb). Mr. Mosbaugh acknowledged that the writing in ink is his (Mr. Mosbaugh's) handwriting, probably added sometime after April 19. Tr. 5230, 5244 (Mosbaugh). There is some pencil marking at the top of the 1A list, crossing out a note that there were missing logs, which was made by Mr. Webb during the course of the day when he received the missing logs. Webb at 8; Tr. 13208 (Webb).

It is evident that Mr. Mosbaugh and Mr. Aufdenkampe had received the Webb list prior to this call.[44/]

176. Mr. Mosbaugh, Mr. Aufdenkampe, and Mr. Shipman discussed what Mr. Bockhold had said earlier -- that the 18 and 19 starts reported to the NRC on April 9 had occurred after all the sensors had been calibrated, and that they were not counting starts that were part of the return to service of the diesel coming out of overhaul. GPC Exh. II-2 at 22-23. Mr. Shipman explained that what they were trying to show was that after they had recalibrated the sensors and had good set points, the diesels had started and run reliably. Id. at 23.

177. Mr. Shipman asked whether that made sense and whether they could get that data. Mr. Mosbaugh responded, "We have the data." GPC Exh. II-2 at 23. Mr. Mosbaugh stated that the question was at what date and time should they start counting -- that as soon as they got to that point, they could get the count quickly. Mr. Shipman asked Mr. Mosbaugh how to get to that point, but Mr. Mosbaugh did not appear able to help. Id. Mr. Shipman then referred to Mr. Bockhold's statement that the count started after completion of instrument recalibration and

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[44/] On page 23 of the transcript, Mr. Mosbaugh states, "We have the data." GPC Exh. II-2 at 23. Mr. Mosbaugh testified that he thought this statement meant that the data was available in the logs, not that he had a list. Tr. 5208. This interpretation does not appear reasonable, because Mr. Mosbaugh is discussing how quickly the count could be performed if they knew the starting point. GPC Exh. II-2 at 23. It seems very unlikely that he would have made such a statement if the information still had to be collected from the logs. Moreover, a very short time later in the same discussion, Mr. Mosbaugh states that Mr. Aufdenkampe had just told him that there had been a third failure. GPC Exh. II-2 at 25. Mr. Mosbaugh testified that he could never figure out how Mr. Aufdenkampe would have known this. Tr. 5209 (Mosbaugh). The obvious explanation is that Mr. Aufdenkampe and Mr. Mosbaugh had received the Webb list, because the list, as it appeared on April 9, did in fact show three failures on the 1B diesel generator. GPC Exh. II-71. Moreover, on the next page of the transcript, Mr. Aufdenkampe refers to 27 starts. GPC Exh. II-2 at 27. Mr. Aufdenkampe testified that the reference to 27 starts was based on the Webb list. Tr. 4812 (Aufdenkampe). On page 34 of the transcript, even Mr. Mosbaugh admits that they must have been looking at the Webb list. Tr. 5141-42, 5248, 5270, 5294, 5308 (Mosbaugh). Since the taping appears continuous throughout these pages and there is no indication of anybody entering Mr. Aufdenkampe's office to bring them the list, it is reasonable to assume that Mr. Aufdenkampe and Mr. Mosbaugh had received the list before their conversation with Mr. Shipman began.

stated that they could start counting at that point if they could define it. Mr. Shipman, however did not know when that had occurred, but observed that somebody had generated the original data that had produced the 18 and 19 numbers. Id. at 24. Mr. Aufdenkampe identified Mr. Cash as the individual, and Mr. Mosbaugh stated that he would talk to Mr. Cash. Id.; Tr. 4820 (Aufdenkampe).

178. Mr. Shipman also proposed an alternative approach, to report how many starts had occurred since the diesels had been declared operable. GPC Exh. II-2 at 24. Mr. Mosbaugh stated that would be easy to define. Mr. Shipman, however, pointed out that the number would be significantly less than what had been communicated on April 9 and would create a "selling job" for him. Nevertheless, Mr. Shipman stated: "[I]f that's the only way we can tell a valid story that, you know, we can defend if somebody calls Allen Mosbaugh, Bill Shipman and John Aufdenkampe to testify, that's the story I want to tell." Id. at 25; Aufdenkampe at 11.

179. The participants in this telephone conversation proceeded to discuss further Mr. Bockhold's prior explanation of count. GPC Exh. II-2 at 25-27. Mr. Shipman repeated that what Mr. Bockhold was trying to do was to show that once all the bugs had been worked out, the diesels worked fine. Id. at 27. Mr. Aufdenkampe pointed out that was regardless of the point of declaration of operability, and Mr. Shipman agreed. Id. Mr. Aufdenkampe then recommended leaving the statement the way it was -- just saying at least 18 times each. Mr. Aufdenkampe explained that somebody had previously validated the data that Mr. Bockhold presented on April 9, and that the data that they (i.e., Aufdenkampe and Mosbaugh) now had did not bring into question the prior data, but rather tended to support it. Id.; Aufdenkampe at 11; Stringfellow at 9.

Mr. Stringfellow relied on this assurance, believing that the site personnel had the information to determine the accuracy of the statement. Tr. 3987-98 (Stringfellow). Mr. Aufdenkampe, too, believed that he had provided assurance to the corporate office that the LER was correct. Tr. 4682 (Aufdenkampe).

180. Mr. Aufdenkampe asked Mr. Mosbaugh if he disagreed. Mr. Mosbaugh did not reply and Mr. Shipman accepted Mr. Aufdenkampe's recommendation. Id.; Aufdenkampe at 11.[45/]

181. Mr. Aufdenkampe added, "The only issue is, we can't let people be misled, to think that there were not failures . . ." GPC Exh. II-2 at 27. Mr. Shipman pointed out that the LER now stated: "After the 3-20-90 event, that the control system with both engines have been subjected to the comprehensive test program. Subsequent to this test program, diesel generator 1A and 1B have been started at least 18 times each, and no failures or problems have occurred during any of these starts." GPC Exh. II-2 at 27-28. Mr. Mosbaugh then said that the statement "sounds like that is kind of establishing the starting point, you know, at least at the point in time after which we did the UV testing." Id. at 28. This was not a particularly forceful statement.

182. With respect to whether the NRC might be misled, Mr. Shipman replied that Mr. McCoy had just called Mr. Brockman to make sure that they understood the basis for the numbers that Mr. Bockhold had presented on April 9, and Mr. Brockman had indicated that they did. Id. at 28-29. Mr. Mosbaugh did not pursue his comment any further. Aufdenkampe at 12. In

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45/ Mr. Mosbaugh testified that Mr. Shipman interrupted before he could respond to Mr. Aufdenkampe, and in fact over-spoke Mr. Aufdenkampe. Mosbaugh at 54; Tr. 5250-51 (Mosbaugh). A playing of the tape supports this, but nothing prevented Mr. Mosbaugh from interjecting or from responding to Mr. Aufdenkampe after Mr. Shipman had finished speaking. Tr. 5503-06 (Aufdenkampe).

any event, Mr. Shipman understood Mr. Bockhold's definition of the comprehensive test program, which seemed reasonable, and believed (based on Mr. McCoy's call to Mr. Brockman) that the NRC understood the reference. Thus, while Mr. Mosbaugh may have been expressing a preference for a different definition, his statements did not lead Mr. Shipman to believe that Mr. Bockhold's definition or the final LER language was incorrect. Shipman at 9-10; Tr. 10958-60, 10962-63, 11256 (Shipman).

183. Later in the telephone conversation with Mr. Mosbaugh and Mr. Aufdenkampe, Mr. Shipman read the LER statement one more time. No further concerns were expressed about this statement. Mr. Shipman then thanked the site personnel for their efforts. GPC Exh. II-2 at 31-32; Aufdenkampe at 12.

184. At the end of these calls, Mr. Shipman had an understanding, based on what Mr. Bockhold had said, that the completion of the comprehensive test program of the control system was the completion of the sensor calibrations. He also understood that there was a string of at least 18 successful starts without problems or failures after this point. He understood that Mr. Aufdenkampe and Mr. Mosbaugh had received data from Mr. Webb and Mr. Odom which tended to support the statement, and he relied on that assurance. It did not occur to him that it was necessary to define the comprehensive test program in the LER, in part because that level of detail is not typical in an LER and in part because he understood that Mr. McCoy had spoken with Mr. Brockman and the NRC understood what the reference meant. Shipman at 8-10; Tr. 10944, 10954-56, 10961, 11281-82 (Shipman).

185. Based on the input he had received from the site, Mr. Stringfellow also believed that the LER was accurate when it was submitted on the 19th. Stringfellow at 9. Because Mr. McCoy had already spoken to Mr. Brockman to explain the basis for the numbers, Mr. Stringfellow similarly did not believe it was necessary to define the comprehensive test program in the LER. Mr. Stringfellow believed that the NRC would understand what was meant by this term. Id. at 10.

8. Final Discussions At the Site

186. After the telephone call with Mr. Shipman ended, Mr. Mosbaugh and Mr. Aufdenkampe continued to discuss the diesel start statement. Looking at the Webb list,[46/] Mr. Mosbaugh stated that he could not find enough starts. GPC Exh. II-2 at 34. Mr. Aufdenkampe asked Mr. Mosbaugh whether he could not find 18, and Mr. Mosbaugh stated not even close. Id. Mr. Aufdenkampe pointed out that Mr. Bockhold had stated that the comprehensive test program ended after the third trip. Id. Mr. Mosbaugh disagreed, asserting that the undervoltage testing should be part of the comprehensive test program. Id. at 34-35. Mr. Aufdenkampe, however, believed that the count should begin after the sensor calibrations which he understood coincided with the third failure after March 20. Aufdenkampe at 14; Tr. 4804, 5511-14, 5524 (Aufdenkampe). Mr. Aufdenkampe testified that he felt that the ambiguity of the phrase was not significant because it had been discussed with the NRC. Aufdenkampe at 12; Tr. 4826 (Aufdenkampe). He thought there was a good faith basis for the statement in the LER. From the Webb list, he could count at

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46/ As noted earlier, Mr. Mosbaugh admits that he must have been looking at the Webb list at this point. Tr. 5141-42, 5248, 5270, 5294, 5308 (Mosbaugh).

least 18 successful starts of the 1B diesel after the third failure and was therefore comfortable with the statement in the LER. Tr. 4810-11, 5514-15, 5517-18, 5837-38, 5873 (Aufdenkampe).

187. Mr. Mosbaugh and Mr. Aufdenkampe then spoke with Mr. Cash. GPC Exh. II-2 at 36-39. Mr. Aufdenkampe asked Mr. Cash whether he had told Mr. Bockhold about the failures. Mr. Cash replied that he gave Mr. Bockhold "every start that we have done" and stated "I'm not sure if I found the failures." When asked when he started counting, Mr. Cash replied "3-20," and with respect to the 1B diesel, he affirmed that he had counted "every start from the very beginning." GPC Exh. II-2 at 36-37. Mr. Mosbaugh did not ask Mr. Cash whether he had a list. Tr. 5148-49 (Mosbaugh).

188. Mr. Aufdenkampe asked Mr. Mosbaugh, "Where do you want to go with this Allen?" and Mr. Mosbaugh replied, "There's no place to go with it." GPC Exh. II-2 at 39; Aufdenkampe at 14. Mr. Aufdenkampe believed that Mr. Mosbaugh had accepted his reasoning. Aufdenkampe at 14.

189. Mr. Cash's responses to their questions did not indicate to Mr. Aufdenkampe that the LER was inaccurate. Aufdenkampe at 14. Mr. Aufdenkampe was focused on the draft LER -- not the April 9 letter -- and specifically on the number of consecutive starts after the last failure of the diesel through April 19. Aufdenkampe at 12-13; Tr. 4693, 5734-36 (Aufdenkampe). He had the Webb list, which he believed was accurate, and it indicated that there had been many successful starts. Tr. 4682, 4751, 4815 (Aufdenkampe). More importantly, the list showed that there had been 18 starts of the 1B diesel between the last failure and April 19. Tr. 4816

(Aufdenkampe).[42] Therefore, the list did not show Mr. Aufdenkampe that the LER contained a material false statement. Tr. 4691 (Aufdenkampe). He also relied on Mr. Bockhold's assurances, which he trusted. Tr. 4682, 4692, 4698, 4751, 4765 (Aufdenkampe). He was therefore comfortable when the final LER was sent out that it was correct. Tr. 4666, 4693-94, 4821-22. (Aufdenkampe).

9. Submittal of the Final LER

190. The final LER stated:

> Numerous sensor calibrations (including jacket water temperatures), special pneumatic leak testing, and multiple engine starts and runs were performed under various conditions. After the 3-20-90 event, the control systems of both engines have been subjected to a comprehensive test program. Subsequent to this test program, DG1A and DG1B have been started at least 18 times each and no failures or problems have occurred during any of these starts. In addition, an undervoltage start test without air roll was conducted on 4-6-90 and DG1A started and loaded properly.

GPC Exh. II-14 at 6; Aufdenkampe at 9-10.

191. Mr. Hairston was presented with the final LER which included this wording. He was told that it was accurate. It appeared to him to be consistent with what was presented in the April 9 meeting and letter. He therefore signed the LER, believing it to be true and correct. Hairston at 6-7; Tr. 3618 (Hairston). He was not aware that the phrase "comprehensive test program" was undefined and had no reason to question it. Tr. 3625 (Hairston).

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[42] Mr. Aufdenkampe did not consider at the time whether the data that Mr. Webb had supplied contradicted the data that Mr. Bockhold had presented on April 9. Tr. 4820-21 (Aufdenkampe). Mr. Aufdenkampe acknowledges that this is something he should have done in retrospect. Tr. 4824 (Aufdenkampe).

10. Willfulness

192. Similar to his position on the April 9 presentation and letter, Mr. Mosbaugh contends that the April 19 LER contained known false statements intended to mislead the NRC. Tr. 8310-11 (Mosbaugh). As discussed below, he asserts that the diesel start statement in the LER was intentionally inaccurate -- that high level Georgia Power officers and managers knew it was false but nevertheless conspired to submit this false information to the NRC in order to "cover up" the inaccuracy of the April 9 letter. He further contends that corporate personnel conspired to divert him from the main conference call; and that the disputed portion of tape 58 is a "smoking gun" evidencing the conspiracy to submit false information to the NRC.

(a) Whether Corporate Personnel Knew the Statement Was False

193. Mosbaugh asserts that when, during the main conference call on April 19, Mr. Bockhold and Mr. McCoy decided to use the statement from the April 9 presentation, there was at that point a conspiratorial effort -- that Mr. McCoy and Mr. Bockhold knew that it was incorrect. Tr. 5193-94 (Mosbaugh). Mr. Mosbaugh asserts that they intended to make in the LER the same statement that had been made on April 9. Tr. 5193-94, 8324-28 (Mosbaugh). He asserts that Mr. McCoy knew the diesel start statement was false based on the "acknowledgment of SONOPCO people [that] the information [concerning the April 9 letter] had gone up the chain of command and Mr. Aufdenkampe getting word back that Birmingham thinks they made a false statement in the 4-9 presentation." Tr. 5194, 8324, 8328 (Mosbaugh). For essentially the same reasons, Mr. Mosbaugh asserts that Mr. Hairston knowingly submitted false information in the LER. Tr. 8324-25, 8328, 8330-35 (Mosbaugh). See also GPC Exh. II-94 (1st paragraph). In essence, the syllogism that Mr. Mosbaugh attempts to construct is that (1) high level officers and managers

intended to make the same statement as had been made on April 9; (2) high level officers and managers knew the April 9 letter was false; and (3) therefore, high level officers and managers knew the statement in the LER was false.

194. The obvious fallacy in this reasoning is that Georgia Power did not intend to make in the LER the same statement that had been included in the April 9 letter, although they did indeed intend to use the same numbers.[48] Unlike the April 9 letter, the LER statement included a reference to the comprehensive test program to avoid suggesting that there had been no problems or failures after March 20. Mr. Mosbaugh testified that, after the comprehensive test program language was added, it was impossible for him to state with certainty that the final statement was inaccurate. Tr. 5164-65, 5169 (Mosbaugh). Because the corporate office was dependent on Mr. Mosbaugh and his subordinates to verify the statements,[49] it makes no sense for Mr. Mosbaugh to contend that Mr. Bockhold, Mr. McCoy, or anyone else knew that the diesel start statement in the final LER was wrong.

195. In addition to ignoring the difference between the April 9 and April 19 statements, Mr. Mosbaugh overstates the extent of knowledge concerning the inaccuracy of the April 9 statement. Mr. Bockhold, for example, does not recall being told that the numbers were suspect (and in fact he recalls being told that there were higher numbers of successful starts) Tr. 3499-3501,

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[48] Mr. McCoy believed at the time that the number of starts referred to in the LER were intended to refer to starts over the same period as the April 9 letter, and were referring to consecutive successful starts as of April 9. Tr. 3209-10 (McCoy).

[49] Shipman at 10; Tr. 2984 (McCoy); Tr. 3987-88, 3990-93, 4062 (Stringfellow); Tr. 10944, 10970, 11004-05 (Shipman). See also GPC. Exh. II-1 at 62.

3506 (Bockhold). The only question that appears to have been raised to him was the starting point of the count, and the LER statement differed from the April 9 statements in this respect.

196. With regard to corporate personnel, Mr. Mosbaugh testified that GPC personnel acknowledged to him on April 19, before the LER was signed, that they recognized that the 4-9-90 presentation was false with respect to the diesel starts, and that this had been conveyed all the way up the chain of command. Mosbaugh at 48. The record and in particular the transcripts of tapes 57 and 58 do not support such broad assertions. Rather, the record hereinafter discussed in intricate detail merely shows that corporate personnel were aware that there was a concern that the April 9 letter might have misled the NRC into believing that there had been no failures of the diesels after March 20, and that Mr. McCoy took steps to make sure the NRC had not been misled. The inclusion of the phrase "comprehensive test program" in the LER was likewise intended to prevent the statement from being construed as indicating that here had been no failures after March 20.

197. Mr. Mosbaugh testified that Mr. Stringfellow "confirmed to [him] that not only was the LER statement false but the previously transmitted COA response letter statement was false as well." Mosbaugh at 34. See also id. at 48. Mr. Mosbaugh refers to the transcript of tape 57, at page 50. Mr. Stringfellow's statements at that page indicate that he recognized the implications of Mr. Aufdenkampe's remarks, not that he had reached any firm conclusion himself.[50/] At

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[50/] At that point, Mr. Aufdenkampe had told Mr. Stringfellow that he was still struggling with the statement in the draft LER and was still working on it, trying to verify it. GPC Exh. II-1 at 45, 50. Since the site personnel had not yet made up their minds, it is hardly reasonable to attribute a firm conclusion to Mr. Stringfellow. Mr. Aufdenkampe also testified that he was not sure whether the April 9 letter was inaccurate. He cannot remember whether he interpreted the April 9 letter as referring to consecutive starts and was unaware what had transpired during the April 9 presentation. Tr. 5461-64, 5686-87 (Aufdenkampe).

the end of the day, Mr. Stringfellow believed that the final LER corrected the statement in the April 9 letter, and that Mr. McCoy had confirmed that in his call with Mr. Brockman that there had been no misunderstanding concerning the April 9 letter. He therefore did not believe it was necessary to prepare any further correction to the April 9 letter. Stringfellow at 10; Tr. 3986 (Stringfellow); Tr. 4120-22 (Stringfellow). With respect to the statement in the final LER, based on the input he received from the site, he believed it was accurate when it was submitted. Stringfellow at 9.

198. Mr. Mosbaugh similarly testified that Mr. Shipman "recognized . . . not only was the LER statement false but the 4-9-90 presentation to the NRC and the follow-up COA response also presented NRC with false information about the diesel start count." Mosbaugh at 34. Nowhere in the transcript of tape 57 and 58 does Mr. Shipman acknowledge that the April 9 statements were false or that the final LER statement was false. Rather, it appears that Mr. Mosbaugh's assertion is merely an inference from a statement that Mr. Shipman made on tape 57, at page 58 lines 23-25, to the effect "The problem that we got, Allen, is that the data that is in the LER is what George [Bockhold] wrote and took and told to the, Ebneter last Monday in Atlanta." Mosbaugh at 34. See GPC Exh. II-1 at 58. This may be an acknowledgment that Mr. Mosbaugh had raised a concern implicating the April 9 letter, but it is hardly agreement that the April 9 statements were false. Indeed, Mr. Shipman testified that he was aware of the possibility that the draft LER as well as the April 9 letter might have been inaccurate, but he had not concluded that they were false. It was obvious to him that Mr. Mosbaugh did not have all the facts, and he therefore asked Mr. Mosbaugh to check the facts further so that they could determine how to proceed. Shipman at 4; Tr. 10953 (Shipman).

199. Perhaps to downplay the difference in language between the April 9 and April 19 letter, Mr. Mosbaugh also suggests that he told Mr. Shipman that the 18 and 19 numbers were wrong. He testifies that he told Mr. Shipman, "If anybody said there's been this many starts since the site area emergency, well that just isn't true." Tr. 5128 (Mosbaugh). This characterization of what Mr. Mosbaugh said to Mr. Shipman is a misrepresentation of the transcript of tape 57. As recorded on tape 57, Mr. Mosbaugh stated, "if anybody said that there weren't any failures, you know, that's just not true." GPC Exh. II-1 at 58-59. Even Mr. Mosbaugh acknowledges that his concern was that there had been some failures, not that the number of successful starts counted by Mr. Cash was wrong. Tr. 5196 (Mosbaugh).

200. Of course, the possibility of failures sometime after March 20 certainly raised the possibility that the numbers might be wrong, and Mr. Shipman recognized this implication. Tr. 10969 (Shipman). He instructed Mr. Mosbaugh to verify the numbers and he later received assurances that data collected by Mr. Webb was supportive. At the end of the day, he too believed that the statement included in the final LER was accurate. Shipman at 9-10. See also Finding 184 above.

201. Intervenor's assertion that recognition that the April 9 statement was false had been relayed to the highest levels of corporate management is also an inference based on the transcript of tape 57. See Tr. 5194, 5197 (Mosbaugh). There, Mr. Aufdenkampe stated:

> [W]hat Birmingham is thinking now is that they made a material false statement in the April 9th letter.
>
> * * *
>
> Who'd he say? McCoy, Hairston and McDonald are reviewing this now?

GPC Exh. II-1 at 72-73. It is clear from this question, however, that Mr. Aufdenkampe 's information was second hand at least and he did not know who in the corporate office were looking at this issue. Mr. Aufdenkampe had no personal knowledge at the time and he has no specific recollection of this statement today.[51/] Tr. 4792 (Aufdenkampe).

202. Clearly, some level of concern was communicated at the corporate level, but based on Mr. Shipman's testimony, it is very unlikely that corporate officers were told that the April 9 letter had been determined to be a material false statement, because that conclusion had not yet been reached with any reasonable certainty. This is consistent with Mr. McCoy's recollection. Mr. McCoy does not believe that Mr. Shipman told him that inaccurate information had been provided on April 9. Although he does not specifically recall Mr. Shipman informing him that Mr. Mosbaugh had raised a concern regarding the April 9 letter, he believes that Mr. Shipman may have told him that there was a concern that the NRC might not have understood that there were additional problem starts after the site area emergency. McCoy at 16. See also Tr. 2979 (McCoy).[52/] This appears likely, because Mr. McCoy contacted Mr. Brockman to make sure the NRC understood that there had been problem starts as the 1B diesel was coming out of maintenance. McCoy at 16; Int. Exh. II-58 at 7. Mr. McCoy's discussion with Mr. Brockman on April

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[51/] He believes that the person to whom he was referring when he said, "who'd he say" was Mr. Stringfellow. Tr. 4803, 5537 (Aufdenkampe).

[52/] Intervenor refers to a 1990 deposition as evidence of what Mr. Shipman told Mr. McCoy, but this statement is far from definitive. There, Mr. McCoy was asked whether Mr. Mosbaugh told him "in April 1990" that there were false statements contained in the corrective action letter (sic). He replied that he understood that Mr. Mosbaugh brought this up to Bill Shipman -- that he thought what was in the corrective action letter was in error and what was in the LER was also in error -- so as a result a QA audit was performed. Int. Exh. II-97 at 3. It is not clear from either the question or the answer that Mr. McCoy was referring to, or limiting his answer to, communications between Mr. Shipman and Mr. Mosbaugh on April 19. Mr. McCoy has confirmed that this deposition response is vague and that his testimony in this proceeding is more accurate. Affidavit of C. Kenneth McCoy (Nov. 1, 1995).

19 indicated to Mr. McCoy that Georgia Power's presentation and letter had not created such a misunderstanding. McCoy at 16.

203. Like Mr. Shipman, Mr. McCoy may have realized that the existence of failures raised some question about the numbers, but there is no indication that he was ever told that the numbers were wrong. Even if Mr. McCoy did recognize that the numbers had been placed in question, his actions would still appear responsible. During the conference call, he stated that the numbers needed to be verified, received assurance from the Plant General Manager that the numbers had been verified correct by Mr. Cash, and received further assurance from Mr. Aufdenkampe that his staff was again reviewing the operator logs to verify the numbers. GPC Exh II-2 at 8; Tr. 2984 (McCoy). Mr. McCoy left the conference call with the belief that all the issues had been resolved and the individuals involved, including Mr. Mosbaugh, were satisfied. Tr. 3006 (McCoy).

204. At the time the LER was submitted, Mr. McCoy was not aware of any question concerning when the comprehensive test program was completed. While he had only a general understanding of that program, he believed the plant staff knew exactly what the end of the program was, and he had received assurances that the accuracy of the numbers was being verified. McCoy at 14; Tr. 2982 (McCoy). He was not aware of any concerns about the language in the final LER and thought the earlier concerns with the prior draft language had been fully resolved. McCoy at 15; Tr. 2984-85 (McCoy).

205. Mr. Hairston has no recollection of Mr. Shipman ever informing him that the April 9 letter was a material false statement. Tr. 3589 (Hairston).[53] Mr. Hairston believed that the verification of the diesel start statement was prompted by his (Mr. Hairston's) comment on the draft LER, and he does not recall being informed that anyone else had raised concerns about this statement. Tr. 3617-18 (Hairston). He may have been informed that there had been some concern about the count (Tr. 10989 (Shipman)), but when he signed the LER he was assured and believed that it was true and correct. Hairston at 6-7; Tr. 3618 (Hairston).

(b) Whether There Was a Conspiracy to Cover-up the Inaccuracy of the April 9 Statements

206. Mr. Mosbaugh asserts that Mr. McCoy and Mr. Bockhold stated that they ought to use the numbers in the wording that they had developed [i.e., the language in the final LER] because those were the numbers that they had previously presented to the NRC. Mosbaugh at 50. He asserts "the executive management engage[d] in a little conspiracy, deception, to add some look-alike words" and did so to "cover-up" what they had said before on April 9. Tr. 8405-06, 8439, 9958, 10666 (Mosbaugh). See also Tr. 5134 (Mosbaugh)("It didn't seem quite right that there was this desire to use it again in the LER.").[54]

207. It is clear both from the transcript of the April 19 conference call and from Mr. McCoy's testimony, that Mr. McCoy wanted to use the same numbers because he was assured by

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[53] Had he been, the record of his response to other questions about accuracy in NRC communications would strongly suggest that he would have done something about it. For example, when in June he perceived that the start count was changing, he became annoyed and ordered an audit. Hairston at 12-13; Tr. 3678, 9202-03 (Hairston).

[54] Mr. Mosbaugh also states that Mr. Shipman's suggestion that he use "valid starts" was a "strategy to cover up the problem." Mosbaugh at 34. Mr. Shipman denies this allegation emphatically. Shipman at 3-4. He suggested using the valid starts terminology because it might be an alternate, accurate and easily verifiable way of describing the diesel starts, not because he was trying to hide anything from the NRC. Id. at 4. See also Webb at 12.

Mr. Bockhold that those numbers had been verified correct by Mr. Cash after review of the operators' logs. GPC Exh. II-2 at 8; McCoy at 13.[55/] Mr. McCoy recommended using the numbers from the April 9 presentation immediately after Mr. Bockhold informed him that the April 9 numbers had been verified to be correct by Mr. Cash. The transcript does not support any other inference, and we are unwilling to attribute any improper motive to Mr. McCoy on the basis of Mr. Mosbaugh's conjecture.[56/] Even Mr. Mosbaugh appears to admit that one cannot tell whether Mr. McCoy had any improper intent based on his statements during this conference call. Tr. 5197-98 (Mosbaugh). We also find Mr. Mosbaugh's inference inconsistent with Mr. McCoy's other statements and actions. Mr. McCoy stated during the conference call that they needed to be sure that they knew the number of starts after the comprehensive test program. GPC Exh. II-2 at 8. He subsequently called Mr. Brockman to make sure that the NRC had understood that there were failures after March 20 while the 1B diesel was coming out of overhaul. This is not the action of somebody trying to cover-up the inaccuracy of the April 9 letter. Finally, Mr. McCoy informed Mr. Aufdenkampe and Mr. Mosbaugh that they should decide whether another PRB review was necessary. GPC Exh. II-2 at 18. This too is not the act of a person trying to conceal anything.

208. There is likewise no evidence that Mr. Bockhold wanted to use the April 9 numbers for any improper reason. He simply thought that the numbers in the LER and the numbers in the

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55/ Mr. Hairston also does not recall any discussion that it was important for the numbers in the LER and April 9 letter to be the same. Hairston at 7.

56/ Allegations of intentional wrongdoing abounded in the proceeding. The Board recognizes fully the consequences of such a finding on individuals. We do not subscribe to such allegations absent significant hard evidence that it really occurred.

April 9 letter came from the same data. Tr. 3494 (Bockhold). There is no evidence anywhere in the discussion of any need to cover-up any perceived inaccuracy in the April 9 letter.

(c) Whether There Was a Conspiracy to Exclude Mr. Mosbaugh

209. As evidence of his conspiracy theory, Mr. Mosbaugh contends that Mr. Shipman and Mr. Hairston arranged the telephone call with the operator in order to divert Mr. Mosbaugh from the main conference call (call A) addressing the LER. Mr. Mosbaugh asserts that the main conference call was pre-arranged. Mosbaugh at 35. He testified that Mr. Shipman did not tell him about the main conference call and he was not asked to participate in that call. Id. at 48; Tr. 5393 (Mosbaugh). Mr. Mosbaugh maintains that it was unusual (and therefore suspicious) that Mr. Shipman asked Mr. Mosbaugh to arrange the call with the operator that Mr. Shipman went outside the chain of command. Mosbaugh at 48. He also states that Mr. Hairston's personal interest in interviewing an operator also did not make sense. Id. Finally, he testified that when he went to speak to Mr. Swartzwelder and the operators, it seemed like they already knew something about Mr. Hairston's questions, which seemed "funny" to Mr. Mosbaugh. Tr. 5131 (Mosbaugh).

210. Mr. Mosbaugh's theory is not credible for a number of reasons. First, it was not unusual for Mr. Shipman to ask Mr. Mosbaugh for assistance in resolving an issue. Mr. Mosbaugh was the site duty manager that day and Mr. Shipman was the corporate duty manager. The role of duty managers both at corporate and the site often require communication of requests for information across management lines. Shipman at 5-6. This type of request for information does not violate the chain of command philosophy which governs the plant; that philosophy pertains to the direction of activities involving licensed operations. Id. at 6.

211. Second, there is no indication that the main conference call was "pre-arranged." Mr. Shipman has no recollection of any pre-arrangement to resolve the start count issue. Shipman at 5; Tr. 10932-33, 10976-77 (Shipman). Mr. Aufdenkampe recalls that the corporate office called him to go over the comments on the LER. He recalls that Mr. Shipman and Mr. Stringfellow were on this call initially. When they got to the diesel starts statement, Mr. Aufdenkampe arranged to add Mr. Bockhold to the call. Tr. 4794-4801, 5428 (Aufdenkampe).

212. Third, Mr. Shipman never asked Mr. Mosbaugh to participate in the call between Mr. Hairston and the equipment operator, only to try to determine if the operator were available to be asked a question. GPC Exh. II-1 at 55-58; Tr. 10976, 10988 (Shipman). Mr. Shipman testified that he took no steps to divert Mr. Mosbaugh from the main conference call. Shipman at 5; Tr. 10976 (Shipman).

213. Fourth, while it is possible that nobody alerted Mr. Mosbaugh in advance of the main conference call, his subordinate and friend, Mr. Aufdenkampe, who had been even more vocal in raising concerns over the diesel start statement earlier in the day, was certainly informed of the conference call. Thus, there does not appear to have been any attempt to keep the conference call secret.

214. In addition, at the very beginning of the call with the operator, Mr. Hairston mentioned that Mr. Shipman was on another call. GPC Exh. II-2 at 1. While Mr. Mosbaugh imaginatively characterizes this statement as establishing Mr. Hairston's alibi (Mosbaugh at 49), this statement is entirely inconsistent with Mr. Mosbaugh's contention that the corporate office was trying to keep him unaware of the conference call.

(d) The Disputed Portion of Tape 58

215. At some point during the main conference call (after the discussion of the diesel start statement), Mr. Hairston appears to have entered the conference room in which the Birmingham participants were located. Intervenor's version of this heavily disputed portion of the transcript has Mr. Hairston asking "So we didn't have -- didn't have no trips?." According to Intervenor, Mr. Shipman replies, "No, not, not . . ."; Mr. McCoy states "I'll testify to that"; and Mr. Shipman adds "Disavow." Mosbaugh at 36. Mr. Mosbaugh has maintained that these statements are "smoking gun" evidence that management engaged in a criminal conspiracy to conceal safety-related information and intentionally submitted material false statements to the NRC. Tr. 8411-12, 9958-59 (Mosbaugh). He interprets the responses as a suggestion to Mr. Hairston just to lie about the matter -- to deny that they knew about the trips. Tr. 9982-83 (Mosbaugh).

216. Much of the disputed portion of the tape is inaudible, including the statements which Intervenor attributed to Mr. McCoy and Mr. Shipman. See Tr. 3024-25. As an example, the Board asked the court reporter to transcribe the portion of the tape at issue. After multiple playings, the reporter was unable to record either Mr. McCoy's words or Mr. Shipman's words. See Tr. 3021. The disputed portion of the tape did not sound like normal speech, but rather like there was something wrong with the tape recorder. Tr. 3293. See also Tr. 4807 (Aufdenkampe).

217. Mr. McCoy believes that he may have been talking about something else, in a parallel conversation. He cannot make out specifically what is being said, but he is adamant that there would not have been responses to Mr. Hairston's question in the manner suggested by Intervenor's transcript. He testifies that the responses depicted on Intervenor's transcript are out of

character, that he would not have stated "I'll testify to that" (that is not the way he talks) and he cannot imagine Mr. Shipman talking about disavowing anything. He thinks it is far more likely that Mr. Shipman and he were discussing a problem that had occurred that same day with the turbine control valves. McCoy at 15; Tr. 3022, 3027-28, 3030 (McCoy). See also Tr. 2999 (McCoy).

218. Mr. Shipman remembers Mr. Hairston walking into the conversation, asking a few questions, and then leaving. Shipman at 6-7. He cannot recall, however, what was said. He has listened to the disputed portion of the tape and can hear himself saying "No, not not . . ." but does not know whether he was responding to Mr. Hairston or reacting to other statements which can be heard but not understood on the tape. He is confident that he did not say "disavow" or "just disavow." That is not the sort of language he uses. He believes whatever he said would have been consistent with his desire to ensure that the statements in the LER were accurate and that the NRC was not misled. Shipman at 7-8; Tr. 11306 (Shipman).

219. Mr. Stringfellow can hear Mr. Hairston's comment, but does not remember what Mr. Hairston was referring to. Tr. 3957-58 (Stringfellow). Mr. Stringfellow can also hear Mr. Shipman stating, "No, not, not . . ." but cannot tell whether Mr. Shipman was responding to Mr. Hairston or reacting to other statements. Stringfellow at 8; Tr. 3960 (Stringfellow). Mr. Stringfellow recalls that there were several conversations going on at the same time. Tr. 3960, 3964 (Stringfellow). Mr. Stringfellow does not hear Mr. McCoy say "I'll testify to that." He likewise does not hear Mr. Shipman say "disavow" or "just disavow," and finds such an utterance incongruous. Stringfellow at 8.

220. Mr. Aufdenkampe does not recall anybody telling Mr. Hairston that there had been no trips. He testified that if anyone had said such a thing, he and others would have corrected that statement during the discussion. Aufdenkampe at 9; Tr. 5692 (Aufdenkampe). He cannot hear the words "I'll testify to that." Tr. 4807-08 (Aufdenkampe). He likewise cannot make out the word "disavow" despite having listened to the tape tens, if not hundreds, of times. Tr. 4806 (Aufdenkampe). He too thinks that Mr. Shipman could be stating something about "valves." Id.

221. Mr. Hairston recalls a general consensus in wording on April 19, after he returned from Atlanta. Hairston at 6. He has no recollection of being involved in the conference call in which the language in the LER was finalized. Hairston at 7; Tr. 3620 (Hairston). He has listened to the couple of phrases attributed to him on the disputed portion of the tape, and believes that at least one of the phrases is probably him talking, but cannot tell what is being talked about or if it is part of the main conversation or a conversation with somebody else in the room. Tr. 3620-21 (Hairston).

222. The statements that Intervenor attributes to Mr. Shipman and Mr. McCoy simply do not make sense. There is no conceivable reason why they would have told Mr. Hairston that there had been no trip, when Mr. Bockhold had shortly before made it clear that there had been trips but before the start of his count. It is also beyond belief that if these individuals were engaged in a criminal conspiracy, as Mr. Mosbaugh contends, that they would announce it over a conference call where there were so many people including Mr. Mosbaugh. See Tr. 9962-70.

223. We believe that the strongest evidence against Mr. Mosbaugh's interpretation of the disputed portion of the tape is that no witness, including Mr. Mosbaugh has any recollection of

Mr. Shipman using the words "disavow." Although Mr. Mosbaugh states that he has an "independent recollection" of the disputed portion of the conversation (Mosbaugh at 50), it is clear that he does not remember the key statements he now attributes to Georgia Power personnel. He does not remember Shipman stating "No, not, not." He does not remember Mr. Shipman stating "disavow." And with regard to Mr. McCoy, Mr. Mosbaugh simply remembers the word "testify" -- that "he testified or we testified." Mosbaugh at 50; Tr. 5137 (Mosbaugh).

224. More importantly, even in 1990, after he had reviewed the tapes to refresh his memory, Mr. Mosbaugh had no recollection of Mr. Shipman using these words. In the written allegations that he submitted to OI in June 1990, Mr. Mosbaugh made no mention of Mr. McCoy or Mr. Shipman having said anything about testifying that there were no trips or disavowing anything. GPC Exh. II-73A-C; GPC Exh. II-134.[52/] When he was interviewed by OI in July 1990, Mr. Mosbaugh told OI he could not hear what Mr. McCoy said in response to Mr. Hairston's question, and he made no mention of Mr. Shipman saying anything. GPC Exh. II-126; Tr. 9868 (Mosbaugh). Mr. Mosbaugh admits that in September 1990, he may have told Mr. Robinson that he had an independent recollection that Mr. McCoy had stated "Well I testified" and Mr. Shipman had stated "Well, I'll explain" (Tr. 9876 (Mosbaugh)) -- responses carrying no sinister connotation. When he marked up the transcript of tape 58 for OI, after listening to the tape, he again made no mention of Mr. Shipman having said "disavow." Tr. 9887-88 (Mosbaugh). It is not until about May 1991, that Mr. Mosbaugh devised his current interpretation of the tape. Tr. 9889-91, 9960 (Mosbaugh).

[52/] Mr. Mosbaugh testified in his Department of Labor case that before he submitted his June 1990 allegations to the NRC, he listened to the tapes, including tapes 57 and 58, to be sure that his allegations were perfectly accurate. GPC Exh. II-130, ff. Tr. 9909 (DOL Tr. at 289).

225. Mr. Mosbaugh testifies that he "remembers feeling disgusted after this exchange [between Mr. Hairston, McCoy and Shipman] because [he] knew that the top executives were going to ignore [his] notification of the false statements." Mosbaugh at 50. This testimony is simply not credible. If Mr. Mosbaugh could not understand what was being said, as he told OI in July 1990, how could he possibly of been disgusted. And if he did understand it and had such an adverse reaction, why didn't he say anything to his friend Mr. Aufdenkampe, or mention the statements in his initial allegations to OI. And why didn't Mr. Aufdenkampe or anyone else testify that something inappropriate had transpired?

226. The only explanation is that Mr. Mosbaugh's current view is a litigative position that has evolved and hardened over the years. While he may well have come to believe his current interpretation of tape 58, it is simply not supported by any credible evidence. It is inconceivable that Mr. Shipman could have made a suggestion to "disavow" the occurrence of trips (particularly when they were common knowledge) and that nobody remembers such a statement, especially Mr. Mosbaugh who was listening to the discussion with a suspicious mind and recording statements to collect evidence to expose what he believed was an improper attitude. The only reasonable explanation is that Mr. Shipman did not say "disavow" but rather some innocuous word or phrase that did not stick in anybody's mind and which, today, is inaudible.

11. Whether Mr. Mosbaugh Has Clean Hands

227. It is difficult to fault Georgia Power too strongly for the inaccuracy of the LER if Mr. Mosbaugh contributed to its inaccuracy. Both Georgia Power and the NRC Staff contend that he did. The Staff in particular found that Mr. Mosbaugh failed to clarify and verify the starting

point for the count of successful consecutive DG starts reported in the LER. Int. Exh II-60. Georgia Power maintains that Mr. Mosbaugh contributed to the error by failing to inform the corporate office that the data collected by Mr. Webb and statements made by Mr. Cash (i.e., that Mr. Cash had told Mr. Mosbaugh he may not have identified any failures) contradicted Mr. Bockhold's statements on April 19.

228. We recognize that Mr. Mosbaugh initially raised concerns regarding the diesel start statement. We also recognize that other Georgia Power personnel made efforts to identify and communicate questions about the diesel start statement. It cannot be overlooked that Mr. Hairston independently instructed that the statement be verified. Mr. Aufdenkampe was also instrumental in raising the concern about the diesel start statement and communicating it to the corporate office. PRB members, such as Mr. Frederick and Mr. Kitchens, also raised questions about the statement, instructed that the statement be rewritten so as not to suggest that there had been no failures, and directed verification of the numbers.

