



ARKANSAS POWER & LIGHT COMPANY

FIRST NATIONAL BUILDING/P.O. BOX 551/LITTLE ROCK, ARKANSAS 72203/(501) 371-7901

December 9, 1983

JOHN M. GRIFFIN
Vice President
Nuclear Operations

ØCAN1283Ø6

Mr. Richard C. DeYoung
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Units 1 & 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Proposed Imposition of Civil Penalty

Gentlemen:

NRC's letter dated November 9, 1983, (2CAN1183Ø3) transmitted to Arkansas Power and Light (AP&L) a Notice of Violation and Proposed Imposition of Civil Penalty. This enforcement action was taken following AP&L's notification to NRC on September 26, 1983, that station battery 2011 had failed to meet the surveillance testing acceptance criteria of Technical Specification 4.8.2.3.2.b.1 during testing on September 22, 1983. In accordance with the provisions of 10CFR2.201 and 2.205, this letter provides AP&L's response to the subject Notice of Violation and Imposition of Civil Penalty.

AP&L fully recognizes the importance of compliance with the Technical Specifications and of assuring conditions which are not in compliance with Technical Specifications are promptly identified. Therefore, upon discovery that a Technical Specification violation had occurred on September 22, 1983, and gone unidentified, AP&L promptly reported the event to NRC and initiated a shutdown of ANO-2 as required by the Technical Specifications. Subsequent to this discovery an immediate investigation of the event was initiated by AP&L management. As Vice President for Nuclear Operations, I personally directed and participated in the investigation. This investigation included review of the battery surveillance procedures, review by AP&L engineering and vendor personnel to determine the effect of these events on battery capacity, interviews with personnel involved in the September 22, 1983, event, review of previous battery surveillance results for both ANO-1 and ANO-2, and review of compliance with other surveillance testing requirements.

In summary, the investigation indicated that, although Technical Specification violations did occur, the station batteries were capable of

8312140111 831209
PDR ADOCK 05000313
Q PDR

IE 14
11

performing their intended safety function. A review of previous quarterly battery surveillance tests on station batteries 2D11 and 2D12 identified several previous events similar to that occurring on September 22, 1983. These previous events include those identified in the Notice of Violation as well as twenty additional events. The results of this investigation are discussed in detail in Attachment I.

We were very concerned about these violations, and even more concerned when our investigation revealed that there had been several previous events similar to that occurring on September 22, 1983. Based on these concerns, I made the decision to keep the plant in a shutdown condition and to commence refueling early so that I could satisfy myself that any revisions to our program that were needed promptly were implemented before restart.

In order to determine if the violation of the battery surveillance Technical Specification was an isolated case, additional reviews were conducted. This effort included review of over seven hundred recently completed electrical maintenance surveillance tests involving sixty-one separate surveillance procedures, and a sample of over one hundred surveillance tests in other areas (i.e., Mechanical and I&C Maintenance, Operations, etc.). These reviews indicated one additional instance of a Technical Specification limit being exceeded and not identified. Specifically, on six separate occasions (two on ANO-1 and four on ANO-2) between July 1978 and June 1983, the results of diesel generator fuel oil analyses indicated values of either viscosity or water and sediment content which exceeded those allowed by Technical Specifications. Although in each case subsequent sampling indicated satisfactory results, the out of specification results were not identified as exceeding Technical Specification limits and the appropriate action statements of the Technical Specifications were not implemented. These events were the subject of a prompt report submitted to your office as discussed in our letter dated November 21, 1983, to Mr. John Collins from Mr. James M. Levine and was further discussed in LER 50-313/83-026/01T-0. The causes and corrective actions relative to both the station battery and diesel generator fuel oil surveillances are discussed below. Additional reviews of Technical Specification surveillance requirements are continuing.

The station battery surveillance violations resulted from several causes. First, the procedures governing battery surveillance were inadequate. Specifically, the procedures did not identify which acceptance criteria constituted Technical Specification limits and the procedures did not provide sufficient guidance to assure the appropriate immediate actions were accomplished in accordance with the Technical Specifications when the acceptance criteria were not met. Secondly, given that the procedure did not explicitly address the Technical Specification requirements, personnel involved in the implementation and review of the battery surveillance tests were not adequately familiar with the Technical Specification requirements governing station batteries. Specifically these personnel did not in most cases recognize which limits specified in the procedure represented Technical Specification limits but rather, viewed the specified limits as only an indication of the need for battery maintenance. The Technical Specifications were also apparently misinterpreted by some personnel who believed that out of tolerance conditions which were subsequently corrected were not reportable as deviations from the Technical Specifications.