229. While Mr. Mosbaugh's initial effort questioning the accuracy of the LER was commendable, his subsequent efforts to resolve the matter are less so. Mr. Mosbaugh had the opportunity to elevate his concern, but did not do so. He was also given the responsibility of verifying the diesel start data, received a list that indicated that basis for the LER statement was wrong, was told by Mr. Cash that Mr. Cash had not identified failures, and yet failed to communicate that important information to the corporate office.

(a) Failure to Elevate His Concern

230. Mr. Mosbaugh had the opportunity (during the telephone call with the equipment operators) to speak directly to Mr. Hairston about his concern, but did not. Mr. Hairston is disturbed that Mr. Mosbaugh was on the telephone with him, allegedly had the concern about the diesel start statement, and did not bring it up. Tr. 3561, 3585-86 (Hairston).

231. Mr. Mosbaugh testified that he was skeptical of the statements that were made during the main conference call on April 19. Tr. 5319 (Mosbaugh). Yet, he said nothing on that call. Mr. Mosbaugh explains that continuing to argue about the LER would have been inappropriate and risking insubordination. Mosbaugh at 52.[58/] This sentiment was unfortunate. If Mr. Mosbaugh had stated, on the April 19th conference call, that the LER was not right, we are convinced the LER would have come to a stop right there. See e.g., Tr. 3006 (McCoy). If Mr. Mosbaugh really felt that those numbers were not right, he should have said so. Tr. 3007 (McCoy).

232. Mr. Mosbaugh similarly asserts, with respect to the final conference call, that Mr. Shipman decided to "go with" the LER statement, regardless of whatever else Mr. Mosbaugh might have said. Mosbaugh at 54. Mr. Shipman sincerely believes that if Mr. Mosbaugh had responded to Mr. Aufdenkampe's question with a negative response indicating that the data provided by Mr. Webb and Mr. Odom did not support the final LER, Mr. Shipman would have stopped the release of the LER and corrected the numbers. Shipman at 11; Tr. 10978 (Shipman).

58/ Mr. Mosbaugh contends he did not speak up during the main conference call on April 19 because of his mind set at the time, because he had been previously counseled about his behavior. Tr. 5204-05 (Mosbaugh). This may be an after-the-fact rationalization. Mr. Mosbaugh in fact was not quick on numerous occasions -- and this may be one of them -- to take responsibility. Further, he indicated that he did not become a "non-participant" until after May when Mr. Greene returned to the site, and he actively pursued his concerns through June. Tr. 9828-29 (Mosbaugh).

So would have Mr. Aufdenkampe. Tr. 5523, 5723-24, 5873 (Aufdenkampe). Mr. Mosbaugh could also have recommended further PRB review.

233. As noted above, Mr. Mosbaugh appears to claim that Mr. Shipman prevented him from voicing an objection by over-speaking Mr. Aufdenkampe at a key point. Mosbaugh at 54; Tr. 5250-51 (Mosbaugh). Mr. Mosbaugh, however, was the Acting Assistant General Manager, and if he had a comment affecting the submittal, Mr. Shipman would have expected Mr. Mosbaugh to speak out. He does not believe that Mr. Mosbaugh was cut off. Tr. 10955-56 (Shipman).

234. Most importantly, Mr. Shipman had asked Mr. Mosbaugh to verify the diesel start data and was relying on the site and Mr. Mosbaugh to do so. Tr. 10944, 10967 (Shipman). Mr. Mosbaugh knew this and yet did not communicate to Mr. Shipman the results of the verification effort.

(b) Failure to Inform the Corporate Office of the Implications of the Webb List

235. Mr. Mosbaugh testified that he understood, from the statements that Mr. McCoy and Mr. Bockhold made on the main conference call on April 19, that they intended to use in the LER the same numbers that had come from the April 9 presentation. Tr. 5314 (Mosbaugh). Mr. Mosbaugh therefore understood, at this point in time, that they intended to refer to a number of starts running through April 9. Tr. 5315, 5319 (Mosbaugh). When Mr. McCoy and Mr. Bockhold made the statements which Mr. Mosbaugh understood to indicate that they intended to refer to a number of starts after the completion of the comprehensive test program and before April 9,

it "sounded like a fishy statement" to Mr. Mosbaugh, and now says he thought "they were trying to pull one." Tr. 5319 (Mosbaugh).

236. Because Mr. Mosbaugh recognized that the number of starts referred to in the LER was intended to be based on a count running through April 9, the Webb list should and must have indicated to him that the statement was incorrect, or at a very minimum, the representations that Mr. Bockhold made and Mr. McCoy relied upon, were inaccurate. The Webb list showed only 14 consecutive successful starts of the 1B diesel generator prior to April 9. GPC Exh. II-71. Mr. Mosbaugh in fact appears to have been the only person with all the pieces of the puzzle necessary to firmly recognize the inaccuracy of the LER. He was the only person who both (1) recognized that the LER was intended to refer to counts through April 9, and (2) had a list showing that there were not 18 consecutive successful starts of the 1B diesel prior to April 9. And yet he said nothing.

237. Mr. Aufdenkampe (who was Mr. Mosbaugh's close friend and supporter) was present for Mr. Mosbaugh's testimony on this topic. He had always believed that everybody had believed that the LER was correct when it went out. He realized with genuine dismay for the first time listening to Mr. Mosbaugh that Mr. Mosbaugh knew, on April 19, that the LER was wrong when it went out. Tr. 5874-75, 5880-82 (Aufdenkampe).

238. Mr. Mosbaugh argues that in fact he could not tell that the LER statement was wrong without knowing the definition of the comprehensive test program. Tr. 5201-02, 5205-06, 5316 (Mosbaugh). He therefore states that the efforts of Mr. Odom and Mr. Webb were all for naught.

Tr. 5199-5200 (Mosbaugh).[59/] But there is in fact no definition of the comprehensive test program that would have allowed anyone to count 18 consecutive successful starts of the 1B diesel generator prior to April 9 -- the period that Mr. Mosbaugh understood Mr. McCoy and Mr. Bockhold intended to refer to. Because there were only 14 successful consecutive starts of the 1B diesel on the Webb list between the last failure (March 23) indicated on the list as it existed that day and April 9, no definition of the test program could have yielded a larger count. Tr. 5321-22 (Mosbaugh).

239. Mr. Mosbaugh also claims that he did not have the Webb list until after his final call with Mr. Shipman. Tr. 5294 (Mosbaugh). See also Tr. 5575-76 (statements of Intervenor's counsel). This claim does not appear reasonable. See Finding 174, n.44. In any event, the claim is irrelevant. Mr. Mosbaugh acknowledges that at a minimum he had the Webb list within a minute or a fraction of a minute after his call with Mr. Shipman. Tr. 5308-09 (Mosbaugh). Nothing would have prevented him from calling Mr. Shipman back.

240. If Mr. Shipman had seen the Webb list, he would have recognized that there had not been at least 18 starts as of April 9 contrary to Mr. Bockhold's earlier statement. This would have been significant because it would have indicated that the basis for the numbers, which Mr. McCoy had communicated to Mr. Brockman, was wrong. Shipman at 11-12.

[59/] Mr. Mosbaugh did not tell Mr. Webb and Odom to terminate their review efforts. Tr. 5200. He did not tell anybody (Aufdenkampe, Stringfellow, Shipman) that Mr. Webb and Mr. Odom's review efforts were no longer meaningful. Id.

(c) Mr. Mosbaugh's Responsibility

241. Mr. Mosbaugh does not acknowledge any significant responsibility, fault, or culpability for the inaccuracy of the LER. Tr. 5334 (Mosbaugh). See also Mosbaugh at 54. Rather, he suggests that the corporate office had the formal responsibility for the accuracy of the LER after it was approved by the PRB and sent to corporate. Mosbaugh at 51. There is, however, no procedure or precedent that shifts the overall responsibility away from the site and to the corporate office exclusively. Shipman at 12. Rather, the development of correct data was and remained a site function. Tr. 10971 (Shipman). That the site retained responsibility is evidenced by the consideration late on April 19 whether further PRB review should be conducted. Shipman at 12. The corporate office specifically left it for the site to determine whether further PRB approval was required. GPC Exh. II-2 at 18. More importantly, Mr. Shipman had specifically asked Mr. Mosbaugh to check the data and get the correct information, and Mr. Mosbaugh had taken this on as an action item. See Finding 151 supra. Mr. Shipman expected Mr. Mosbaugh to do whatever was necessary to provide the correct data. Tr. 10967 (Shipman). Mr. Mosbaugh's effort to disclaim any responsibility is therefore not reasonable.

242. Mr. Mosbaugh's attempt to disclaim any responsibility is also inconsistent with the statements that he recorded in 1990. After it was discovered that the LER was inaccurate, Mr. Aufdenkampe told Mr. Odom that they were not divorced from responsibility just because the LER is "word-engineered" by the corporate office. Staff Exh. II-32 (third page). When Mr. Odom relayed to Mr. Mosbaugh what Mr. Aufdenkampe had said -- that he was responsible for anything in an LER -- Mr. Mosbaugh responded, "Right." GPC Exh. II-35 at 4.

(d) Concealment of the Webb List

243. Mr. Mosbaugh's disclaimer of responsibility for the LER is also belied by his actions to diminish and obscure the Webb list. These actions in fact suggest that Mr. Mosbaugh recognized the significance of the Webb list and felt some guilt in not having brought this information forth on April 19.

244. Mr. Mosbaugh did not mention the Webb list in his 1990 written allegations to OI. GPC Exh. II-73A, B, C; Tr. 5280 (Mosbaugh). He specifically alleged that there had been inadequate verification and yet he recalls no discussion with OI in which he alerted OI to the fact that Mr. Webb and Odom had completed a list. Tr. 5281-82. In all of his very lengthy OI interview in July of 1990, he never indicated that Mr. Webb had completed a list on April 19. Tr. 5289 (Mosbaugh). Nor did he mention in his 1990 OI interview that some of the April 19 discussions referred to the Webb list. Tr. 5295 (Mosbaugh).

245. Mr. Mosbaugh believes he later gave the Webb list to OI (the original) among stacks of other documents, but did not call OI's attention to it. Tr. 5231-33 (Mosbaugh).[60/] He did not mention the list to OI, he maintains, because he felt his own list (prepared later) was better. Tr. 5243 (Mosbaugh).

246. Mr. Mosbaugh annotated a copy of the transcript of tape 58 for OI in 1990 or 1991. Tr. 5265 (Mosbaugh). On the portion corresponding to page 34 of GPC Exh. II-2, where after

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60/ We take official notice of Judge Gilday's order in Mr. Mosbaugh's Department of Labor case, which indicates that Mr. Mosbaugh delivered approximately twenty boxes of document to OI in early 1991 to avoid having to produce them to Georgia Power in discovery in his DOL proceeding. Feb. 19, 1991 Order of Administrative Law Judge Gilday in Mosbaugh v. GPC, DOL Case No. 90-ERA-58, cited in LBP-93-11, 37 NRC 469, 470 n.1 (1993).

the final call with Mr. Shipman Mr. Mosbaugh tells Mr. Aufdenkampe he cannot find enough starts, Mr. Mosbaugh noted that "Tom Webb and Odom was working on a list of starts." See GPC Exh. II-72; Tr. 5267 (Mosbaugh). Mr. Mosbaugh did not indicate that the list had in fact been completed and provided to him at this point in time, as he now admits. See Tr. 5270-71 (Mosbaugh).

247. When asked by OI in 1993 what type of verification Mr. Webb had provided, Mr. Mosbaugh responded, "Before the LER went out I'm not aware that Tom Webb completed and verified anything as far as the task he was sent out to do, you know. I got Tom Webb out reviewing their reactor operator logs and counting, that Odom statement. I -- it never -- no knowledge ever came back to me that he had completed his task and that he had verified anything." Tr. 5302 (Mosbaugh). And when OI asked Mr. Mosbaugh whether Mr. Webb had ever completed his verification and produced a verification document, Mr. Mosbaugh obliquely replied: "He never produced a document that verified that what was in the LER was correct, because what was in the LER was false." Tr. 5303 (Mosbaugh). OI tried yet again, asking:

> Q. Did he ever produce a list of starts from the operator's logs, to your knowledge?
>
> A. I recall there being a Tom Webb list at one time, and I can't recall if that was something that he had done preliminarily before the LER went out or -- or it was something that he finished after the LER went out. I do recall there being a Tom W[illegible]. Okay? But I just for the life of me can't -- I can't remember [illegible] was a preliminary list before or list afterwards. But in either case he never produced a list that verified these statements that were made were correct.
>
> Q. Did you ever have in your possession a Tom Webb list?
>
> A. I may have, but I don't know. I just --
>
> Q. Do you remember what you did with it?

A. No.

Tr. 5303-04 (Mosbaugh).

248. When asked by Georgia Power in an interrogatory whether he had ever seen a list prepared by Mr. Webb or Mr. Odom, Mr. Mosbaugh replied that he saw a list but did not know who prepared it, never saw a final list prepared by Mr. Webb or Mr. Odom, and did not have in his custody or control any list he believed was prepared by Mr. Webb or Mr. Odom. Tr. 5296-98 (Mosbaugh); GPC Exh. II-74B at 5. Nor did Mr. Mosbaugh mention the Webb list anywhere in his prefiled testimony. Tr. 5331 (Mosbaugh).

249. He later retrieved a copy from the OI files when they were produced by the NRC in December 1994. Tr. 5218-19, 5234-35 (Mosbaugh). He stated that he wasn't sure what the list was when he retrieved a copy. Tr. 5237-38, 5331-32 (Mosbaugh). He put it in a file of start lists that he was using to tabulate statistical information, but somehow it "fell out." Tr. 5237 (Mosbaugh). Subsequent to Mr. Mosbaugh's having obtained a copy of the list from OI, Intervenor's counsel represented that Intervenor did not have the Webb list. Tr. 4683-84 (Cash). Intervenor was present next to his counsel and took no action to correct this representation. Once he recognized that Georgia Power had discovered the Webb list and intended to question him on it, however, he apparently had no trouble finding that list among his papers and reviewing it before his cross-examination. Tr. 5210-11, 5218-19, 5305 (Mosbaugh).

250. These statements and actions by Mr. Mosbaugh reflect an effort to disclaim and distance himself from the Webb list. They suggest that Mr. Mosbaugh was very much aware of the implications of the Webb list, vis-a-vis his performance. They do not speak well of him.

12. Conclusion

251. For the reasons discussed above, we conclude that Georgia Power did not engage in any conspiracy to submit false information in the LER. The evidence does not support Mr. Mosbaugh's belief that Georgia Power made the false statements intentionally.[61/] Rather, it is clear to us and we find that, with the apparent exception of Mr. Mosbaugh, the Georgia Power managers who finalized the LER on April 19 believed it to be correct when it was submitted.

252. We also conclude that these managers did not act with reckless disregard. Like the April 9 statements, the inclusion of the diesel start statement in the final LER was not an act of callous indifference, where nobody cared or sought to ensure its accuracy. It is clear from the record that a considerable amount of attention and effort to verify the statement was expended before and on April 19. Mr. Hairston instructed that the statement be verified. The PRB directed that the statement be verified. Numerous calls were held to discuss the statement and understand what it meant. Mr. Webb and Mr. Beacher were dispatched to review the logs and expended a number of hours compiling a fairly comprehensive start list. Mr. McCoy called Mr. Brockman to make sure that Mr. Brockman knew about the failures after March 20 and to discuss the reference that would be made to the comprehensive test program. We therefore conclude that Georgia Power personnel were honestly trying to make a correct statement in the LER.

253. To a considerable extent, we find that the inaccuracy of the LER is the product of poor internal communication. At the outset, using the term "comprehensive test program" was a

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61/ We note that inclusion of the diesel start statement in the LER was not required. Georgia Power personnel were just trying to tell the whole story. Tr. 4001, 4021 (Stringfellow). See also Tr. 3638-39 (Hairston). It was not an important statement to the LER. Tr. 5583 (Aufdenkampe).

poor choice, as it had no defined meaning. There was no program called the "comprehensive test program." Rather, the words appear to have been loosely coined to refer to the post-event sensor calibration and logic testing which Mr. Bockhold believed preceded the count, but were susceptible to different meanings.

254. If Georgia Power had been more precise in its terminology and verification efforts, it could in fact have accurately represented in the LER that there had been 18 consecutive successful starts of each of the diesels as of April 19. See GPC Exh. II-15 at 3-4.[62] (This statement would not have cured the errors in the April 9 presentation and letter.) An important lesson from these events is that when a licensee uses language with the NRC that contains terms in a regulatory context, they should use the regulatory meaning of those terms. See Tr. 11278-79.

255. Georgia Power personnel recognize and acknowledge their errors. Mr. Bockhold recognizes and acknowledges that his actions during the main conference call contributed to a lax verification effort, and that he was not careful enough. Bockhold at 14. He believes that his strong assurances that the numbers had been verified misled people and he should not have given such strong assurances. Tr. 3495-96 (Bockhold).

256. Mr. Aufdenkampe also feels considerable responsibility for the inaccuracy of the diesel start statement in the LER. Tr. 4666, 5741-42 (Aufdenkampe). Mr. Aufdenkampe was a sincere witness who impressed us with his honest effort to provide the truth in this proceeding. See Tr. 5541 (statement by J. Bloch). He acknowledged that the verification did not meet his own standards. Tr. 4699, 5616, 5741 (Aufdenkampe). He acknowledges that he should have had a

[62] The 18 starts for the 1B diesel would be starts 137 through 154.

better understanding of the definition of the comprehensive test program. Tr. 5521, 5672-73 (Aufdenkampe).

257. Mr. Shipman too recognizes and admits that mistakes were made. Tr. 11294, 11313 (Shipman) He recognizes that it would have been better to have defined the term comprehensive test program in the LER Tr. 10961 (Shipman). He acknowledges that they were too slow recognizing their errors and fully correcting the prior statements. Tr. 11318 (Shipman).

D. The June 29 LER Revision and Cover Letter

1. Identification of the Prior Inaccurate Statements

258. On April 20, Mr. Webb reviewed a telecopy of the final LER that had been submitted and was surprised by the diesel start statement. His initial reaction, which he expressed to Mr. Mosbaugh, was that it was wrong, and he questioned what was meant by "subsequent to the test program." Webb Rebuttal at 8-9.

259. Apparently prompted by Mr. Webb's remarks and perhaps by some guilt on Mr. Mosbaugh's part over his failure to ensure the accuracy of the LER, Mr. Mosbaugh proceeded to generate a list of the 1B diesel starts using four sets of source documents. Tr. 5211-12, 5148 (Mosbaugh). Mr. Mosbaugh may have used the Webb list during the preparation of his own lists. Tr. 5230 (Mosbaugh).

260. On April 30, Mr. Mosbaugh provided Mr. Bockhold a memorandum attaching his own (not the Webb) listing of the 1-B diesel starts. (Mr. Mosbaugh appears to have made no

mention to Mr. Bockhold of the Webb list.) Mr. Bockhold asked Mr. Mosbaugh and Mr. Kitchens to work with Mr. Cash to agree with the list and then have Technical Support propose changes to the documents as required. On May 2, Mr. Mosbaugh informed Mr. Bockhold that the list had been validated. The list showed that the April 9 presentation, the April 9 letter, and the LER were incorrect. Bockhold at 14-15; GPC Exh. II-107; Mosbaugh at 37; Tr. 9133-34 (Mosbaugh).

2. Initial Actions to Revise the LER

261. Mr. Bockhold requested Mr. Mosbaugh to obtain the correct information and prepare appropriate documentation to be sent to the NRC in order to correct the inaccurate statements. Bockhold at 15; GPC Exh. II-109 at 2.

262. Mr. Webb was directed to prepare a revision to LER 90-006, which he did and which read:

> After the 3-20-90 event, the control systems of both engines were subjected to a comprehensive test program which culminated in control logic tests on 3-30-90 for DG1A and 3-27-90 for DG1B. Subsequent to this test program, DG1A and DG1B have been started 11 times each (through 4-19-90) and no failures or problems have occurred during any of these starts. These included an undervoltage start test without air roll which was conducted on 4-6-90 and DG1A started and loaded properly.

Webb Rebuttal at 10.

263. On May 8, 1990, the PRB approved, with comment, the draft revision of the LER. Aufdenkampe at 16; GPC Exh. II-38. Mr. Frederick asked for clarification concerning the

meaning of the "comprehensive test program." Mr. Mosbaugh provided a rewrite of the revision (GPC Exh. II-170) to address Mr. Frederick's comment. A further revision was made to state that "DG1A had been successfully started 15 times and DG1B had been successfully started 14 times as of 5-14-90, with no start failures." This draft revision was sent to Jack Stringfellow in the corporate office. Webb Rebuttal at 10.

264. Another PRB meeting was held on May 10, 1990. The PRB Meeting Minutes, Mtg. No. 90-67 (GPC Exh. II-39), indicate that the PRB, with Mr. Mosbaugh acting as Chairman, assigned an action item to the General Manager, Mr. Bockhold, to determine how the April 9 letter would be corrected. Mr. Aufdenkampe believed he was instructed to use the cover letter for the revised LER to correct the April 9 letter and that he later discussed that procedure with NRC Resident Inspector Lee Trocine on June 15, 1990, who discussed it with Ken Brockman. Aufdenkampe at 17-18.

265. Mr. Hairston learned, he believes after May 18 that there was an error in LER 90-006. He telephoned Mr. Stewart Ebneter on May 24 and told him about the error and what he understood to be the correct numbers: 14 and 15 for the two diesels. Hairston at 9.

266. Pursuant to Mr. Hairston's direction, Mr. McCoy telephoned Ken Brockman and informed him that there had been an error in the LER and that a revision to the LER would be forthcoming. Hairston at 10; McCoy at 17.

267. Mr. Luis Reyes testified that, when NRC Region II was advised by Georgia Power that the diesel start numbers were incorrect, they revisited the decision to allow Vogtle Unit 1 to

restart. They discussed the diesel starts that the Staff had observed and were satisfied that the restart decision was a sound one. Tr. 15330-45 (Reyes).

268. The draft LER revision was given a low priority by Mr. Stringfellow in the corporate office. He did not view it as something which involved significant public health and safety issues or that required immediate notification to the NRC -- it was an LER revision which did not have a specific deadline. Stringfellow at 11. In addition, Mr. Bailey believed that the LER revision should not be submitted until the issuance of the IIT report. Int. Exh. II-63 at 14-15.

269. On June 11, the draft LER, which had been put into corporate form, was sent back to the site, along with a cover letter, for Mr. Bockhold's approval. Webb Rebuttal at 11. Mr. Bockhold asked that the numbers be updated through June 11. When the numbers were updated, it was also decided to use "valid test" terminology. Mr. Webb thought that this was appropriate because he did not think that referring to the numbers of starts without problems or failures was meaningful. Webb Rebuttal at 11-13; GPC Exh. II-171-R.

3. Mr. Hairston Directs a QA Audit

270. When Mr. Hairston reviewed a draft of the revised LER in this June time frame, he was very irritated to find that the diesel starts numbers, which he believed were then 10 and 12, were different than those he had been given in May. He contacted the site SAER representative and told him he wanted to know what the correct number was and why they were having trouble counting the starts. Mr. Hairston also called Mr. Ebneter again and told him of the further change to the diesel starts numbers, that he had commissioned "QA" to conduct an audit of the

numbers, and that the site Resident Inspector would be provided a copy of the QA report. Mr. Ebneter did not indicate there was a problem or any sense of urgency about the changed numbers. Hairston at 12-13. Mr. Hairston also directed that a similar call be placed to Mr. Brockman, which Mr. Shipman did. Hairston at 13; Tr. 3678, 9202-03 (Hairston); Shipman at 12-13.

271. Mr. Frederick, the SAER Supervisor at Vogtle, received his instructions from Mr. Ajluni and understood he was to determine an accurate and repeatable count. Frederick at 4. He and Mr. Mosely (the lead auditor), collected the completion sheets that are filled out when a diesel is started, and also reviewed the Shift Supervisor's log. The audit, which began on June 11 and was completed on June 28, took longer to complete than was expected because of the difficulty in finding all of the pertinent records. Frederick at 5-6.

272. The audit report included tables listing the starts of the 1A and 1B diesels from March 20 through June 7. GPC Exh. II-15. It concluded that subsequent to the completion of the test program (as defined in the audit report) through April 19, there had only been 10 and 12 successful starts of the 1A and 1B diesels respectively. Id. at 1.

273. Because Mr. Frederick could not determine the definition of "subsequent to the test program" as used in the April 19 LER 90-006, he defined completion of the comprehensive test program as the completion of the operability run pursuant to the Vogtle surveillance procedure. This was the only point he could come up with. His reasoning was that if the diesel were declared operable, it clearly could not be in a test program. Frederick at 6-7; Tr. 4287 (Frederick).

274. The June 29, 1990 SAER audit stated, in part:

> No specific cause for the error in the LER number of 18 starts was identified. However, it appears the major problem was that on April 19, 1990, when the LER was prepared, the Diesel Generator Start Log [maintained by the Engineering Support Department] had not been updated. . . . Therefore, no single source document was readily available for determining the results of diesel start attempts following the Site Area Emergency March 20, 1990, and prior to submittal of the LER April 19, 1990. Also, it appears that confusion about the specific point at which the test program was completed exists. Therefore, successful starts made during the program were counted . . . .
>
> The error introduced in the LER appears to be the result of incomplete documentation. It was determined that on the date of the LER submittal, entries in the Diesel Generator Start Log were not up-to-date. Additionally, data forms generated by the Control Room during each start had not been processed.

GPC Exh. II-15 at 4. Thus, both record-keeping and confusion regarding the end of the comprehensive test program were identified in the SAER (QA) Audit Report as problems leading to the inaccuracy in the original LER. McCoy at 19; Tr. 3070-71 (McCoy).

275. On June 29, Messrs. Hairston and McCoy received and reviewed the SAER report carefully. McCoy looked at the underlying documents and questioned Mr. Ajluni about how the audit was performed. McCoy at 20. After going through the SAER Audit Report tables himself, Mr. McCoy went through it again with Mr. Hairston. Tr. 3213 (McCoy). Using the SAER report's tables, McCoy and Hairston together went through the correspondence and confirmed the start numbers to satisfy themselves that what was in the revised LER was accurate. Tr. 3047, 3213 (McCoy); Hairston at 14. Mark Ajluni explained the SAER Audit Report to them, and they were shown where the end of the then-defined "comprehensive test program" was on the tables in the report. Hairston at 14; Tr. 3679 (Hairston); Tr. 3048 (McCoy).

276. In order to complete the commitments which Hairston had made to Mr. Ebneter concerning the QA report, Hairston instructed his staff to be sure the Resident Inspector at the Vogtle site received a copy of the report. Hairston at 14.

4. Preparation of the Cover Letter

277. While Mr. Stringfellow had initially been assigned to work on the revised LER and cover letter, Mr. Majors took over this assignment shortly before the revised LER was issued.[63/] Tr. 6308 (Majors). Mr. Majors had not had any prior involvement in the preparation of the April 9 presentation or letter or the April 19 LER. Majors at 1. Mr. Majors' principal task regarding the revised LER was to assure that the start numbers reported were accurate and consistent with the SAER Audit Report. Id. He recalls that the majority of his time was spent on the cover letter itself. Majors at 2.

278. Mr. Majors understood that the cover letter for the revised LER was primarily intended to act as a transmittal mechanism. Georgia Power wanted to explain briefly why the diesel start numbers had been changed, even though such an explanation was not required. He also understood that Georgia Power wanted to draw the NRC's attention to the fact that the LER revision affected the April 9 letter. In essence, he understood, the cover letter was intended to

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63/ Mr. Majors cannot remember exactly when he received this assignment, but recalls he worked on it for about a week or perhaps less. Tr. 6315 (Majors). He previously testified that the LER and the revision and its associated cover letter were passed on to him on a Friday, and he actually started working on it on Monday. Tr. 6327-6328 (Majors). Intervenor counsel represented that June 29th was a Tuesday (Tr. 6327), suggesting that Mr. Stringfellow may have only started working on this topic on the 28th. June 29, 1990, however, was a Friday, supporting Mr. Major's recollection that he may have worked on this assignment for about a week. Mr. Majors' OI testimony in 1993 also reflects an assignment beginning Friday, June 22 and ending June 29. Tr. 6327 (Majors).

convey that the diesel start numbers and the revised LER affected the start numbers reported in the April 9 letter and superseded those in the original LER. Majors at 3.

279. Mr. Majors marked up a draft of the cover letter that had been approved by the site on June 11.[64] Tr. 6313 (Majors); Staff Exh. II-57. Working with the Vogtle site as well as corporate office personnel, Mr. Majors revised the cover letter to incorporate comments which he received. Majors at 2. In this role, he had very little technical input into the correspondence. Tr. 3658 (Hairston); Tr. 6291 (Majors).

280. Mr. Hairston was not satisfied with several of the suggested revisions of this cover letter. He told his staff to explain why the revision to the LER was written in a different context (i.e. that different time frames were being used and different kinds of starts --valid tests and failures rather than "successful starts" -- were being counted). Hairston also wanted to try to explain what the number in the April 19, 1990 LER would have been had Georgia Power stated everything correctly relative to the "successful starts" terminology. Hairston at 14-15.

281. The cover letter for the revised LER eventually stated:

> This revision is necessary to clarify the information related to the number of successful diesel generator starts as discussed in the GPC letter dated April 9, 1990 and the LER dated April 19, 1990 and to update the status of corrective actions in the LER. If the criteria for the completion of the test program is understood to be the first successful test in accordance with Vogtle Electric Generating Plant (VEGP) procedure 14980-1 "Diesel Generator Operability Test," then there were 10 successful starts of Diesel Generator 1A

[64] This draft, which had been approved by Mr. Bockhold on June 11, 1990 and sent to the corporate office, stated that the revision was "necessary to correct the information related to the number of Diesel Generator successful starts subsequent to the comprehensive test program as discussed in the original report and our April 9, 1990 letter (ELV-01516)." Tr. 6284-85 (Majors); Int. Exh. II-64 at 6.

> and 12 successful starts of Diesel Generator 1B between the completion of the test program and the end of April 19, 1990, the date the LER 50-424/1990-06 was submitted to the NRC. The number of successful starts included in the original LER included some of the starts that were part of the test program. The difference is attributed to diesel start record keeping practices and the definition of the end of the test program.

GPC Exh. II-16 at 1. These statements were based primarily on the June 29 SAER audit report and used the definition of the test program from that report. Majors at 2.

5. PRB Review

282. Before the revised LER was submitted, a draft of the cover letter worded essentially the same as the final version[65/] was transmitted to the site and was reviewed by the PRB members. GPC Exh. II-44. The PRB approval was obtained by polling the PRB members by telephone because they could not be assembled. Id. at 25; Horton at 2. In these conversations, Mr. Mosbaugh expressed concerns that the cover letter was not complete and accurate with respect to the cause of the error in the April 19 and failed to explain the April 9 letter. GPC Exh. II-44. The PRB members did not accept Mr. Mosbaugh's concerns. See generally GPC Exh. II-44.

283. When the June 29 letter was submitted, Mr. McCoy called Mr. Brockman to inform him of the submittal and explain the revised LER. He also directed Mr. Bockhold to discuss the revised LER with the NRC Resident Inspector. McCoy at 18.

65/ The only difference was that the last sentence of the first paragraph of the draft stated, "The discrepancy is attributed to diesel start record keeping practices . . . ", whereas the final letter stated, "The difference is attributed to diesel start record keeping practices . . ." Compare GPC Exh. II-16 with Int. Exh. II-64 (page 8). See GPC Exh. II-44 at 25.

6. *The Inaccuracy or Incompleteness of the June 29 Cover Letter*

284. The NRC Staff has determined that Georgia Power's June 29 cover letter was inaccurate in three respects: (1) in failing to include information regarding the April 9 letter to clarify the April 9 start count; (2) in erroneously attributing diesel generator record keeping practices as a reason for the differences reported in the April 19 LER and the June 29 revised LER; and (3) in failing to state that the difference between the diesel generator start counts was due to personnel errors. Matthews, Skinner, Hood at 5-6.

285. Georgia Power recognizes and accepts the criticism that the cover letter did not clarify how and why the April 9th letter was inaccurate. McCoy at 19. Georgia Power also admits that the June 29 cover letter was also not complete in identifying all contributors or causes of the April 19 LER's inaccuracies. Georgia Power recognizes and agrees that the letter is incomplete because it did not identify personnel errors as root causes for the difference in the start counts reported in the original and revised LER. McCoy at 21; Tr. 3685 (Hairston).

286. Georgia Power does not agree that its identification of record-keeping was inappropriate. Georgia Power does not deny that if Mr. Cash had applied the right definitions and made the right assumptions, he could have (fortuitously) derived the correct number of successful consecutive starts prior to April 9 (as the NRC Staff took great pains to demonstrate). Georgia Power nevertheless maintains that record keeping practices were a factor in the inaccuracies in Georgia Power's April 19, 1990 correspondence for other reasons.

287. First, the incompleteness of the diesel start log prompted Mr. Bockhold to obtain a review from Mr. Cash rather than Mr. Stokes who, based upon the record, would have been more familiar with the sequence and timing of the diesel testing, the specific terminology used to describe the testing, and the various sources of documentation generated in connection with routine starts and the special testing. Tr. 4414 (Cash). In short, Georgia Power believes that if the diesel start log had been up-to-date in the first week in April (when the transparencies were being prepared), there would never have been the need for Mr. Cash to have poured over the logs and to have applied judgments in interpreting the entries.

288. Second, the absence of the updated log made it difficult and time consuming to verify the LER statement on April 19. NSAC personnel had to generate a new list and did not complete this task until late on the 19th. If a single log listing all the starts had been available at the outset of the discussions on the 19th or earlier, it is probable that the conversations that occurred that day would have been more specific and constructive, and an incorrect statement might have been avoided.

289. The NRC Staff Coordinating Group and the Office of Enforcement do not appear to have considered what effect the absence of the diesel generator log may have had on the verification efforts on April 19, because the Webb list had not been brought to their attention.

290. Mr. Aufdenkampe testified about the impact which the availability of the Diesel Start Log would have had on events of April 19. More information would have been available, such as Completion Sheets, and a fuller discussion of the diesel start numbers could have occurred. Mr. Aufdenkampe believes he would have had a more questioning attitude about Mr. Bockhold's

representations that the April 9th presentation data was verified correct if he had the Log rather than a tabulation of data compiled from control logs. As he said in June, 1990 in a taped conversation, the lack of the Diesel Start Logs may not have been the cause of the LER error, but it would have been a cure for it. Aufdenkampe at 19-20.

291. Even without knowledge of the verification effort on April 19, the NRC Staff has acknowledged that record-keeping practices may have contributed to violations as the events unfolded. Staff Exh. II-51 at 2. Accordingly, we can draw no negative inference from Georgia Power's expression of this belief.

7. Willfulness

292. Intervenor argues that Georgia Power knew or should have known that the cover letter to the June 29th revision to LER 90-006 contained inaccurate statements or incomplete statements. More specifically, he asserts that Mr. Hairston and Mr. McCoy knew better than what was included in the June 29th cover letter. Tr. 9704-9705, 10391 (Mosbaugh). He attaches some significance to his belief that Mr. Hairston and Mr. McCoy personally wrote the last sentence in the letter attributing the difference in numbers to record-keeping and the definition of the end of the test program. Mosbaugh at 58. He apparently infers wrongdoing from the mere fact that communications occurred between Mr. Majors and Mr. Hairston. and also from "a pattern of events surrounding the same information, [and] the need to continue a coverup . . ." Tr. 9710-11 (Mosbaugh).

293. Mr. Mosbaugh also infers that the inaccuracies in the June 29 letter were willful based on a number of additional factors: (1) that neither Mr. Bockhold nor Mr. Cash mentioned to him that Mr. Cash had compiled a list which Mr. Mosbaugh claims had been copied and distributed on site and in corporate (Mosbaugh at 56); (2) that responsibility for the revised LER and cover letter were reassigned from Mr. Stringfellow to Mr. Majors (id.); (3) that the corporate staff had earlier developed a different opinion as to the cause of the error; and (4) that there were multiple draft versions of the cover letters (id. at 57). Based on questions asked by Intervenor's counsel, it also appears that Intervenor attaches significance to the fact that the QA audit was a "narrow scope" audit. Upon examination of this evidence, it is apparent that Mr. Mosbaugh sets a very low, if non-existent, threshold for drawing inferences adverse to Georgia Power's character. None of these arguments or inferences are persuasive.

(a) Mr. Hairston's and Mr. McCoy's Knowledge

294. Mr. Mosbaugh appears to infer that Messrs. Hairston and McCoy were aware of the concerns that he had expressed on June 29th to Mr. Greene and to Mr. Majors. However, the record in this proceeding does not establish that any concern was ever conveyed to Mr. Hairston or to Mr. McCoy. Mr. Hairston testified that, to his recollection, neither he nor Mr. McCoy were aware on or about June 29th that Mr. Mosbaugh had raised a concern that the June 29th cover letter did not properly clarify the April 9th letter, was incomplete or inaccurately stated the relationship between the original and revised LERs. Tr. 3671, 3689, 9215 (Hairston).[66/] We have no reason to disbelieve Mr. Hairston.

66/ Mr. Majors does not have a recollection of discussing a June 29th telephone call between himself and site

Footnote continued on next page

295. Mr. Mosbaugh also attaches some significance to Mr. Major's statement, on June 29, that the sentence in the letter relating to the reasons for the differences between the original and revised LER was a "George and Ken McCoy designed sentence." See Mosbaugh at 58; GPC Exh. II-44 at 21.

296. Mr. Majors recalled that the last sentence of the first paragraph explaining differences was "designed" by Hairston and McCoy in the sense that one or both of them would say that an issue had to be addressed or that some additional words should be inserted in the cover letter that were consistent with the Audit Report. Tr. 6273-74 (Majors).

297. Mr. Hairston recalls Majors was taking comments on the June 29 letter. Tr. 3657 (Hairston). Mr. Hairston only has a general recollection of reviewing revisions and attempting to put down information consistent with Mr. McCoy's understanding. Mr. Hairston acknowledges that this sentence explaining differences could have well been written by himself or Mr. McCoy. Tr. 3684-85 (Hairston).

298. Mr. McCoy thought that the June 29, 1990 correspondence clarified the diesel generator start information that had been provided in the April 9 letter because the June 29 submittal specified a precise point for the start count and provided an accurate count after that point using NRC regulatory terminology. McCoy at 19. Mr. McCoy does not recall how the particular sentence about the reasons for the differences between the April 19 LER and the revised LER was

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personnel with corporate office personnel. He acknowledged that he might have had such discussion if Mr. Mosbaugh had independently brought concerns to him. Tr. 6259-60 (Majors). The June 29 call with the site, however, was not a call that Mr. Mosbaugh placed to Mr. Majors, but rather a PRB discussion leading to PRB approval of the letter.

designed, but does recall that the sentence was an attempt to state what had been concluded from the corporate office review of the SAER Audit Report. Tr. 3070 (McCoy). He had conducted a very careful review of that report and had confidence in it. The report made sense to him. McCoy at 20.

299. Mr. Hairston on June 29 thought that different people had counted the starts on April 19 than on April 9, and both came up with the same raw data. Hairston at 16. Therefore, Mr. Hairston too thought Georgia Power was fulfilling its obligation to correct the April 9th start count with the cover letter. Tr. 3761-62 (Hairston). He also had reviewed the SAER report carefully and felt that the SAER group had determined why the numbers of successful starts changed. Tr. 3678 (Hairston).

(b) Failure to Identify the Cash List

300. Mr. Mosbaugh finds it significant that neither Mr. Bockhold nor Mr. Cash mentioned the "Cash list" in late April, 1990. Although this proceeding has established that a list existed, was in typed form and stored on a word processor, no evidence has been presented that that this list was ever copied and distributed around the plant site or sent to the corporate office as Mr. Mosbaugh asserts. Compare Mosbaugh at 56 with Findings 100-106 supra.

301. In any event, when Mr. Mosbaugh brought his April 30 memorandum to Mr. Bockhold, Mr. Bockhold instructed Mr. Mosbaugh and Mr. Kitchens to have Mr. Cash work with Engineering to agree with the list. GPC Exh. II-107. Therefore, Mr. Bockhold can hardly be accused of trying to keep Mr. Mosbaugh from learning how the April 9 errors were made. Nor

can Mr. Mosbaugh claim that he was being kept in the dark. Mr. Kochery had informed Mr. Mosbaugh on April 11 that Mr. Cash had the data supporting the April 9 presentation. GPC Exh. II-108 at 32-34. For these reasons, the inference that Mr. Mosbaugh draws in clearly inappropriate.

(c) Assignment of Responsibility to Mr. Majors

302. Another "inference" drawn by Mr. Mosbaugh is that Mr. Majors, in lieu of Mr. Stringfellow, was assigned to process the revised LER to cover up the earlier April 19th LER falsity. Mosbaugh at 56; Tr. 9718 (Mosbaugh). Mr. Mosbaugh speculates that this reassignment was made so that Mr. Hairston would be able to put words in the revise LER or cover letter without having somebody knowledgeable like Mr. Stringfellow there to contradict him. Tr. 9720 (Mosbaugh). He also suggests that this was a way of "insulating" Mr. Hairston. Tr. 9721 (Mosbaugh).

303. Neither of these suggestions appears credible or reasonable. The draft cover letters for the June 29 revised LER, including the final cover letter, were provided to the site for review, and the final version was reviewed by the PRB members. See GPC Exh. II-44; Webb Rebuttal at 13-14. It is therefore obvious that the draft letters were sent to many people who might challenge wording in the draft letters, including Mr. Mosbaugh. See GPC Exh. II-44. The obvious implication is that comment was sought, not avoided. Further, we cannot surmise how Mr. Major's assignment would have "insulated" Mr. Hairston from any responsibility.

304. Mr. Mosbaugh acknowledged that he did not have enough facts to determine whether Mr. Majors was assigned to the task because he was more objective (due to lack of prior involvement) or to remove the more knowledgeable Mr. Stringfellow from involvement. Tr. 9719-21 (Mosbaugh). Similarly, in July, 1990, when interviewed by OI, Mr. Mosbaugh saw nothing too unusual in the shift of assignment from Mr. Stringfellow to Mr. Majors. Tr. 9726-27 (Mosbaugh); GPC Exh. II-121 at 244-45. The only new substantive knowledge which he gained from July, 1990 until this proceeding which he could readily identify as supporting his inference was the fact that Mr. Majors was assigned the LER revision on a Friday and it was issued, he thinks, on the following Monday.[67] Mr. Mosbaugh, however, is incorrect about this timing, and in any event we do not understand how this timing supports the inferences that Mr. Mosbaugh is now willing to make.

305. Moreover, the record demonstrates that the reason for Mr. Major's assignment is totally innocent and much more ordinary. Mr. Stringfellow testified that he was involved up to a May 31, 1990 version of the revised LER and associated cover letter. Tr. 4117 (Stringfellow). He believes, based upon his review, that his workload was too much and the task was simply given to Mr. Majors. His other assignments included some 20 or so letters with the majority having due dates (several of them replies to NRC Notices of Violations). Tr. 4043

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[67] Mr. Mosbaugh is wrong; June 29, 1990 was a Friday. If Mr. Majors was assigned on the Friday before, a normal work week would have transpired with the revision correspondence under his responsibility. Mr. Majors testified that he did not remember the specific date that he was assigned the work, but that he worked on it for about a week or maybe less. Tr. 6315-16 (Majors).

(Stringfellow). It is entirely possible that Mr. Stringfellow asked Mr. Majors to help complete the revised LER correspondence. Tr. 4045 (Stringfellow).[68/]

(d) Differences in Prior Drafts

306. Intervenor's next inference is based upon the large number of revised LER cover letters and the alleged falsity of their statements. The record does reflect that over six different draft cover letters to the LER revision were prepared between June 11, 1990 and the final June 29th cover letter. Int. Exh. II-64; Tr. 6288-89 (Majors); Staff Exhs. II-56, II-57. Mr. Majors believes that a flurry of activity associated with these drafts occurred on June 29th. Tr. 6311 (Majors). Mr. Mosbaugh testified that, on the basis of statements made by Tom Webb, Mr. Hairston changed at least three drafts and Mr. Shipman changed one. Mosbaugh at 57. But he acknowledged that he did not know which drafts were prepared by Mr. Hairston, Mr. Shipman and others except to the extent that Mr. Majors stated in his conversation with Mr. Greene that specific sentences were designed by Mr. Hairston and Mr. McCoy. Tr. 9760-61 (Mosbaugh). He also acknowledged that the various revisions, assuming Mr. Shipman and Mr. Hairston were involved, could have been attempts to make sure the cover letter contained an accurate explanation and they were simply dissatisfied with earlier drafts. Tr. 9761-62 (Mosbaugh).

307. The only reservation Mr. Mosbaugh expressed in this regard was that the final language was determined by the NRC to be inaccurate or incomplete. From this result alone he

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[68/] Mr. Majors could not recall exactly how the reassignment occurred but did not think it strange that he would be placed on the task even though Mr. Stringfellow had been working on it previously and had more information. Tr. 6308-09 (Majors).

would infer that Mr. Shipman and Mr. Hairston would be satisfied with inaccurate or incomplete information. Tr. 9761-62 (Mosbaugh).

308. The Board finds this inference simply too attenuated. The multiple revisions of the cover letter could be viewed equally as attempts to assure accuracy in the correspondence. See Tr. 6297 (J. Bloch).

(e) Prior Statements of the Corporate Staff

309. Mr. Mosbaugh also infers that the June 29 letter was willful based on recorded statements of Mr. Rushton, Mr. Bailey and Mr. Aufdenkampe concerning the reasons for the errors in the April 19 letter. Mosbaugh at 56. He states that they would have had knowledge of the reasons for the errors because "they were all identified as being on the 4-19-90 call that finalized the LER." Id.

310. Mr. Bailey was not on the April 19 call. He was on vacation in Hawaii at the time. Mr. Mosbaugh knew this when he submitted his testimony. Tr. 9734-45 (Mosbaugh); GPC Exh. II-123; GPC Exh. II-199. We therefore find Mr. Mosbaugh's testimony dishonest in this regard. Mr. Rushton too was not on the April 19 call. GPC Exh. II-200. While Mr. Aufdenkampe was on the April 19 call, there is no indication that he had any involvement in reviewing the June 29 letter. Tr. 4661 (Aufdenkampe).

311. In addition, the transcribed statements of Mr. Bailey and Mr. Rushton to which Mr. Mosbaugh refers are not statements reflecting personal knowledge or understanding of the reasons for the April 19 error. Rather, in the transcript cited by Mr. Mosbaugh (Int. Exh. II-63), Mr.

Bailey and Mr. Rushton called Mr. Mosbaugh and Mr. Aufdenkampe trying to understand how the errors occurred. See Int. Exh. II-63 at 8. Mr. Aufdenkampe told Mr. Rushton and Mr. Bailey that he wasn't sure if anybody had the whole story. Int. Exh. II-63 at 8. Mr. Mosbaugh told them he had no idea what Mr. Bockhold's basis was for the data that he presented to the NRC. Id. at 9. Mr. Aufdenkampe eventually told Mr. Rushton that he should just tell Mr. Hairston that "we plain old screwed up." Id. at 12. These statements are certainly not sufficient for either Mr. Bailey or Mr. Rushton to have developed an appreciable understanding of the reasons for the errors in the April 19 LER. It is very unlikely that they would have disbelieved the findings later made in the SAER report because of this earlier conversation.

312. As yet another adverse factual inference, Mr. Mosbaugh contends that Mr. Bailey confirmed that Georgia Power was motivated to delay the submittal of the revised LER. Mosbaugh at 57. Intervenor's transcript of a June 8, 1990 conversation between Messrs. Bailey and Rushton (in the corporate office), and Messrs. Mosbaugh and Aufdenkampe (at the plant site) shows a hesitancy on Mr. Bailey's part to transmit the revised LER. The hesitancy, however, is that Mr. Bailey perceived Georgia Power "still confused about these numbers" and also wished to wait for the issuance of the IIT before revising the LER. Int. Exh. II-63 at 14-15. We see no improper motive in these statements. Mr. Bailey in fact agreed with Mr. Aufdenkampe that the original LER should be corrected as expeditiously as possible. Int. Exh. II-63 at 15. See also Tr. 9759-60 (Mosbaugh).

313. Moreover, the theory that Georgia Power was motivated by delay, presumably as some part of a scheme to cover up the prior errors, is inconsistent with the notifications that

Georgia Power provided to the NRC concerning their discovery of errors. Mr. Hairston called Mr. Ebneter twice. Mr. McCoy called Mr. Brockman on one occasion and Mr. Shipman called him on another. Mr. Aufdenkampe called the resident inspector. See Findings 264-66, 270 above. These are simply not the acts of individuals bent on concealing errors.

(f) Narrow-Scope Audit

314. Finally, Intervenor appears to place some significance on the fact that the SAER audit was "narrow-scoped" rather than "broad" scope. See, e.g., Tr. 14914. The meaning of this phrase has been misconstrued by Mr. Mosbaugh. A narrow scope audit is simply one that addresses specific questions or issues, as contrasted with the periodic broad scope audits that SAER performs to examine entire programmatic areas. Tr. 4194 (Frederick). Consequently, "narrow-scoped" does not imply that within the audit area something was excluded. It does not mean a narrow review of the issue assigned to the SAER group. Tr. 3631-32 (Hairston).[69/]

8. Implications of the PRB Review

315. Mr. Mosbaugh's prefiled testimony makes little mention of the conversations among PRB members on June 29 (see Mosbaugh at 55-59), despite the fact that these discussions led the NRC to issue demands for information to a number of individuals. It is therefore not clear whether Mr. Mosbaugh contends that the conduct of these individuals reflects so negatively on Georgia Power's character that license transfer should not be permitted. Nevertheless, our review of the evidence indicates it does not.

[69/] Mr. Hairston does not recall attaching any significance to the references to "narrow-scope" in the Audit Report. Tr. 3632 (Hairston).

(a) Mr. Horton

316. At the outset, we note that Mr. Horton was never interviewed by OI. See Int. Exh. II-39A. Nor is there any indication that the NRC Staff ever spoke to Mr. Horton before issuing the Demand for Information to him. We find this disturbing and inconsistent with our notion of fairness. We found Mr. Horton to be a very honest, open and forthright witness.

317. We also note that Mr. Horton was only a participant in a limited portion of the telephone calls in which PRB members discussed the cover letter on June 29. See GPC Exh. II-44 at 1-8. Moreover, during that discussion, Mr. Horton was the individual who initially raised questions concerning language in the June 29 letter. The discussion that ensued with Mr. Horton appears to us as an effort to resolve Mr. Horton's concern (though Mr. Mosbaugh clearly interjects). We therefore do not think it reasonable to conclude that Mr. Horton was remiss in failing to take personal responsibility for Mr. Mosbaugh, who after all was more senior and had been Mr. Horton's superior.

318. The initial conversation during the telephone calls to PRB members was with Mr. Horton. Mr. Mosbaugh and Mr. Frederick were in Ms. Tynan's office when Mr. Horton was called. Horton at 2. Mr. Horton was annoyed with the last sentence in the first paragraph of the June 29, 1990 cover letter and disagreed with it, because to him the statement implied that the Diesel Start Logs of his Engineering Support Department were being maintained in a deficient manner. Horton at 3; GPC Exh. II-44 at 1. Ms. Tynan and Mr. Frederick explained to Mr. Horton that Mr. Hairston may have written the last sentence himself; Mr. Horton's response was that he would withdraw his comments and defer to Mr. Hairston's knowledge. GPC Exh. II-44 at 1-2.

319. Mr. Horton testified that actually he did not defer to Mr. Hairston's judgment in this exchange, and that at this early point in the conversation he wasn't satisfied, despite his stated comment "withdrawal." Tr. 5910-11 (Horton). The transcript of the conversation indicates that Mr. Frederick sensed that Mr. Horton was not satisfied. GPC Exh. II-44 at 2. Mr. Frederick therefore engaged Mr. Horton and explained to him that the Engineering Support Department's diesel log was not up to date on the day the LER was written. Id. at 2. Mr. Mosbaugh interjected on several occasions asserting that this was irrelevant because the diesel generator logs were not used. Id. Frederick explained that people had not used an out-of-date log; the reason the NRC was provided erroneous information was because no log was available to use. Id. at 3. Mr. Mosbaugh challenged this statement, again asserting that the problem was not that they did or did not use the diesel generator log, but that the persons who had performed the count made mistakes. Id. at 4. Mr. Frederick responded that if the log had been up-to-date, the persons who performed the count would not have had to go to other sheets of paper. Id. Mr. Horton stated that he did not disagree. Id.

320. Mr. Horton testified that as this conversation progressed, he began to understand the position Mr. Frederick was taking: the diesel record keeping practices being faulted were not related to the quality or accuracy of the diesel start log, but rather with the timing of the updates. Horton at 4. Mr. Horton continued to argue for a while, expressing his understanding that the prior start counts had been based on adequate research but were just poorly done. Id. at 5. At the end, after listening to Mr. Frederick's reasoning, he advised the PRB secretary that he didn't see the sentence as a material false statement and that it could be included in the cover letter. Id. at 6-7.

321. Mr. Horton explained that in retrospect it would have been better to state that human error was also a reason for the prior problems with the start count. Tr. 5948-49 (Horton). At the time, however, the discussion with Mr. Frederick led him to believe that human error and the record-keeping practices were related -- that record-keeping had led to the human error. Mr. Frederick's explanation made sense to him, and he did not see the need to identify multiple, primary and secondary, causes in the cover letter. Horton at 5; Tr. 5913, 5949-51 (Horton). Identifying human error was "only touching the surface" of the issue. The conditions that caused that person to make the mistake he did" were what Mr. Horton was viewing as another, deeper level of a determination of root cause. Horton at 5, Tr. 5913 (Horton). In sum, Mr. Horton ultimately agreed with Mr. Frederick's analysis and logic. Horton at 5-6.

322. Mr. Horton acknowledged that in retrospect he did not adequately resolve the concerns Mr. Mosbaugh raised on June 29th, and that he was not diligent in addressing all concerns that were expressed in this June 29th conversation. Tr. 5941-42 (Horton). At the same time, he believes that his conduct on June 29th was diligent in resolving the issue of why the error was made on the LER. Tr. 5942 (Horton). He continues to believe that "record keeping practices" as expressed in the June 29 cover letter explain Georgia Power's failure to provide accurate start counts to the NRC. Tr. 5944, 6043, 6045, 6055 (Horton); Horton at 6.

323. Mr. Horton was candid during questioning at the hearing about his emotions and responses in this June 29th conversation. The June 29, 1990 conversation recorded by Mr. Mosbaugh and Mr. Horton's explanations demonstrate to the Board that Mr. Horton did not knowingly approve the inclusion of false or inaccurate information in the cover letter to the

NRC. The tape transcript reflects that Mr. Frederick provided a strongly-voiced, reasoned opinion for the explanation of the cause of the error in the original LER, and personally ascribed truth to his position. As he told Mr. Horton, "I think, Mike, we're unwilling to face the truth if we don't say that the fact that we didn't do our recording keeping right probably caused us to make the mistake." GPC Exh. II-44 at 5. Although raising concerns, Mr. Mosbaugh clearly failed to provide detailed, factual support for these concerns to Mr. Horton and did not identify a particular underlying reason of personnel error, notwithstanding his participation in the LER's development. GPC Exh. II-44 at 4.

(b) Mr. Greene

324. After speaking with Mr. Horton, Mr. Mosbaugh, Mr. Frederick and Ms. Tynan called Mr. Greene. See GPC Exh. II-44 at 9. Mr. Greene testified, and a transcript of the June 29, 1990 conversation confirms, that he did attempt to address concerns raised by Mr. Mosbaugh when initially called on the telephone by Ms. Tynan.[70/]

325. In the first recorded exchange with Mr. Greene, Mr. Mosbaugh stated:

> [T]his particular cover letter assigns a -- attributes a reason to the errors, and whereas that statement may be correct, it is certainly not complete as to the cause of our making these mistakes and providing inaccurate information.

70/ Mr. Horton's telephone discussions with Messrs. Mosbaugh and Frederick in Ms. Tynan's office were completed prior to this call.

GPC Exh. II-44 at 10.[21] Mr. Frederick took issue with the assertion and stated that he did not know what other root cause Mr. Mosbaugh meant. Id. at 11. In an effort to discuss the matter more effectively, Mr. Greene requested that Messrs. Mosbaugh and Frederick, who were later joined by Messrs. Webb and Odom, come to Mr. Kitchens' office rather than discuss the matter over the telephone. Id. at 12; Greene at 4.

326. Upon assembling in person, Mr. Greene solicited Mr. Mosbaugh's concern about the statements in the cover letter. GPC Exh. II-44 at 14. Through questioning, Mr. Greene elicited Mr. Mosbaugh's "bottom line" that the cause for the LER being submitted on April 19th was due to personnel error, carelessness and negligence. Id. at 16. Mr. Greene then appears (the tape is partly inaudible) to have confirmed from Mr. Mosbaugh that only the last line of the cover letter was of concern. Id. at 16-17.

327. Mr. Mosbaugh represented to Mr. Greene that the misinformation in the original LER started with Jimmy Paul Cash and, therefore, the pertinent question was "why did Jimmy Paul Cash make a mistake?" Mr. Mosbaugh then represented that Mr. Cash's error propagated through Tom Webb and the NSAC group because "they assumed that the information was correct and then just added on to it for extra days." GPC Exh. II-44 at 18. Messrs. Webb and Odom took issue with Mr. Mosbaugh's factual representations, stating that in the last day or two before the LER was ready to go to the NRC, "we started scrambling trying to find numbers that we could rely on" and went through the control room logs. Id. at 18. Mr. Odom also explained that

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[21] Mr. Mosbaugh also expressed a concern that a May 8th PRB-approved draft LER revision had a different basis than the June 29th draft LER because of a difference in the way the comprehensive test program had been defined in each. GPC Exh. II-44 at 12. Since there is no dispute that the definition in the June 29 letter was a permissible one, this issue is not discussed further in these findings.

in this effort it couldn't be told in a lot of cases what was going on. Id. at 19. When asked why the diesel generator log had not been used, the response was that it was not useable. Id. at 18.

328. After hearing these statements by Mr. Webb and Mr. Odom, Mr. Greene asked: "[b]ased on that why is the statement incorrect[?] . . . don't you think we've got a poor [record keeping] practice?" GPC Exh. II-44 at 19. Mr. Odom responded that they had always had difficulty obtaining diesel start information. Id.

329. Mr. Majors joined the call at about this point. GPC Exh. II-44 at 19. With respect to the record-keeping sentence, he explained that it was referring and trying to summarize the findings of the audit report -- that "there is no single document readily available for determining the results of diesel starts." Id. at 21.

330. Mr. Greene proposed a minor change to the sentence -- that the word "discrepancy" be changed to "difference." GPC Exh. II-44 at 21. Mr. Greene stated that he really felt that something needed to be included in the cover letter that was useable. Id. at 25. Mr. Greene stated that the sentence was "as reasonable a way of explaining . . . the differences that he could think of" and that Mr. Mosbaugh "ha[d] to admit that." Id. at 26.

331. At this juncture Mr. Mosbaugh did not state any further disagreement with the particular sentence, but Mr. Greene did not expressly ask whether Mr. Mosbaugh's concerns have been resolved. Instead, Mr. Mosbaugh stated that the cover letter was incomplete in not fully addressing the April 9 letter. GPC Exh. II-44 at 26-27. In response, Mr. Greene asked Mr. Mosbaugh to "[t]ell me how you would change the letter." Id. at 27. Mr. Mosbaugh responded that

the cover letter only explained references to the comprehensive test program, and that the April 9th letter did not use such words. He then asked Mr. Greene a series of questions, "how did we make that mistake [in the April 9th letter]?"; "[h]ow was that false?"; "[w]hy was that false?" Id. After listening to further discussion between Messrs. Webb, Mosbaugh and Frederick, Mr. Greene asked further questions, including "[w]hat do you [Mr. Mosbaugh] think the cause was?" Mr. Mosbaugh responded by saying, "I don't know . . . you're trying to ask me to state why somebody else made mistakes, okay, and I don't know how to do that. I took the same set of information and got right numbers."[72/] Id. at 28. Mr. Greene then decided that he had the information he needed. Id.

332. Mr. Greene testified that he ultimately relied upon the statements of those in the conversation who clearly articulated prior events (Messrs. Webb and Odom and the SAER supervisor, Mr. Frederick) to assure that the LER and its associated cover letter were accurate. Greene at 4-5. Mr. Greene clearly solicited any resolution which Mr. Mosbaugh had, asking him to explain how he would change the cover letter on several instances. Mr. Greene felt that Mr. Mosbaugh did not specifically answer his questions. In contrast, Mr. Frederick's explanation of the counts were very concrete, very specific, and very factual. Tr. 6822, 6881, 6887, 6889 (Greene).

72/ Mr. Mosbaugh goes on to state that he took the shift supervisor's log, the unit control log, and completion data sheets and got right numbers. Mr. Cash, in developing start counts for the April 9th presentation, did not use completion data sheets. Cash at 3. On April 19th, Mr. Webb did not use completion data sheets. Webb Rebuttal at 6. Mr. Mosbaugh also misrepresented to Mr. Greene that starts were just added on to Jimmy Paul Cash's start count and that the verification effort of Messrs. Odom and Webb occurred after the LER was sent to the NRC. GPC Exh. II-44 at 18. Mr. Greene was apprised of this latter factual inaccuracy based on comments from Messrs. Webb and Odom. Tr. 6818 (Greene). Greene sensed that Mr. Mosbaugh was defensive in several instances during their conversations, that the changes that were being made on June 29th were reflecting on something he had previously done. Mr. Greene testified that he was trying to be very careful not to place blame on anything Mr. Mosbaugh had done. Tr. 6817 (Greene).

333. With respect for the completeness of the LER revision cover letter in addressing the earlier April 9th letter, Mr. Greene was informed that the April 9th statement was believed on April 19th, and was put in the LER. GPC Exh. II-44 at 27. As a result, Mr. Greene thought that both letters were wrong for the same reasons. Therefore, Mr. Greene believes that he acted reasonably in accepting the position presented to him -- that record keeping practices had caused the error in both April statements to the NRC. Greene at 6.

334. By the end of the meeting, Mr. Greene believed that Messrs. Frederick, Webb and Odom agreed with the content of the revised LER and had no problems with it. Tr. 6755 (Greene). Mr. Greene also believed that Mr. Mosbaugh had accepted the conversations' conclusions and had been provided answers to the concerns which he had raised. Tr. 6734 (Greene). In hindsight, Mr. Greene acknowledges that he does not believe that Mr. Mosbaugh left the conversation with the feeling that Mr. Greene had satisfied his concerns. Tr. 6730 (Greene). Although he was trying to get to the truth and find out what was happening and he was responsive in the way that he sat down and went through the issues with Mr. Mosbaugh, Mr. Greene testified that he did not completely understand Mr. Mosbaugh's position. Tr. 6733 (Greene).

335. Mr. Greene acknowledged that he could have done more on June 29 by reviewing the underlying data and by further pursuing Mr. Mosbaugh's concerns. Tr. 6730, 6733 (Greene). Due to his lack of personal knowledge concerning the underlying matter, he relied too heavily upon the results of the SAER audit as conveyed to him, and the knowledge of individuals who had studied or been directly involved with the matter, including Mr. Mosbaugh and Mr. Frederick. Greene at 3; Tr. 6730, 6775 (Greene).

(c) Mr. Frederick

336. Although Mr. Frederick did not draft the cover letter transmitting the revised LER, he reviewed drafts during its preparation. He personally observed different start numbers being generated in the April through June time frame by different individuals. On June 8, 1990, at a PRB meeting, he expressed the view that the diesel start numbers in the original LER were incorrectly included because of various problems/confusion with the surveillance and operator logs and the trending information recorded by Engineering Support. GPC Exh. II-47 at 5 (item I); Tr. 4167-70 (Frederick). His participation in the audit confirmed his initial belief that record keeping was a major contributor to the original LER's error. Frederick at 10-11. SAER auditors knew on or about June 12th (within the first couple of days of their audit efforts) that the available logs were not the appropriate way to count successful starts. Tr. 4314 (Frederick).

337. On June 29, Mr. Frederick understood that Mr. Mosbaugh felt that the draft cover letter was not completely true, but he did not know what Mr. Mosbaugh was attempting to identify as an underlying personnel error. Frederick at 11. Mr. Frederick believed, as reflected by his recorded statements, that Georgia Power had to admit the fact that record keeping practices were not right or else Georgia Power would be avoiding the truth. Frederick at 11; GPC Exh. II-44 at 2 ("If it's the truth, it's the truth."); at 5 ("[W]e're unwilling to face the truth if we don't say that the fact that we didn't do our recordkeeping right probably caused us to make the mistake"); and at 6 ("There's nothing false in there"). In these tape-recorded conversations, others concurred with Mr. Frederick's view that documentation historically had affected verification efforts. Frederick at 12; GPC Exh. II-44 at 18-19.

338. Mr. Frederick did not feel that the conclusions on "root cause" being drawn by the corporate office representatives from the SAER report were illogical, unsupported or inappropriate. He did not think that the letter that was about to be submitted to the NRC contained a false statement. Tr. 4183-84 (Frederick).

339. Mr. Frederick acknowledged that Mr. Mosbaugh explicitly told him that personnel error was a factor in the April 19th LER. Tr. 4185 (Frederick). But Mr. Frederick thought that the underlying cause went beyond somebody making a mistake. Based on training, he understood that underlying problems should be identified that cause someone who typically is a reasonable, well-trained individual to make an error. Tr. 4182, 4185 (Frederick). Because of the lack of documentation in one location, he could not conceive how anybody accurately counted starts before April 19th because no one knew where all the starts were documented. If the diesel start log had been up-to-date, individuals would not have had to go to the Completion Sheets or the control room logs. Frederick at 11.

(d) Mr. Majors

340. Mr. Majors was connected to the call with Mr. Greene toward the end of the call (see GPC Exh. II-44 at 19) and thus was not a party to most of the discussion. He did hear Mr. Mosbaugh express the opinion that different numbers were obtained not because of any change in record-keeping practices but because they had failed to count accurately in the beginning. Id. at 23. Mr. Majors responded that the QA report said that part of the problem was that the person who performed the count had no single source document and could have been misled by counting from a wrong log or combination of logs. Id. at 23-24. He stated that the sentence was

consistent with the QA audit report. Id. at 24. Mr. Mosbaugh made no further statements about this sentence while Mr. Majors was on the phone. See id. at 24-26.[73/]

341. Mr. Mosbaugh did provide another comment to Mr. Majors -- that the cover letter did not explain the differences or errors in the April 9 letter. GPC Exh. II-44 at 24. Mr. Majors, however, was not even aware that there were errors in the April 9 letter. Id. at 25.

342. Mr. Majors testified that he did not knowingly provide false information in the June 29 letter. Majors at 7. He did not include personnel errors as a cause in the LER because he understood the QA report to indicate that record-keeping had led to the personnel error. Majors at 6. This seemed very reasonable to Mr. Majors because he too had had difficulty counting starts from the records that he saw while he was working on the revised LER.[74/] With respect to the need to identify errors in the April 9 letter, he simply did not recognize that there had been an error.

343. It is clear from the transcript that Mr. Majors was relying on the QA audit report and had little personal knowledge of the underlying events. While he heard some of Mr. Mosbaugh's comments, he also obtained PRB members' approval of the letter after the call. See GPC Exh. II-44 at 25. He testified that if he had understood that there was something erroneous, he would have attempted to correct it before he ever took the letter to officers for execution. Tr. 6275 (Majors).

73/ Mr. Majors leaves the call at page 26 of the transcript.

74/ As the SAER group on site was putting together the Audit Report, records were faxed to Mr. Majors from the site. Using those records, he made a count and later found out that he had made a mistake. Tr. 6253 (Majors).

9. Conclusion

344. Based on the evidence above, we find that the inaccuracies in the June 29 letter were not willful. First, there is no evidence that Mr. Hairston or Mr. McCoy knew that the statements in the June 29 letter were inaccurate. Rather, it is clear that they relied on the findings of the QA audit report and they believed that the June 29 letter was complete and accurate. McCoy at 18-21; Hairston at 15-18;

345. Nor did they act recklessly. Mr. Hairston's order of an independent audit by the SAER group was a significant action. Tr. 14916-17 (Hood). He intended for that audit to determine why Georgia Power was having trouble getting the correct numbers and why Georgia Power was having trouble counting starts. He received an audit that had explanations and, by focusing on the explanations which sounded reasonable, he included explanations in the draft cover letter. Tr. 14918-19 (Hood); Tr. 14923-24 (Skinner). Mr. McCoy and Mr. Hairston reviewed the report with considerable care. They communicated with the NRC. Mr. Hairston directed that the audit report be provided to the NRC. Hairston at 14; Tr. 3759 (Hairston). The cover letters that were being drafted were provided to the site for review and the final version was approved by a polling of PRB members. See Finding 282 supra.

346. We likewise conclude that there was no willful wrongdoing by other individuals who reviewed the June 29 letter before it was issued. They too relied on the audit report's findings and believed that the June 29 letter was complete and accurate. Bockhold at 16; Frederick at 11-12: Majors at 3-8; Greene at 3-8; Horton at 7; Webb at 14-15. While Mr. Mosbaugh argued on that day that record-keeping was not a factor, Mr. Greene can not be faulted too much for his

decision after both Mr. Webb and Mr. Odom informed him of the difficulty they had on April 19 trying to verify the start count.

347. Our conclusion does not imply that the judgments of these individuals were correct or that they were successful in considering Mr. Mosbaugh's comments as they could or should have been. They were not, and Georgia Power recognizes this fact. Mr. McCoy reviewed the conversation in which Mr. Greene attempted to resolve Mr. Mosbaugh's concerns regarding the June 29 LER cover letter. Tr. 3258-61 (McCoy). Mr. McCoy acknowledged that Mr. Mosbaugh expressed his concern and, if somebody had taken that concern -- "taken ownership for it" -- it could have been resolved. In Mr. McCoy's view, that was a fundamental problem with any error in the June 29th letter; nobody took ownership for getting Mr Mosbaugh's concern resolved. Tr. 3261 (McCoy).

E. Georgia Power Company's August 30, 1990 Letter to the NRC

1. The NRC OSI Team Leader's Request

348. In August, 1990 the NRC assembled a team to assess Vogtle's operational philosophy and to review several allegations.[75/] The "OSI" inspection consisted of two teams, one of which was to consider the allegations and was assisted by the NRC's Office of Investigations. One allegation they were looking into, identified orally near the beginning of the inspection, was the issue of the number of diesel starts reported to the NRC in April, 1990. During the course of the

75/ Mr. Mosbaugh had supplied the NRC with numerous allegations in the June-July 1990 time frame. GPC Exhs. II-73 A, B and C.

inspection, the OSI team interviewed Messrs. Cash and Bockhold on the record relative to the diesel starts issue. McCoy at 22-23.

349. On August 17, Georgia Power personnel attended an exit meeting with the OSI team and the team leader. The team leader informed Georgia Power that the team had concluded there were no intentional errors in the diesel generator starts reported in April. The OSI team leader suggested that Georgia Power should consider submitting a letter to clarify the April 9 letter. He suggested that Georgia Power submit an explanation for the record, and Mr. McCoy made a commitment to do so. Tr. 3223 (McCoy). Mr. McCoy recalled the team leader's comments:

> We have investigated this, and we have concluded that there was no intentional misrepresentation of data, and the only thing that needs to be done is to clear the record to get exactly what occurred correct in the record because there are several previous letters that do not have the correct information.

Tr. 3098 (McCoy).

350. The OSI team leader had explained to Mr. McCoy that the NRC was comfortable that there was no confusion among NRC personnel about the data. However, he indicated that the NRC believed there was confusion about the start-related terminology in the April 9th letter relative to regulatory guidance definitions.[76/] Tr. 3097 (McCoy). According to Mr. McCoy, the OSI team leader did not ask Georgia Power to explain why Georgia Power believed the April 9th letter was inaccurate. Tr. 3098 (McCoy).[77/]

76/ We observe that the OSI team leader's comments may be a reflection of the question Mr. Matthews asked Georgia Power on April 9 -- he had wanted an explanation of how "successful starts" compared with valid tests, but did not receive one. Tr. 14791-92 (Matthews).

77/ Mr. McCoy's understanding is also bolstered by the NRC Staff's analysis of the August 30 letter which ap-

Footnote continued on next page

351. On August 23, 1990, Mr. McCoy called Mr. Brockman and discussed the diesel starts and the causes of the prior inaccuracies. McCoy at 23, Tr. 3223 (McCoy). Mr. McCoy also called him again on August 28 to discuss the clarification letter to be submitted. McCoy at 23.

2. Preparation of the Clarification Letter

352. The PRB convened to discuss a draft of the August 30th letter initially on August 28, 1990 in the early afternoon. See Staff Exh. II-7. Mr. Greene chaired this meeting, which was attended by Messrs. Aufdenkampe and Horton as voting members, and Mr. Frederick as a non-voting member, among others. More time was determined necessary to allow research on the data to be included in the letter's attached tables and the Board decided to convene the next day to further review the letter. Id.

353. In the afternoon of August 29, the PRB reconvened. See Staff Exh. II-8. As with the meeting the day before, Messrs. Greene (as Chair), Horton, Aufdenkampe and Frederick were in attendance, among others. The PRB reviewed the proposed tables to the draft letter, prepared by Mr. Horton. The Board made substantive comments regarding specific diesel starts, including the insertion of "trip during testing" with respect to starts 158 through 161 of the 1A diesel. In addition, the Board concluded that start number 134 of the 1B diesel should not be classified as a successful start. The Board scheduled another meeting for August 30th to review a final version of the letter and attached tables. Id.

Footnote continued from previous page

pears to acknowledge that had Georgia Power omitted from the August 30 letter the inaccurate portion (i.e., the explanation of the cause of the error), the letter would have accomplished its purpose and satisfied the NRC. Staff Exh. II-50 at 17-18.

354. On the morning of August 30, 1990 the PRB met again to review the draft clarification letter. In addition to Messrs. Greene, Aufdenkampe, Horton and Frederick, attendees included Mr. Bockhold, Mr. Odom, Mr. Mosbaugh and Mr. Brian Bonzer, the NRC Resident Inspector for Vogtle. See Staff Exh. II-9. The meeting minutes reflect that the only item reviewed by the PRB was the draft clarification letter.

355. The PRB edited the August 30 clarification letter and provided substantive comments on the classification of specific diesel starts in the attached tables. Tr. 5784-85, 5807 (Aufdenkampe). Mr. Mosbaugh tape recorded the August 30 PRB meeting. See Staff Exh. II-19; Int. Exh. II-68. Although the transcript of this tape, for the most part, is not disputed, the Board concluded that, in this case, it was important to listen to the tape to discern the tone, tenor and inflection of voices.

356. During the August 30 PRB meeting, Mr. Bockhold suggested substantive revisions to the August 30 letter. The draft letter stated that "the errors in the April 9th letter and the original LER appear to be the result of two factors . . . ". Mr. Bockhold proposed changing "errors" to "confusion." Staff Exh. II-9, at 2; Staff Exh. II-19 at 3. After Mr. Bockhold suggested that the word "errors" be changed to "confusion," unidentified PRB attendees apparently questioned use of the word "confusion" more than once in two successive sentences. Staff Exh. II-19 at 3. In response, Mr. Bockhold stated:

> I mean, English-wise, it's better to mix up the words, than to be technically correct. Say you're an engineer and you use the same

> term over again. Good thing you're an engineer and not an English major.[78]

357. On August 30, 1990, Georgia Power submitted the clarification letter requested by the NRC. GPC Exh. II-18. It provided a background of historic events dealing with diesel generator start numbers and tabulated the diesel starts which had occurred from March 20 to April 9, 1990 for each Unit 1 diesel generator. The letter also included the following statement:

> The confusion in the April 9th letter and the original LER appear to be the result of two factors. First, there was confusion in the distinction between a successful start and a valid test. For the purpose of this letter, a start was considered successful when the DG was started and either ran or was intentionally shut down due to testing in progress, as identified on the attached tables. Our use of the term "successful" was never intended to imply a "valid successful test" in the context of regulatory Guide 1.108. Many start attempts were made to test the DG's 1A and 1B using applicable operating procedures. These procedures and data sheets do not contain criteria for determining if a start is successful which resulted in determinations of success which were inconsistent with the above definition. Second, an error was made by the individual who performed the count of DG starts for the NRC April 9th letter.

GPC Exh. II-18.[79]

3. Georgia Power Believed The August 30 Clarification Letter Adequately Addressed the NRC's Request

358. Because different people interpreted words in prior letters differently, Georgia Power decided to include with the letter the comprehensive tables of all the relevant start information,

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[78] The initial version of this Tape 184 transcript, agreed to between Georgia Power and the NRC staff, stated " . . . then to be technically correct...." Mr. Bockhold testified that the word "then" should be "than." Bockhold Rebuttal at 15.

[79] The term "successful starts" used in the August 30 letter was defined by Mr. Horton in August. Tr. 5959 (Horton). Mr. Horton explained that it was not a "legalistic" definition in the sense that it did not comport with Regulatory Guide 1.108. Tr. 5959 (Horton). Mr. Horton testified that a "common sense approach" to defining "successful starts" was used as a result of feedback Georgia Power had received from NRC that prior communications with the NRC were unsatisfactory. Tr. 6137 (Horton).

and let the facts speak for themselves. Tr. 3098 (McCoy). Although Mr. McCoy did not believe the NRC had asked for the information, Georgia Power also included in the August 30 letter its understanding of the cause of the error. Tr. 3097-98 (McCoy). Other managers also understood that the letter attempted to provide an explanation why the information provided in April was not correct. Tr. 6860 (Greene); Tr. 6130-31 (Horton).

359. Mr. Bockhold understood, like Mr. McCoy, that by providing all the start information in tabular form -- no matter what confusion might have previously existed -- the NRC could count the diesel starts under any definition. Tr. 6431 (Bockhold); Tr. 3167 (McCoy). The PRB Chairman, Mr. Greene, believed that by appending such tables to the August 30th, Georgia Power corrected the April 9th letter. Tr. 6902 (Greene).

360. Mr. McCoy, who signed the August 30, 1990 letter, believed that it accomplished the purpose of responding to the NRC team leader's request. He believed it presented an accurate count and defined, with tables, what was represented by that count. Tr. 3168-72 (McCoy). He also believed at the time that the letter accurately and completely explained the reason for the error in the April 9 letter. Tr. 3225 (McCoy).

361. Mr. McCoy explained that he did not believe it was necessary to initiate any explicit interview of Mr. Cash or Mr. Bockhold with respect to the error in the April 9 letter. He had a clear Audit Report that indicated to him what the problems were and, based upon his review of the Audit Report, had understood how an operator like Mr. Cash could make errors. He did not feel that there was anything to be gained by going back and trying to investigate that aspect of the underlying events. Tr. 3104 (McCoy). At the time, Mr. McCoy believed that the NRC had

done a very thorough review of the matter, and he had reviewed the team leader's conclusions, which reinforced his own conclusions. Tr. 3106-07 (McCoy).

362. On September 24, 1990, Mr. McCoy called Mr. Brockman and discussed the August 30 letter. Mr. Brockman indicated that the NRC had all the information it needed and understood what had occurred. McCoy at 25.

4. The NRC Staff's Position

363. The NRC Staff takes the position that

> GPC failed to provide complete and accurate information to the NRC in the August 30, 1990, letter in two instances regarding the reasons for the April 9 errors: (1) the August 30, 1990 letter inaccurately stated that the errors in the April 9, 1990, letter and presentation and the April 19, 1990, LER were caused, in part, by confusion in the distinction between a successful start and a valid test, even though Mr. Bockhold had admitted that Mr. Cash was not confused about the distinction when he collected the data; and (2) the August 30, 1990, letter was incomplete in attributing the error in the April 9, 1990 letter and presentation and the April 19, 1990 LER to an error by the individual who performed the count in that the letter failed to also identify personnel errors by Mr. Bockhold that also contributed to the problem.

Matthews, Skinner and Hood at 6. The Staff further concluded that Georgia Power did not intentionally provide inaccurate, incomplete or misleading information in the August 30 letter. Id. at 11.

5. Intervenor's Arguments Concerning Wrongdoing

364. Mr. Mosbaugh alleges Georgia Power individuals knew or should have known that information contained in the August 30 letter was inaccurate or incomplete and that the motivation involved "wrongdoing." Tr. 10389-90 (Mosbaugh). More specifically, Mr. Mosbaugh believes that "people" in Birmingham knew or should have known that the August 30 letter contained inaccurate information, while Mr. Bockhold at the site knew or should have known that it had inaccurate or incomplete information. Tr. 10393 (Mosbaugh).

365. Mr. Mosbaugh alleges that several events or actions provide a reasonable basis for inferring that the inaccuracy and incompleteness of the August 30 letter was purposeful and essentially designed to "cover up" the true underlying problems experienced by Georgia Power in developing the April 9th letter. Tr. 10394-95 (Mosbaugh). The evidence which Intervenor points to as the basis for this allegation is (1) the August 30 letter was developed from the "top down," (2) Mr. McCoy made a public statement which contradicts the August 30 letter, and (3) Mr. Bockhold engaged in inappropriately "steering" of the PRB on August 30 concerning the language of the letter.

(a) "Top Down" Development of the August 30 Letter

366. Mr. Mosbaugh claims the August 30th letter was developed in a "top down" fashion; that is, drafted in Birmingham and then presented to the site for review and approval. He states that Mr. Bockhold also attended the PRB meetings for the review of the August 30th letter. Mosbaugh at 59. We interpret these assertions as stating that corporate management

inappropriately exercised control over the language in the letter to the exclusion of other site personnel and that it was inappropriate for Mr. Bockhold to attend the PRB meeting.

367. The record demonstrates that a substantive contribution to the August 30 letter, both in terms of the letter itself and its tables, was made by the PRB. Staff Exhs. II-7, II-8, II-9. Mr. Horton developed the tables, and the PRB extensively edited the letter. Given this participation of plant managers and the PRB, we see no basis to infer that corporate management was attempting to control the wording of the letter as Intervenor suggests.

368. Mr. Bockhold's attendance at the August 30 PRB meeting was not a typical occurrence. Tr. 11474-75 (Handfinger). However, Mr. Greene did not view Mr. Bockhold's attendance as inappropriate because Mr. Bockhold had been much more involved in the April 9 events than others. Moreover, Mr. Greene believed that Mr. Bockhold, as General Manager, could get as involved as he felt was appropriate. Tr. 6841-42 (Greene). Cf. Tr. 13788-89 (Kitchens). We find that Mr. Bockhold's attendance at the August 30 PRB meeting, in and of itself, was not unreasonable especially given his direct knowledge of the April 9 events. Mosbaugh at 59-60.

(b) McCoy's Allegedly Inconsistent Statements

369. Mr. Mosbaugh contrasts the August 30 letter with a public statement which quotes Mr. McCoy. Mosbaugh at 60. The public statement, selectively excerpted in Mr. Mosbaugh's testimony, states that employees who gathered the diesel start information for the April 9 presentation used data from the operators' loss and that:

> Operators consider a test "successful" if the diesel generator starts up. Based on that, the operators logged these start attempts as

> successful for both generators. But a subsequent review of an engineer's log showed that some of the start up tests did, in fact, have problems or failures after operating for a period of time. "That's the basis of the confusion," McCoy said. "Our first report was based on an incomplete review of the logs."

Int. Exh. II-67A. We do not believe that this "public statement" is inconsistent with Mr. McCoy's understanding of what the August 30 letter was communicating. Mr. McCoy testified that he read the August 30 letter as trying to explain that in April 1990 there were different definitions of a successful start or confusion in the distinction between successful start and a valid test. Tr. 3220 (McCoy).

370. The Board draws no negative inference from this statement by Mr. McCoy. His statement in the press release, in fact, sheds some light on his understanding of the sentence at issue in the August 30 letter. It suggests that Mr. McCoy had come to understand that there had been some confusion about the definitions of the starts that were counted on April 9. Mr. McCoy testified that he developed this understanding from feedback he received from the OSI (Tr. 3220 (McCoy)). This is credible, because the OSI had interviewed both Mr. Bockhold and Cash and may have recognized that they had different understandings of what had or should have been included in the count on April 9. We note that Mr. McCoy's general understanding appears to have been correct, because there appears indeed to have been no meeting of the minds between Mr. Cash and Mr. Bockhold on April 9 regarding the starts to be included in the count.[80/] It may also be, as we surmise in Finding 350 n.77 above, that the OSI team leader communicated to Mr. McCoy the same question which Mr. Matthews asked on April 9, but which was not answered --

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80/ Mr. Cash had counted certain starts as successful because they would not have prevented the diesel from operating in an emergency. Cast at 2-3; Tr. 4470-71 (Cash). Mr. Bockhold, however, would not have treated those starts as successful because they were potentially related to Calcon sensor failures. Tr. 3846-47 (Bockhold).

how does the term successful start compare to the Reg. Guide 1.108 definition of a valid successful test?