The deviations from the Technical Specification limits relative to diesel generator fuel oil sampling resulted from very similar causes. The procedures governing the fuel oil sampling correctly specified the limits for viscosity and water and sediment content, however, the procedure did not identify these limits as Technical Specification requirements. The out of tolerance conditions were therefore not identified as deviations from Technical Specification requirements. The affected procedures have been revised to correct this situation and, as noted above, subsequent test have verified the fuel oil is currently within specified limits. Possible causes of the sampling errors were identified as contaminated sample containers and inadequate sample line purging. The procedure revisions noted above also address these items.

Following the discovery of the violation of the station battery surveillance Technical Specification, a number of corrective actions were implemented. As noted above, ANO-2 was shutdown in order to achieve compliance with Technical Specifications. In addition, the quarterly battery surveillance test was performed on the ANO-1 station batteries to assure their operability and compliance with the ANO-1 Technical Specification. Concurrently with these actions, the investigation discussed above was initiated.

Following evaluation of the initial results of this investigation a number of additional actions were taken. These actions included a management directive to all station personnel instructing that, pending review and/or revision as needed to assure that Technical Specification limits were clearly identified in surveillance procedures, all deviations from limits contained in surveillance test procedures were to be identified as potential Technical Specification deviations. The effectiveness of this directive was subsequently verified via a special audit performed by Quality Control. This audit consisted of interviews with a random sample of personnel responsible for conducting surveillance testing to verify their understanding and implementation of this directive. An additional audit was performed by Quality Assurance. This audit included review of all completed surveillance tests for the two week period following issuance of the directive to verify compliance. The results of this audit indicated no deviations from the directive.

In addition to the procedural controls discussed above, actions were taken to emphasize to appropriate personnel that strict and complete compliance with Technical Specifications is of utmost concern to AP&L management. As part of this effort, the ANO General Manager and I met with the ANO department managers, superintendents, first line supervisors and technicians. A total of approximately five hundred persons participated in these meetings. These meetings were held with small groups and included discussions of the importance of compliance with Technical Specifications and the need for thorough and accurate procedures. Input was solicited from all personnel relative to existing problems and potential improvements.

Several further corrective actions were also initiated which are of somewhat longer term. In order to address longer term procedural issues a procedure review task force has been established. The purpose of this task force is to review and revise as necessary the administrative system governing procedural development and control. This task force consists of individuals

from various ANO Departments who are devoting a significant part of their time to this effort.

The effort discussed above addresses the administrative aspects of procedural development and control. In order to assure the procedures adequately implement the content of the Technical Specifications, an additional review of Technical Specification surveillance requirements is being initiated. This will include a review of all Technical Specification surveillance requirements to assure that the requirements are properly reflected in plant procedures and are being conducted in a manner consistent with the intent of the Technical Specifications. This program, which is currently under development, will require substantial manpower resources. The status of this effort will be the subject of future correspondence. Pending completion of this effort the short term measures described above will provide assurance that Technical Specification requirements are met.

In order to improve and maintain employee familiarity with, and understanding of Technical Specifications, a training program is currently being developed. The various phases of this program will be tailored to the specific duties of various groups of employees. This training will address not only the content of the Technical Specification but will also include identification of responsibility for Technical Specification compliance and reporting of violations. This training will also emphasize Technical Specification requirement for reporting and corrective action based on as-found surveillance test data. Following initial training efforts, provisions will be made to incorporate needed retraining into existing training programs.

As discussed above, corrective action has been initiated to address the specific deficiencies identified during our investigation of this event. However, the existence of unidentified Technical Specification violations over long periods of time also calls into question the effectiveness of existing management controls and our system of checks and balances. Resolution of concerns in this area will be a long term effort, however, certain actions have already been initiated. As part of this effort a review of management information systems has been conducted. The objective of this review is to identify the various sources of information which may contain indications of the quality of performance of various parts of our organization (e.g. QA audit reports, QC surveillance reports, INPO evaluation reports, NRC inspection reports, etc.) and to consolidate these information sources into a more useful format for identification of trends and potential problem areas. The initial review has been completed and a methodology developed to integrate existing information sources. A procedure to implement this methodology is currently being developed and is scheduled to be completed by March 31, 1984. Review of our management controls is continuing and additional changes will be implemented as needed.

In response to your question regarding the date of full compliance, compliance with the ANO-2 Technical Specifications was achieved on September 26, 1983, when ANO-2 was brought to cold shutdown per Technical Specification 3.8.2.3. Additional corrective action to verify operability of the ANO-1 batteries and to implement interim controls on surveillance testing have been completed. Revision of ANO-2 quarterly battery surveillance testing procedures will be completed prior to restart.

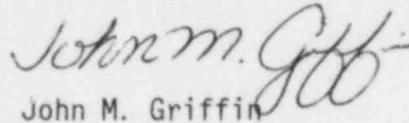
December 9, 1983

Therefore, we are currently in full compliance; however, additional actions designed to further improve our system and assure continued full compliance are ongoing.