371. The reference in the August 30 letter to valid tests is unfortunate, because that was not the specific source of the confusion that let to the incorrect numbers being given on April 9. If, however, the letter had stated that there had been confusion about what was being counted, or confusion about the meaning of successful starts without problems or failures, the letter would have been correct.

372. While the reference to "valid tests" is unfortunate, we see no evidence of any improper motive or wrongdoing on Mr. McCoy's part. It simply appears that his knowledge was indirect and his understanding was not as precise as the one that he and many others now have after the intensive investigation and testimony that subsequently ensued.

(c) Mr. Bockhold's Alleged "Steering" of the PRB

373. Citing several examples, Intervenor alleges that Mr. Bockhold inappropriately "steered" the PRB and advised it to provide false information to the NRC. Tr. 10551-52, 10556-57 (Mosbaugh). First, Mr. Mosbaugh maintains that during the August 30 PRB meeting, Mr. Bockhold "somewhat emotionally" told the PRB to leave undisturbed parts of the August 30 letter as they were written in Birmingham. Mosbaugh at 60. Second, he cites Mr. Bockhold's editing of the word "error" to "confusion" in the third paragraph of the letter and claims that the word "error" would be more technically correct. Tr. 10557 (Mosbaugh). Third, Mr. Mosbaugh cites Mr. Bockhold's comment that "English-wise it's better to mix up the words than to be

technically correct. . . ." (Staff Exh. II-19 at 3). He apparently reads this comment as suggesting that accuracy in the letter is not important and it's better to just mix-up the words. Tr. 10554 (Mosbaugh). Fourth, Mr. Mosbaugh points to a discussion he had with Mr. Aufdenkampe after the August 30 PRB meeting that he secretly taped. Mr. Mosbaugh represents that Mr. Aufdenkampe conveyed "his belief that Bockhold's conduct in the PRB was improper because the PRB could not fulfill its responsibility to advise Bockhold when he was telling the PRB what to do in the first place." Mosbaugh at 60; Tr. 10552 (Mosbaugh). Fifth, Mr. Mosbaugh cites the deletion of a footnote from one of the two tables attached to the August 30 letter.

(i) The Genuineness of Mr. Mosbaugh's Concerns

374. Initially, we note Mr. Mosbaugh's testimony that, as of mid-August, 1990, he was of the opinion that there was a possibility, perhaps a good possibility, that willfulness or some kind of wrongdoing was involved in the false statements that began on April 9 and continued. Tr. 10179 (Mosbaugh). By August 30, Mr. Mosbaugh did not feel that he could participate and assist in making sure the August 30 letter was accurate and complete because, he professes, he felt people in management were not listening to him and that his assistance was not being taken to heart. By this point in time he was a confidential informant with the NRC, in fairly frequent communication with, and passing information on to, OI. He viewed his role as observing what Georgia Power was doing, and passing information on to the NRC investigator. Tr. 9184-85 (Mosbaugh).

375. Notwithstanding this posture, it appears that Mr. Mosbaugh did not raise with anyone his concerns about Mr. Bockhold's actions at the August 30 PRB meeting. During cross

examination, Mr. Mosbaugh testified he does not recall that he thought about Mr. Bockhold's actions in the PRB as an issue to raise.[81] Tr. 9183. This suggests to us that Mr. Bockhold's actions were not so egregious as to cause Mr. Mosbaugh to report them to Mr. Robinson in August of 1990 when Mr. Mosbaugh was obviously poised to identify inappropriate conduct. Rather, it appears that Mr. Mosbaugh generated his concern after the fact -- in this case well after the fact -- in an effort to identify every possible allegation that he could conceive of in his campaign against Georgia Power.

(ii) Mr. Bockhold's "Emotional" Comment to Leave the Letter Undisturbed

376. The PRB meeting included a discussion of whether the first sentence of the last paragraph, which expressly stated the purpose of the letter, should be the opening line of the letter. Staff Exh. II-19 at 9-10. Messrs. Greene and Frederick expressed the view that the sentence should be reorganized. Mr. Bockhold expressed his view that the letter could be reorganized

> but I don't believe that has anything to do [with] the goodness or badness of this letter, or whether it's factually correct or not. You know, that's just another way -- that's better syntax, maybe in . . . we're not being graded on syntax at this point. We're getting graded on accuracy[82] for crying out loud . . . and if Birmingham likes the letter this way, I don't -- that's what we should do.

Id. at 10.

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[81] Mr. Mosbaugh testified that he had concerns about a lot of issues at the time, but that Mr. Bockhold's actions at the August 30 PRB would not have been "on the top of my list." Tr. 9183 (Mosbaugh).

[82] Having listened to the tape, the Board adopts the joint GPC/Staff version of the transcript. We reject Intervenor's position that the word "accuracy" should be "accident."

377. Mr. Coursey commented that it did not matter one way or another where in the letter the "purpose" sentence was placed relative to the letter's message. Staff Exh. II-19 at 11. Mr. Aufdenkampe testified that the statement was not significant in this context. Mr. Aufdenkampe also saw no problem with Mr. Bockhold's statement that they should defer to Birmingham, since comments are often suggested by Birmingham. Tr. 5816-18 (Aufdenkampe).

378. While we agree that the particular sentence at issue was not significant, it was Mr. Greene's opinion that Mr. Bockhold's statement that the PRB should defer to Birmingham was probably not an appropriate comment. Tr. 6845, 6851 (Greene). However, given the lack of significance of the statement, we do not find this is sufficient evidence, by itself, upon which to conclude that Mr. Bockhold lacks character or integrity.

(iii) Mr. Bockhold's Changing of the Word "Error" to 'Confusion"

379. Although Mr. Aufdenkampe does not recall the discussions at the PRB (Tr. 5765), a reading of the tape transcript suggests that he expressed a concern about the accuracy of the letter's statement that there was "confusion between a successful start and a valid test." Tr. 5770 (Aufdenkampe). Mr. Aufdenkampe questioned whether Mr. Cash was confused about successful starts and valid tests. Staff Exh. II-19 at 7. Upon being informed by Mr. Bockhold that Mr. Cash was not confused, Mr. Aufdenkampe stated that the proposed sentence was in error. Id. Mr. Bockhold differed with Mr. Aufdenkampe's observation, stating that "everybody else" got confused the more "we got into it." Mr. Bockhold added that, in April, Mr. Cash was not confused because he thought he had counted "successful starts."

380. This exchange suggests that Mr. Bockhold had a different understanding of the sentence than Mr. McCoy. Mr. Bockhold appears to have believed that the sentence was correct because the whole approach taken on April 9 in presenting a count of successful starts without problems or failures turned out, in retrospect, to have been confusing. In short, Mr. Bockhold appears to have been acknowledging that the references to successful starts in the April 9 letter and April 19 LER were misbegotten from the start-- that it would have been much better if they had used regulatory terminology at the outset (as they later decided they should when they revised the LER.)

381. At the hearing, Mr. Aufdenkampe testified that his concern was resolved. He identified the portion of the tape where he withdrew his comment because the letter did not refer to confusion by the counter of starts. Tr. 5770, 5805-06 (Aufdenkampe).

382. Mr. Bockhold confirmed in this proceeding that in referring to the confusion between a successful start and a valid test, he did not intend to refer to Mr. Cash. Rather, his intent was to refer to the confusion that had developed after the April 9 letter, particularly when the revised LER was being worked on in June 1990. Tr. 3514 (Bockhold).

383. Mr. Bockhold acknowledges that the language referring to "confusion" should have been clearer and acknowledges his fault associated with the unclear statement. Bockhold at 18, Tr. 3514 (Bockhold).

384. Georgia Power has admitted that the August 30 letter could have been reasonably misinterpreted by the NRC as stating that the underlying error in prior statements was caused by

confusion of the counter about terminology. GPC Exh. II-202 at 2. Mr. Bockhold personally has acknowledged that it was reasonable for the NRC to conclude that the August 30 letter could be construed as identifying the counter's confusion in terminology. He acknowledged that he directed the modified wording and that he was responsible for this inaccuracy in the August 30 letter. GPC Exh. II-203 at 3.

385. The evidence indicates that the August 30 letter was inarticulately worded. However, we cannot reasonably draw an inference from poor draftsmanship that Georgia Power intended to mislead the NRC, particularly in an instance where an NRC inspection team -- in this case the OSI inspection team -- had reviewed the matter and found no wrongdoing. We find that this evidence is insufficient, even when we consider Mr. Bockhold's comment in the PRB discussed in Finding 378 above, to conclude that Mr. Bockhold's actions were so egregious as to constitute a lack character or integrity.

(iv) Mr. Bockhold's "Mix-up the Words" Comment

386. As described above, in response to a comment at the August 30 PRB meeting that they had used the same word ("confusion") twice in successive sentences, Mr. Bockhold stated: "English-wise, it's better to mix up the words than to be technically correct." Staff Exh. II-19 at 3. While we were initially concerned about this language at the hearing (Tr. 5771-72 (Aufdenkampe)), we now realize that it is quite an innocent remark intended to dissuade the PRB members from further editing the language of the August 30 letter and instead to have them focus on technical correctness.

387. Mr. Greene and Mr. Bockhold testified similarly about the meaning of this statement made by Mr. Bockhold to the PRB. Mr. Greene believes that in this discussion Mr. Bockhold was simply talking about whether the PRB was spending its time trying to polish the language rather than focusing on technical accuracy. Mr. Greene's interpretation is that if the PRB were trying to "English it" then the PRB would be more concerned about mixing up the words (i.e. using synonyms rather than repeating words) than being technically correct. Mr. Bockhold was trying to tell the PRB that if one was an English major, he would try to mix-up the words he selected. Tr. 6845-47 (Greene).

388. Mr. Bockhold testified that he was not suggesting that something less than accurate was acceptable. What he meant was that if one were an English major, it might be preferable to avoid using the same word twice. However, since the PRB was composed of engineers, it should not elevate style over accuracy, and should concentrate on technical accuracy. English majors are expected to use synonyms to avoid repeating words, while engineers are expected to be technically correct and use of the same word multiple times is acceptable. Bockhold Rebuttal at 15-16. We are satisfied with Mr. Bockhold's explanation.

(v) Mr. Aufdenkampe's Comment on Mr. Bockhold's Actions

389. After the August 30 PRB meeting Mr. Aufdenkampe made the following comment to Mr. Mosbaugh:

> I'm glad George left because I was going to call a point of order that we couldn't advise George on something, when he was there trying to (inaudible) -- trying to (inaudible).

Int. Exh. II-69 (Emphasis supplied).

390. At the outset, we note that we agree with Mr. Aufdenkampe when he testified that it is doubtful Mr. Bockhold would in any way, shape or form be trying to intimidate the PRB because the senior resident inspector was present at the particular PRB meeting. Tr. 5779 (Aufdenkampe).

391. Mr. Aufdenkampe interprets the above quoted comment somewhat differently than Mr. Mosbaugh. Mr. Aufdenkampe initially viewed Mr. Bockhold as influencing the decision making during the course of the meeting, and that was part of the reason he was "getting ready to" call point of order. Tr. 5808 (Aufdenkampe). However, Mr. Aufdenkampe testified that he did not believe Mr. Bockhold got to the point where the results or the advice that the PRB would provide Mr. Bockhold were being unduly influenced. Had he reached that point, Mr. Aufdenkampe would have felt the obligation to actually call point of order, which he did not do. Aufdenkampe. Tr. 5809, 5813, 5815-16 (Aufdenkampe). Neither in this meeting nor in any other PRB meeting attended by Mr. Bockhold, did Mr. Aufdenkampe feel that he had to accept a position espoused by Mr. Bockhold with which he disagreed. Tr. 5817 (Aufdenkampe). Cf. Tr. 13790 (Kitchens).

392. Based upon his review of the tape-recorded portion of the August 30 PRB meeting, Mr. Greene testified that he did not believe Mr. Bockhold fully participated in the PRB's decision-making process or in the PRB's vote, or unduly influenced the PRB. Tr. 6842-43 (Greene).

393. Based on the testimony of Messrs. Aufdenkampe and Greene, we do not believe that there is sufficient basis to conclude that the manner of Mr. Bockhold's participation in the PRB was inappropriate.

(vi) Deletion of the Letter's Footnote 2

394. A draft of the August 30 letter contained a typed Footnote 2 on table 2 (Int. Exh. II-54, page 2) which identified several post-maintenance testing starts which were excluded from the total number of start attempts for the 1B engine.[83] Tr. 5957-58 (Horton). The PRB voted to delete the typed footnotes at the bottom of both tables prior to inclusion with the August 30 letter. Staff Exh. II-9 at 2.

395. Mr. Aufdenkampe, in reviewing a transcript of the August 30 PRB meeting, testified that it appeared that the PRB was excluding a sentence from the letter itself concerning five (5) post-maintenance starts. Tr. 5811-12 (Aufdenkampe). The PRB minutes reflect this change in text. Staff Exh. II-9 at 2, line 6. Consequently, it appears that both the letter and the tables did not segregate some post-maintenance testing starts from the balance of start attempts.

396. The transcript of the PRB conversation between Mr. Bockhold and PRB members on August 30 shows that Mr. Bockhold asked about the meaning of five post-maintenance starts statement. Staff Exh. II-19 at 11-12.[84] Mr. Bockhold asked why the letter excluded any start

[83] The footnote stated that the total number of start attempts is 24 not counting starts 120 through 124. There were other typed footnotes on the tables which addressed the total number of successful start attempts. Int. Exh. II-54 at 2.

[84] It is not apparent that Mr. Bockhold, himself, disagreed with the associated sentence; his statement is "no, we don't agree with that line." (Emphasis supplied.) His statement potentially referred to the views of other PRB members, either not captured on the tape recording or nonverbal in nature. Staff Exh. II-19 at 12.

attempts. Mr. Horton reflects on this and concludes "there's no need to." Apparently, it is Mr. Horton's rather than Mr. Bockhold's conclusion which the PRB adopted. Although Mr. Bockhold expresses his view that he concurs in this resolution, the technical basis is that of Mr. Horton. The resolution chosen by the PRB avoids creating a subpopulation of start attempts which, given the purpose of the letter (including a summary of the diesel starts for the time period indicated), simply was not necessary. GPC Exh. II-18.

397. We find that there is nothing about the above facts that suggests any wrongdoing on the part of Mr. Bockhold or anyone else.

6. Conclusion Regarding the August 30 Letter

398. Georgia Power, the NRC Staff, and Mr. Mosbaugh all agree that the August 30 clarification letter was poorly worded with its use of the word "confusion." It inaccurately suggested that one of the two reasons for the inaccuracy of the April 9th letter was that Mr. Cash was confused about successful starts versus valid tests. However, we find that there is no clear and convincing basis to conclude that this inaccuracy was the result of wrongdoing on the part of any Georgia Power employee and we, therefore, decline to draw any negative inference with respect to character or integrity.

399. Georgia Power witnesses, including Messrs. Greene, Horton and Aufdenkampe, testified that, in unanimously approving the August 30 letter, the PRB believed it to be true and correct. Tr. 6948 (Greene); Tr. 4668, 5845 (Aufdenkampe); Tr. 6141 (Horton). We believe them. The NRC had conducted an investigation concerning the April start counts prior to the submittal

of the August 30 letter as a result of allegations, including one concerning the April 9 letter. Although Georgia Power may not have known the specifics of the diesel start count allegation, Georgia Power knew the NRC possessed detailed knowledge concerning the diesel start counts, including knowledge from interviews of Messrs. Cash and Bockhold. Mr. McCoy testified, for example, that he was motivated to respond to an NRC team leader's recommendation in preparing the August 30 letter and provided all relevant information. Under these circumstances we do not believe Mr. McCoy or anyone else sensibly would attempt to mislead the NRC. As stated by Mr. Aufdenkampe, it appears Georgia Power "laid all the cards on the table and explained it to the best of their ability." Tr. 5768 (Aufdenkampe). Unfortunately, its best ability was not good enough.

400. Mr. Bockhold acknowledges his personal responsibility in the preparation of the letter which directly resulted in the inaccuracy. Bockhold at 17-18. We agree with his observation that he should have taken greater care and provided a fuller articulation of the matter using input from the members of his staff. Bockhold at 18. Wording changes were not clear enough for the NRC, or even other Georgia Power personnel, to understand. He cautioned the PRB not to "Englishize" what he perceived to be a technically correct letter. In hindsight, "Englishizing" the letter was precisely what was needed. Although there is some. Evidence that Mr. Bockhold made an inappropriate comment in the August 30 PRB meeting, such evidence falls far short of the strong showing we would need to reach a conclusion that Mr. Bockhold's actions were so egregious as to constitute a lack character or integrity.

F. Operational Safety Inspection "White Papers"

401. Mr. Mosbaugh alleges that certain answers to questions in Georgia Power's "white papers" prepared for the NRC's OSI in August, 1990 were purposefully crafted to exclude reference to Georgia Power executives Hairston and McCoy as having participated in the April 19, 1990 telephone call during which the diesel start language of LER 90-06 was revised.[85] He also contends that it was "not appropriate" or within the scope of the "SAER authority" for Mr. Ajluni to issue the "white papers" (Mosbaugh at 107), and apparently draws some negative inference. Similarly, he alleges that Georgia Power's April 1, 1991 response to the 2.206 petition is inaccurate in the same way. Mosbaugh at 105-09 and at 63-64.

402. We understand the gravamen of Mr. Mosbaugh's assertions is that there was a deliberate cover up of executive involvement. The evidence, discussed below, does not support this claim of wrongdoing.

1. The White Papers and August 15 Conference Call

403. During the course of the OSI inspection, discussed above in Finding 348, Georgia Power responded to a number of issues raised by the NRC team. Georgia Power's written responses were referred to as "white papers." Different site and corporate personnel were assigned to respond to the various issues. Mr. George Frederick was assigned to prepare a response to the diesel generator start count issue. Int. Exh. II-95, at Project #045530.

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[85] The word "revised" is significant, because Mr. Mosbaugh's allegation submitted to OI in 1991 misquoted Georgia Power's statement alleged to have been false. GPC Exh. II-94 at 1.

404. Two questions posed by the NRC are the focus of Intervenor's allegation: Question #3 which asked, "Who prepared the LER?" and Question #5 which asked, "Who in corporate added the words 'subsequent to the test program' in LER 90-06, revision 0." Id. at Project #045534. We note that neither of these questions asks specifically about any telephone conference call on April 19. Georgia Power's responses to the two questions alluded to a telephone call in which the finalization of LER 90-06 was made:

> Response to Question #3
>
> Several draft revisions of the LER were prepared by Tom Webb and others in the NSAC group of the Vogtle Site Technical Support. Those drafts were reviewed and commented upon by the Plant Review Board. The final revision of LER 90-06, revision 0 was prepared by a phonecon between site management and corporate management. Those participating are believed to be G. Bockhold, Jr., A. L. Mosbaugh, J. G. Aufdenkampe, W. Shipman.
>
> Response to Question #5
>
> Corporate Licensing Personnel in conjunction with the phone conversation described above made editorial changes as directed. Those present are thought to be W. Shipman, G. Bockhold, Jr., A. L. Mosbaugh, J. G. Aufdenkampe, and J. Stringfellow.

Int. Exh. II-95 (emphasis supplied).

405. For simplicity, we adopt Intervenor's shorthand identification of the April 19 telephone calls. Mr. Mosbaugh refers to the April 19 telephone call in which Mr. Bockhold participated, as "Call A". See GPC Exh. II-2 at 7 to 19. "Call B," in Intervenor's nomenclature, is the phone conversation in which the final draft of LER 90-06 was read on two occasions by Mr. Shipman to Mr. Aufdenkampe and others at the plant site. See GPC Exh. II-2 at 22 to 33.

406. Georgia Power developed the diesel generator-related "white paper," at least in part, on August 15, 1990 in a meeting at the plant site in which Mr. Shipman and others in the corporate office participated by telephone. Mr. Mosbaugh attended and surreptitiously taped this meeting. Transcripts of the taped meeting (Tape No. 253) were prepared by Georgia Power and the Staff and also by Intervenor. GPC Exh. II-122; Int. Exh. II-48.

407. A review of the agreed-upon August 15th meeting transcript reveals that Mr. Frederick stated he had been told that the words "subsequent to the test program" were added in a telephone conversation between the corporate and the plant site. Mr. Bockhold then stated "Ken McCoy if you remember I believe it happened between a group in your office and me." Subsequently Mr. McCoy stated "that's my recollection, too." GPC Exh. II-122 at 8-9.

408. The participants at the August 15th meeting discussed who were the participants on the April 19th telephone call. Initially, Mr. Aufdenkampe recalled that Mr. Bockhold, Mr. Mosbaugh and Mr. Shipman were on the call, and he thought Mr. Bailey and Paul Rushton were also on the call. Id. at 11-12. Mr. Bockhold stated that he did not recall that all those people were on the call. The individuals he recalled were Messrs. Aufdenkampe, Mosbaugh and Shipman. Id. at 12. Later in the conversation, Mr. Aufdenkampe stated that he "definitely" knew that Messrs. Mosbaugh, Bockhold and Shipman and he were on the call. Id. at 14. Mr. Shipman specifically stated that he did not recall who was on the call, only to say "I know there were several of us." He then referred to Mr. Ward as stating that he had been involved and to Messrs. Rushton, Bailey and Stringfellow's possible involvement.[86/] Id. None of the participants identified Mr. Hairston.

[86/] Mr. Shipman testified that he identified Messrs. Bailey, Ward and Rushton based on his "expectation" that they would have been involved if they were in the office. Shipman Rebuttal at 15.

Mr. Frederick stated that he believed he had sufficient information to finalize the white paper. Id. at 15.

409. The participants in the August 15, 1990 meeting did not have the benefit of Mr. Mosbaugh's tape recordings of the April 19, 1990 telephone calls. It is not clear whether they were all recalling the same call or could have distinguished between the various calls between the site and corporate office that day concerning the LER. Id. at 8 to 15.

410. The failure of the Georgia Power personnel to identify Mr. Hairston[87] as having been one of the participants on the corporate-site conference call of April 19th is not surprising. The transcript of the conversations taped on April 19th (GPC Exh. II-2 at 7 to 9) indicates that Mr. Hairston was not present during portions of telephone calls associated with the introduction and discussion of the phrase "subsequent to the [comprehensive] test program." The context of the white paper was to address NRC "Questions Concerning Diesel Starts Reported on April 19, 1990, and in LER 90-06, Revision 0 and 1." Mr. Hairston did not have substantive input into the wording of the diesel start language of the LER, although he did direct verification of the numbers after reviewing a draft LER. GPC Exh. II-2 at 10-15.

411. With respect to Mr. McCoy's involvement in the April 19 conference call, the Board observes that Mr. McCoy agreed with Mr. Bockhold's statement that "it happened between a group in your [Ken McCoy's] office and me [George Bockhold]." GPC Exh. II-122 at 8-9. The Board does not read Mr. McCoy's agreement as stating that he recalled his personal participation

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87/ In response to another part of Question 3 Mr. Hairston was identified as having approved the LER. Int. Exh. II-95 at Project #045534.

in the call, but rather simply a discussion between the site and his corporate office staff.[88] Furthermore, Mr. Bockhold did not identify Mr. McCoy when listing those who participated in the April 19 discussions of the diesel starts statement in LER 90-006. Id. at 12.

412. Georgia Power personnel involved in the development of questions for the "white paper," the Board concludes, obviously were attempting to identify participants and provide the NRC with the best collective memory of an event that had occurred four months previous. In addition to various individuals' attempts to identify the participants, an attorney for Georgia Power, Mr. Domby, specifically asked whether anyone disagreed with Mr. Aufdenkampe's recollection about the participants on the phone call. GPC Exh. II-122 at 14. No one, including Mr. Mosbaugh, took issue with Mr. Aufdenkampe's recollection and the final "white paper" conformed to Mr. Aufdenkampe's "definite" recollection. The Board finds that either Mr. Mosbaugh did not disagree with Mr. Aufdenkampe's recollection or he intentionally withheld his understanding.

413. There is no indication from the statements of Georgia Power personnel on the August 15 tape transcript that there was a purposeful attempt to deceive the NRC with the responses to the questions posed. Rather, we interpret the taped statements as a good faith attempt based on memory, to identify those who had substantive participation on April 19, 1990 in the finalization of the LER language pertaining to diesel-related phraseology.[89]

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[88] The Board also notes that Mr. McCoy had no hesitancy in accepting accountability for the April 9th letter. GPC Exh. II-122 at 6-7.

[89] Mr. Mosbaugh maintained into 1995 that Mr. James Bailey was on the telephone call based on Mr. Aufdenkampe's and Mr. Shipman's August 15th statements, even when presented with convincing evidence that Mr. Bailey was in Hawaii on vacation on April 19, 1990. Tr. 9745-53 (Mosbaugh); GPC Exh. II-123. Under the circumstances of the conversation, we find that it is unreasonable to rely on the August 15th transcript for establishing who, in fact, participated in April 19th discussions.

414. In finding that the identification of the participants on the April 19th call was developed in good faith, the Board is particularly influenced by Mr. Mosbaugh's demonstrated lapse of memory after a passage of 4 or 5 months when he provided related information to the NRC. More specifically, in 1990 Mr. Mosbaugh identified Mr. Shipman as the individual who provided the phrase "comprehensive test program" to the LER. GPC Exh. II-125. He gave this information to the NRC OI in conjunction with ongoing investigations of his allegations, even after having listened to his tape recording of the relevant conversations. Tr. 9952, 9955 (Mosbaugh). He acknowledges that his memory was in error and concedes that people in August, 1990 could have misremembered what happened in April. Tr. 9952 (Mosbaugh).

2. Mr. Ajluni's Involvement in the White Papers

415. With respect to Mr. Mosbaugh's assertion that it was not appropriate for Mr. Ajluni to issue the white papers (Mosbaugh at 107), we find that the facts reveal nothing sinister about Mr. Ajluni's participation. Mr. Ajluni was the secretary of the Safety Review Board and, in that capacity, was requested to provide this safety oversight group with the white papers. Tr., 10791-93 (Ajluni). Intervenor would have to draw a negative inference from the fact that Mr. Ajluni was not involved with the OSI or assigned any of the issues, and that his SAER group's function is independent from line activities. We read nothing negative into this straightforward assignment to Mr. Ajluni.

3. Georgia Power's April 1, 1991 Response to the 2.206 Petition

416. In late February, 1991 the NRC asked Georgia Power to respond to a 2.206 Petition which Mr. Mosbaugh had filed with the NRC.[90] Georgia Power submitted an April 1, 1991 Response, which Intervenor alleges is false. Specifically, Intervenor challenges footnote 3 on page 3 of the Response reproduced below with its relevant text:

> Additional diesel generator starts had occurred subsequent to April 9, 1990 (the date of the GPC meeting in Atlanta with NRC representatives), and the final April 19th LER wording stated that each diesel engine had been started "at least 18 times each."[3]
>
> 3/ The wording was reviewed by corporate and site representatives in a telephone conference call late on April 19, 1990. Although Mr. Hairston was not a participant in that call, he had every reason to believe the final draft LER presented to him after the call was accurate and complete.

Int. Exh. II-101 at 3. Intervenor maintains that based on his review of Tape 58 (GPC Exh. II-2), Mr. Hairston did participate in the call in which "subsequent to the test program" was added to the LER, and thus, Georgia Power was lying in its 2.206 Response with respect to Mr. Hairston's involvement. Mosbaugh at 63-64.

417. The NRC Staff (Vogtle Coordinating Group) reviewed the footnote set out in Georgia Power's 2.206 Response and concluded that there was a reasonable basis for the information that Mr. Hairston was not on the late April 19, 1990 telephone conference call and, therefore, Georgia Power did not submit inaccurate information. Staff Exh. II-45, Encl. 1 at 44-45. The Group

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[90] The Petition alleged, among other allegations, that on April 19, 1990 Mr. Mosbaugh informed the Senior Vice president (Mr. Hairston) that the LER was incorrect. Int. Exh. II-101 at 10. In the instant proceeding Mr. Mosbaugh concedes this was an overstatement based on inferences from hearsay, and that it would have been clearer to state that the informing was not direct. Tr. 8331-37 (Mosbaugh).

found that the OI report misquoted the Georgia Power footnote[91] and that the final draft of the LER, in fact, was reviewed during the last taped telephone call on April 19 by Messrs. Stringfellow, Mosbaugh, Aufdenkampe, Shipman and Swartzwelder. Id. at 45-46.

418. This is not an issue worthy of a lot of time. Georgia Power did not have the benefit of the tape recordings Mr. Mosbaugh relies on at the time of its response. Intervenor's allegation is premised on his review of tape 58.. Mosbaugh at 64. In contrast, Georgia Power's 2.206 Petition Response was based on the same information gathered for the "white papers" developed in August, 1990. Unfortunately, that is all Georgia Power had at the time -- what later turned out to be imperfect memories of a hectic day with several conference calls when the LER was finalized. It turns out Mr. Hairston participated briefly on Call A, but not in the portion of the call where the language "comprehensive test program" was apparently coined. Nor is there anything other than imagination to suggest that Georgia Power knew that when they put together the "white papers" in August 1990, or the Response to the 2.206 Petition which drew from the "white papers." In short, we do not find Georgia Power knew better than what they said in their 1991 2.206 Response.

G. Safety System Performance Indicator Data

419. Mr. Mosbaugh's testimony included a discussion of the communication of certain "Safety System Performance Indicator" data to the NRC. Mosbaugh at 99-104. Although this topic was not included in the bases pleaded in support of Intervenor's contention, his counsel

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[91] The footnote refers to "reviewed" by corporate and site representatives, not "revised" by them. As a result, Intervenor's reliance on the OI report (Mosbaugh at 63) is misplaced and contrary to the position of the NRC Staff.

subsequently argued that this testimony was relevant to Mr. Bockhold's "state of mind" -- that it showed a "history" bearing on the April 9 letter. Tr. 3394, 3397-98, 3401 (M. Kohn). We subsequently ruled that this testimony was admissible. Memorandum and Order (Motion to Strike Mosbaugh Testimony) (May 11, 1995) at 19.

420. Georgia Power provided the NRC IIT team with a document on April 2, 1990, which was subsequently designated IIT Document No. 143. Int. Exh. II-89; Bockhold Rebuttal at 21. Intervenor alleges that this document was used to claim that Georgia Power's diesel generators had been more reliable than other industry diesels and that Safety System Performance Indicator ("SSPI") data for the diesel generators for 1990 was intentionally omitted, resulting in a materially incomplete representation of diesel generator performance. Mosbaugh at 99-104. Intervenor further alleges that the SSPI-related statements were made to present the diesel engines in an inaccurately favorable light as part of Georgia Power's April 9 request to restart Unit 1. Tr. 10363 (Mosbaugh).

421. SSPI data is an indicator required by the Institute for Nuclear Power Operations ("INPO"), calculated by taking the average of each individual diesel generator SSPI value at a particular licensed unit. GPC Exh. II-140. Mr. John Aufdenkampe's Technical Support organization at the site was responsible for preparing the SSPI data. Tr. 4849 (Aufdenkampe).

422. The SSPIs for individual diesel generators are calculated using a formula of dividing the unavailable hours (planned, unplanned and estimated) by the total number of hours the diesel generator is required to be operational during the period of time for which the SSPI is being assessed. GPC Exh. II-140 at 1-2.

423. The SSPI data in question was presented to the NRC by George Bockhold. Mosbaugh at 100. Bockhold Rebuttal at 21. The SSPI data on diesel reliability presented in IIT Document No. 143 is set forth below:

Diesel Reliability

In 1989 Vogtle diesels were more reliable than other nuclear industry diesels.

Safety System Performance (Emergency AC Power -- BWR & PWR)

	1987	1988	1989
US BQ	0.010	0.009	0.012
US MEDIAN	0.017	0.017	0.020
SISTERS	0.027	0.033	0.030
VOGTLE U1	0.04	0.05	0.006
VOGTLE U2			0.006

424. Given the calculation methodology for SSPI, the greater the number, the less reliable the diesel generator was in terms of its availability when it was needed. The 1987 and 1988 numbers were worse than the industry averages; the numbers were much better than the industry for 1989. Tr. 14164 (Bockhold). As pointed out by Mr. Bockhold, the SSPI calculation does not get worse because you have more frequent failures of a diesel engine -- the length of time that the diesel is unavailable is the important criterion. Tr. 14163 (Bockhold).

425. Two days after the information was provided to the NRC, on April 4th, Mr. Mosbaugh, Mr. Aufdenkampe and Mr. Gus Williams reviewed a document "similar to" IIT 143. Tr. 10367 (Mosbaugh). The document which they discussed "had a table like the one" contained in IIT Document No. 143. Tr. 10368 (Mosbaugh).

426. Mr. Mosbaugh recorded his April 4th conversation with Mr. Williams and Mr. Aufdenkampe which was transcribed by Intervenor (Int. Exh. II-94), by the Staff (Int. Exh. II-94A) and by Georgia Power (Int. Exh. II-94C). According to Mr. Mosbaugh, it was clear to him from his conversation with Mr. Williams that Mr. Williams had already had a conversation with Mr. Bockhold about the 1990 data and Mr. Bockhold had made the decision not to include the 1990 data in the document provided to the IIT "because it might look bad." Tr. 10369 (Mosbaugh).

427. Mr. Mosbaugh also maintains that Mr. Williams states, in the recorded conversation, that he did not "give Bockhold the 1990 numbers [for SSPI] because of his discussion with Bockhold and Bockhold's knowledge of how bad the 1990 numbers looked." Mosbaugh at 103. In these words, Mr. Mosbaugh strongly implies that Mr. Bockhold directed Mr. Williams not to provide the 1990 SSPI values in the SSPI data set out above.

428. A review of the transcript of the relevant conversation shows that Mr. Williams told Mr. Bockhold that the 1990 SSPI numbers looked "really shitty." Int. Exhs. II-94, II-94A and II-94B. Mr. Williams also clearly states that he was the source of data. Id. The transcript, however, indicates that Mr. Williams may have decided not to give Mr. Bockhold the 1990 numbers in the first place, and upon presenting the numbers to Mr. Bockhold explained their values: ". . . so that's why I didn't give him 1990 numbers, and I told him that, and we discussed it, we discussed this Sunday [April 1], how bad it looked for 1990, for both Units." Int. Exh. II-94 (Segment 3); Exh. II-94A at 6; Exh. II-94B at 6 (emphasis added)[92].

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[92] Mr. Williams was not called as a witness at the hearing.

429. Mr. Bockhold does not remember whether Mr. Williams showed him the 1990 SSPI data, told him about the data, or simply indicated that it was not useful. Bockhold Rebuttal at 20. If he had been aware of the specific data, Mr. Bockhold does not believe he would have felt it appropriate to present that data for several reasons. The data would have covered two months in 1990 and would not have been meaningful. There would not have been any corresponding industry average to compare it against. Id. at 21. We find that assuming the purpose in presenting the data was to show the reliability of the Vogtle diesels as compared to industry reliability, the exclusion of the 1990 data on this basis is logical.

430. Mr. Bockhold also asserts, correctly, that SSPI data is a general overall measure of diesel reliability, and not particularly informative of the specific problems which affected reliability of the diesels in early 1990. By April 2nd, he asserts, the NRC had been on the Vogtle site for more than a week after the Site Area Emergency and knew about specific 1990 diesel generator activities, including problems observed in starting or running the engines. Bockhold Rebuttal at 21.

431. By April 2nd, the question of whether the diesel generators at Plant Vogtle were reliable was beginning to be viewed as a question specific to the Calcon sensors. Indeed, in addition to setting out the SSPI data, IIT Document No. 143 (Int. Exh. II-89) identified the jacket water temperature sensors as the likely root cause of the March 20, 1990 1A diesel generator shutdown. The fourth page of the IIT Document lists a number of problems experienced by these and other sensors during early 1990. Int. Exh. II-89 at 4.

432. Mr. Mosbaugh acknowledged that in addition to INPO SSPI data, the Vogtle Technical Specifications contain a basis for diesel reliability, calculated on the basis of the number of valid failures in the past 100 tests of the diesel. Tr. 10370-71 (Mosbaugh).

433. In addition to providing the NRC with SSPI data and sensor problem lists, Mr. Bockhold explained to the NRC on April 2nd that Georgia Power had experienced problems with the sensors during overhaul times, and that when the engines were run during overhaul periods, the Plant had problems and switches were replaced.[93] Bockhold Rebuttal at 22; GPC Exh. II-77 at 14-15, 18. Because the focus of inquiry was the 1A diesel and sensor failure problems, Bockhold believed Georgia Power was providing the NRC with information that was relevant at that particular time. Tr. 14165 (Bockhold).

434. Mr. Aufdenkampe testified that he did not know why the February 1990 year-to-date SSPI data was not included in the information which was provided to the NRC IIT team members; he had no recollection of the specific reasons for that decision or who made that decision. GPC Exh. II-140 at 4.

435. The SSPI data year-to-date at the end of February, 1990 for Vogtle's four diesel generators was 0.0804. GPC Exh. II-140 at 3. This is the same value discussed on April 4, 1990 between Aufdenkampe, Bockhold and Williams. Int. Exhs. II-94, 94A and 94B.

93/ We understand that there is no direct correlation between sensor failures and the SSPI calculated values of unavailability. Tr. 14166 (Bockhold). For example, a failure during overhaul might not affect the unavailability of the diesel because it was already out of service.

436. Mr. Mosbaugh testified that on April 3, 1990, Mr. Bockhold showed him the SSPI data, reproduced above, contained in an Executive Summary. Int. Exh. II-93; Mosbaugh at 101. Mr. Mosbaugh tape recorded his discussions with Mr. Bockhold concerning this "similar" document. At the time Mr. Mosbaugh did not express to Mr. Bockhold any concern that the table should include 1990 data. Tr. 10369 (Mosbaugh).

437. Mr. Mosbaugh stated that it was only in the course of discovery in this proceeding that he became aware that IIT Document No. 143 (Int. Exh. II-89) was given to the NRC. Tr. 10368 (Mosbaugh). However, based on his April 3rd conversation (Int. Exh. II-92) with Mr. Bockhold, he must have been aware of Mr. Bockhold's intent to provide the NRC Regional Administrator with similar data.

438. Although Mr. Mosbaugh opined that the omission of the 1990 SSPI data from the table supplied to the NRC was material, he also conceded that the table was not something he would expect that the NRC would solely rely on, but would merely be a part of the information considered in developing an overall view on the Vogtle diesel generators. Tr. 10364 (Mosbaugh). For example, he assumed that the NRC would consider the Technical Specification criteria of diesel reliability. Tr. 10365 (Mosbaugh).

439. In examining whether the SSPI data provided to the NRC was truthful, the Board finds that consideration of the SSPI data's nature is instructive. The SSPI table essentially represented that in 1989 Vogtle diesels were more reliable than other nuclear industry diesels; no representation was made with respect to 1990. Combined with the balance of IIT Document No. 143 (Int. Exh. II-89), the NRC was told of many sensor-related problems which appeared to crop

up during 1990. The overall message on April 2 was fairly clear: historically, the Vogtle diesels were not substantially less reliable than other diesels in the nuclear industry, but Georgia Power was having problems with the sensors used on the engines, generally during overhaul times. We find this message was truthful.

440. The Board finds significant the fact that Mr. Mosbaugh did not raise a concern about the SSPI data with Mr. Bockhold notwithstanding his awareness that Mr. Bockhold intended to provide it to the NRC. He was unaware that the data had not already been given to the NRC at that time. Had he raised a concern and Mr. Bockhold ignored it, we would have been presented with a more difficult question on truthfulness.

441. A general 1990 reliability measurement like SSPI, particularly when the NRC had its own Technical Specification measurement, may have been relevant to the reliability of the diesels at the time, but not particularly insightful without some further knowledge of the problems experienced in 1990. This type of data was included in the balance of IIT Document No. 143. Int. Exh. II-89.

442. Based on the foregoing findings, we conclude that we have not been presented with sufficient evidence that Mr. Bockhold purposefully excluded relevant and material information pertaining to the Vogtle diesels as depicted in the SSPI data presented in IIT Document 143 (Int. Exh. II-89). As with Mr. Mosbaugh's other allegations of intentional wrongdoing, we believe a strong showing is necessary for us to find that, in this instance, Mr. Bockhold wrongfully presented incomplete data to the NRC, thereby impugning his character or integrity.

IV. Statements Concerning Air Quality

443. In this section we address the accuracy of Georgia Power's communications to the NRC regarding air quality.[94] Intervenor's principal issue is that Georgia Power either knew or should have known that the April 9, 1990 confirmation of action response letter was inaccurate and incomplete in several respects with regard to air quality. Evaluation of the April 9 letter, however, requires a review and understanding of a large amount of dew point data and how that data is measured, the instruments that are used, the standards for acceptance, and the variety of communications with the NRC, not just on April 9, but as well on other days during the March-April 1990 period with inspectors on the site or during conference calls with the NRC's IIT and Region II personnel. We begin by describing the diesel air systems and other background information, concentrating on the critical days and dew point measurements of interest. We then review the Staff's position and each of Intervenor's specific allegations.

444. We repeat at the outset the standard that we articulated in our ruling on summary disposition of the air quality issue. In order to prevail, Intervenor must do more than demonstrate that some statement is, in retrospect, inaccurate. To prevail, he must demonstrate that the officials of Georgia Power were willful or recklessly careless of the facts. Memorandum and Order (Summary Disposition: Air Quality) (April 27, 1995) at 6. As discussed below, Intervenor had not come close to demonstrating such wrongdoing.

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[94] As previously discussed, supra, we ruled that the scope of this proceeding included the assertion by Intervenor that Georgia Power made willful or recklessly careless misrepresentations to the NRC as follows: (1) Georgia Power's April 9 letter incorrectly states air quality was satisfactory, (2) the April 9 letter incorrectly attributes high dew point readings to a faulty instrument, and (3) Georgia Power's communications with the NRC regarding high dew points were incomplete. Memorandum and Order (Summary Disposition: Air Quality) (April 27, 1995) at 7-8.

A. Background

1. Emergency Diesel Generator Starting/Control Air System

445. There are two emergency diesel generators ("EDGs") for each unit at Vogtle. An air supply is needed both to start the diesel engine and to operate the engine controls. See Int. Exh. II-10. This air is supplied to each diesel engine by an independent, redundant starting air system. Board Exh. II-4 at 9-68.

446. Each starting air system consists of two separate, full-capacity starting air subsystems having sufficient air capacity to provide a minimum of five consecutive cold-engine starts. Each starting air subsystem has an air compressor, after cooler, refrigerant air dryer, air receiver, intake air filters, starting valves, air distributors, instrumentation, controls, alarms, and the associated piping to connect the equipment. Alarms annunciate on the local control panel in the diesel building and in the Unit's main control room to enable operators to monitor the EDG starting air system. Id.

447. The control air is diverted from the starting air system down stream from the air receivers. Control air is used by the pneumatic logic components and sensors to control and protect the diesel engine. The control air passes through a five micron filter and then through a pressure regulator that maintains control air pressure at 60 psig. See Int. Exh. II-10.

448. The air dryer is a refrigerant-type. Located upstream of the air receiver, the dryer removes water vapor from the compressed air before the air reaches the receiver tank. The air

dryer is designed to run continuously, i.e., it does not cycle on and off with the air compressor. Board Exh. II-3 at 9.5.6-4; Board Exh. II-4 at 9-68.

449. Compressed ambient air, saturated with water vapor, enters the dryer. The air is pre-cooled by the outgoing refrigerated air by an air-to-air heat exchanger. The pre-cooled air then enters the air-to-refrigerant heat exchanger (i.e., the refrigeration evaporator) where it is cooled by the dryer's refrigeration system. As the air cools, water vapor condenses into liquid droplets which are separated out of the air stream by a moisture separator, and is automatically discharged by a draintrap. The cooled, dry air then passes through the other side of the air-to-air heat exchanger, where it is warmed by the incoming compressed ambient air. This reheating increases the air's effective volume and prevents pipe sweating downstream. The rated capacity for the air dryer is 170 scf/min, which is approximately twice the capacity of the starting air compressor. Board Exh. II-3 at 9.5.6-4.

450. The air receivers for each diesel engine are maintained at operating pressure by the compressors. The compressors start when air receiver pressure drops to 225 psig and stop when pressure is increased to 250 psig. Board Exh. II-3 at 9.5.6-3.

2. Air Quality Commitments

451. Intervenor maintains that the air quality standards contained in Instrument Society of America ("ISA") Standard S7.3-1975 (Int. Exh. II-11), are applicable to the Vogtle diesel air system. He bases his position on his personal interpretation of the Vogtle Final Safety Analysis

Report ("FSAR") and Georgia Power's response to Generic Letter 88-14 (Int. Exh. II-13). Mosbaugh at 16-17, 20. Intervenor is simply wrong.

452. The Vogtle FSAR does not commit to ISA S7.3-1975 for the diesel generator starting air system as alleged by Intervenor. The diesel generator starting air system is addressed in Section 9.5.6 of the Vogtle FSAR (see Board Exh. II-3 and GPC Exh. II-98(B)). That section makes no mention of or reference to the ISA Standard. Hill and Ward Rebuttal at 2-3.

453. FSAR Section 9.5.6.2.2, which describes the starting air system operation, states that the pressure dew point of the air dryers is factory set at 35F, which is more than 10F below the minimum design temperature of 50F for the diesel generator rooms. The FSAR Table 9.5.6-1 (Sheet 1) lists 50F as the dew point of air leaving the dryer. This design was accepted in Section 9.5.6 of the NRC Staff's Safety Evaluation Report ("SER") (see Board Exh. II-4). Hill and Ward Rebuttal at 3.

454. The Vogtle diesel starting air system not only complies with its FSAR description but it also is consistent with NRC guidance on such systems. The NRC's Standard Review Plan ("SRP") has a specific chapter on emergency diesel engine starting systems, Chapter 9.5.6. Section II.4 provides suggested acceptance criteria for starting air, stating that "starting air should be dried to a dew point of not more that 50F when installed in a normally controlled 70F environment, otherwise the starting air dew point should be controlled to at least 10F less than the lowest expected ambient temperature." Hill and Ward Rebuttal at 3.

455. Georgia Power's expert witness, Dr. Howard Hill, testified that, in his opinion, the Vogtle diesel starting air system addresses this guidance in two ways.

> First, the dryer set point for dew point is set at 35F, which is more than 10F below the minimum design temperature in the diesel generator building. Second, the heaters in the diesel generator building are set at 60F, so that the maximum allowable dew point (50F) is still at least 10F below the minimum expected temperature. It is particularly notable that the SRP chapter on the diesel starting air system makes no reference to ISA S7.3

Hill and Ward Rebuttal at 3-4; accord Tomlinson and Skinner at 4.

456. Intervenor testified extensively about ISA Standard S7.3-1975 being a licensing requirement for Vogtle. Mosbaugh at 16-20; Tr. 8504-09 (Mosbaugh). He asserts that the ISA Standard operates as a requirement for Vogtle based on two FSAR sections, namely Sections 9.5.6 and 1.9.68.4, and Georgia Power's response to Generic Letter 88-14.

457. With respect to FSAR Section 9.5.6, Mr. Mosbaugh referred to FSAR Table 3.2.2-1, which is cited in this section, as the source for the codes and standards applicable to the diesel starting and control air system. Table 3.2.2-1 merely identifies construction codes. The applicable portion of that Table states that the air compressors and dryers are designed in accordance with manufacturer's recommendations, and makes no reference to the ISA Standard. The air receivers are built in accordance with ASME Boiler and Pressure Vessel Code Section III requirements. Again, there is no reference to the ISA Standard. Hill and Ward Rebuttal at 4-5.

458. FSAR Section 1.9.68.4, "Regulatory Guide 1.68.3, April 1982, Preoperational Testing of Instrument and Control Air Systems," (Staff Exh. II-2) describes Georgia Power's position

regarding this Regulatory Guide. Therein, Georgia Power indicates that it follows the ISA Standard for the Vogtle instrument air system but no such commitment is made regarding the separate and distinct diesel starting air system. Moreover, both the position in FSAR Section 1.9.68.4 and Regulatory Guide 1.68.3 are applicable to preoperational testing. These positions are not applicable to plant operations. Hill and Ward Rebuttal at 5.

459. Finally, in its response to NRC Generic Letter 88-14, Georgia Power committed to the ISA standard for the instrument air system and not for the diesel air start system. Page 9 and Table 6 of the Georgia Power response identify all "active valves" in the instrument air system, but the Diesel Generator Air Start valves are not listed.[95] Page 3 of the Georgia Power response provides a separate discussion of the commitment of the diesel air start system. It states that the maximum dew point acceptance criteria for the diesel air start system is established at 50F at system pressure, with a reference to FSAR Table 9.5.6-1. Therefore, Mr. Mosbaugh's contention that Plant Vogtle is committed to the ISA standard for the diesel air start system is incorrect. Hill and Ward Rebuttal at 5; Tomlinson and Skinner at 5-6.

460. NRC Staff witness, Mr. Tomlinson, testified that the general requirements applicable to the EDG starting air system are contained in 10 C.F.R. Part 50, Appendix A, General Design Criteria for Nuclear Power Plants ("GDC"), Criteria 1, 2, 4, 5, and 17. Specific guidance concerning NRC review of this system is contained in SRP Section 9.5.6. The SRP addresses conformance with NUREG/CR-0660, Enhancement of Onsite Emergency Diesel Generator

[95] The diesel air start system, including any control lines, are not part of the Vogtle instrument air system. The Vogtle instrument air system (or compressed air system) is a separate system addressed in a different FSAR section, namely Section 9.3.1. Neither the diesel starting air system nor any of its control lines are included in this system, nor are the systems physically connected. Hill and Ward Rebuttal at 6.

Reliability, which includes specific recommendations regarding the use of air dryers. Tomlinson and Skinner at 3.

461. The results of NRC's review of Vogtle's EDG starting air system was provided in the SER, NUREG-1137, Section 9.5.6 (Board Exh. II-4), dated June 1985. The NRC concluded that the Vogtle EDG starting air system meets design requirements of GDC 1, 2, 4, 5 and 17, and the recommendations of NUREG/CR-0660. Tomlinson and Skinner at 3-4.

462. NUREG/CR-0660 at page V-4, includes a recommendation that refrigerant type air dryers should be used in the EDG starting air system to reduce moisture. The Vogtle facility conforms with this recommendation. As a practical matter, the NRC acknowledges in Appendix E of NUREG/CR-0660 that standard refrigerant driers cannot produce dew points lower than 35F. The refrigerant dryers at Vogtle are factory set at a 35F dew point. Tomlinson and Skinner at 4.

3. No Implications Regarding Character

463. The Board finds that Intervenor's contention that Georgia Power's diesel generator air start system does not meet NRC licensing requirements because it does not comply with ISA Standard S7.3-1975 to be wholly without merit. The Vogtle licensing commitments are clearly delineated in the FSAR sections discussed above and the NRC Staff has thoroughly reviewed and confirmed Georgia Power's compliance with its licensing commitments. It follows that there can be no adverse inferences regarding the character and integrity of Georgia Power in this instance.

4. Historically, There Had Been No Air Quality Problems.

464. In NUREG-1410, Section 3.2.2, the NRC found that Vogtle has maintained its facility consistent with the SRP § 9.5.6 guidance by stating, in part, that:

> The dew point [of the starting and control air system for the Emergency Diesel Generators (EDGs)] has generally been kept at close to 40F. The dryers on occasion have been out of service for short periods: however, no evidence has been found of significant moisture or its effects in the instrument air lines or sensors. The 5-micron filter has always been clean when replaced; no significant amount of contaminants have been found in the instrument air system.

Tomlinson and Skinner at 5.

465. Mr. Stokes, the EDG system engineer at Vogtle since the EDG's were installed, testified that the air receivers were checked for moisture by Operations personnel during their daily plant inspection rounds (Tr. 7125-26, (Stokes)) and, there has been no evidence of moisture discovered in the air receivers since plant operation began in 1987.[96] Tr. 7093, 7681 (Stokes). Furthermore, Mr. Stokes testified there has been no evidence of moisture discovered in the EDG pneumatic control lines during normal operation and no evidence of moisture in the control air filters during routine inspections.[97] Tr. 7385-86 (Stokes).

[96] Mr. Stokes stated there may possibly have been some water discovered in the receivers during preoperational testing. Tr. 7093-94 (Stokes).

[97] Regarding the control air filter inspections, the filters were removed and replaced by the vendor as a part of diesel overhaul activities performed every 18 months. Mr. Stokes received reports from the vendor regarding their inspections and recalled none of the vendor reports indicating discovery of anything unusual. Mr. Stokes believes he would have been told if the vendor personnel had found water or corrosion in the filter. Tr. 7685-86 (Stokes).

466. The diesel vendor expert, Mr. Sheldon OwYoung, testified that if moisture was in the diesel control air system, he would expect it to collect in the control air filter bowl in the diesel engine control panel. He has never seen any evidence of water in that filter at Vogtle. OwYoung and Johnston Rebuttal at 6. Mr. OwYoung inspected the control air filter during the March 1990 outage, prior to March 13. He said that signs of rust or corrosion in the filter bowl would be another key indicator of moisture in the system. Tr. 12502 (OwYoung). Mr. OwYoung noted no evidence of moisture or corrosion products during that inspection. Tr. 12495-502 (OwYoung).

467. Specifically with regard to the March-April 1990 time frame, Mr. Stokes testified that he neither observed nor heard about any water in the Vogtle diesel control air system, including the Calcon sensors and sensing lines. Tr. 7286-87, 7296 (Stokes).

468. The only instances of moisture-related degradation identified in the pneumatic sensors occurred prior to plant operation (corrosion in a pressure sensor) and in 1991 when a vendor technician allowed water from a bubble tester to leak into a pressure sensor, which seized as a result. See Finding 603 infra.[98/]

B. Air Quality Activities in the March-April 1990 Time Frame

1. Dew Point Measurements Prior to the SAE

469. There were out-of-specification dew point readings taken on EDG 1A on March 9, 1990. Georgia Power believes that the readings of 61 F for receiver K01 and 66 F for receiver

98/ Following Mr. Stokes appearance as a witness, Georgia Power learned and disclosed that some moisture had been found in the starting air pressure gauge test connections in the Unit 2 diesel control panels during the February 1995 outage. See Finding 611 infra.

K02 were actual high readings. Ward at 3. At this time, the I&C department was using only one type of instrument to take dew point readings -- an Alnor Model 7200 dew point instrument. Briney Rebuttal at 6.

470. Mr. Ward attributed the high readings to an actual high humidity condition as a result of the system being disassembled for maintenance. Diesel generator 1A, including its air start system, was out of service from March 1 to March 13, 1990 for overhaul maintenance and testing. The EDG 1A air receivers were depressurized and opened to the atmosphere. Tr. 7878-80 (Ward). Mr. Ward wrote a note on his copy of dew point data that he received from the site (GPC Exh. II-62) suggesting that the high dew point reading occurred because the system was disassembled for maintenance. After such maintenance the air receivers must be recharged, which may require multiple "bleed and feed" cycles until the dew point is brought back within the acceptable range. GPC Exh. II-62 shows that by March 12, 1990 the dew point readings were brought within specification and the diesel generator was declared operable on March 13, 1990. Ward at 3-4.

2. March 28 IIT Request for Dew Point Measurement

471. Air quality, including the possibility of small debris or moisture in the diesel air system, was discussed at a meeting with the NRC Incident Inspection Team ("IIT") on March 28, 1990. That meeting was transcribed by the NRC (IIT document #145). See GPC Exh. II-49. In response to a question from the IIT, George Bockhold committed to review the last historic dew point recorded for the 1A diesel prior to March 20, 1990, and, in addition, take new dew point

readings. Both the IIT and Georgia Power were attempting to identify the cause of the 1A diesel spurious trips on March 20, 1990. Bockhold Supp. at 1.

472. Georgia Power I&C technicians performed the monthly preventative maintenance dew point check for EDG 1A on March 29, 1990. See GPC Exh. II-155. The readings recorded were out-of-specification high at 80F and 60F. Id.

473. Mr. Mark Briney, the acting I&C superintendent during March-April 1990, reviewed MWO 1-90-01513 (GPC Exh. II-155), and testified that the I&C technician who took the out-of-specification high dew point readings on March 29, 1990 initiated a deficiency card to address the unsatisfactory dew points on the 1A diesel, but was told by the Operations Shift Supervisor to handle the matter with a maintenance work order ("MWO") instead.[99/] A new MWO was initiated on March 30, 1990 (i.e., MWO 19001651). Int. Exh. II-143; Briney Rebuttal at 5.

474. On April 3, 1990, Georgia Power representatives participated in a telephone conference with IIT and Region II personnel. The telephone conference was transcribed by the NRC (IIT Doc. #257). See GPC Exh. II-50. Mr. Bockhold stated that, based upon tests done, the air quality was satisfactory, and was not considered to be the root cause of the 1A diesel trips on March 20, 1990. Bockhold Supp. at 2.

99/ The Shift Supervisor's instructions appear to be consistent with the Vogtle Deficiency Control procedure (Board Exh. II-6). The procedure does not require a deficiency card when an equipment malfunction or failure is to be corrected with an MWO. This is because the MWO sufficiently documents the condition for evaluation and trending purposes. Id. at § 4.2.1; see also Tr. 12126-27 (Briney).

475. Mr. Briney recalled that NRC Region II inspector, Mr. Milt Hunt, reviewed prior MWOs on the diesels and discovered an unsatisfactory dew point reading on the 1A diesel air receivers. Briney Rebuttal at 5.

476. Mr. Hunt explained that Georgia Power had provided to him MWOs reflecting dew point tests for the diesel starting air system. Tr. 4893 (Hunt). He reviewed the MWOs and noted that on March 29, 1990 out-of-specification high dew point readings were recorded for the EDG 1A air starting system. Hunt Aff. (ff. Tr. 4882) at 5, ¶ 26. The MWO Mr. Hunt was referring to was 19001513. See GPC Exh. II-155. See also Briney Rebuttal at 5.

477. No documentation indicates the exact date Mr. Hunt discovered the unsatisfactory dew point reading for EDG 1A. Mr. Briney testified that he could not recall when Mr. Hunt brought the March 29 EDG 1A high dew point readings to Georgia Power's attention. Tr. 12344 (Briney). However, Mr. Bockhold testified, and recorded contemporaneous statements confirm, the discovery was brought to his attention on the afternoon of April 5, 1990. GPC Exh. II-51 at 5; Bockhold Supp. at 2-3.

478. On April 6, Mr. Bockhold informed the IIT of the March 29, 1990 high dew point readings and passed them on to the IIT and NRC Region II personnel in a telephone conference which was transcribed by the NRC (IIT Doc. #203). See GPC Exh. II-51 at 4. While not completely clear from the transcript, the IIT leader apparently knew about the situation prior to the telephone conference call. Id. Mr. Bockhold explained that on the afternoon of April 5 he had learned that the dew point test results on March 29 were unsatisfactory for the 1A diesel. Mr.

Bockhold further stated that preliminary indications were that the high readings were due to a bad dew point sensor instrument.[100] Id. at 5; Bockhold at 2-3.

479. Mr. Bockhold's reference to a faulty instrument was supported by several observations. No moisture was observed when the EDG 1A air receivers were blown down and a control air system drain tap was opened. Id. at 5-6. High dew point readings were also observed on the EDG 1B receivers and there was no logical explanation for these independent air systems to experience coincident high readings. In any event, representatives of the diesel generator vendor (i.e., Cooper Energy Services) had been contacted to verify Georgia Power's belief that any immediate problem associated with the controls of the diesel did not call into question the operability of the engines.[101] Also, another dew point instrument was being sought on the morning of April 6. (See GPC Exh. II-51 at 5-7.) Bockhold Supp. at 2-3.

3. Precautionary Measures and Investigative Activities Initiated

480. Once Georgia Power management learned, on April 5, of the out-of-specification high dew point readings taken on March 29, 1990, several actions were undertaken in parallel with one another as described below. Briney Rebuttal at 5.

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[100] Intervenor's counsel, referring to Intervenor Exh. II-217 at 1, questioned Mr. Briney at the hearing regarding dew point measurements taken on the Vogtle Unit 2 turbine building instrument air system with the same dew point instrument. The testimony established that the instrument appeared to be giving a reading within the expected range for the instrument air system. Tr. 12172-76 (Briney). In fact, Mr. Bockhold provided this same information to the IIT on April 6 during the telephone conference, noting that the fault in the instrument appeared to be a function of the temperature/pressure dew point of the system being measured. GPC Exh. II-51 at 5.

[101] Mr. Stokes described the Cooper representative's (Mr. OwYoung's) technical opinion, that "if you don't see water then -- then your fine." Tr. 7013-15 (Stokes). NRC inspector Hunt testified that he knew about Cooper's advice to Georgia Power that dew points outside the 32F to 50F range would not necessarily impact diesel operability. Tr. 4897-98 (Hunt). Diesel vendor expert, Mr. OwYoung, stated that the diesel air system had acceptable air quality so long as no water was accumulating in the control air filter bowl. OwYoung and Johnston Rebuttal at 7.

(a) Feed and bleed initiated on 1A receivers

481. As precautionary measures, Georgia Power initiated a "blow down" on the EDG 1A air receivers to check for the presence of moisture, "feed-and-bleed" cycling of the EDG 1A air receivers to lower the dew point, an internal inspection of the EDG 1A K02 receiver, a check of all the diesel control system air filters for the presence of moisture, and dew point measurements on all of the Vogtle diesel air receivers. Briney Rebuttal at 5-6.

482. MWO 19001651 (Int. Exh. II-143) was initiated to investigate the high dew points on the EDG 1A receivers. Briney Rebuttal at 5. The MWO specified that the air dryers were to be inspected for each receiver and run for 24 to 36 hours before rechecking the dew point. Int. Exh. II-143 at continuation sheet 1; see also Int. Exh. II-217 at 1 ("could possibly take a day and a half to get dew point down. Operations has blown down continually since last night."); Tr. 12181 (Briney). The MWO instructions directed I&C technicians to inspect the air dryers and repair them if necessary. Since no repair work is noted, it is reasonable to infer that the dryers were verified to be operating. Tr. 12185-86 (Briney). This inference is supported by MWO 19001513 (GPC Exh. II-155), which documents the March 29, 1990 high dew point readings and indicates that the dryer fan motor was started following maintenance activities. Tr. 12198-200 (Briney).

(b) Additional Measurement Taken on EDG 1A and 1B on April 5 and 6

483. On April 5, EDG 1A dew points were checked again using the Alnor instrument and were found to be high for both receivers on three separate occasions during the day. Intervenor Exh. II-143 at continuation sheets 1-2. See also Int. Exh. II-169 at 2. Although it is not clear

when Georgia Power began to "bleed and feed" the EDG 1A receivers, it appears that activity was underway by at least 6:45 p.m. on April 5 (see Int. Exh. II-80 at 3. See also Tr. 12184 (Briney)) and continued throughout the night (see Int. Exh. II-217 at 1; Tr. 12179-80 (Briney)). In the meantime, Georgia Power was attempting to obtain another dew point instrument to verify the accuracy of the readings. See Int. Exh. II-80 at 3. See also GPC Exh. II-51 at 6. Georgia Power also tried to use a back-up instrument it already had on site, an EG&G Dew Point Analyzer, to take comparison data, even though the vendor's instruction manual could not be located and the I&C technicians taking the measurements had never before used or been trained in the use of the instrument.[102/] Tr. 12081-83 (Briney); Tr. 12784 (Hammond); Int. Exh. II-217 at 1.

484. Additionally on April 5, Georgia Power initiated MWO 19001770 to verify the dew points on the EDG 1B receivers. GPC Exh. II-156. Both receivers yielded out-of-specification high readings with the same Alnor dew point instrument. Id.; see also Int. Exh. II-169 at 3. Thus, all four Unit 1 EDG air receivers had high dew point measurements. Briney Rebuttal at 6. These results caused Georgia Power to shift into a troubleshooting mode to determine whether there was an actual high dew point condition or faulty instrumentation. Tr. 12081 (Briney).

485. Also, the high dew point measurements on EDG 1B led to a deficiency card initiated at 2:00 a.m. on April 6, 1990. Int. Exh. II-79 at 6. The Unit 1 shift supervisor accepted the DC and assigned it a DC tracking number, 1-90-186. Id.; Briney Rebuttal at 10.

[102/] Intervenor established at the hearing that the EG&G Model 911 instrument had been used by I&C technicians on one occasion in 1989. See Tr. 12216-17 (MWO 18900822 reflects dew point readings taken by I&C technician using an EG&G instrument). Other MWOs referenced by Intervenor as showing that VP-1114 was used prior to this time reflected use by electrical maintenance personnel, not I&C technicians. Tr. 12215-19 (Briney).

(c) Feed and Bleed Had No Effect on 1A Receiver Dew Point Readings

486. Later on April 6, Georgia Power took five additional dew point measurements on EDG 1A's K01 receiver and three additional measurements on the K02 receiver with the Alnor instrument.[103/] All readings were out-of-specification high.[104/] See Int. Exh. II-143 at continuation sheets 2-3; see also Int. Exh. II-169 at 2. Further, according to the I&C Outage Log[105/] (Int. Exh. II-217 at 2) and a transcript of Mr. Bockhold's daily conference call with the IIT (GPC Exh. II-51 at 6), dew point readings were taken for all Unit 1 and Unit 2 air receivers and all were out-of-specification.

487. In addition, the I&C Outage Log for April 6 reveals that Georgia Power was to receive an additional dew point instrument from General Electric at 5:30 p.m. that afternoon. Int. Exh. II-217 at 2.

(d) One EDG 1A Receiver Inspected - No Significant Corrosion

488. One EDG 1A air receiver tank (K02) was inspected by Georgia Power and NRC Staff representatives on April 6 and found to be clean inside. Hunt Aff. at 5; Stokes at 2-3; Bockhold

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[103/] The K02 receiver was bled down by mechanics sometime between 9:30 a.m. and 3:30 p.m. on April 6 and opened for an inspection of its internals for signs of rust or corrosion. Thus, no additional dew point readings could be taken on the K02 receiver until it was closed and repressurized. See Int. Exh. II-143 at continuation sheets 2-3. See also Int. Exh. II-169 at 2.

[104/] Moreover, the continual "bleed and feed" cycles on the EDG 1A receivers which began on April 5 were having no appreciable effect on the receivers' dew points, further suggesting the measurements were inaccurate. See Finding 498, infra.

[105/] The I&C Outage Log was an informal log, not controlled by plant procedures, maintained by I&C supervisory personnel as a means for providing information from one shift of I&C technicians to another shift. Tr. 12170-71, 12386 (Briney).

Supp. at 5. There were light rust spots on the welds inside the tank but that was normal and to be expected. NRC inspector Hunt recalled that there was also possibly a light oil film inside the tank but that was not unusual or a concern in Mr. Hunt's opinion. Hunt Aff. at 5; see also Shipman Rebuttal at 14; Tr. 10919-21 (Shipman); GPC Exh. II-147. There was nothing that indicated a moisture buildup was occurring in the control air. Tr. 7385-87, 7685-86 (Stokes); Tr. 12495-97 (OwYoung and Johnston); Bockhold Supp. at 9; Tr. 4926 (Hunt).

489. NRC inspector Hunt also inspected all of the control system air filters with each one appearing to be in a "like new" condition. Hunt Aff. at 6. See also Tr. 4930 (Hunt). Upon the completion of these inspections, Mr. Hunt concluded that there was no air quality problem that would cause the diesels not to start. Everything functioned and the filters were in an "as new" condition. Tr. 4930 (Hunt); Hunt Aff. at 6.

(e) Measurements on April 6 and 7 With Three Different Instruments

490. During the night shift on April 6, 1990, which carried over into the early morning hours of April 7, Georgia Power again took dew point measurements for Unit 1 and Unit 2 diesel generator air receivers. All of the readings were taken by the same I&C technician who used three different instruments: (1) the Georgia Power Alnor Model 7200 instrument (VP-2466), (2) the Georgia Power back-up instrument -- EG&G Model 911 instrument (VP-1114), and (3) the G.E. rental Alnor Model 7000 instrument which had been received.[106/] Briney Rebuttal at 5-7. The results were also recorded in the I&C Outage Log at 4:25 a.m. (Int. Exh. II-217 at 4) and on

[106/] These dew point readings were taken pursuant to, and the results were recorded in, the following MWOs: for EDG 1A, see MWO 19001651 (Int. Exh. II-143); for EDG 1B, see MWO 19001770 (GPC Exh. II-156); for EDG 2A, see MWO 29000964 (Int. Exh. II-146); and for EDG 2B, see MWO 29001021 (GPC Exh. II-157).

a hand-written sheet by Mr. Briney (GPC Exh. II-52). Briney Rebuttal at 7. The readings taken with the Georgia Power instrumentation were out-of-specification high while the G.E. rental instrument readings were questionably low. See Int. Exh. II-169.

491. These results caused Mr. Briney and his I&C technicians to doubt the accuracy of the readings.[107] With the exception of the Unit 2A air dryer (discovered on April 7 to be powered-up but turned off), Georgia Power was not aware of any problems with the air dryers, and with the dryers running there was no logical reason for eight independent air systems to be out-of-specification at the same time. Mr. Briney also knew that dew point measurements normally had been within specification in the past, and suspected that the instrument readings were simply wrong. Briney Rebuttal at 6.

492. Mr. Briney could not draw any definitive conclusions from the dew point results obtained on April 6-7. Mr. Briney and his I&C technicians taking the measurements were convinced that eight independent air systems could not suddenly, without explanation, fail to provide satisfactory air to the receivers. Id. His testimony reveals Georgia Power's decision-making process regarding the validity of the high dew point readings.

> I knew that the I&C department took diesel generator air system dew point readings on a monthly basis. I was quite familiar with the diesel air system and did not believe that all eight air receivers would be out of specification at the same time. Each unit at Vogtle has two diesel generators and each diesel has two independent air

[107] Mr. Briney had directed the I&C technicians to do the April 6-7 testing with three different instruments as a means of verifying the accuracy or inaccuracy of the Alnor instrument. However, neither he nor his I&C technicians doing the testing were familiar with the EG&G Model 911 instrument, and the G.E. rental Alnor dew point instrument was a different model than the Alnor routinely used by Georgia Power. Briney Rebuttal at 6-7; Tr. 12081-85 (Briney).

> receivers; thus, there are eight independent air supplies for the diesel control systems.
>
> My experience was that out of specification measurements were rare, and to my knowledge there were never multiple diesels with air receivers out of specification at the same time. Furthermore, the most recent monthly dew point checks had not revealed any problems. Thus, my experience caused me to doubt the validity of the Alnor instrument readings.
>
> Georgia Power's EG&G instrument had never [to my knowledge] been used by the I&C technicians while I was at Vogtle. The instrument was different from the Alnor instrument. I, along with I&C foreman Scott Hammond, inspected the instrument and attempted to use it the best way we could determine to obtain additional dew point data. However, our inexperience with the instrument caused us to doubt the reliability of the measurements we were getting.
>
> The readings obtained using the GE rental Alnor were significantly lower than the readings obtained with the Georgia Power Alnor and EG&G instruments, and were generally more in line with previous dew point measurements than the out of specification high readings. However, the differences between these readings and the other instruments' readings made them inherently suspect.

Briney Rebuttal at 7-8.

493. Mr. Briney's hand-written list of high dew point measurements (GPC Exh. II-52) was provided to the NRC staff. NRC inspector Hunt recalled seeing a document similar to GPC Exh. II-52 while he was at the plant (Hunt Aff. at 5). Mr. Hunt also remembered being informed by Mr. Bockhold that the dew point instrumentation was believed to be inaccurate. Tr. 4924-25 (Hunt).[108/]

[108/] At the hearing Mr. Hunt reviewed GPC Exh. II-52 and stated that, in retrospect, since the GPC Alnor and GPC EG&G readings were so close he would question whether or not there was, in fact, a faulty instrument or an actual high dew point condition. Tr. 4928 (Hunt).

(f) Additional Dew Point Instrument Sought

494. Mr. Hunt suggested to Mr. Bockhold that he borrow dew point test equipment from the V.C. Summer Nuclear Plant in order to verify the actual dew point of the air receivers. Hunt Aff. at 5; Tr. 4925 (Hunt).

495. Mr. Briney followed this advice and directed his staff to contact the I&C department at the V. C. Summer plant and borrow one of their dew point instruments. In addition, Mr. Briney specifically requested that instructions on how to use the loaned instrument be provided as well. Briney Rebuttal at 7; Tr. 12084 (Briney).

496. Georgia Power received the V.C. Summer dew point instrument, an EG&G Model 911 instrument (FS-3529) identical to the Georgia Power's VP-1114, some time on April 7 or 8, along with an instruction manual. Mr. Briney immediately noticed that the borrowed instrument had a flow meter attached to it to precisely monitor and control the air flow rate through the instrument. The I&C technicians had not used a flow meter when taking the readings with VP-1114 earlier. This caused Mr. Briney to further doubt the validity of the earlier VP-1114 data. Briney Rebuttal at 8-9; Tr. 12088 (Briney); Tr. 12784-85 (Hammond).

(g) Dew Point Readings with Borrowed Test Instrument

497. During the night shift on April 7, 1990, which carried over into the early morning hours of April 8, Georgia Power took another set of dew point readings for the Unit 1 and Unit 2 air receivers. See Int. Exh. II-217 at 5-6. The dew point readings were taken with the two EG&G instruments, VP-1114 and FS-3529. The information provided by V.C. Summer

regarding proper use of the instrument greatly assisted Georgia Power's I&C technicians in learning how to properly use their own EG&G instrument. The readings obtained with the two EG&G instruments were in close agreement with each other (Tr. 12085 (Briney)) and, all of the readings were in specification except the EDG 2A K02 receiver, whose dryer was found to be turned off.[109] Briney Rebuttal at 9; Bockhold Supp. at 4. See also GPC Exh. II-53. The readings for the four Unit 1 receivers were completed before the 7:00 a.m. (Central) plant status telephone call (Int. Exh. II-17 at Project Number 048000) and other evidence tends to show that all of the Unit 2 readings were completed by then as well. See Int. Exh. II-217 at 5 (I&C Outage Log page completed by night shift I&C supervisor Mr. S. Boutwell with night shift designated by showing the date of the log entries as 4-7/4-8).

498. Plant records, as discussed above, document "bleed and feed" cycling being performed on the EDG 1A receivers at this time; there are no plant records indicating "bleed and feed" cycling on any other receivers prior to the April 8 dew point readings. Thus, the EDG 1A receivers may have had their dew point modified from the high readings obtained on April 5 until

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[109] See footnote 106, supra, for a listing of each MWO documenting the results of these readings. These records reveal the following results, measured in F:

	VP-1114	FS-3529
EDG 1A:		
K01	34.2, 35.5	40.3, 39.2
K02	33.2, 34	42.3, 42.8
EDG 1B:		
K01	44.5	45.9
K02	36.6	40.8
EDG 2A:		
K01	43.9	39.7
K02	60.9	61.4
EDG 2B:		
K01	33.7	39.5
K02	44.4	44.6

in-specification readings were obtained on April 8. However, plant records also indicate that if the "bleed and feed" cycling was taking place, it was having virtually no effect on dew point. See Int. Exh. II-169 for EDG 1A dew point reading results for April 5-8, 1990. This, of course, makes no physical sense. Except for inaccurate dew point measurements, these results defy logic.

499. Finally, on April 8, after obtaining what Georgia Power believed to be accurate readings with the VP-1114, which showed all receivers within specification except for EDG 2A K02, Mr. Bockhold directed the I&C department to have Vogtle Operations personnel "bleed and feed" the EDG 2A K02 receiver to lower its dew point. Int. Exh. II-217 at 6-7; GPC Exh. II-61 at 4-5.

500. Mr. Briney testified that this series of events caused him to believe that the initial readings taken with VP-2466 on March 29, 1990 as well as subsequent measurements in the April 5-7 time frame were higher than the specified range because the instrument was defective. The confirmatory measurements taken with VP-1114 in the April 5-7 time frame were not reliable because the I&C technicians performing the measurements lacked experience using the instrument, could not locate the vendor's instruction manual, and took readings without the necessary flow meter.[110/] Tr. 12083-84 (Briney); Briney Rebuttal at 10.

[110/] NRC witness, Mr. Skinner, reported on a conversation he had with an EG&G representative who stated that it would have been extremely difficult for an I&C technician to throttle flow to the correct level without a flow meter (Tr. 14644-45 (Skinner)) and that insufficient flow causes higher dew point readings (Id.).

501. Mr. Briney testified that he provided this information to Mr. Bockhold. He is certain that the April 9 letter's attribution of the cause of the initial high readings[111/] to faulty instrumentation is information he provided to Mr. Bockhold. Tr. 12285-86, 12288 (Briney).

502. DC 1-90-186 (Int. Exh. II-79 at 6-8) was subsequently closed out through the normal plant DC process. The root cause determination worksheet states, in pertinent part, "[t]he Alnor Dew Point Analyzer was found to defective. Subsequent retesting using an EG&G Analyzer provided incorrect readings which were attributed to technician's unfamiliarity with this type of analyzer." Id. at 8. We find the DC, and its root cause determination worksheet, to be a reliable contemporaneous record of the decision-making process discussed above regarding the belief of the I&C department personnel involved in the resolution of the high dew point issue.

4. April 9 Call to the IIT.

503. The NRC was informed of the high EDG 2A receiver K02 dew point reading on April 9, 1990 in both a morning telephone conference call with the IIT (GPC Exh. II-61 (IIT Document No. 206)) and in the NRC Region II meeting in Atlanta (Int. Exh. II-70 at 5).

504. Mr. Ward, a participant on the April 9 IIT telephone conference call (see GPC Exh. II-61), recalled that the IIT participants were advised that Georgia Power had obtained a new dew point instrument from the V.C. Summer nuclear plant and had subsequently taken dew point readings which were all within the acceptance band of 32 F to 50 F, except one, which was out-of-specification high at 60.9 F on the 2A diesel. Further, Georgia Power explained that the high

111/ Mr. Bockhold intended the letter to refer only to the March 29, 1990 high dew point readings on EDG 1A. Bockhold Supp. at 5; see also Mosbaugh at 73.

reading on the 2A diesel was attributed to the associated air dryer being inadvertently turned off, most likely on Friday (April 6). Mr. Chaffee indicated that the Unit 2 diesel-related air quality history was not of substantial interest to him; he said "we just need the information that shows us to what extent air poor [sic] quality might have had an impact on the operation of unit 1A diesel." GPC Exh. II-61 at 5-6. Ward at 2-3. Georgia Power offered to provide the past year's dew point readings through March 31, 1990 for EDG 1A. GPC Exh. II-61 at 8-9.

505. Mr. Ward also told the IIT personnel that Plant Vogtle personnel had inspected control air filters in March, 1990 and that the filters looked new and did not appear to have been subjected to "dirty" air. GPC Exh. II-61 at 9; Ward at 3.

5. Air Quality Statements at the April 9 Presentation

506. Notes taken at the April 9, 1990 meeting by the Vogtle Licensing Manager, Mr. James Bailey, indicate that Georgia Power informed the NRC that Georgia Power had used a "bad" dew point instrument, but obtained another instrument from the V.C. Summer plant and learned how to use Georgia Power's "back-up" instrument. Thus, Georgia Power concluded the EDG starting air quality was "good." See Int. Exh. II-70 at 4-5.

507. Intervenor conceded that Mr. Bailey's April 9, 1990 notes (Int. Exh. II-70 at 4-5) along with Mr. Ward's April 8, 1990 notes (Int. Exh. II-17 at Project No. 048000) indicate that Mr. Bockhold told the NRC on April 9 and the corporate duty manager on April 8 that site personnel had been using the "back-up" instrument incorrectly, VP-1114, when it gave high readings on April 5-7. Tr. 8786-88 (Mosbaugh).

508. Contemporaneous notes taken by Mr. Bockhold during the April 9 meeting with the NRC (Int. Exh. II-71) support Georgia Power's recollection of telling the NRC that air quality was good and that high readings were attributed to a faulty dew point instrument. Id. at Project No. 006214. Mr. Bockhold also noted that Vogtle had experienced a "long period [of] good air quality," and that inspections of an air receiver as well as the control air filters and daily air receiver blowdowns confirmed that air quality was acceptable. Id.

6. April 9 Letter Addresses Air Quality

509. Georgia Power's letter to the NRC, dated April 9, 1990 stated with respect to the air quality issue:

> GPC has reviewed air quality of the D/G air system including dew point control and has concluded that air quality is satisfactory. Initial reports of higher than expected dew points were later attributed to faulty instrumentation. This was confirmed by internal inspection of one air receiver on April 6, 1990, the periodic replacement of the control air filters last done in March, 1990 which showed no indication of corrosion and daily air receiver blowdowns with no significant water discharge.

GPC Exh. II-13 at 3.

510. This statement was intended to discuss the current status of the diesel control air quality; it was not intended to describe all past maintenance issues. The letter conveyed Georgia Power's judgment on April 9, 1990, that the diesel control air quality relative to moisture or humidity was satisfactory at that time. Bockhold Supp. at 5.

(a) "Initial Reports" Was Intended to Refer to March 29 Measurement

511. The reference to "initial reports of higher than expected dew points" referred to the initial dew point readings recorded after the March 20, 1990 Site Area Emergency on EDG 1A (i.e., March 29, 1990). Bockhold Supp. at 5; GPC Exh. II-55A at 2.

512. Intervenor agreed that this was Mr. Bockhold's intended meaning for "initial reports." Intervenor testified that Mr. Bockhold told him that the terminology referred to the March 29, 1990 high dew point readings on the EDG 1A receivers. Mosbaugh at 73.

513. The remainder of the statement was intended to say that Georgia Power's conclusion that air quality is satisfactory is supported by the fact that (1) an air receiver was inspected on April 6 and no evidence of unsatisfactory air quality was found, (2) air filters were inspected and no evidence of unsatisfactory air quality was found, and (3) air receiver blowdowns, which yielded no significant water discharge, were done daily and did not indicate a high humidity environment in the starting air system. Bockhold Supp. at 5-6; GPC Exh. II-55A at 2.

7. Georgia Power Provides IIT with Historic Dew Point Data for EDG 1A

514. As discussed above, Georgia Power participated in a conference call with NRC IIT members on April 9, 1990. See GPC Exh. II-61. Mr. Skip Kitchens, then the Vogtle Assistant Plant General Manager-Operations, advised the IIT members that the latest dew point measurements (i.e., those taken on April 8, 1990) indicated that all of the air receivers were in specification except for one, for which the measurement was 60.9 F. Mr. Kitchens then told the IIT he

believed that a possible reason why the dew point was high on that one air receiver was because the air dryer had been inadvertently turned off. Kitchens Rebuttal at 7-8.

515. As a follow-up, the IIT leader, Mr. Chaffee, asked about the "history of these air dryers," and then requested "information that addresses the air-dryer performance on" the Unit 1 air dryers. Mr. Chaffee explained that he needed "the information that shows us to what extent air poor quality [sic] might have had an impact on the operation of the Unit 1-A diesel." He suggested that maybe we could just give him a "table of these surveillance results over the past couple of years." Mr. Kitchens suggested that he could have somebody look up the dew point readings over the last year of preventive maintenance ("PM") work orders and understood this was acceptable (i.e., he would provide monthly PM dew point measurement results for a year prior to the March 1990 Site Area Emergency). Kitchens Rebuttal at 8; GPC Exh. II-61 at 5-9. See also Ward at 3.

516. On April 11, 1990, Mr. Kitchens provided the IIT with a table of dew point measurements for the 1A diesel generator going back to March 1989. Kitchens Rebuttal at 9; GPC Exh. II-57.

517. Intervenor asserted that Georgia Power provided incomplete and inaccurate information to the NRC in response to the NRC's request for a table of dew point results. Specifically, Intervenor contends that Intervenor Exh. II-82 (same as GPC Exh. II-57) is not accurate and

complete because the high readings obtained by Georgia Power in the April 5-7 time frame were not included on the list. Mosbaugh at 90-92; Tr. 10519-20 (Mosbaugh).[112]

518. Mr. Kitchens did not include the dew point readings from April 5-7 for several reasons. First, IIT leader, Mr. Chaffee, was asking for data over the past year which might shed light on the March 20, 1990 event. Obviously, dew point data from early April 1990 would not be important for this purpose. Even if Mr. Chaffee had requested the early April 1990 data, Georgia Power did not believe the dew point readings taken during April 5-7. The readings for all eight air receivers were outside the acceptable range at the same time and Georgia Power did not believe these results could be accurate. Mr. Kitchens knew about this belief as well as the belief that instrumentation was not being used correctly. Mr. Kitchens viewed it pointless to give the NRC dew point information that Georgia Power did not believe to be correct. Kitchens Rebuttal at 9.

519. Moreover, there was no need to provide this data along with the past year's data since Mr. Kitchens believed that the NRC was fully aware of the out-of-specification readings for the air receivers, and also that NRC knew Georgia Power questioned the accuracy of the measurement equipment. This is confirmed by the transcript of the April 9, 1990 conference call with the IIT. See GPC Exh. II-61. During that call, Mr. Chaffee of NRC, apparently referring to a phone call he received on Saturday, April 7, said that what he "heard later that day [Saturday] was that you had gotten a new instrument, but when you did testing with it, you got negative numbers,

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[112] We note that Intervenor provided Mr. Bockhold with a summary of diesel 1A historical performance on April 10, 1990 that is very similar to GPC Exh. II-57 and also excluded high dewpoint readings obtained in the April 5-7 period. See GPC Exh. II-54.

which didn't make any sense. So, you were going to go get another instrument for measuring the air quality from Hatch, and I don't know -- have you gotten that instrument and used it, or are you still waiting for it?" Id. 3-4. This exchange convinced Mr. Kitchens that Mr. Chaffee knew of the readings obtained prior to Vogtle's receipt of the new instrument. Mr. Ward replied they had received another instrument, but from the V.C. Summer plant, that was "identical or similar to the [instrument] we originally had and all of the numbers that were reported Sunday were in the range of 36 to 45 degrees." Id. at 4. This exchange indicated to Mr. Kitchens that Mr. Chaffee knew about the out-of-specification dew point readings and knew about Georgia Power's concerns with the instrumentation. Kitchens Rebuttal at 9-10.

520. Mr. Kitchens explained to Mr. Chaffee that he would endeavor to provide the NRC with the monthly PM results that show dew points for the last year. GPC Exh. II-61 at 7-9. Mr. Kitchens believed the information he provided to the IIT on April 11 was responsive to their request. Kitchens Rebuttal at 10.

8. M&TE Requirement to Verify Prior Defective Instrument Readings

521. The Vogtle M&TE program procedure requires a review when prior readings, which are being relied upon to satisfy some operating requirement, are later determined to have possibly been taken with a defective instrument. Briney Rebuttal at 12; Tr. 12090 (Briney); Tr. 8194 (Duncan). Mr. Briney's rationale for not doing such a review in April 1990 was that the newly obtained readings with the VP-1114 instrument had become the basis for complying with the dew point specification. There was no reason to go back and reverify prior EDG dew point measurements. Further, Mr. Briney believed that if a problem had existed in the past, resulting

in actual out-of-specification dew points being misread as in-specification, signs of moisture-related problems would have been discovered by air receiver blow-downs, control air filter inspections, or maintenance overhaul inspections. Briney Rebuttal at 12.

522. Mr. Briney acknowledged that the only certain method for knowing if the Alnor VP-2466 instrument was truly faulty or defective would have been to send it to the vendor for a calibration investigation. However, Mr. Briney did not recall requesting that action. Tr. 12089 (Briney). Mr. Briney relied upon the normal M&TE program procedures to ensure that VP-2466's calibration status was determined and any subsequent investigations of prior readings were performed. Tr. 12091 (Briney). Mr. Briney could not recall personally communicating his determination that the VP-2466 was defective to the M&TE program personnel so as to trigger the vendor calibration check, but he believes they were informed. Tr. 12091-92 (Briney).

523. Mr. Briney's reliance on the Vogtle M&TE program appears to have been reasonable in this instance for two reasons. First, DC 1-90-186 (Int. Exh. II-79 at 6-8), and its attached root cause determination worksheet explained that the Alnor VP-2466 instrument was defective.[113] Briney Rebuttal at 10-11. Second, the calibration due date for the suspected defective Alnor VP-2466 instrument was April 7, 1990. Briney Rebuttal at 13. Either of these events alone (i.e., the DC determination that the instrument was defective or the occurrence of calibration due date)

[113] The DC root cause determination worksheet also stated that the EG&G instrument was initially used improperly. The recommended corrective action was to revise the dew point measurement preventive maintenance checklist to require use of only the EG&G instrument in the future. See also Tr. 12313 (Briney). The Alnor was not to be used in the future, therefore, it was effectively being removed from the M&TE program.

should have triggered the M&TE program to have the calibration of the Alnor verified.[114] Tr. 12292-93 (Briney).

524. Georgia Power did eventually send the Alnor instrument to the vendor to have its calibration status checked. In January 1991, Georgia Power shipped the VP-2466, along with another Alnor instrument (VP-2721, Serial No. 24997) to the Alnor Instrument Company for calibration and change of radioactive source from RA-226 to AM-241. Alnor determined that the appropriate service required for both test instruments was "repair/calibrate" and the instrument was repaired before calibration services were performed. Since the instrument was determined by Alnor to be in disrepair, no "as found" calibration data was taken. VP-2466 was repaired and calibrated on May 15, 1991 by Alnor. Among other documentation, Alnor sent to Georgia Power a "Certificate of Traceability," dated May 15, 1991, bearing the designation "AFTER DATA." This designation was intended to convey to Georgia Power that no "as found" data was taken. Int. Exh. II-215; GPC Exh. II-201 (Duncan Affidavit).

525. Georgia Power's calibration "History" sheet for VP-2466 was erroneously completed when the "accept" column was checked. Thus, no investigation of prior readings was undertaken for VP-2466. The "non-accept" column should have been checked for the calibration interval covering the March-April 1990 period based on the absence of "as found" data for the instrument. Without "as found" data, the instrument cannot be considered in calibration as received. Id.

[114] Mr. Duncan testified that his recollection was that the VP-2466 was eventually sent to the vendor for a calibration status determination because of the calibration due date occurrence. Tr. 8199 (Duncan).

C. NRC Staff Position

1. NOV Initially Found the April 9 Statement Incomplete.

526. The NRC's Vogtle Coordinating Group ("VCG") February 9, 1994 Analysis included a comparison of the OI and VCG conclusions for each matter in the OI Report and a comparison of each OI conclusion with the conclusion reached by the VCG. Staff Exh. II-45. However, with regard to air quality, OI did no investigation of the issue. There were no interviews of Georgia Power witnesses on this topic and there was no documentary fact finding conducted. See Int. Exh. II-39 at 95-96. Based on an evaluation of the evidence, the VCG identified a number of instances where Georgia Power failed to provide to the NRC information that was complete and accurate in all material respects. Among other things, the VCG concluded that Georgia Power failed to provide complete information regarding control of EDG air quality (i.e., dew points) in the April 9, 1990 letter to the NRC by only stating that initial reports of high dew points were attributed to faulty instrumentation. The VCG found that the letter failed to state that high dew points for Vogtle Unit 1 were also attributable to system air dryers occasionally being out of service for extended periods and to system repressurization following maintenance. Matthews, Skinner, and Hood at 4, 7.

527. Based in part on this conclusion, on May 9, 1994, the NRC issued to Georgia Power a Notice of Violation and Proposed Imposition of Civil Penalties ("NOV") (Staff Exh. II-46). Matthews, Skinner, and Hood at 7-8.

528. After considering Georgia Power's response to the NOV, the NRC Staff changed its position regarding Violation B (regarding air quality). The VCG's November 4, 1994, conclusions and recommendations to NRC management (Staff Exh. II-50) concluded, with respect to Violation B, that the April 9, 1990, letter was not intended to present historical information concerning air quality and that it was reasonable to present information contemporaneous with the event. Matthews, Skinner, and Hood Panel at 9.

529. At the hearing, Staff witness Mr. David Matthews, speaking for a panel which included Messrs. Skinner, Hood and himself, stated that based on testimony during the course of the hearing the witness panel had concluded that the air quality portion of Georgia Power's April 9 letter was incomplete in that it failed to refer to misuse of equipment as well as faulty equipment in explaining the "initial high readings." Tr. 14756-57 (Matthews).

530. We find this determination to be largely inconsequential. We note that Mr. Matthews acknowledged Georgia Power's reference to faulty instrumentation in the April 9 letter was an explanation for the March 29, 1990 high dew point readings on EDG 1A. Tr. 15092 (Matthews). We note also that Georgia Power's back-up EG&G instrument was not used to take those readings. Id. Those readings were taken with the Alnor VP-2466, the suspected faulty instrument. Thus, misuse of the instrument was not a factor in the March 29 dew point readings, to which the statement was intended to refer. See Tr. 15092-93 (Matthews).

531. In any event, evidence adduced at the hearing clearly demonstrates that Georgia Power was not trying to cover up the fact they had problems using the back-up EG&G instrument. At the April 9 meeting, they informed the NRC that Georgia Power not only had a "bad"

instrument, but also that they had to learn how to use the backup instrument. See Int. Exh. II-70 at 4-5 (Bailey April 9, 1990 meeting notes indicating Georgia Power told the NRC that it had used a "bad" dew point instrument, but obtained another instrument from the V.C. Summer plant and learned how to use Georgia Power's "back-up" instrument).

532. Finally, the NRC Staff panel acknowledged that the incomplete "faulty instrumentation" reference, supra, (because it did not also mention misuse of the backup EG&G instrument) was immaterial to the NRC's decision to allow Vogtle to restart on April 12, 1990 (i.e., it would not have had any affect on the NRC decision) (Tr. 15090-92 (Matthews)) and that they were not aware of any NRC efforts underway to re-examine the enforcement action (Tr. 15114 (Matthews)).

D. Intervenor's Position

1. Georgia Power's April 9, 1990 Letter to the NRC Was Inaccurate and Incomplete Regarding Air Quality

533. Intervenor alleges that Georgia Power knew (or should have known) that it's April 9, 1990 confirmation of action response letter was inaccurate and incomplete with respect to air quality in that (1) no air quality review as stated in the letter was performed (Mosbaugh at 67-68), (2) air quality, as stated in the letter, was not satisfactory because dew point readings were out-of-specification high (Mosbaugh at 68-72), (3) there was no faulty dew point instrument (Mosbaugh at 72-82), and (4) the air receiver exhibited corrosion (Mosbaugh at 82-83).

(a) No Air Quality Review Was Performed

534. Intervenor asserts that the April 9, 1990 letter was inaccurate in stating that "GPC has reviewed air quality . . ." because, he alleges, no air quality review was performed. His assertion is without merit. Georgia Power and the NRC together reviewed air quality following the March 20, 1990 event. For example, GPC Exh. II-49 at 95-97 (partial transcript of March 28, 1990 IIT briefing), GPC Exh. II-50 at 59-60 (partial transcript of April 3, 1990 IIT briefing), and GPC Exh. II-51 at 4-9 (Partial transcript of April 6, 1990 IIT briefing), indicate Georgia Power and the NRC were actively reviewing diesel air quality. The NRC's Messrs. Hunt and Kendall were actively involved in Georgia Power's air quality review. Mr. Hunt reviewed past MWOs where dew point readings were recorded (Hunt Aff. at 5), inspected all of the diesel control air filters (Hunt Aff. at 6; Tr. 4930 (Hunt)), participated in the EDG 1A air receiver internal inspection (Hunt Aff. at 5; Tr. 4927-28 (Hunt)), and reviewed Georgia Power's dew point results over the April 5-8 time frame (Hunt Aff. at 5-6; Tr. 4928-29 (Hunt)). Mr. Hunt concluded, upon completion of these inspection activities, that there was no diesel air quality problem at Vogtle. Hunt Aff. at 6; Tr. 4930 (Hunt). Mr. Kendall reviewed air quality as part of his root cause determination efforts. Tr. 5020 (Kendall). Mr. Kendall also recalled that air filter inspections and an air receiver inspection were performed and were satisfactory. Tr. 5099 (Kendall). Thus, there is ample evidence in the record demonstrating that air quality was in fact reviewed by both Georgia Power and the NRC (Region II and IIT personnel).

(b) Dew Point Readings Were Out-of-Specification High.

535. Intervenor alleges that Georgia Power's April 9, 1990 letter was inaccurate in stating air quality was satisfactory because EDG air system dew points were above the acceptance criteria around the time of the March 20, 1990 event and just before the April 9 meeting with the NRC. Mosbaugh at 68. Intervenor's position is that in-specification dew point readings are the only means by which Georgia Power can truthfully state that air quality is satisfactory. Id. at 68-69.

536. Intervenor's assertion that dew points were above the acceptance criteria "around the time" of the March 20 event is misleading. The last dew point readings on EDG 1A prior to the event were within specification. See Int. Exh. II-169 at 1 (the March 12, 1990 readings are 48F for K01 and 45F for K02).

537. The Board observes that there is no evidence in the record to suggest that Georgia Power in any way misrepresented to the NRC that dew point measurements have always been in-specification. For example, the IIT was aware that air dryers had occasionally been out of service at Vogtle (which, of course, prevented literal compliance with the dew point specification) but that other indicators of air quality such as control air filter inspections ensured acceptable air quality. See Tomlinson and Skinner at 5 (quoting NUREG-1410, § 3.2.2).

538. The high dew point readings primarily referred to by Intervenor as demonstrating the inaccuracy of the April 9 letter are the April 5-7 readings discussed in Findings 483-490, supra.

As explained in that section, Georgia Power did not believe those readings, but nonetheless, provided them to the NRC IIT and NRC Region II inspector, Mr. Hunt. See Findings 491-93.

539. Furthermore, the diesel engine vendor expert, Mr. OwYoung, testified that the Calcon sensor brochure recommendation for "clean, dry air" does not require a specific moisture content limit. Cooper, the EDG vendor, recommends only that the moisture content be maintained such that no water is accumulating in the control air filter bowl. OwYoung and Johnston Rebuttal at 7. Thus, we find Intervenor's assertion that in-specification dew point readings are the only means for demonstrating acceptable air quality is not correct from a technical perspective.

540. Mr. Stokes testified that when Georgia Power obtained dew point readings that were out-of-specification high, they would take steps to ensure that there was no moisture in the control air system, including checking the blowdown from the air receivers. If they found moisture there, which he said they had not, then they would check for moisture in the engine control panel. Tr. 7028 (Stokes). Mr. Stokes did recall that there was some moisture in the air receivers during plant startup, prior to 1986. Tr. 7093-94 (Stokes). See also Board Exh. II-5 at 5 (March 28, 1990 IIT interview of Mr. Stokes).

541. The diesel vendor representatives, Messrs. OwYoung and Johnston, have been involved in every major maintenance of the Vogtle diesels. They were present for the disassembly of most of the diesel sensing lines, including the high jacket water temperature lines and the jacket water pressure lines, in March and April of 1990. They performed the diesel logic functional testing, including the disconnection of all of the protective trips within the engine control panel. Tr. 12471 (Johnston). They testified that they did not recall observing or hearing about

water or moisture in the diesel starting or control air. Had water been drained from a control air trip line, we believe they would have learned about it. OwYoung and Johnston Rebuttal at 2, 4-5; Tr. 12758-59 (OwYoung and Johnston).

542. Mr. OwYoung also testified that if water somehow formed in the pneumatic control system, he would expect to see evidence of it in the bowl of the control air filter in the diesel engine control panel.[115/] However, he has never seen any evidence of water in the filter at Vogtle. OwYoung and Johnston Rebuttal at 5-6.

543. The NRC Staff experts agreed that the out-of-specification dew point readings reflected on Int. Exh. II-169 were not significant to safety. Specifically, they testified:

> During the six months preceding the SAE on March 20, 1990, there was only one out-of-specification reading on DG 1A and one on DG 2A air receivers. In addition, GPC's practice was to perform daily blowdowns on the air receivers which would remove any accumulated moisture if present in the receivers. There were no failures of any DG during this time attributed to moisture problems. Inspections were conducted of the air filters and the interior of one DG 1A receiver, and the out-of-specification dew point conditions were corrected. The NRC Resident Inspection Staff has subsequently observed that when an out-of-specification dew point is identified, the associated receiver is normally isolated and removed from service to minimize the potential for the introduction of moisture into the system until the out-of-specification condition is corrected. Given the corrective actions taken and the absence of corrosion, the high dew point readings do not appear significant.

Tomlinson and Skinner at 12-13.

115/ The control air filter assembly is designed to separate any moisture from the control air and trap it beneath a baffle in the bottom of the filter bowl. The baffle prevents air turbulence from re-entraining the water into the air stream. GPC Exh. II-87 at 2.

544. Mr. Bockhold held a meeting with Plant Vogtle personnel on the morning of April 11, 1990, to discuss the air quality concern being raised by Mr. Mosbaugh. The meeting was attended and secretly taped by Mr. Mosbaugh (Tape 41). GPC Exh. II-55A. Mr. Bockhold questioned a number of the plant system engineers, including Messrs. Ken Stokes, Paul Kochery, Paul Burwinkel, and Tim Steele about the accuracy of the air quality statement in the April 9 letter. Mr. Bockhold explained that the reference to "initial reports" in the April 9 letter specifically referred to the initial dew point readings on EDG 1A following the Site Area Emergency (i.e., the readings taken on March 29, 1990). Id. at 2.

545. Mr. Bockhold told the plant system engineers that the NRC had been told about the April 6 air receiver inspection, that air filters were clean, that air receiver blowdowns showed no significant water discharge, and that it was the opinion of diesel vendor representatives that air quality at Vogtle was not a problem. Mr. Bockhold asked everyone whether they believed that the plant's experience during May 1988 to May 1989, when one or more dryers may have been out of service, would affect the air quality statement in the April 9 letter. There was a consensus among the engineers that the dew point acceptance criteria of 50 F had not always been met in the past, but that, based on engineering judgment, they believed the air quality was acceptable. This conclusion was based on the factors discussed above as well as the expected 30F dew point depression that occurs in the system because the system pressure drops from about 250 psi in the air receiver to 60 psi in the control air sensing lines. At the end of the meeting, Mr. Bockhold told the participants that he would inform the IIT personnel that the preventative maintenance program in 1988 was "not as good" as the current program but that, based on engineering judgment, Georgia Power believed it had satisfactory air quality. Bockhold Supp. at 7-8; Stokes at

2-3; GPC Exh. II-55A. Mr. Bockhold provided this information to the IIT on April 11. Bockhold Supp. 8-9; GPC Ex. II-56.

546. The NRC Staff's Mr. Tomlinson concurred with this engineering judgment. He testified:

> Maintaining a starting air dew point in accordance with the SRP (50F) provides assurance that free water will not accumulate in the air receivers. Maintaining a dew point in accordance with the SRP will also ensure that the air in the pneumatic control system will always be substantially above this dew point. This is due to the fact that the Vogtle starting air is at 250 psig. Before this air reaches the pneumatic control system, the pressure is reduced to 60 psig. This pressure reduction significantly reduces the air's dew point. Because of this, the dew point in the starting air system could be 50F or even higher without causing a moisture problem in the control air system.

Tomlinson and Skinner at 8.

547. Accordingly, we find that strict adherence to the dew point acceptance criteria was not the only means for demonstrating satisfactory air quality and that Georgia Power reasonably concluded that the diesel air quality was satisfactory. Further, there is no evidence that Georgia Power ever told the NRC that Vogtle had always met the dew point acceptance criteria; in fact, based on the findings above the converse appears to be true. We find that Georgia Power had a reasonable basis for stating that diesel air quality was satisfactory in the April 9 letter.

(c) There Was No Faulty Instrument

548. Intervenor primarily relies on a crude statistical analysis to conclude that the VP-2466 and VP-1114 instruments were providing accurate readings on April 6 and 7, 1990. Intervenor's

analysis basically concludes that it is not credible that two different types of M&TE approved instruments were both in error but consistently giving similar readings. Mosbaugh at 79-80.

549. However, Intervenor does not explain other similarities in the dew point measurements during this period. For example, referring to Intervenor Exh. II-169, the Board is struck by the fact that all of the dew point readings (32 in total) in the April 5-7 time frame for the eight air receivers are very close to one another. If the highest reading (95F on EDG 2A K02) and the lowest reading (67F on EDG 1A K02) are excluded, the remainder of the readings for VP-2466 and VP-1114 basically are in a range of mid-70F to mid-80F. Given the independent nature of these air systems and the differing activities occurring at Vogtle during this time frame (e.g., outage and testing activities on Unit 1 including four starts of EDG 1A on April 6 as well as depressurization of the EDG 1A K02 receiver for inspection and normal operations on Unit 2), it is improbable that actual air receiver dew points would suddenly drift out-of-specification to the same high level without some rational explanation, which was not adduced at the hearing. Mr. Stokes, the diesel system engineer, testified that dew point measurements are normally in the low to mid 40F range (Tr. 7058 (Stokes)), and that he could think of no logical explanation that would cause eight independent air systems to suddenly rise to the same high dew point level other than inaccurate dew point readings (Tr. 7259-60, 7686-88 (Stokes)). Mr. Stokes believed the more likely explanation to be that the I&C technician made an error in the reading or the instrument was not working properly. Tr. 7687-88 (Stokes).

550. Agreement between the VP-2466 and VP-1114 instruments' readings during the April 6-7 period may simply indicate that both instruments were measuring an air sample not

representative of the compressed air in the receiver. The preventative maintenance checklist SCL00166 (see e.g., GPC Exh. II-157 at 6) used by the Vogtle I&C technicians to take dew point readings on the diesel air receivers indicates that an air regulator was routinely used to reduce the air pressure before entering the instrument. However, the Alnor instrument manual specifically cautions against using a pressure regulator as follows: "Do not use a pressure regulator. They tend to retain moisture if they are the conventional diaphragm type." Tr. 12826 (Aquinde, Hammond, and Thames).[116/] The dew point instrument is connected to the air receiver test tap with tygon tubing. The moisture trapped in the regulator could migrate into the tubing and significantly affect the dew point of the air sample passing through the tubing to the instrument. The same type of tubing is used to connect the EG&G instrument to the air receiver test tap. Tr. 12833-34 (Thames). It is conceivable that the I&C technicians were simply measuring a high moisture air sample because the same piece of tygon tubing was used for the VP-2466 readings and the VP-1114 readings.

551. The MWOs used to take the dew point readings on April 6-7, where both the Alnor (VP-2466) and EG&G (VP-1114) instruments were used for comparison purposes, list the Alnor instrument (which required the pressure regulator) readings first, suggesting that those were the first readings taken in each instance. Operation of the VP-2466 requires the capture of an air sample to determine the dew point. Tr. 12838 (Thames). The absence of a vendor manual for the VP-1114 may have led the I&C technicians to measure the dew point in the same manner as

[116/] The Alnor instrument vendor manual was not received into evidence. However, the parties stipulated that the statement quoted above appeared as a caution in the manual. Id.

with the VP-2466 or may have otherwise caused the technicians to establish insufficient flow through the instrument.

552. Another possible explanation for agreement between the instruments is that they were measuring the atmospheric dew point conditions of the diesel building (rather than the receiver), but for different reasons. Dew point readings on the Alnor instrument require capture of an air sample in a fog chamber. Tr. 12800-01 (Hammond), Tr. 12838 (Thames). The Alnor could have been in a state of disrepair such that the fog chamber in which the captured air sample is tested was in communication with the atmosphere. In that case, the Alnor would measure atmospheric conditions rather than air receiver conditions. Dew point readings on the EG&G instrument require a continuous flow of air through the instrument. Tr. 12834 (Thames). Since Georgia Power did not use a flow meter during the measurements referred to by Intervenor, there may have been insufficient flow through the instrument such that it was effectively measuring atmospheric conditions as well.[117] Thus, it is possible that disrepair of the Alnor and misuse of the EG&G could have led to similar readings.

553. Intervenor also testified that the Alnor dew point instrument (VP-2466) was working properly on 3-29-90, when out-of-specification high dew points were measured. High readings of 80F and 60F were taken on 3-29-90 on the EDG 1A air receivers. On the very same day, in-specification readings of 37F and 34F were taken on the EDG 1B air receivers system with the

[117] See footnote 110, supra, regarding EG&G instrument errors associated with air flow through the instrument.

same test equipment, VP-2466.[118] Intervenor argues that it is not credible that the instrument would provide accurate in-specification readings and inaccurate out-of-specification readings on the same day. Mosbaugh at 74. In addition, Georgia Power reported to the Board that the same Alnor instrument (VP-2466) was apparently used again on April 2, 1990 to obtain in-specification readings on EDG 2B (41F and 44F). Tr. 14744-45 (Skinner); Int. Exh. II-169.

554. We are puzzled by the variation in dew point readings by the VP-2466 instrument. Based on the March 29 (EDG 1B) and April 2 (EDG 2B) readings alone, it would appear the instrument was working correctly because the readings recorded were within the expected range. Yet in the April 5-7 period, it appears the instrument was not working correctly because there is no credible explanation as to how eight independent air system receivers would suddenly rise in unison to out-of-specification high levels.[119]

555. Intervenor's claims that the "bleed and feed" cycling lowered actual high dew points on EDG 1A and that explains why its receivers finally came into specification early in the morning on April 8. Mosbaugh at 82. The Board finds the evidence does not support the claim. Intervenor Exh. II-169 shows the results for dew point readings during the April 5-8 time frame for both EDG 1A receivers. On April 5 there were three high readings on each receiver and "feed and bleed" cycling began at the latest by 5:45 p.m. Id. at 2. On April 6, five more high readings

[118] The MWOs used to take readings on March 29, 1990 (MWO 19001513 for EDG 1A and MWO 190001514 for EDG 1B) do not indicate the time that the dew point readings were taken. However, based on the I&C technicians taking the readings, Georgia Power reported to the Board that the in-specification EDG 1B readings were taken on the day-shift and the out-of-specification EDG 1A readings were taken on the night shift. Tr. 14742-44; Int. Exh. II-169.

[119] We are also puzzled by the EDG 2B readings in that if the April 2, 1990 readings are correct, there is no explanation as to how the dew point suddenly rose in both its receivers to out-of-specification levels on April 7, 1990 (from 41F to 75F for K01 and from 44F to 80F for K02). See Int. Exh. II-169 at 7.

were taken on EDG 1A receiver K01 and three more high readings were taken on the K02 receiver. Id. The K02 receiver was depressurized and opened for inspection in that afternoon. Id. On April 7, two more high readings were taken on both receivers. Id. The evidence is clear that some two days of continuous "bleed and feed" cycling on the K01 receiver had had no appreciable effect on its dew point and, the K02 receiver, which approximately 12 hours earlier had been completely depressurized and opened to the atmosphere, was determined to have practically the same dew point as the K01 receiver (i.e., 75F versus 80F with VP-2466 and 75F versus 78F with VP-1114). Id. On April 8, the next day when the EG&G instrument was used with a flow meter, the dew points for the K01 and K02 receivers had dropped dramatically, with four readings on each receiver ranging from 33.2F to 42.8F -- a change of 30F-40F (using the EG&G instruments VP-1114 and FS-3529). Id. "Feed and bleed" cycling does not logically account for these results. We find Georgia Power's explanation that faulty readings from VP-2466 and initial improper use of VP-1114 must have been the cause of the high readings.

556. Moreover, there is no documentary evidence that the EDG 1B, 2A, and 2B receivers were subjected at all to "bleed and feed" cycling in the period between the original high readings (i.e., . .pril 5 for EDG 1B and April 7 for EDG 2A and 2B) and the in-specification readings on April 8.[120] Referring again to Int. Exh. II-169, and assuming, *arguendo*, that the receivers were subjected to "bleed and feed cycling," the process had no effect on the EDG 1B receivers during the over thirty six hours between readings taken on April 5 (K01 = 84F and K02 = 82F with VP-2466) and April 7 (K01 = 85F with VP-2466 and 80F with VP-1114; K02 = 75F with

[120] The bleed and feed cycling would probably be documented in plant records, but the plant records may not reflect the number of times the receiver is cycled over a period of time. Tr. 7030-31 (Stokes).

VP-2466 and 82F with VP-1114). Then on April 8, when the EG&G instruments were used properly, the dew points dropped dramatically 30F-40F. Again, the evidence leads us to conclude that the only rational explanation is the one supplied by Georgia Power, namely, faulty readings from VP-2466 and improper initial use of VP-1114. The in-specification readings, and the one high reading (EDG 2A K02), resulted from proper use of the EG&G instruments (VP-1114 and FS-3529).

557. Intervenor's theory that the instruments correctly reflected high dew points in the diesel air system fails to explain why there was no physical evidence of moisture effects associated with high dew points. See § V.D.2, infra., Findings 603-610.

558. Finally, as discussed above (Finding 524), documentation provided by Alnor and General Electric, shows that Alnor instrument VP-2466 had to be repaired when received by Alnor for its calibration check in May 1991. No "as-found" data could be taken and, thus, the instrument cannot be considered to have been in calibration as received by the vendor in 1991. GPC Exh. II-201 at 2 (including Duncan Aff. Exh. B at 2-3, 5).

559. NRC Staff witness, Mr. Skinner, confirmed that, based on vendor documentation, the Alnor VP-2466 dew point instrument was, in fact, faulty when received by the vendor in February, 1991. Tr. 14642-43 (Skinner). The Staff had contacted the vendor, who stated that there were no records reflecting the "as-found" condition of the instrument.[121] Further, Mr. Skinner explained that the absence of "as-found" data would not be unusual if the instrument was

[121] Presumably, Mr. Skinner was referring to the statement from Alnor's Mr. Wade, which is attached to GPC Exh. II-201 (Duncan Aff. at Exh. B, p. 5).

damaged and required repaired before calibration measurements could be taken. Tr. 14643 (Skinner).

560. Even if we concluded the Alnor and EG&G were providing accurate readings, Intervenor has not presented any evidence whatsoever of bad faith on the part of Georgia Power. The record clearly establishes that Mr. Briney, who is no longer employed by Georgia Power and has no stake in the outcome of this proceeding, disbelieved the high Alnor readings and the initial EG&G readings. See Findings 491-92, 496, 498, 500 supra. He had a good basis for it -- it was just inconceivable to him that he could have eight independent air systems suddenly and without explanation go out-of-specification high at the same time. See Finding 491. It is undisputed that he told Mr. Bockhold his conclusion and that Mr. Bockhold believed him. See Finding 501. While in retrospect, Mr. Mosbaugh's after-the-fact analysis might lead us to question that conclusion now, at the time, there is no evidence Georgia Power did anything but communicate their good faith belief to the NRC.

(d) The Inspected Air Receiver Exhibited Corrosion

561. Intervenor contends that one sentence in the air quality section of Georgia Power's April 9, 1990 letter inaccurately states that the air receiver inspection confirmed satisfactory air quality and the receiver showed no indication of corrosion.[122/] Mosbaugh at 82. When cross-examined on this position at the hearing, Intervenor conceded that the disputed portion of the

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122/ The sentence to which Intervenor refers states: "This was confirmed by internal inspection of one air receiver on April 6, 1990, the periodic replacement of the control air filters last done in March 1990 which showed no indication of corrosion and daily air receiver blowdowns with no significant water discharge." GPC Exh. II-13 at 3.

statement may describe the control air filter inspection rather than the receiver inspection. Tr. 8819-20 (Mosbaugh).

562. The Board finds that Intervenor is distorting the meaning of the April 9 letter. The statement by Georgia Power regarding "no indication of corrosion" clearly referred to the control air filter inspections and not the receiver inspection. Intervenor's reading of this sentence is strained and unreasonable.

V. Statements Concerning Root Cause

A. Actual Root Cause Is Not An Issue

563. As described above, we have previously ruled that the root cause of the March 20 1A diesel failure is not an issue in the proceeding, only whether Georgia Power told the NRC the whole truth about what it believed to be the root cause. Tr. 14243, 14308-10. Therefore, whether Georgia Power was wrong about the actual root cause of the March 20, 1990 1A diesel failure is immaterial. Rather, we are concerned only with whether Georgia Power reported to the NRC what it reasonably believed to be the root cause.

B. Initial Identification of Probable Root Cause

564. On March 30, 1990, Georgia Power had measured the calibration setpoints of the three 1A diesel jacket water temperature sensors using existing sensor calibration procedures. The measurements were recorded as 197F (No. 19110), 198.6F (No. 19111), and 186.2F (No.

19112). The NRC IIT was provided with the latter two "as found" calibration setpoints. Int. Exh. II-18; Bockhold Supp. at 2-3.

565. By April 2, 1990, the Vogtle technical staff and vendor technical experts believed the test program had narrowed the possible causes for the 1A diesel failure, and that the most likely cause was a combination of an intermittent failure of the jacket water temperature sensors and/or inconsistent calibration techniques used on the sensors installed following overhaul of the diesel. Tr. 6688 (Bockhold); GPC Exh. II-63 at 1-2; Int. Exh. II-89 at 1; OwYoung and Johnston Rebuttal at 6; Tr. 12457-59, 12753-55 (Johnston); Int. Exh. II-223, entry of March 31, 1990 at 2.

566. Mr. Bockhold discussed these probable causes with NRC IIT and Region II personnel on April 2, 1990, as evidenced on the transcript of the meeting prepared by the IIT (Document No. 168-2). GPC Exh. II-77 at 2-3.[123] The Vogtle staff and vendor experts concluded that the 1A diesel annunciators which had been observed during the March 20 failure could be reproduced on a high jacket water trip signal. GPC Exh. II-63 at 2. Mr. Bockhold also explained that Vogtle had problems with the Calcon temperature sensors during initial startup phases of the engine and during overhaul times, but in between outages the switches performed reliably. The IIT found merit with this view. Id.; GPC Exh. II-77 at 14, 15, 18.

567. Because the vendor calibration procedure had been revised just prior to the 1990 outage to incorporate recommendations received from Calcon in late 1989, it was thought that the

[123] Georgia Power and Intervenor agree that Mr. Bockhold presented the NRC with the information contained in Int. Exh. II-89 at the April 2, 1990 meeting. See GPC Exh. II-77 at 2-3; Mosbaugh at 100.

new procedure was a possible contributor to the calibration and reliability problems experienced in March 1990. GPC Exh. II-63 at 2; GPC Exh. II-77 at 29-38.

568. On April 4, 1990, Mr. Bockhold told Mr. Chaffee that he believed there had to have been some sensor calibration problems which produced the March 20 failure. At that time, Georgia Power and the IIT had information that the Calcon sensors responded differently depending on their heat-up rates. Mr. Bockhold and Mr. Chaffee speculated that there could have been an accumulation of effects which caused the March 20 failure. Bockhold Supp. re Int. Exh. II-18 at 5-6; GPC Exh. II-79 at 22-23.

569. While Georgia Power and the NRC shared the view th .t the Calcon sensors were the most likely cause of the March 20 1A diesel failure, there was uncertainty regarding the specific cause or causes for the sensor problems. GPC Exh. II-63 at 2; GPC Exh. II-178 at 28-29; Tr. 6690 (Bockhold).

570. On April 5, 1990, Georgia Power tasked Lewis Ward with the responsibility for developing a testing program with an independent laboratory to examine the sensors found to have problems and quarantined during the Vogtle test program to determine why the sensors may have caused the March 20 failure. The IIT was informed of these plans and invited to participate. GPC Exh. II-63 at 2-3; Bockhold Rebuttal at 18-19; GPC Exh. II-178 at 30.

571. The IIT team leader, Mr. Chaffee, felt that this testing approach "sounded good" to him; and the NRC Region II representative, Mr. Brockman, stated that the Region was "fully onboard" with this approach. Bockhold Rebuttal at 19; GPC Exh. II-178 at 33-34.

572. On Friday, April 6, the NRC, after discussing the 1A diesel jacket water testing and scheduled functional test, observed that the specific failure mode of the switches was not due to the rate of temperature change during calibration, that some particulates in the sensors could impact their operation and that setpoint drift was a possibility. "How the sensors are calibrated" might also lead to an understanding of the causal mechanism, the IIT team leader suggested; Georgia Power was to determine the specific test program for seeking this mechanism. Bockhold Rebuttal at 19; GPC Exh. II-179 at 24-25, 31-33.[124/]

573. On Saturday, April 7, another telephone conversation with the IIT took place, during which Mr. Bockhold indicated that any further troubleshooting of the cause of the March 20 1A diesel failure was going to focus on the quarantined switches. Mr. Ward reported that as part of the test program they would, in the short term, take a couple of new switches from stock and do a reliability test on them, which would lead into a future reliability test on the quarantined switches. The quarantined switches evaluation, he said, would be done in the longer term. Doc. Exh. II-20 at 12-13.

574. As part of its presentation to the NRC on Monday, April 9, Georgia Power used a transparency entitled "Quarantine Components." GPC Exh. II-12 at Encl. 2, p. 11. It indicated that the jacket water temperature switches were the probable cause of the 1A diesel failure associated with those switches identified "1 intermittent; 1 post calibration low (186F & venting)." Following the presentation, Georgia Power submitted the April 9 letter to the NRC. With respect

[124/] As discussed in Finding 12 above, on April 6, Georgia Power also telecopied to the IIT a summary listing of Calcon temperature switches which had experienced problems, including the switches associated with the trip of the 1B diesel on March 22 and the March 24 failure of the 1B diesel. McCoy at 6; GPC Exh. II-9.

to the suspected root cause, the letter recited the Company's findings and stated that the jacket water high temperature switches were the most probable cause of both trips on March 20. The letter further said Georgia Power would continue to work with the IIT and an independent lab to evaluate the Calcon sensor instruments then under quarantine. Upon completion of the lab tests, the calibration procedures would be revised as necessary to ensure consistent performance. GPC Exh. II-13, at 2-4.

575. On or about April 12, 1990, Mr. Ward contacted Wyle Laboratories and entered into a testing agreement with them. He drafted a test description based on his knowledge of the sensor problems experienced on March 20. He also reviewed the historical summary of Vogtle sensor problems, which had been provided to the NRC on April 11, 1990,[125] and talked to the Calcon sensor expert regarding potential sensor calibration issues. The draft test description was reviewed by the several members of the Vogtle technical staff and the NRC Staff. Mr. Ward incorporated comments he received into the test description. The final test sequence established was designed to provide comprehensive information regarding sensor calibration and reliability. GPC Exh. II-63 at 3; GPC Exh. II-182.

576. On April 19, Georgia Power submitted LER 90-006 which reported that the root cause of the March 20 1A diesel failure had not been conclusively determined, but that the most likely cause was intermittent actuation of the jacket water temperature switches. GPC Exh. II-14 at p. 5. The LER included essentially the same information as the April 9 letter with respect to the results of the Company's root cause investigation. Id. at pp. 5-6. Further, the LER stated that

[125] We believe this historical summary of sensor problems is identical to IIT Document No. 210 (included within GPC Exh. II-10) which was actually received by the IIT on April 12, 1990. Staff Exh. II-63 at 8.

a test program would be conducted at Wyle Labs to investigate the reliability of the Calcon temperature switches under various conditions. Id. at p. 8.

C. Georgia Power's Root Cause Conclusion

577. The test program began on April 24, 1990, and was witnessed by Georgia Power and NRC representatives. The testing was performed in two phases: Phase I evaluated the reliability of two new sensors and Phase II evaluated the eight sensors that had been removed from service and quarantined to determine their as-received condition and calibration capability. Testing was completed on or about May 4, 1990 and preliminary conclusions were provided to the NRC at that time so that the information could be included in NUREG-1410, Appendix J (GPC Exh. II-167) at J-26 to J-28. The preliminary test results showed that some of the sensors were venting because contaminants (e.g., thread sealant, metal shavings) were present in the poppet seat area. GPC Exh. II-63 at 3.

578. The initial Wyle test report was issued on May 22, 1990. GPC Exh. II-63, Attachment 3-A. In sum, the Phase I test results showed that the following parameters had a significant effect on the calibration and operation of the sensors: (1) insufficient temperature stabilization period prior to calibration, (2) contaminants on the sensor probe, (3) inaccurate setpoint reference temperature used during calibration, (4) water bath heatup rate used during calibration, (5) thermowell setscrew tightness and (6) sensor spacer tube position. Id. at I-4 to I-5. The Phase II test results showed that (1) three of the test specimens leaked air due to contaminants in the poppet seat area and other areas, (2) the as-received setpoints of the specimens ranged from 162F to 195F as measured in the thermowell (with the exception of one specimen that did not trip at

210F), and (3) all specimens were capable of being calibrated to trip at the correct setpoint (i.e., 200F). Id. at II-3.

579. Upon completion of this Wyle test program, Georgia Power developed a specific calibration procedure for the Calcon temperature sensors to incorporate information learned. The procedure included verification of internal sensor cleanliness, inspection and application of thread-sealant to the spacer tubing, instruction to calibrate sensors inside a thermowell, and a required temperature stabilization period prior to calibration. Using this new calibration procedure, Georgia Power experienced additional sensor calibration problems on May 23, 1990, and requested that Wyle inspect and evaluate six additional sensors to determine their as-received condition and calibration capability. Wyle Labs determined that the as-received trip setpoints for the sensors were in the range of 162F to 189F. The Vogtle calibration procedure specified that the setpoints be in the range of 196F to 204F. The Wyle test results for this testing were included in a May 29, 1990 letter report (GPC Exh. II-63, last attachment). GPC Exh. II-63 at 4.

580. GPC evaluated its own calibration techniques against those used by Wyle personnel and concluded that the Vogtle calibration bath had internal flow anomalies that prevented Vogtle from achieving uniform temperatures and heatup rates in the bath. In addition, the Vogtle procedure did not provide precise guidance regarding the amount of time to "soak" the sensor in the calibration bath. Once these items were corrected GPC was able to calibrate the sensors accurately. GPC Exh. II-63 at 4-5.

581. Based on the Wyle results, Georgia Power concluded that the root cause of the March 20 1A diesel failure was internal contamination of the Calcon jacket water temperature sensors as

well as inadequate calibration methodology to ensure that the sensors were installed with the correct trip setpoint. GPC Exh. II-63 at 5; Bockhold Supp. at 10; Stokes at 4.

D. Mr. Mosbaugh's Assertions

582. Intervenor makes a number of assertions that Georgia Power did not find the actual root cause of the March 20, 1990 1A diesel failure, hypothesizing that the true root cause was probably water in the diesel air system condensed from high dew air introduced in the system. See generally, Mosbaugh at 114-18. Because we are only concerned about whether Georgia Power told the NRC what it reasonably believed to be the root cause in 1990, we need not determine the actual root cause. We only examine what Georgia Power learned in 1990 about the possible root causes. In fulfilling our mission, we have considered the following assertions of Mr. Mosbaugh, which are addressed in seriatim below:

1) Based on the March 30, 1990 calibration measurements of the failed 1A diesel Calcon temperature sensors, the cause of the March 20 1A diesel trips could not have been improper calibration. Mosbaugh at 24-26.

2) Georgia Power in fact found water in the diesel air system on more than one occasion. Mosbaugh at 41, 92-98.

3) The May 23, 1990 failures of the 1B diesel demonstrated that the cause of the March 20 1A diesel failure was not the result of calibration problems with the Calcon temperature sensors. Int. Exh. II-37; Tr. 7207-08, 14341 (M. Kohn).

4) Further evidence of water in the air system surfaced in 1990 when rust was observed on diesel air start valve components, which was probably the cause of those valves sticking rather than the root cause attributed by Georgia Power and the diesel vendor. Mosbaugh at 41-42, 97-99.

5) Georgia Power's root cause evaluation was inadequate, which we interpret as an allegation that this deficiency was intentional, reflecting poor character and integrity. Mosbaugh at 26-28.

1. March 30, 1990 "As-found" Calibration Settings

583. It is not disputed that "as-found" calibration settings of the Calcon jacket water temperature sensors following the March 20 event were recorded by Vogtle personnel on March 30 as 186.2F, 197F, and 198.6F. Int. Exh. II-18; GPC Exh. II-13 at 2; GPC Exh. II-14 at 5. Mr. Mosbaugh asserts that, because the highest jacket water temperature is in the range of 161-163F, the cause of the March 20 1A diesel trips could not have been improper calibration. Mosbaugh at 24-26. This assertion suggests that Georgia Power had reason to believe that calibration problems could not have been involved with the March 20 1A diesel failure.

584. Mr. Mosbaugh also contends that Georgia Power provided the IIT with misleading incomplete and inaccurate information concerning the root cause of the 1A diesel failure. He cites the June 29, 1990 revised LER statement, NUREG-1410, Section 3.3.3, and statements that Messrs. Bockhold and Burr made to the IIT on April 7, as stating that the most likely cause was intermittent actuation of the jacket water switches. Mr. Mosbaugh claims that this explanation is

unfounded because two switches would have to misoperate simultaneously and then correct themselves a few minutes later. He claims that the Wyle testing showed that the switches were not prone to random improper intermittent operation. Mosbaugh at 114-16.

585. During the hearing, Intervenor's counsel asked Mr. Bockhold whether the data that is depicted on Intervenor's Exh. II-18 was believed to be the set points of the failed 1A diesel Calcon temperature sensors at the time of the site area emergency. Tr. 3901-02. Because Mr. Bockhold indicated that he needed to look at other documentation, we permitted him to supplement his testimony at a later date in order to locate any other information that was available to him prior to April 9, 1990 concerning the set points of those sensors. Tr. 3902. In response, on June 1, 1995 Mr. Bockhold sponsored his Supplemental Testimony concerning Int. Exh. 18 (ff. Tr. 6413).

586. As explained in that testimony, prior to April 9, 1990, Mr. Bockhold did not have any other information concerning the set points of the failed Calcon temperature sensors. Nonetheless, he did believe that sensor calibration problems contributed to the March 20 1A diesel failure. As discussed in Finding 567 above, the vendor calibration procedure had been revised just prior to the 1990 outage to incorporate recommendations received from Calcon in late 1989. When Messrs. Bockhold and Chaffee spoke on April 4, 1990 (see Finding 568, supra), Mr. Bockhold agreed with Mr. Chaffee that there could have been an accumulation of effects that caused the trip when he said:

> Yes, it went from sensor calibration problem and then with this phenomenon and just hitting it at the right time, and with one intermittent -- we know we had one intermittent problem. We had one sensor that had an intermittent problem associated with it.

> We know that for a fact, so you know, one sensor having a calibration problem, and the accumulation of all these things could have produced the trip. It could be the explanation of why there's an 80 second delay on the first one [trip of the diesel on March 20] and a 70 second delay on the second one [trip]. In fact, that'[s] what we believe right now.

Bockhold Supp. at 5-6; GPC Exh. II-79 at 22-23.

587. By April 7, actual jacket water temperature measurements had demonstrated that the March 20 trip was not the result of excessively high jacket water temperatures. Georgia Power had much more information than the calibration checks, which were made using Georgia Power's existing calibration procedures. The `as found' calibration checks did not point to the probable cause of the event as much as other observations made on the Calcon sensors and the alarm annunciations replicated during diesel trip testing. Georgia Power had narrowed the focus to a particular component, and believed the Wyle testing would pin down a specific causal mechanism. Bockhold Rebuttal at 19-20.

588. Mr. Ward testified that one of the Calcon jacket water temperature sensors (No. 19112) could have tripped during the Site Area Emergency at around 165F normal temperature. He explained in his rebuttal testimony that Calcon sensor No. 19112 had the following history:

> The switch was installed new on November 19, 1989. It was calibrated in a water bath, was found to be correctly set from the factory at 199.4F, and was not readjusted.
>
> On March 1, 1990, this switch was calibration checked as part of the outage overhaul of DG 1A. The as-found setpoint (average of 3 tests) was 210.4F. The switch was reset down to 203.1F (average of 3 more tests). Thus, it would have been maintained at elevated temperature for a period of time which should have produced an actual setpoint lower than 203.1F.

> On March 30, 1990, the switch was removed from the DG for testing. The as-found setting was 186.2F, based on 3 tests. It was adjusted upward to 199.9F, based on 3 tests. Again, the uncontrolled time at elevated temperature should have produced actual setpoints lower than those recorded. The switch, however, was also noted to be leaking at more than 20F below setpoint and was replaced with a new one on March 31, 1990, and the old switch was quarantined.
>
> On May 3, 1990, this switch was tested at Wyle Laboratories. The as-found setpoint was 162.2F and 162.6F, based on 2 tests under controlled test conditions.

Based on this history, Mr. Ward did not believe that the as-found or as-left data taken on March 1, 1990 (before the Site Area Emergency) or on March 30, 1990 (after the Site Area Emergency) accurately reflected the actual setpoint of the switch on March 20, 1990. The as-found setpoint, using inconsistent test methods on March 30, 1990, was significantly lower than it had been only days before, and the switch was leaking more than 20F below its setpoint. Therefore, he believed it was very possible that this sensor tripped during the Site Area Emergency at around 165F normal temperature. Hill and Ward Rebuttal at 17-18.

589. It is obvious to the Board that the March 30 as-found set points were unreliable because the calibration techniques used to measure those set points were unreliable. We therefore cannot accept Mr. Mosbaugh's conclusion that the March 30 data ruled out calibration as a problem or contributor to the event. We observe, for example, that the as-left set point on sensor 19112 was measured by Georgia Power at approximately 200 F on March 30 but was subsequently found by Wyle to be at 162 F. This suggests that Georgia Power's March 30 measurements could have been off, and in fact too high, by about 40 F. It is possible, therefore, that the as-found set point of sensor 19112 as measured by Georgia Power on March 30 was likewise 40 F higher than the true set point. In other words, the true set point of sensor 19112 could have

been below 150 F at the time of the site area emergency and the sensor could have actuated at the operating temperature of the diesel.

590. Mr. Mosbaugh's assertion that, by virtue of the data recorded on Intervenor Exh. II-18, the cause of the March 20 event could not have been calibration problems was clearly not the conclusion which was reached by Georgia Power or the IIT prior to April 9. And, while the actual cause of the March 20 failure is not at issue in this proceeding, Georgia Power's suspicion that calibration problems played a role was ultimately borne out by the final results of the Wyle testing. GPC Exh. II-63 at 4-5.

591. Based on the above findings, we conclude that Mr. Mosbaugh is incorrect in suggesting Georgia Power believed, based on the March 30, 1990 as found calibration measurements, that calibration problems could not have been involved in the March 20 1A diesel failure. Our findings above which discuss Georgia Power's initial identification of the root cause establish that there was close coordination between Georgia Power and the IIT concerning their views, on virtually a daily basis, of what was the cause of the March 20 failure. Based on those findings we conclude that Georgia Power candidly shared its views concerning the root cause with NRC personnel.

2. Water in the Diesel Air System

592. As mentioned earlier, Intervenor's hypothesis is that the March 20 1A diesel failure was caused by the condensation of water in the diesel air system. He postulates that the temperature conditions necessary for such condensation to occur in the diesel could have arisen from

"blasts" of cold air entering the diesel room through louvers in the building wall. Mosbaugh at 21.

593. Mr. Mosbaugh claims that his condensation theory is supported by the actual discovery of water in the diesel control and starting air systems in the relevant time frame. First, he asserts that he other Georgia Power personnel, Messrs. Stokes and Burr, and one of their consultants, Mr. Bill Chenault of Enercon Services, discussed on March 30, 1990 the removal of about eight ounces of water from the diesel control air trip lines. Mr. Mosbaugh argues that this water could have formed in the diesel control air system as a result of high dew point air. Mosbaugh at 92-96. Second, Mr. Mosbaugh asserts that Mr. Paul Kochery admitted being told that water had been found in a two-inch air starting line and that water had been blown down from the air receivers. Mosbaugh at 41, 97.

594. Although we are intrigued by the intricacy of Mr. Mosbaugh's assertions about water in the diesel air system, based on the findings below, we hold that they cannot withstand close scrutiny for a number of reasons. First, Mr. Mosbaugh is the only human being that believes that water was found in the diesel control air trip lines. Numerous Georgia Power personnel and their consultants would have learned of this event had it actually occurred and not a single one of them recalls it. We conclude it did not happen. Second, while Mr. Kochery did make statements in discovery to the effect that he heard about water coming from a two-inch air start line, he was obviously mistaken -- such a line doesn't exist. Based on Mr. Kochery's correction to his deposition testimony and the supporting testimony of Mr. Stokes, we believe what Mr. Kochery recalled was a leak in another portion of the diesel, unrelated to the air system. Third, Georgia Power's

expert witnesses, Dr. Howard Hill and the diesel vendor representatives, Messrs. Sheldon OwYoung and Robert Johnston, have convinced us that it is virtually impossible for eight ounces of water to condense in the air system and go unnoticed. Finally, there is no credible physical evidence that moisture -- much less accumulated water -- has resided in the diesel starting or control air systems.

(a) The March 30, 1990 Conversation and the Kochery Statements

595. Mr. Mosbaugh tape recorded a conversation that he had with Messrs. Burr and Chenault on March 30, 1990 while Mr. Stokes was in the room engaged in another conversation, probably over the telephone. See Tape No. 24, transcribed by Intervenor on Int. Exhs. II-84 and 85 and by Licensee and the NRC Staff on Int. Exh. II-84B and GPC Exh. II-91. The parties disagree on the wording of the transcript for this tape and its interpretation. Intervenor claims that he has an independent recollection of this conversation[126/] and recalls that Mr. Burr had a 16 ounce jar half full of an off-colored yellowish fluid. Mr. Mosbaugh claims he asked "was that in the tubing that was disassembled?" He states that Ken Burr responded that it poured out of the tubing and Bill Chenault said it came from the trip lines. Mosbaugh at 94. Georgia Power witnesses, Messrs. Stokes and Chenault, dispute Mr. Mosbaugh's version of the March 30, 1990 conversation. While Mr. Burr did not testify live on this topic, an excerpt of his May 24, 1994 deposition testimony concerning this subject was admitted into evidence.

[126/] However, he also stated that he did not include information about that conversation in the allegations he provided to Mr. Robinson in June 1990 because he did not have an independent recollection of it at that time. Mosbaugh at 96.

596. Mr. Chenault was a consultant with Enercon Services who visited the Plant Vogtle site between March 26 and April 1, 1990 to assist with the evaluation of the March 20 1A diesel failure. He believed he observed functional testing and bubble testing of the diesel control systems during which the sensing lines would have been disassembled. While he was at Vogtle, he did not hear or observe that there was any water or moisture in the diesel pneumatic control system. He believed such a discovery would have been discussed and would have been memorable. Mr. Chenault listened to Tape 24 and reviewed the different transcript versions of the tape and concluded that he and Messrs. Burr and Mosbaugh were talking about air leakage from the diesel trip lines. He rejected Mr. Mosbaugh's characterization of the conversation. Chenault Rebuttal at 1-4; Tr. 14076. At the Sept. 15, 1995 hearing, Mr. Chenault stated that sometime last year, he had spoken with Messrs. Burr and Stokes separately about the Tape 24 conversation. He said that neither Mr. Burr nor Mr. Stokes could remember finding any water in March 1990. Tr. 14072-73.

597. Although Mr. Burr appeared at the hearing on August 10, 1995, Intervenor chose not to question him concerning the Tape 24 conversation. Instead, Intervenor relies on an excerpt of Mr. Burr's May 24, 1994 deposition (Int. Exh. II-155). At that deposition, Intervenor played the relevant portion of Tape 24 for Mr. Burr. Initially, Mr. Burr did not hear the words "poured out" that Intervenor's counsel insisted were on the tape. Int. Exh. II-155 at 101. Later, he heard the words "poured out" but was not sure it was he who said them and had no recollection of those words. Intervenor's counsel suggested playing the tape a few more times and Mr. Burr said "[y]ou can barely hear it. I don't know how we can identify it." Intervenor's counsel insisted he could hear it across the table. Id. at 102. Mr. Burr testified that he didn't recall the conversation

and that he had no recollection of finding any water at this point in time. Id. at 105-06. Intervenor's counsel then asked Mr. Burr if he remembered "liquid" at a later point. Mr. Burr's response indicated he did not. Intervenor asked if it was "possible" that some liquid "was found along the way somewhere" and Mr. Burr replied that it was certainly "possible." Id. at 106.

598. We do not find any probative value in Mr. Burr's deposition testimony. To say it is possible some water was found somewhere along the way at some point in time is to say anything is possible. We have indicated a number of times at the hearing that such testimony is worthless. Such rank speculation does not persuade us in the slightest to find that water in fact condensed in the diesel control air trip lines, where there is no other credible testimony to support it.

599. Mr. Ward testified he did not recall Mr. Burr ever telling him of any water pouring out of the diesel trip lines. He believed that he would have recalled such a conversation, given the potential significance of such an issue in light of the events following the Site Area Emergency. Moreover, his notes taken contemporaneously with the events following the Site Area Emergency do not reflect any such statement. Hill and Ward Rebuttal at 16.

600. Mr. Stokes was questioned about the conversation on Tape 24, which he had recently listened to again. Mr. Stokes testified that the leakage being discussed on Tape 24 was probably air leakage that was discovered the previous night, March 29, 1990. He said that when he was questioned about this in his July 1994 deposition[127] he did not recall any such incident and when

[127] During the July 5, 1994 deposition of Mr. Stokes, Intervenor questioned him about the conversation on Tape 24 and played the tape. Mr. Stokes said he believed the leakage to which Mr. Chenault referred was air leakage. He could not hear the words "poured out." Staff Exh. Ii-30 at 99-101.

he spoke to Messrs. Burr and Chenault about it, neither of them remembered any water either. Mr. Stokes also spoke with his supervisor, Mr. Paul Kochery, who did not recall any water being found in the instrument lines, but did recall that some water was collected out of the intake manifold drains. When Mr. Stokes heard this it jogged his recollection and he did some research. As a result, he located some documentation and recalled an incident, about March 11, 1990, when the 1A diesel was being brought back to an operable condition from the outage and some water was found in the intake manifold and probably drained some into a jar.[128] He did not recall the amount of water or the color but believed there was some amount of rust in it. Water in this location was not significant according to Mr. Stokes. Tr. 7296-7300, 7518-26, 7530, 7551-56, 7574-75, 7664-65.

601. After listening to the original of Tape 24 overnight, Mr. Stokes testified at the June 7, 199[illegible] hearing that he believed Mr. Mosbaugh's statements on the tape refer to making sure that foreign particles were not introduced into the tubing as a result of the disassembly process. He did not hear anything about a jar of water. He stated that the tape was very garbled and he did not hear Mr. Burr say "poured out" but thinks it may have been "for the outage" or "before the outage." Tr. 7568-75. Two members of the Licensing Board listened to Tape 24 more than once and, whereas we initially believed that the words "poured out" were spoken, we ultimately concluded that we did not know what was being said. Tr. 7677.

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[128] On August 8, 1995, during cross examination of Mr. Mosbaugh, Georgia Power introduced two deficiency cards, 1-90-0087 and 1-90-307 (GPC Exhs. II-141 and 142, respectively), which documented two separate incidents in which leaks were found in the 1A diesel intercooler on March 10, 1990 and in the 1A diesel combustion air cylinder on July 24, 1990, respectively.

602. Mr. Paul Kochery did not appear as a witness at the hearing. However, Mr. Stokes was questioned about statements Mr. Kochery made in discovery (referring to his July 6, 1994 deposition (Int. Exh. II-152) and Georgia Power's Response to Intervenor's Fifth Interrogatory and Document Request, dated July 22, 1994, Interrogatory No. 7[129]) to the effect that he recalled hearing that a half-ounce of water had been drained from a two-inch air start line. At the outset we observe that there is no two-inch air line in the Vogtle diesel starting air system. Tr. 7546 (Stokes).[130] Mr. Stokes testified that he believed Mr. Kochery was confused and that when he spoke with him Mr. Kochery referred only to the intercooler leak. Tr. 7532-46 (Stokes). In response to a question from Judge Carpenter, Georgia Power committed to have Mr. Kochery review and, if necessary, correct his deposition testimony (Tr. 10544-45). Thereafter, Mr. Kochery revised the deposition testimony to indicate that he was mistaken about the two-inch air start line and the event he was recalling was water found in the diesel air intake line below the intercooler. See corrected deposition of Paul Kochery, dated July 6, 1994, appended to Georgia Power Company's First Supplemental Response to Intervenor's Fifth Interrogatory and Document Request, dated August 17, 1995.

(b) No Evidence of Water or Corrosion in 1990 Exists

603. Mr. Stokes' prefiled testimony states that he was not aware of water ever being found in the diesel air sensing lines. However, he stated it was possible that water could leak into the

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[129] The response stated: "Mr. Kochery recalls that someone may have told him that water was discovered in the 2" air start line, but does not recall who told him."

[130] Mr. Mosbaugh conceded during cross examination that Mr. Kochery may have been wrong about the size of the line. Tr. 10535 (Mosbaugh).

air sensing lines during testing of those lines (referred to as "bubble testing") performed periodically during maintenance outages to determine if there are any air leaks in the sensing lines. He was aware of an isolated instance in which water was found in a sensor, but not the sensing line. The sensor was found in a visibly degraded condition due to corrosion. Stokes at 3-4. During his July 5, 1994 deposition, Mr. Stokes also recalled the incident involving bubble testing and believed the incident occurred in an outage after the March 1990 outage. Staff Exh. II-30 at 139-40. At the hearing, Mr. Stokes was questioned about this incident and said he thought it occurred in the Fall of 1991. He explained that it involved a lube oil pressure sensor and that there was no relationship between it and the Calcon jacket water temperature sensors which malfunctioned in March 1990. Tr. 7021, 7288-95. Georgia Power later produced a deficiency card which addressed this particular bubble test incident and confirmed Mr. Stokes' recollection that it occurred in 1991. Board Exh. II-8.

604. Mr. Stokes testified that the March 20 1A diesel failure was not attributable to either water in the Calcon sensors or the sensing lines. If that were the case, there would have been degradation due to corrosion or corrosion products which would have been obvious during the inspection and testing of the diesel following the March 20 event. Georgia Power did not find evidence of corrosion during the inspection and testing of the diesels. Stokes at 4. He further testified that the problems that were encountered concerning 1B diesel Start No. 136 on March 24, 1990, including the removal and replacement of the logic board, did not indicate to Mr. Stokes, or anyone else to his knowledge, that there was any problem associated with water or moisture. Tr. 7704.

605. Mr. Stokes testified that the control air filter, depicted in GPC Exh. II-87, was removed and replaced by the vendor every 18 months. He testified that he received reports from the vendor on what was found in these inspections and that the vendor did not find anything unusual. He would have expected to be told if water or corrosion indications had been found in the filter. Tr. 7685-86 (Stokes).

606. Mr. Stokes testified that when plant personnel obtained dew point readings that were out of specification high, they would take steps to ensure that there was no moisture in the control air system, including checking the blowdown from the air receivers. If they found moisture there, which he said they had not, then they would check for moisture in the engine control panel. Tr. 7028. Mr. Stokes did recall that there was some moisture in the air receivers during plant startup, prior to 1986. Tr. 7093-94 (Stokes); see also Board Exh. II-5 at 5.

607. The diesel vendor representatives, Messrs. OwYoung and Johnston, have been involved in every major maintenance of the Vogtle diesels. They were present for the disassembly of most of the diesel sensing lines, including the high jacket water temperature lines and the jacket water pressure lines, in March or April of 1990. They were there on March 30, 1990. They performed the diesel logic functional testing, including the disconnection of all of the protective trip lines within the engine control panel. Tr. 12471 (OwYoung, Johnston). They testified that they did not recall observing or hearing about water or moisture in the diesel starting or control air. There is no doubt in their minds that if eight ounces of water had been drained from a control air trip line, they would have learned about it. OwYoung and Johnston Rebuttal at 4-5; Tr. 12758-59 (OwYoung, Johnston).

608. If water were in the diesel control air system, Mr. OwYoung would expect to see water in the bowl of the control air filter in the diesel engine control panel.[131] He has never seen any evidence of water in that filter at Vogtle. OwYoung and Johnston Rebuttal at 5-6. Mr. OwYoung inspected the control air filter during the March 1990 outage, prior to March 13. He said that evidence of corrosion in the filter bowl would be a leading indicator of moisture in the system. Tr. 12502. Mr. OwYoung noted no evidence of moisture during that inspection. Tr. 12495-502 (OwYoung, Johnston).

609. Messrs. OwYoung and Johnston testified that if water had filled up the filter bowl and started going through the five-micron filter, they believed such a large quantity of water would lead to a complete logic failure, with a consequent inability to shut the engine down. However, they had not done an analysis to determine whether there could be a scenario where such a quantity of water would lead to a trip. Tr. 12574-78 (Owyoung, Johnston). Based on the drawing dimensions, Mr. Johnston estimated that the filter bowl would hold about 6-8 ounces of water. Mr. OwYoung stated that there was no way for the water to get out of the system if it was not physically drained. Tr. 12684-86 (OwYoung).

610. Mr. Stokes testified at the June hearings that he had never seen, nor heard that anyone had found, any water in the diesel control air system at Vogtle. Tr. 7020-21, 7066, 7161, 7170, 7284-85 (Stokes).

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[131] A review of the filter bowl specifications indicates that it is designed to trap water in the bottom of the bowl where a baffle creates a "quiet zone" to prevent air turbulence from re-entraining separated liquid into the air stream. GPC Exh. II-87 at 2.

(c) Moisture Found in February 1995

611. After the June hearings, Georgia Power disclosed that it had learned that some moisture was found in test connections in the Unit 2 diesel control panels during the February 1995 outage. Tr. 11887-96. Georgia Power learned this from Mr. Johnston during preparation of his rebuttal testimony, and Mr. Johnston informed the Board and the parties that Mr. Stokes had been notified, and that he was present for a second instance when moisture was discovered. Tr. 12001. Because Mr. Stokes had previously testified that he had never seen any water in the control air system, Georgia Power voluntarily brought Mr. Stokes back to the hearing on Sept. 14, 1995 and questioned him about his prior testimony. Tr. 13831-37. Mr. Stokes explained that his prior testimony was in error and that he had been made aware at the time of the moisture found in the test connections in February, although he did not recall actually witnessing the event. He testified that he did not misspeak intentionally, but rather that this matter simply did not enter his mind because he and, he understood, Mr. Johnston considered the water found in February to be an insignificant event.[132] Mr. Stokes believed the water was introduced into the test connection by I&C personnel who use that connection to do calibrations of the adjacent pressure gauge. Mr. Stokes explained that, as a result of the disclosure during the hearings, plant personnel also checked the Unit 1 test connections and found some moisture there as well, but that dew point measurements of the air receivers and of the 60 psi side of the control air regulator indicated there was no problem. The plant also checked the control air filter bowl and test connections on

[132] Mr. Stokes testified that he understood from Mr. Johnston that what came out of the test connection was a "little fog or something of moisture" and he quantified it as two to five drops of water -- "a very small amount of water." However, based on the amount of water and its location in the dead leg, he was convinced the water did not come from the system but was introduced from outside -- probably by technicians performing calibrations of the adjacent pressure gauge. Tr. 13840-42 (Stokes).

the 60 psi side of the system and found no moisture. An NRC inspector also witnessed these checks. An engineering analysis was performed on this event by Mr. Lisenby, a design engineer with Southern Company Services, who concluded that it was not likely the water came from the system but rather from the calibration process. Tr. 13838-48 (Stokes).

(d) An Undiscovered Condensation of Eight Ounces of Water in the Diesel Air System is Not Credible

612. Georgia Power introduced rebuttal testimony from Dr. Howard T. Hill, an expert in the area of testing, measurement and failure analysis of air systems, to address Mr. Mosbaugh's contention that eight ounces of water could form within the diesel control air system from high dew point air. Dr. Hill refuted Mr. Mosbaugh's assertion that "local cold spots existed at Vogtle because large outside air intakes directly blow on portions of the Vogtle diesel air system" (Mosbaugh at 18). His prefiled testimony concluded that "because of the redundant sources of heat in the diesel building and the configuration and specifications of the ventilation system (as discussed above), it seems virtually impossible that a significant cold blast of air would enter the room and chill hundreds of feet of stainless steel tubing." Hill and Ward Rebuttal at 8.

613. Dr. Hill also refuted Mr. Mosbaugh's assertion that out of specification high dew point air would pass through the control filter unimpeded and into the pneumatic logic board passageways and trip lines where, when cooled to below the dew point, it would form water (Mosbaugh at 84). Dr. Hill testified that

> First, in order for the quantity of condensate to be sufficient to affect system performance, there would have to be some continuous makeup flow through these lines. The amount of water vapor in a still control line cannot physically condense to a significant quantity of liquid water. Second, the continuous makeup flow passes

> through the 240 psig control air supply line which is alongside of and at the same temperature as the control (trip) lines. The dew point of the vapor in the 240 psig lines is on the order of 30F above that in the 60 psig lines. If vapor condenses in the 60 psig lines, it must condense at a more rapid rate in the 240 psig line. The condensate in the 240 psig line would eventually fill this line and enter the filter bowl in the diesel control panel where it would be trapped below the baffle disc. If water has never been found in the filter bowl at Plant Vogtle, it is extremely unlikely that there has ever been any condensation in the 60 psig control lines (particularly those inside the cabinet where elevated temperature is maintained by a heating strip).

Hill and Ward Rebuttal at 10-11.

614. Dr. Hill further testified that he could not come up with any reasonable scenario that would account for the accumulation of even a small fraction of the eight ounces of water that Mr. Mosbaugh claims was found in the diesel trip lines. Using conservative assumptions, Dr. Hill calculated that 2500 cubic feet of 60 psig air must be cooled to condense eight ounces of liquid. He considered it highly unlikely that 2,500 cubic feet of air (a large quantity of air) would flow through the control lines to make up leaks during the brief duration of the extreme temperature conditions postulated. Hill and Ward Rebuttal at 12-13. He also concluded that it was not likely that eight ounces of water could have come from the 240 psig portion of the control air system. Numerous components and tubing runs inside the control panel cabinet would have to be flooded for the liquid to reach the 60 psig portion of the system. Given the testimony of Messrs. OwYoung and Johnston discussed above, we agree with Dr. Hill that it is difficult to imagine that this would not have some ongoing negative impact on control system operation which would persist until the entire system is drained and blown dry. See Hill and Ward Rebuttal at 13-15.

615. NRC Staff witness Ed Tomlinson testified that it was unlikely that free water in sufficient quantities to cause the alleged malfunctions was present in the pneumatic control system in March 1990. Even then, he concludes, the water would have to have been selectively deposited in the high jacket water temperature sensing lines and not in the .006 orifice timer in the trip arming circuit. Like Dr. Hill, Mr. Tomlinson did not believe that temperatures in the diesel generator room were such that the condensation of water alleged by Mr. Mosbaugh could have occurred. Skinner, Tomlinson at 8-9.

616. In 1994, the NRC Staff reviewed the issue of water in the diesel control air system as part of an allegation review effort and found the following:

> 1. In Staff Exh. II-5, the Staff documented a technical review of Mr. Mosbaugh's allegation that causes other than those specified by GPC in its communication with the NRC caused the 1A DG failure during the SAE. The Staff did an extensive review of work documentation related to the 1990 failures, equipment histories for the DGs and related equipment, an evaluation to determine the impact of water contamination on the system function, and an evaluation of the potential of introducing water into the lines. The Staff found that the pneumatic system does not function in the manner described in the allegation and concluded that condensation in the supply air in the control cabinets did not occur. Interviews were held with three instrumentation technicians, one plant equipment operator and two engineers that had been involved in DG maintenance in 1990. None of these personnel recalled evidence of water in the air lines. In addition, a review of the maintenance documentation, specifically the work orders associated with the troubleshooting activity in 1990, did not identify evidence of water in the pneumatic lines.
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> 2. The Staff also determined that if water was inside the control modules and pneumatic lines, there would be corrosion or other indications caused by the water contamination. Review of documentation did not identify corrosion or other indications of water having been present in these components.

> 3. The Staff reviewed dew point documentation and identified numerous examples of out-of-specification dew points. The Staff found no evidence of actual water formation in the lines.

Skinner, Tomlinson at 10-11. The Staff further determined that any free water that may have accumulated during the start cycle in the air start piping will quickly vaporize. The Staff therefore found that

> the potential for the presence of free water in the air start or pneumatic control system . . . is considered to be minimal. Absent free water, there is no potential for the type of component degradation and attendant DG failure alleged by Mr. Mosbaugh. . . . [T]he Staff concludes that there is no basis to the allegation that moisture in the pneumatic lines to the DG 1A sensors was the cause of the DG not performing its function on March 20, 1990.

Skinner, Tomlinson at 11-12.

(e) Cross-Examination of Mr. Mosbaugh

617. Mr. Mosbaugh was questioned at the August 8, 1995 hearing concerning his assertion that a jar of water was collected from the diesel trip lines and discussed on March 30, 1990. He agreed that it would be quite a surprise for Vogtle personnel if they saw eight ounces of water coming out of a diesel trip line. Tr. 10453. We asked him why he did not mention this incident during the April 11, 1990 discussion, captured on Tape 41 (GPC Exh. II-55A), in which he and a number of engineers reporting to him, including Messrs. Kochery and Stokes, discussed moisture in the diesel air system with Mr. Bockhold. Mr. Mosbaugh was unable to adequately explain why the alleged jar of water wasn't even mentioned and said "it seems as if I forgot about it." Tr. 10329-30, 10456-57 (Mosbaugh). Knowing Mr. Mosbaugh as we do, we find it incredible that by April 11, he would have forgotten about the jar of water he claims he saw on March 30.

Furthermore, if there was such a jar of water, then Mr. Kochery and Mr. Stokes, who were both in the April 11 meeting, also failed to recognize its relevance and mention it in the discussion. Moreover, Mr. Mosbaugh admitted that he did not raise this issue after March 30, 1990 until 1994, when he listened to Tape 24. Tr. 10456-57. It also seems very curious to us that, with all the work he did with Mr. Robinson in 1990 and 1991 in reviewing tapes, this was not recognized by Mr. Mosbaugh at that time.

(f) Conclusion on Water in the Diesel Air System

618. We conclude that the evidence discussed above is overwhelming that Mr. Mosbaugh is incorrect in insisting that a jar with eight ounces of water was collected from the diesel trip lines prior to March 30, 1990. It may be that he is recalling an incident involving leakage from the diesel intercooler or combustion air cylinder (see deficiency cards 1-90-0087 and 1-90-307, GPC Exhs. II-141 and II-142, respectively). In any event, we are thoroughly convinced that he is wrong based on the extensive testimony of the Georgia Power witnesses, who would likely have learned of and remember such an incident, the testimony of NRC Staff witnesses, and the fact that, prior to 1994, Mr. Mosbaugh did not raise this issue with anybody after March 30, 1990, in particular during a group discussion about moisture in the diesel control air system only 12 days later.

3. May 23, 1990 1B Diesel Failures

619. Another of Intervenor's assertions is that the May 23, 1990 failures of the 1B diesel are further evidence that Georgia Power was wrong about the root cause of the March 20 1A diesel failures. He argues that the Time Line Sequence of Events for the May 23, 1990 failures

(Intervenor Exh. II-37) demonstrates that the March 20 1A diesel failures were not the result of calibration problems. He observes that the second trip of the diesel on May 23 was very similar to the second March 20 1A diesel trip. A note on the May 23 time line suggests that the Calcon high jacket water temperature sensors did not vent during the second trip, which would indicate that these sensors did not cause the trip. Int. Exh. II-37; Tr. 7207-08, 14341 (M. Kohn). These assertions suggest that Georgia Power had information which should have led it to conclude that the Calcon sensors were not the cause of the March 20 1A diesel failure.

620. Initially, we note that, based on tape recorded statements on May 24, 1990, the NRC IIT was informed on the evening of May 23 of the May 23 trips. See Int. Exh. II-38 at 6.[133/] Our record, however, does not indicate, one way or the other, whether Georgia Power provided the NRC with a copy of the Time Line Sequence of Events including the controversial note. The question we must answer is whether there is sufficient evidence for us to find that Georgia Power concluded the Calcon sensors did not cause the May 23 trips and hid this fact from the NRC. We conclude there is not.

621. During the June hearings, Mr. Stokes was questioned about the 1B diesel failures on May 23, 1990 and was shown the Time Line Sequence of Events (Int. Exh. II-37) prepared by Georgia Power at that time. The Time Line indicates that the 1B diesel tripped twice on May 23, 1990, once at 1228 hours and again at 1312 hours. About 12 to 16 hours before the first trip, the I&C Department used a new calibration procedure, revised based on information received from the Wyle testing, to calibrate the Calcon jacket water temperature sensors installed in the 1B

[133/] We also note that the May 23 trips are alluded to in NUREG-1410 (GPC Exh. II-167) at J-28. The cover page of NUREG-1410 states that the manuscript was completed in May 1990. Tr. 7214 (J. Bloch).

diesel. Int. Exh. II-37 at 1; GPC Exh. II-63 at 4. The Time Line includes a note following the second trip which states: "I&C Personnel at each switch with leak detection (snoop) soap to check for venting -- No switches venting." Int. Exh. II-37 at 1.

622. Mr. Stokes was asked how the 1312 diesel trip could be attributable to calibration problems if, as suggested by the time line, the Calcon sensors were not venting. Mr. Stokes could not explain the time line entry but was convinced that the problem with the diesel was indeed calibration. He explained that the diesel was running fine just before they changed out the sensors and, thereafter, when they corrected the calibration procedure and recalibrated the sensors, the diesel ran fine again. Tr. 7203-12 (Stokes).

623. Mr. Ward testified at the hearing that, when he heard about the notation of "no venting" within a couple of weeks of the event, he questioned its accuracy. Tr. 14348 (Ward). Based on discussions with Messrs. Stokes and Burr, he did not believe that the technicians made their observations concerning venting immediately when the diesel tripped, and may not have even checked the right sensors. The sensors only vent for a finite period of time after they trip and, therefore, if the technician did not check for venting immediately after the trip he may have missed the occurrence of venting altogether. Tr. 14341-49 (Ward).[134/]

624. As discussed in Finding 579 above, as a result of the May 23 trips, Georgia Power requested that Wyle inspect and evaluate six additional sensors to determine their as-received condition and calibration capability. The as-received trip setpoints for the sensors were determined

[134/] We also note that the words in the Time Line notation are not very precise and, therefore, the intended meaning of that note is not clear.

to range from 162F to 189F. The Vogtle calibration procedure specified that the setpoints be in the range of 196F to 204F. The Wyle test results for this testing were included in a May 29, 1990 letter report (GPC Exh. II-63, last attachment). GPC Exh. II-63 at 4.

625. While the notation on the Time Line Sequence of Events (Intervenor Exh. II-37) is a bit curious, we are persuaded by the testimony of Messrs. Stokes and Ward and by the results of the Wiley testing, discussed above, which determined that the as-found sensor setpoints were extremely low. We find that Georgia Power reasonably concluded in 1990 that the May 23 trips were caused by calibration problems with the Calcon jacket water temperature sensors.

4. Sticking Air Start Admission Valves

(a) Intervenor's Assertions

626. Intervenor cites, as further evidence of his theory that water in the diesel air system was the actual root cause of the March 20 1A diesel failure, his limited observations in connection with the repair of sticking air start valves in July 1990. Intervenor would have us conclude that Georgia Power had reason to believe that the cause of the sticking air start valves, which they and the diesel vendor identified and provided to the NRC, was false. There is simply no credible evidence to support this assertion.

627. Mr. Mosbaugh claims that he observed Mr. Harvey Handfinger, the Maintenance Manager, in July 1990 with rust on his hands and arms from air start valve components that he was carrying. He asserted that corrosion products on the pistons and caps caused binding of the pistons in the caps and, in order to restore the proper clearance, the corrosion products were

removed by Vogtle personnel in July 1990 using emery cloth. He also contends that corrosion in a 1A diesel air receiver and a design change to eliminate the accumulation of water in the diesel air compressor oil is further evidence of water in the diesel air system. Mr. Mosbaugh asserts that finding water in the diesel air system showed that Georgia Power had identified the wrong root cause of the 1A diesel failure. Mosbaugh at 97-99; Tr. 8600-03 (Mosbaugh). Mr. Mosbaugh further contends that the two failures to start ("weak air rolls") of the 2A diesel on January 24 and 25, 1990 could have been the result of water in the starting air system. He cites inconclusive dew point data from January 22, 1990 and the fact that dryers were out of service in 1989 and concludes it is reasonable to assume that the dew points were high on January 24 and 25. Mosbaugh at 41-42; Tr. 8624-26 (Mosbaugh). Mr. Mosbaugh did not find it credible that a manufacturing defect would show up for the first time after 100 or more starts of the diesel. Tr. 8619-20 (Mosbaugh). He also contends that differential thermal expansion would not cause binding where there was a clearance of one to three mils. Tr. 8620-21 (Mosbaugh).

628. As discussed in detail below, Mr. Mosbaugh's claims are not borne out by the relevant documentation prepared contemporaneously with the events and are specifically disputed by Mr. Harvey Handfinger, who testified as a rebuttal witness for Georgia Power. Furthermore, Mr. Lewis Ward, as well as Mr. Robert Johnston, the diesel vendor representative who was on site to assist Georgia Power in the repair of the air start valves in July 1990, provided testimony for Georgia Power which directly rebuts Mr. Mosbaugh's claims.

(b) Georgia Power's Determination of the Root Cause of the Sticking Air Start Valve Problem

629. Mr. Ward recalled that there were three weak air rolls which occurred before July 1990 when the sticking air valve problem was discovered. The first two occurred in January 1990 and the third in April 1990. In all three cases, the operators mistakenly believed that the diesel failed to start because they had not held the test button down long enough, which was a problem that actually existed only in the simulator. Tr. 7756-59 (Ward). When the problem occurred again in July, plant personnel realized that there was nothing wrong with the starting circuitry but that the failures were the result of air start valves sticking in their caps, due to a lack of adequate clearance which was a manufacturing defect. Tr. 7757 (Ward). Mr. Ward said there was no record of weak air rolls having occurred on the diesels prior to January 1990. The 2A diesel was placed in service in about March 1989, although it underwent qualification testing for a period prior to that. The 1B diesel went into service in early 1987, after its qualification testing. Tr. 7765, 14262-64 (Ward).[135/]

630. Mr. Handfinger testified that he was involved with the disassembly of air start valves in July 1990 pursuant to Maintenance Work Order ("MWO") Nos. 19003339, 19003340, 29003147, 29003028, and A9001255 (GPC Exhs. II-150A through E). The diesel vendor was contacted and an Event Critique Team was assembled. Handfinger Rebuttal at 5-6.

631. Mr. Johnston inspected the Vogtle air start valves in July 1990 and observed the repair work which he had recommended. He determined that the "weak air roll" was due to

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[135/] In all, there were five weak air rolls recorded: Jan. 24, 1990 (2A diesel), Jan. 25, 1990 (2A diesel), April 12, 1990 (2A diesel), July 5, 1990 (1B diesel), and July 11, 1990 (2A diesel). Int. Exh. II-156.

insufficient clearance between parts in the starting air valves. See 10 C.F.R. Part 21 Report No. 154, GPC Exh. II-166. In order to reduce the outside diameter of the pistons, the pistons were placed on a lathe and emery cloth was applied to the surface of the pistons to sand down the outside diameter of the pistons. Also, as documented in the pertinent Plant Vogtle Maintenance Work Orders (GPC Exhs. II-150 A through E), some of the valve caps had their flange faces lapped to improve flatness. OwYoung and Johnston Rebuttal at 13; Tr. 7760-61 (Ward). Since the July 1990 repairs were performed, there has not been another weak air roll at Vogtle. Tr. 14272 (Ward).

632. The manufacturing tolerance range for the clearance between the air start valve pistons and their caps was .001 to .003 inch. The manufacturer had produced the parts such that the clearance was at the low end of the tolerance range.[136/] In addition, the air start cap is made of cast iron material and the piston is made of stainless steel. These two materials have different coefficients of thermal expansion which affect the cap to piston clearance. As the temperature of the diesel engine increases, there is a small reduction (approximately .00065 inch) in clearance under keep-warm or normal operating temperatures. Further, Mr. Johnston was of the opinion that the remaining clearance between the pistons and their caps was consumed by creep deformation of the starting air valve caps due to the loading of their cap screws. OwYoung and Johnston Rebuttal at 14; Handfinger Rebuttal at 6. As discussed below, Mr. Ward disagreed that creep deformation was a contributing cause.

136/ Mr. Ward testified that the manufacturer also found the same out of tolerance problem in caps that were still in the factory. Tr. 7761 (Ward). In fact, Georgia Power found that new valves in its warehouse also had the same out-of-tolerance condition that was observed on valves from the diesel. Handfinger Rebuttal at 7; GPC Exh. II-150E at 2.

633. Messrs. OwYoung and Johnston were unaware of any other plants which had experienced the sticking air start valve problem and explained that different manufacturing tolerances were used in manufacturing at different points in time. Also, they believed that the keep-warm jacket water temperature of Vogtle's diesel was higher than that of other units. Tr. 12651-55 (Johnston). Mr. Ward did not believe that the difference in jacket water temperatures could explain why the phenomenon had not manifested itself at other units. Tr. 14274 (Ward).

634. There is no credible evidence that corrosion was found on the air start valve parts. Mr. Handfinger, who personally inspected some of the air start valve parts, did not observe evidence of moisture in the starting air system and did not find any corrosion on the air start valve parts. He disputed Mr. Mosbaugh's claim that his hands and arms were stained with rust from the air start valve parts. Handfinger Rebuttal at 5-7. Mr. Johnston did not observe or hear about any corrosion or rust found on any air start valve parts. Tr. 12727-29 (Johnson). Neither Mr. OwYoung nor Mr. Johnston has ever heard that corrosion was found in the starting air system. OwYoung and Johnston Rebuttal at 13-14. Mr. Ward was told by a number of people that there was no sign of corrosion on the air start valve parts. Tr. 7762 (Ward). Furthermore, the Maintenance Work Orders (GPC Exhs. II-150 A through E) contain no indication that water or corrosion was found during any of the repair work.

635. Mr. Stokes testified that he would expect to see some evidence of water if the weak air rolls were caused by water. For example, he believed there would be water in the 1/4-inch line between the distributor and the air start valve. In addition, he believed there would be huge amount of corrosion inhibiting the movement of the piston in its cap. He testified that he had not

seen such evidence of water or corrosion and that he would have expected to learn of it if it existed. Tr. 7706-08 (Stokes).

636. Mr. Johnston testified that just the presence of water in the starting air system would not cause a "weak air roll." The starting air passes through two strainers. From the strainer, the air goes to four starting block and vent valves that allow starting air to go through both sides of the engine to the starting air valves. Pressure also passes through two on-engine filters to two air distributors. The distributors then pressurize the pilot port of the starting air valves. The valves then allow the air to pass to the combustion chambers of the engine. If water was in the system, it would either blow by or aid in pressurizing the piston in the starting air valve. Inspections are performed every 18 months on the strainers and filters and there have been no signs of water in the system. Also, the filter bowl has a 1/4 inch open drain tube. This tube runs to the base of the engine and allows any water to blow out to the engine base. OwYoung and Johnston Rebuttal at 12.

637. Hypothetically, if water caused corrosion, the engine could fail to start. Under this scenario, however, the engine should continue to fail, unlike what occurred with the Vogtle diesels in the January to July 1990 time frame. Moreover, as a manufacturer, Cooper Energy Services expects the starting air system to experience high levels of moisture in the majority of its customers' applications. Accordingly, Cooper has designed the diesel starting and control air systems' critical components to be resistant to this environment. For example, the cast iron starting air valve cap has been treated with a special corrosion resistant coating and the piston is

made of stainless steel. Therefore, the starting air system will tolerate moisture if present. OwYoung and Johnston Rebuttal at 13.

638. Mr. Johnston testified that he believed the mechanism of creep deformation was likely the reason that weak air rolls did not occur in the Vogtle diesels until January 1990. However, this was his personal view and he was not able to perform an engineering analysis to confirm his belief. OwYoung and Johnston Rebuttal at 14-15; Tr. 12640-42 (Johnston). The final Cooper report on the Vogtle air start valve failure concluded that creep did not appear to be the cause of the problem. Int. Exh. II-229 at 8; Tr. 12636-37 (Johnston). After reviewing Mr. Johnston's prefiled testimony in July/August 1995, Mr. Ward had a creep analysis performed and concluded that creep deformation was not a contributor to the sticking valve problem. GPC Exh. II-198 at 6; Tr. 14270-71 (Ward).

639. Mr. Ward reasoned that the weak air rolls only first manifested themselves in 1990 as a result of several factors: the air start system alignment, the number and location of stuck pistons, and the initial starting position of the crankshaft in relationship to the valves that happened to be stuck at that particular time.

> A "weak air roll" apparently occurred only when one or more valves were "sticky" or were stuck in either the open or closed position. However, this condition by itself would not necessarily prevent the engine from starting. Factors that aggravated this condition were the initial starting position of the crankshaft in relationship to the valves that happened to be stuck at that particular time, and whether one or both air start systems were in service for the start. The initial position was important because if the first cylinder to receive compressed air for the start attempt was opposed by a cylinder that also was receiving air due to a stuck open piston, then enough force to roll the engine may not be developed. This situation would be further aggravated if the air system was aligned

> to only one air header (8 cylinders), rather than to two headers (all 16 cylinders). However, a stuck piston should not have any affect if it was on the side of the engine that had its air system isolated, since that cylinder would not receive starting air to pneumatically lock it.

GPC Exh. II-198 at 3; Tr. 14264 (Ward). Mr. Ward's Affidavit further stated that in each of the four documented cases of weak air rolls, one of the two starting air banks was isolated, meaning that air was supplied to only eight of the 16 starting air valves. GPC Exh. II-198 at 4-5. During the Sept. 19, 1990 hearing, Mr. Ward realized that his affidavit was in error in that there were five, rather than four, weak air rolls and that the Jan. 25, 1990 event involved the application of both starting air banks. Tr. 14255-58 (Ward). Mr. Ward added, at the hearing, that during overhauls of the diesel, they took different components of the diesels apart and put them back together differently, and new caps may have been installed. Tr. 14264 (Ward). Further, Mr. Ward testified that the plant was able to replicate the weak air roll in July 1990 by parking the diesel at different positions with a stuck valve. Tr. 7775 (Ward).

640. NRC Staff witness Pierce Skinner found that it was reasonable to conclude that the July 1990 weak air rolls were caused by a combination of root cause conditions, i.e., a close tolerance design fit between the piston and cap and possible bore distortion occurring when the cap is tightened to the valve body and cylinder head. Skinner, Tomlinson at 13-14.

(c) Cross Examination of Mr. Mosbaugh

641. Mr. Mosbaugh did not observe the removal of corrosion products using emery cloth and did not recall anyone telling him that the purpose of using emery cloth was to remove corrosion products. Mr. Mosbaugh believed that all the pistons and caps would be subject to

corrosion product buildup, not just one or two. Tr. 8618, 8635 (Mosbaugh). He admitted that Georgia Power's critique report for the sticking air start valves (Int. Exh. II-111) and the vendor's Part 21 report (GPC Exh. II-166)[137] said nothing about finding corrosion products. Tr. 8603-07 (Mosbaugh). Mr. Mosbaugh did not perform any kind of analysis to demonstrate the amount of water that would be necessary to cause a weak air roll of the diesel. Tr. 8611-13 (Mosbaugh). He claimed, however, that he was aware of a number of people testifying that water was found in the air start lines.[138] Tr. 8648 (Mosbaugh). Other than Mr. Mosbaugh's claim that Mr. Handfinger had rust on him and that some corrosion was observed during the April 6, 1990 2A diesel air receiver inspection, he had no other evidence of corrosion in the starting air system. Tr. 8617 (Mosbaugh). During the meeting that Mr. Mosbaugh attended with Mr. Handfinger, he did not recall any discussion of corrosion products. Tr. 8614 (Mosbaugh).

642. Mr. Mosbaugh's prefiled testimony, at 41, and the July 6, 1995 revision of his Demonstrative Aid No. 4, failed to mention that dew point readings taken on January 25 on the 2A diesel were in-specification readings. Tr. 8629-30 (Mosbaugh). At the hearing, he contended that problems with the air dryers in December 1989 could be the source of corrosion in the system, even though he could not identify any evidence that there was a moisture problem in the system at that time. Tr. 8632-33, 8643-45 (Mosbaugh). This explanation was apparently

[137] It is difficult to imagine that the diesel manufacturer would put itself on report, with a Part 21 notification, throughout its customers' industry if it did not believe its manufacturing process was defective.

[138] We take this to be a reference to the statements of Mr. Kochery in discovery that he heard water was found in a two-inch air start line, which Mr. Kochery later revised. As discussed in Finding 602, supra, we have previously concluded that Mr. Kochery was mistaken in his statement and he meant to refer to leaks unrelated to the diesel air system.

conceived after he prepared his prefiled testimony (Tr. 8645-48 (Mosbaugh)) and there being no evidence to corroborate it, we reject it.

(d) The Air Receiver Inspection and Air Compressor Design Change

643. As discussed above, Mr. Mosbaugh also claims that corrosion was discovered during the April 1990 inspection of an air receiver and that a design change was necessary to eliminate the accumulation of water in the diesel air compressor crankcase. This, he claims, is further evidence that water was present in the diesel air system. Mosbaugh at 97-98.

644. One EDG 1A air receiver tank (K02) was inspected by Georgia Power and NRC Staff representatives on April 6 and found to be clean inside. Hunt Aff. at 5; Stokes at 2-3; Bockhold Supp. at 5. There were light rust spots on the welds inside the tank but that was normal and to be expected. Hunt Aff. at 5. There was nothing that indicated a moisture buildup was occurring in the control air. Tr. 7385-87, 7685-86 (Stokes); Bockhold Supp. at 9; Tr. 4926 (Hunt). Mr. Shipman took notes on April 11, 1990 (GPC Exh. II-147), which indicate, among other things, that he was aware minor "flash" corrosion or rust was observed on the weld seams of the air receiver tank. He testified that this was to be expected because the tank is carbon steel and the welded joints quickly form a thin "rust" or corrosion film immediately after welding. Shipman at 14; Tr. 10919-21 (Shipman).

645. Dr. Hill addressed Mr. Mosbaugh's claim that another indication that Vogtle had water in the diesel air system was a design change to address water accumulating in the diesel air

compressor crankcase oil. Dr. Hill concluded that water in the compressor crankcase oil is not unexpected and has no bearing on the quality of air leaving the dryers. Hill and Ward at 15-16.

(e) Conclusion on the Sticking Air Start Valves

646. We conclude that, while we have some uncertainty about why the weak air rolls did not manifest themselves at Vogtle until 1990, we are satisfied that Georgia Power reasonably concluded that the weak air rolls were due to inadequate clearance between the start valve pistons and their caps and not due to water or corrosion. Even if Georgia Power were at some point proven wrong, which we do not now find, the only issue we need decide is did Georgia Power tell the NRC what they reasonably believed to be the cause of the weak air rolls in 1990? We are convinced that they did.

5. Inadequate Root Cause Evaluation.

647. Finally, Intervenor asserts that Mr. Bockhold was not dedicated to finding the root cause of the March 20 1A diesel failure and usurped the event critique team effort in order to advance the outage schedule. Mosbaugh at 26-28. We interpret these assertions to state that Georgia Power's approach to its evaluation of the root cause was less than a good faith effort, thereby exhibiting a lack of character or integrity.

648. Mr. Bockhold denied that he "pushed" the restart schedule at the expense of root cause testing and analysis. Bockhold Rebuttal at 16. Mr. Stokes testified at the hearing that, when they were in the diesel troubleshooting process, Mr. Bockhold came out to the diesel and offered his support to make sure that they had whatever support they needed -- I&C personnel,

mechanics, Operations personnel, etc. -- in order to complete the process in a timely manner and to get to the bottom of the problem. Tr. 7695-96 (Stokes).

649. At the time of the Site Area Emergency Unit 1 was in an outage. As would be expected after this event, outage personnel, factoring in appropriate diesel generator testing and analysis activities, developed a "recovery" or "restart" schedule. The absence of a recovery schedule would have been imprudent. Bockhold Rebuttal at 16-17.

650. With respect to diesel generator testing, the personnel who were working on the diesels had all of the resources necessary or desired at their disposal to determine the root cause of the March 20, 1990, diesel failures. This included vendor representative support, corporate technical support, and whatever overtime efforts they considered prudent. The on-site technical review went as far as it logically and reasonably could have gone: the component (jacket water temperature sensors) which failed had been identified; the component had been recalibrated, reinstalled or replaced, and tested; and special test starts had reproduced alarm conditions which were very similar to those experienced on March 20. Although the identification of the specific failure mechanism would have to await the disassembly and inspection and testing of Calcon sensors at the independent Wyle test lab, there was no reasonable basis for not returning Unit 1 to operation based on the knowledge which Georgia Power had at the time. Id. at 17.[139]

651. Mr. Handfinger testified that he observed no undue pressure to restart the plant; pressure was not applied to him or his organization, the Maintenance Department, to restart Vogtle Unit 1. Handfinger Rebuttal at 4-5; Tr. 11385 (Handfinger).

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[139] Intervenor did not question Mr. Bockhold concerning his Rebuttal Testimony on this topic.

652. At the April 21, 1995 hearing, Intervenor questioned Mr. George Frederick, the site SAER supervisor and a member of the Event Critique Team, about statements he made to Mr. Mosbaugh on May 2, 1990 which Mr. Mosbaugh taped. Tr. 4135-53 (Frederick). Mr. Frederick told Mr. Mosbaugh that "I really believe that the product that the critique team right now is generating is really inadequate there's no question." Int. Exh. II-22B at 3. Mr. Frederick explained that this statement referred to his opinion about how the report dealt with the Emergency Director's duties, responsibilities and actions that had been taken when the event occurred. Tr. 4136 (Frederick).

653. On the May 2, 1990 tape, Mr. Frederick also stated "if somebody, if the NRC looked at me and said you know, from the standpoint of doing a review team, 'This is very weak, I don't see how this can be effective in correcting your problems in the future.' I would say, 'I agree.' It's an unfinished product. We never did a good job. And my name is on the list, but I don't think we were ever given the opportunity to finish it." Int. Exh. II-22B at 3. Mr. Frederick explained that this comment meant that "members were being added to the critique team, and the concern was that the critique team that existed may not be given the opportunity to finish if the direction of the critique team changed. So at that point in time, it was unfinished." Tr. 4139. He added that he recalled there were a number of meetings held when the recommended corrective actions were put on paper and finalized and changes were made, not to the document itself but to what would actually be accomplished. Tr. 4151 (Frederick).[140/]

[140/] In this regard, we observe that NRC's July 20, 1990 letter (GPC Exh. II-17) released Georgia Power from the remaining items in the NRC COA letter. The letter found, based on Georgia Power's May 15, 1990 and June 22, 1990 letters, that Georgia Power had fulfilled its commitments to review and implement the event critique team's

Footnote continued on next page

654. Mr. Frederick also said on the May 2, 1990 tape that he remembered when the critique team was "usurped from the job." Int. Exh. II-22B at 3. Mr. Frederick stated at the hearing that this referred to the fact that other critique team members were added to finish the work that the original critique team started. "[T]he critique team at that point in time had not been on the team since the very beginning, and I was afraid there would be a loss of information and understanding of the things that the team had worked on up to that point." His concern related to a dilution of the original team members. Tr. 4142-45 (Frederick).

655. On the May 2, 1990 tape, Mr. Frederick further stated "That's what I meant about when you reach the point when you don't get your product management goes behind the door and finishes it, writes what they want...." Int. Exh. II-22B at 4. At the hearing, Mr. Frederick stated that this comment referred to his opinion, as discussed on the first page of the tape transcript, that if management felt that the critique team's work was not satisfactory, then they should do it themselves. Tr. 4145-48 (Frederick).

656. We conclude that Georgia Power's efforts to determine the root cause of the March 20, 1990 1A diesel failure do not suggest that Georgia Power was trying to cover-up anything or even that it was dragging its feet. The efforts of the Event Critique Team were clearly overtaken by the efforts of Mr. Ward and Wyle Labs to determine what was the problem with the Calcon temperature sensors. Regardless of whether Georgia Power could have done a better job of involving the Event Review Team in the later stages of the investigation, or could have done more

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long term recommendations. This included (1) revising the maintenance procedures for Calcon sensors to incorporate the lessons learned from the Wyle testing, (2) cleaning and calibrating the jacket water sensors using the revised procedures, and (3) cleaning and calibrating other non-essential trip temperature sensors.

-- both of which we decline to address -- the evidence adduced at the hearing does not demonstrate that Georgia Power's root cause evaluation was inadequate or unreasonable. Moreover, it does not approach any showing that Georgia Power's root cause evaluation evidences a lack of character or integrity.

VI. Overall Evaluation (Implication of Misreporting)

657. It is uncontested in this proceeding that the specific statements at issue -- the April 9, 1990 presentation and letter, the April 19, 1990 LER, the June 29, 1990 letter transmitting the revised LER, and the August 30, 1990 letter -- contained inaccuracies or omissions. Such errors and omissions, however, are not sufficient in and of themselves to warrant denial of a proposed license transfer. As the NRC Staff witnesses testified, inaccuracies in communications between the NRC and its licensees occur. Tr. 15393 (Zimmerman). When they do, they are subject to enforcement actions, such as the Notice of Violation and Civil Penalty that were imposed upon Georgia Power. Id. Georgia Power has paid the civil penalty and has acknowledged its failures, including Mr. Bockhold's role and responsibility in the events underlying the enforcement action. Staff Exh. II-51 at 3-4. Mr. Bockhold has been disciplined and counseled on his performance. Tr. 3826-28 (Bockhold); GPC Exh. II-202 at 2. He too recognizes the extent and seriousness of his performance failures. GPC Exh. II-203.

658. In an effort to provide the NRC with additional assurance that Mr. Bockhold will provide the NRC complete and accurate information, Mr. Bockhold requested and Southern Nuclear agreed to implement a personal training opportunity which focuses upon and develops his abilities to perform any future line management role in licensed activities commensurate with

regulatory standards of care. To impress on all concerned the seriousness of Mr. Bockhold's performance failures, Southern Nuclear and Georgia Power are maintaining Mr. Bockhold in his present position (General Manager, Nuclear Technical Services) in the Southern Company system and prohibiting him from holding a line management position in Georgia Power's nuclear plants and plants operated by Southern Nuclear until satisfactory completion of the training. Georgia Power further committed to provide the NRC with sixty-days notice prior to his assumption of such a position. Staff Exh. II-51 at 2-3; GPC Exh. II-202 at 3. Tr. 11552 (Hairston). During the hearing, Mr. Hairston told the Board that Georgia Power does not see a future role in operations line management for Mr. Bockhold. Tr. 11552-54 (Hairston). We rely on this in reaching our decision.

659. Mr. Shipman, whose judgment and honesty particularly impressed us in this proceeding (Tr. 11314) testified that Georgia Power's intent has always been to provide the NRC with the best data that it could. Tr. 11294 (Shipman). Mr. Cash similarly testified, "We were inexperienced when we started up the plant, and we made mistakes. But they were honest mistakes." Tr. 4584 (Cash). He testified that lying "wasn't our culture. It's not our culture. It was never our culture." Id. Mr. McCoy's efforts to ensure openness of communications with the NRC were particularly noted by the NRC Staff. Tr. 14819, 14843 (Matthews).

660. The lessons learned from this experience have been painful ones for Georgia Power, but they have learned from them. Today, Georgia Power management is more sensitive to the need to document and support its regulatory communications. Tr. 11311-12, 11318

(Shipman). While there has been considerable focus on the 1990 events, there have been thousands of accurate, well-defined communications since then. Tr. 11313 (Shipman).

661. Georgia Power has taken corrective action to assure it fulfills its obligation to provide complete and accurate information in the future. In a memorandum to all Georgia Power employees, Mr. Hairston stressed,

> all of us should consider it our personal responsibility that when called upon to communicate with the Nuclear Regulatory Commission or its staff, whether orally or in writing, we will do our best to ensure that the information is complete and accurate in all material respects. This is our obligation by the terms of our licenses, but more importantly, it is the right thing to do.
>
> We should all remember, and take seriously, that the policy of Georgia Power Company is to conduct its business affairs in an honest, ethical manner and to comply with all laws and regulations affecting the Company. Important to our success as a company is our success in compliance with our legal obligations.

Hairston at 18; Tr. 3786-88 (Hairston); GPC Exh. II-19A. This message has since been reinforced, for example, by a meeting with plant employees in May, 1994, where the Senior Vice President (Mr. Woodard) again explained that an open and proactive sharing of all relevant and significant information with the NRC is essential, even if it goes beyond the scope of an information request. Id. These messages were shared with the employees of all of the Georgia Power and Southern Nuclear plants. Tr. 3564 (Hairston).

662. The NRC Staff recognized in April 1990 that there was a communication problem and held a high level meeting with Georgia Power management to express this concern. Tr. 14852-57 (Matthews). Georgia Power was receptive and responsive to the criticisms. Tr. 14940-42 (Matthews). Since this meeting, the NRC Staff has observed a dramatic improvement

in the quality of Georgia Power's communications with the NRC, particularly after Mr. Shipman became the Plant General Manager. Tr. 15190, 15196, 15198 (Hood); Tr. 15194 (Matthews). [141]

663. In this very time frame, Georgia Power's efforts to provide accurate information to the NRC and improvement in such communications were evident. In its July 20, 1990 letter, the NRC recognized Vogtle's responsiveness with regard to the IIT's activities, including the preservation of records and equipment related to the event, the availability of individuals for questioning, and the conduct of separate investigations. GPC Exh. II-17 at 2. As the Staff witnesses noted, Georgia Power took steps to keep the NRC informed during the post-repair and trouble-shooting activities and showed technical competence in these and related activities. Although it was not until August 1990 that diesel generator start counts initially provided on April 9 were corrected, senior Georgia Power managers, including Mr. Hairston, endeavored to keep the NRC informed about errors identified by Georgia Power personnel as they became aware of them. Zimmerman/Reyes at 6. The 1990 Systematic Assessment of Licensee Performance (SALP) covering events at issue in this proceeding also noted this improvement:

> A general area of concern throughout this SALP period has been communications between management and the NRC. These communication channels have recently improved as evidenced by an

[141] From time to time during the hearing, we alluded to the possibility of a third phase -- a remedy phase -- in this already extended proceeding. See, e.g., Tr. 14241, 15158. Two possible needs existed. One would be to determine what conditions or limitations or other corrective actions should be taken in the event we found malfeasance on the part of Georgia Power or its personnel; given our decision, that need obviously does not exist. The second would be to determine whether accuracy in NRC communications or those professionalism shortcomings we observed in some areas of plant personnel performance in 1990 have any continued meaning today. There are patent examples of change that suggest otherwise. For example, Mr. Bockhold, a target of Intervenor's allegations of wrongdoing and an individual whose management style was of concern to this Board, is no longer in operations line management and the Georgia Power Executive Vice President does not see a future role for him in such management. Tr. 11552-54 (Hairston). Communications between Georgia Power and NRC have obviously improved and Georgia Power has focused on this area. See Findings 660, 661-62 above. Given those indicators and our faith in the Staff to be sure other areas which came to light during the hearing (see note 2 supra) are subject to appropriate oversight or not a concern today, we are not ordering further hearings in this proceeding.

> increase in licensee management interface with the resident inspectors on information regarding potential regulatory issues and maintenance problems.
>
> * * *
>
> During the last assessment period, communications between the corporate engineering staff and the NRC displayed some weaknesses. Since that time, communications have been good. This was demonstrated in the licensee's interface with the NRC on technical issues, including the surge line stratification and the Ten-year Interval ISI Program.

GPC Exh. II-204 at 5, 20.

664. We find that Georgia Power has acknowledged the errors that it made in 1990 and has undertaken corrective action to improve its communications with the NRC. We further find that Georgia Power did not make the inaccurate statements willfully, but has always made an effort to be forthright. We find no evidence of dishonesty or of any culture of deceit.

VII. Conclusions of Law

Based on the foregoing Findings of Fact and upon consideration of the entire evidentiary record in this proceeding, the Board makes the following conclusions of law.

1. There is no basis to conclude at this time that Southern Nuclear lacks the character and competence necessary to operate Plant Vogtle in conformity with the NRC's rules and regulations and consistent with protection of the public health and safety.

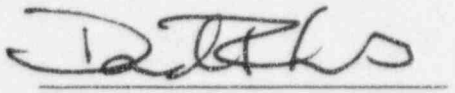
VIII. Order

For all of the foregoing reasons, it is this ___ day of ___, 1995, ORDERED, in accordance with 10 C.F.R. §§ 2.760 and 2.786:

1. That this Final Decision will constitute, with respect to the matters resolved herein, the final action of the Commission forty days after issuance hereof, unless an appeal is taken in accordance with section 2.786 or the Commission directs that the record be certified to it for final decision.

2. Within fifteen (15) days after service of this Final Initial Decision, a petition for review may be filed with the Commission on the grounds specified in section 2.786(b)(4). A petition for review is mandatory for a party to exhaust its administrative remedies before seeking judicial review. Any other party to the proceeding may, within ten (10) days after service of a petition for review, file an answer supporting or opposing Commission review.

Respectfully submitted,



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Dated: November 6, 1995

APPENDIX A

TIMELINE OF EVENTS RELATING TO DIESEL GENERATOR REPORTING ISSUES

March 20, 1990	Site area emergency occurs when a Plant Vogtle worker accidentally backs into a switchyard support column, causing a temporary loss of off-site power to Unit 1. Immediately after the event Georgia Power conducts three troubleshooting starts on 1A diesel generator. Each time the diesel starts and runs without problems.
March 21-24, 1990	Post-maintenance starts and tests conducted in order to return the 1B diesel to service.
March 22, 1990	NRC Augmented Inspection Team ("AIT") arrives at Plant Vogtle.
	1B Diesel trips on high lube oil temperature signal.
March 23, 1990	1B Diesel trips on low jacket water pressure and low turbo lube oil pressure signals during test runs.
	NRC issues Confirmation of Action ("COA") letter, providing, among other things, that Georgia Power is not to restart Unit 1 without NRC approval.
March 24, 1990	William Shipman and Ken McCoy meet with site personnel to discuss concerns about 1B diesel test results.
	Memorandum of Richard Kendall from the AIT focusing on March 23 trip of 1B diesel.
	1B diesel received a high jacket water temperature alarm but continued to run.
March 25, 1990	Second memorandum of Mr. Kendall to Ken Brockman and Al Chaffee, also on subject of March 23 trip.
March 25-26, 1990	NRC replaces AIT with an Incident Inspection Team ("IIT").
March 27-28, 1990	Georgia Power conducts additional tests on 1B diesel.
March 29, 1990	1A diesel high dew point readings were recorded.
Mar. 29 - Apr. 1, 1990	Tes7ting of the 1A diesel.

April 2, 1990	George Bockhold meets with IIT; discusses probable root cause and number of successful diesel starts.
April 3, 1990	Mr. Brockman calls Mr. McCoy about preparations for April 9 meeting.
April 4, 1990	Mr. Bockhold informs Mr. Chaffee (IIT) that he believes Calcon sensor calibration problems were involved in March 20 event.
April 5-6, 1990	Georgia Power sends report entitled "Status of Corrective Actions following March 20, 1990 Site Area Emergency" to Mr. Brockman and David Matthews.
April 6, 1990	Georgia Power telecopies to the IIT (1) a list of diesel starts through March 23 prepared by Mr. Kochery, and (2) a summary listing of Calcon temperature switches which had experienced problems.
April 5-7, 1990	During tests by Georgia Power, high dew point readings were recorded on all eight diesel air receivers.
April 7, 1990	Draft of COA Response letter telecopied from corporate office to the plant.
April 8, 1990	Using a different dew point instrument, Georgia Power obtains acceptable readings on all but one air receiver.
April 9, 1990	Georgia Power presentation at NRC Region II to discuss site area emergency and restart of Unit 1. Georgia Power submits April 9 COA Response Letter to NRC addressing essentially the same items covered in the April 9 presentation and requesting permission to restart Unit 1.
April 10, 1990	IIT member Mr. Kendall requests that Georgia Power provide more information on diesel starts.
April 11, 1990	Conversation between Allen Mosbaugh and Paul Kochery regarding the accuracy of Georgia Power's April 9 COA response concerning the number of successful diesel starts. 1A diesel dew point measurements for the past year are provided to the IIT. Mr. Bockhold discusses April 9 COA response statement on air quality with his engineering staff.

April 12, 1990	Telephone conference of NRC Region II, NRR and IIT officials after which, over the objection of David Matthews, NRC Region II officials issue a letter to Georgia Power allowing restart of Unit 1.
April 18, 1990	PRB meeting approving corporate comments on the draft Licensee Event Report ("LER") 90-006.
April 19, 1990	Site/corporate office conference calls on draft LER 90-006.
	Mr. McCoy telephones Mr. Brockman.
	Tom Webb compiles hand-written list of diesel starts.
	Site/corporate conference call regarding final language of LER.
	Georgia Power submits LER to the NRC.
April 30, 1990	Mr. Mosbaugh submits memorandum to Mr. Bockhold with an attached listing of 1B diesel starts; Mr. Bockhold requests Mr. Mosbaugh and Mr. Kitchens to check with Mr. Cash concerning the diesel starts data and revise documents as necessary.
May 8, 1990	PRB approves, with comment, draft revision of LER 90-006.
May 10, 1990	PRB meeting with Mr. Mosbaugh acting as Chairman, in which Bockhold is assigned to determine how the April 9 letter would be corrected.
May 22, 1990	Wyle Labs issues final report, attributing problems with the Calcon sensors to calibration techniques.
May 24, 1990	Mr. Hairston calls Mr. Ebneter and Mr. McCoy calls Mr. Brockman to inform them of error in diesel starts number.
May 29, 1990	Wyle Labs issues another letter report concerning May 23 1B diesel failure.
On or about June 8, 1990	Mr. Hairston receives new diesel start numbers and initiates an SAER audit.
June 11-14, 1990	Mr. Shipman calls Mr. Brockman about new diesel start numbers.
June 13-14, 1990	Mr. Mosbaugh meets with OI investigator Larry Robinson, providing him with written allegations claiming, among other

	things, that Georgia Power's statements in the April 9 letter were false.
June 14, 1990	Mr. Hairston calls Mr. Ebneter.
June 19, 1990	Meeting between Messrs. Mosbaugh, Bockhold, and NRC Resident Inspector, John Rogge to discuss Mr. Mosbaugh's technical allegations which were included in the Department of Labor complaint he filed earlier that month.
June 29, 1990	Mr. Hairston and Mr. McCoy receive the SAER report and confirm the diesel start numbers. Mr. McCoy calls Mr. Brockman to explain the revised LER. Tape-recorded Mosbaugh conversations with Mr. Greene and others regarding Mr. Mosbaugh's concern over revised LER and its cover letter. Transmittal letter and revised LER sent to NRC.
July 18-19, 1990	Mr. Mosbaugh is interviewed by OI Investigator Larry Robinson.
Aug. 6 -17, 1990	Operation Safety Inspection ("OSI") conducted at Vogtle. Georgia Power provides "white papers" to OSI team.
August 17, 1990	OSI exit meeting. OSI team leader informs Georgia Power that OSI found no intentional errors with regard to the diesel generator starts reported in April and suggests additional clarification letter.
August 23, 1990	Mr. McCoy calls Mr. Brockman to discuss the diesel start counts.
August 28, 1990	Mr. McCoy calls Mr. Brockman again to discuss the additional clarification letter that was being prepared at the request of the OSI.
August 30, 1990	Clarification letter of Georgia Power submitted to NRC.
September, 1990 to early 1991	Mr. Mosbaugh turns over the tapes he had made to Mr. Robinson and helps to review those tapes.
September 11, 1990	Mr. Mosbaugh files jointly with Marvin Hobby a § 2.206 petition including allegations that the April 9 letter and the LER contained known false statements.
September 15, 1990	Mr. Mosbaugh placed on administrative leave.

September 24, 1990	Mr. McCoy calls Mr. Brockman to discuss August 30 letter.
October 12, 1990	Mr. Mosbaugh's employment is terminated.

APPENDIX B

CITATIONS TO WRITTEN TESTIMONY IN PROPOSED FINDINGS

Short Form	Long Form
Aufdenkampe	Prefiled Testimony of John Gilbert Aufdenkampe, Jr. on Diesel Generator Reporting Issues. (Ff. Tr. 4650).
Bockhold	Prefiled Testimony of George Bockhold, Jr. on Diesel Generator Reporting Issues. (Ff. Tr. 3309).
Bockhold Supp.	Supplemental Testimony of George Bockhold, Jr. on Diesel Generator Air Quality Statements. (Ff. Tr. 6397).
Bockhold (Exhibit 18)	Supplemental Testimony of George Bockhold, Jr. Concerning Intervenor's Exhibit 18. (Ff. Tr. 6413).
Bockhold Rebuttal	Rebuttal Testimony of George Bockhold, Jr. (Ff. Tr. 13325).
Briney Rebuttal	Rebuttal Testimony of Mark Briney on Diesel Generator Reporting Statements. (Ff. Tr. 12075).
Cash	Prefiled Testimony of Jimmy Paul Cash on Diesel Generator Reporting Issues. (Ff. Tr. 4389).
Chenault Rebuttal	Rebuttal Testimony of William H. Chenault, III on Diesel Generator Air Quality Statements. (Ff. Tr. 14020).
Eckert Rebuttal	Rebuttal Testimony of Christopher C. Eckert on Diesel Generator Reporting Statements. (Ff. Tr. 11209).
Frederick	Prefiled Testimony of Georgie R. Frederick on Diesel Generator Reporting Issues. (Ff. Tr. 4125).

Short Form	Long Form
Greene	Prefiled Testimony of Thomas V. Greene, Jr. on Diesel Generator Reporting Issues. (Ff. Tr. 6716).
Hairston	Prefiled Testimony of W. George Hairston, III on Diesel Generator Reporting Issues. (Ff. Tr. 3531).
Hairston Rebuttal	Rebuttal Testimony of W.G. Hairston, III. (Ff. Tr. 13439).
Handfinger Rebuttal	Rebuttal Testimony of Harvey Handfinger. (Ff. Tr. 11346).
Hill and Ward Rebuttal	Rebuttal Testimony and Responses to Board Questions of Howard T. Hill and Lewis A. Ward on Diesel Generator Air Quality Issues. (Ff. Tr. 14249).
Horton	Prefiled Testimony of Michael W. Horton on Diesel Generator Reporting Issues. (Ff. Tr. 5887).
Hunt Aff.	Affidavit of Milton D. Hunt (Ff. Tr. 4882)
Kendall Aff.	Affidavit of Richard A. Kendall (Ff. Tr. 5018)
Kitchens Rebuttal	Rebuttal Testimony of W.F. Kitchens. (Ff. Tr. 13590).
Majors	Prefiled Testimony of Harry W. Majors on Diesel Generator Reporting Issues. (Ff. Tr. 6216).
Matthews, Skinner, Hood	Testimony of David B. Matthews, Pierce H. Skinner, and Darl S. Hood on the Diesel Generator Issue (Ff. Tr. 14758).
McCoy	Prefiled Testimony of C. Kenneth McCoy on Diesel Generator Reporting Issues. (Ff. Tr. 2839).
Mosbaugh	Prefiled Testimony of Allen L. Mosbaugh (Ff. Tr. 8263).

Short Form	Long Form
Owyoung and Johnston Rebuttal	Rebuttal Testimony of Sheldon Owyoung and Robert A. Johnston on Diesel Generator Air Quality Statements. (Ff. Tr. 12428).
Shipman Rebuttal	Rebuttal Testimony of William B. Shipman. (Ff. Tr. 10890).
Stokes (Air Quality)	Prefiled Testimony of Kenneth Stokes on Diesel Generator Air Quality Statements. (Ff. Tr. 6961).
Stringfellow	Prefiled Testimony of Norman Jackson Stringfellow on Diesel Generator Reporting Issues. (Ff. Tr. 3930).
Tomlinson, Skinner	Testimony of Edward B. Tomlinson and Pierce H. Skinner on Diesel Generator Air Quality (Ff. Tr. 14497).
Ward	Prefiled Testimony of Lewis A. Ward on Diesel Generator Air Quality Statements (Ff. Tr. 7740).
Ward Aff.	Affidavit of Lewis Ward in Support of Applicants' Supplemental Statement Concerning Matters Raised by the Board (Ff. Tr. 7744).
Webb	Prefiled Rebuttal Testimony of Thomas E. Webb on Diesel Generator Reporting Issues. (Ff. Tr. 13096).
Webb (Revised)	Revised Prefiled Rebuttal Testimony of Thomas E. Webb on Diesel Generator Reporting Issues. (Ff. Tr. 13168).
Zimmerman, Reyes	Testimony of Roy P. Zimmerman and Luis A. Reyes on the Character and Integrity Contention (Ff. Tr. 15256)

OTHER TESTIFYING WITNESSES

Witness	Date(s)
Mark Ajluni	8/10/95 (Tr. 10776)
Dexter Aquinde	8/25/95 (Tr. 12780)
Kenneth Burr	8/10/95 (Tr. 10858)
Charles Coursey	8/14/95 (Tr. 11178)
Ester Dixon	6/9/95 (Tr. 8089)
Michael Dwyer Duncan	6/9/95 (Tr. 8178)
Scott Hammond	8/25/95 (Tr. 12780)
Ben Hayes	8/16-17/95 (Tr. 11635)
Robert P. McDonald	8/14/95 (Tr. 11030)
Debbie Thames	8/25/95 (Tr. 12780)

APPENDIX C

PLANT VOGTLE ORGANIZATION AND KEY PLAYERS

1. In 1990, the Plant Vogtle organization consisted of an on-site plant staff, headed by the General Manager, Mr. George Bockhold, Jr., who reported to Mr. C. Kenneth McCoy, Georgia Power Vice President - Vogtle Project, located in Georgia Power's Birmingham corporate office. Bockhold at 1; McCoy at 1. Mr. McCoy reported to Mr. W. George Hairston, III, Georgia Power Senior Vice President - Nuclear Operations and Mr. Hairston reported to Mr. R. Patrick McDonald, Georgia Power Executive Vice President - Nuclear Operations. Hairston at 1-2. In 1990, Mr. McDonald reported to Georgia Power President and CEO, Mr. A. William Dahlberg. ILT Finding Nos. 18, 24 and 33.

2. The Vogtle on-site organization below the General Manager, Mr. Bockhold, consisted of two Assistant General Managers reporting to Mr. Bockhold: Mr. W. F. ("Skip") Kitchens, Assistant General Manager, Operations, and Mr. Thomas V. Greene, Jr., Assistant General Manager, Plant Support. Kitchens Rebuttal at 1; Greene at 1. However, in the beginning of 1990 until the beginning of May, Mr. Greene attended senior reactor operator ("SRO") training school, during which time Mr. Mosbaugh filled the Assistant General Manager, Plant Support position on an "acting" basis. Greene at 1.

3. Mr. Harvey Handfinger was Manager of Maintenance, reporting to Mr. Kitchens, and a voting member of the PRB. Handfinger Rebuttal at 1. The Instrumentation and Control ("I&C") Superintendent reported to Mr. Handfinger. Tr. 11431 (Handfinger). Mr. Michael

Hobbs held the title of I&C Superintendent in March-April 1990, but was assigned to a special task force at the time. In Mr. Hobbs' absence, Mr. Mark Briney served as the acting I&C Superintendent. Briney Rebuttal at 1.

4. Mr. Jimmy Paul Cash was a Unit Superintendent for Plant Vogtle and a degreed SRO. He worked in the Operations Department which reported to Mr. Kitchens. Cash at 1; Kitchens Rebuttal at 2.

5. Reporting to the Assistant Plant Manager, Plant Support, was Mr. John G. Aufdenkampe, Manager of Technical Support, and Mr. Michael W. Horton, Manager of Engineering Support. Aufdenkampe at 1; Horton at 1.

6. Mr. Ken C. Stokes was a Senior System Engineer in the Engineering Support Department with primary responsibility for the diesel generators. Stokes at 1. Mr. Stokes reported to Mr. Paul Kochery, Tr. 7283, who reported to Mr. Horton.

7. The Vogtle Nuclear Safety and Compliance ("NSAC") group, supervised by Mr. Rick Odom, reported to Mr. Aufdenkampe. Aufdenkampe at 1. Mr. Thomas E. Webb was a Senior Engineer in the NSAC group. Webb at 1.

8. Mr. George R. Frederick was the Vogtle on-site Supervisor of the Safety Audit and Engineering Review ("SAER") group. He reported to Mr. Mark J. Ajluni, the Manager of SAER, located in the Birmingham corporate office, who reported directly to Mr. McCoy. Frederick at 1.

9. In 1990 Mr. Kitchens was Chairman of the Vogtle Plant Review Board ("PRB") (Kitchens Rebuttal at 6), which, pursuant to the Plant Vogtle Technical Specifications ("Tech. Specs."), § 6.4.1, served to advise the Vogtle General Manager on all matters related to nuclear safety (Staff Exh. II-20, p. 6-7). The responsibilities of the PRB are listed in Tech. Spec. § 6.4.1.6 (Staff Exh. II-20, p. 6-8 and 6-9) and include such things as review of procedures, proposed tests and experiments, proposed changes to the Tech. Specs., and violations of the Tech. Specs. In April 1990, the voting members of the PRB were Messrs. Mosbaugh, Aufdenkampe, Horton, Handfinger, Jim Swartzwelder, and Ron LeGrand. GPC Exh. II-28. Prior to Mr. Greene's return from SRO school, Mr. Mosbaugh was the Vice Chairman of the PRB by virtue of his acting position. Following Mr. Greene's return from SRO school, Mr. Greene assumed the Vice Chairmanship of the PRB and, because Mr. Mosbaugh was not in senior line management at that time, he no longer served on the PRB. Bockhold Rebuttal at 12-14.

10. In the corporate office, Mr. McCoy had a Vogtle support staff headed by Mr. William B. Shipman, General Manager - Plant Support. Shipman at 1. Other members of the corporate Vogtle support staff were Mr. Lewis A. Ward, Manager, Nuclear Maintenance and Support (Ward at 1), Mr. Paul D. Rushton, Manager, Nuclear Engineering and Licensing (GPC Exh. II-200), and Mr. James A. Bailey, Manager, Nuclear Licensing (GPC Exh. II-199).

11. Mr. N. Jackson ("Jack") Stringfellow and Mr. Harry J. Majors were project licensing engineers in the corporate office reporting to the Manager, Nuclear Licensing, Mr. Bailey. Stringfellow at 1; Majors at 1.

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November 6, 1995

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	Docket Nos. 50-424-OLA-3
	)	50-425-OLA-3
GEORGIA POWER COMPANY,	)	
et al.	)	Re: License Amendment
	)	(Transfer to Southern Nuclear)
(Vogtle Electric Generating Plant,	)	
Units 1 and 2)	)	ASLBP No. 93-671-01-OLA-3

CERTIFICATE OF SERVICE

I hereby certify that copies of "Georgia Power Company's Proposed Findings of Fact and Conclusions of Law on Diesel Generator Reporting Issues" were served upon the persons listed on the attached service list by deposit in the U.S. Mail, first class, postage prepaid, or where indicated by an asterisk by hand delivery, this 6th day of November, 1995.

David R. Lewis
Counsel for Georgia Power Company

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	Docket Nos. 50-424-OLA-3
	)	50-425-OLA-3
GEORGIA POWER COMPANY,	)	
et al.	)	Re: License Amendment
	)	(Transfer to Southern Nuclear)
(Vogtle Electric Generating Plant,	)	
Units 1 and 2)	)	ASLBP No. 93-671-01-OLA-3

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