With regard to questions posed in the Notice of Violation regarding the promptness of our review of past activities in this area, upon discovery of the condition, our immediate actions were directed at correcting the immediate out of specification condition (this was accomplished by the shutdown of ANO-2. Following this, a thorough review of the background and history of this event was initiated the following day on September 27, 1983. As discussed above and in Attachment I, this investigation included both ANO-2 and ANO-1 and included a review of surveillance procedures in a number of selected areas. We feel this review was thorough and was conducted in a timely manner.

In accordance with the provisions of 10CFR2.205 and your Notice of Violation enclosed is a check in the amount of forty thousand dollars (\$40,000) in full payment of the proposed civil penalty.

Very truly yours,


John M. Griffin

JMG:JRM:s1

Attachment

ATTACHMENT I

INVESTIGATION OF SEPTEMBER 22, 1983, ANO-2 STATION BATTERY SURVEILLANCE TECHNICAL SPECIFICATION VIOLATION

I. September 22, 1983, Event

At the direction of the acting Station Manager, an investigation of the events relating to the 9/22/83 event was initiated within several hours of its discovery. The acting Special Projects Manager conducted the investigation to determine the reasons for failure to recognize that a Technical Specification surveillance test acceptance criterion had been exceeded, which resulted in the failure to take corrective action required in the Limiting Condition for Operation action statements.

Interviews were conducted with the personnel involved in the performance of the quarterly battery surveillance test as well as the Operations Shift Supervisor on duty at the time the initial battery readings were completed.

At approximately 1315 hours on 9/22/83, Maintenance Technicians had completed the tabulation of initial battery reading data. They noted that 5 cells on battery 2D11 were out of procedural specified limits, having decreased more than 0.05 volts from the initial acceptance test data. The technicians discussed the deviations with the senior technician in their group as their normal first line supervisor was absent from the plant site. After this discussion, the lead technician notified the shift supervisor and an electrical maintenance supervisor that several cells were a "little low" on voltage. The technician was questioned by the Shift Supervisor as to whether or not the cell voltages were above 2.15 volts and if the specific gravities were above 1.200. The technician affirmed that they were and requested that the battery be placed on an equalizing charge at 2300 hours that night. The station log indicates that the battery was placed on an equalizing charge at 0015 hours on 9/23/83. The battery remained on equalizing charge until 0955 hours on 9/23/83. At that time the battery was placed in float since the technicians confirmed that it had met the procedural criteria for terminating the equalizing charge, e.g., the average-to-low cell voltage deviation was less than or equal to 0.04 volt. As required by procedure, readings were again taken after the battery had been on float for four hours. This time however, the overall-to-low cell deviation was found to be 0.05 volts. Since the procedure does not clearly state what actions to take in this situation, the technicians again conferred with the senior technician in their group (in the absence of the normal supervisor) on this latest problem. The technicians decided that the deviation would likely be corrected if the battery was given time to "settle out", therefore they decided to wait until Monday morning 9/26/83, and retake the readings. None of the technicians informed the shift supervisor of this decision. The technicians discussed the surveillance test problems with the regular electrical maintenance supervisor on Monday morning. The supervisor identified that the Technical Specification (TS) limit on

ATTACHMENT I (Continued)

cell voltage deviation had been exceeded and immediately notified the ANO-2 Operations Superintendent. Shortly after, at approximately 1100 hours, the NRC Resident Inspector was notified of the event by the Operations Manager. Shutdown of ANO-2 commenced at 1520 hours on 9/26/83.

The investigation resulted in the conclusion that the basic cause of the 9/22/83 event was the inadequate exchange of information between the shift supervisor and the maintenance technician. The basis for this conclusion was as follows:

On September 22, when the Shift Supervisor (SS) was notified, the SS asked the technician who called him if all cell voltages were greater than 2.15 volts and if specific gravities were above 1.200. The technician's reply was affirmative but he added that the voltages on some cells were a "little low" and requested that an equalizing charge be applied to 2D11 that night. He was again asked by the SS if the cell voltages were above 2.15 volts and if the specific gravities were acceptable. Again, he answered in the affirmative. The SS recalled, when interviewed later, that he did not ask about voltage deviation from initial acceptance test data nor was this information supplied by the technician. Interviews with the technician confirmed this fact.

Other factors contributing to the failure to recognize that a technical specification limit had been exceeded were:

The surveillance test procedure was not of the quality desired. Review of the procedure revealed that although the TS requirements are embodied in the procedural acceptance criteria, they are not identified as such. Discussions with the maintenance technicians indicated that had the TS limits been identified as such in the procedure, they would have communicated the fact that one had been exceeded to the Shift Supervisor. The procedure requires immediate notification to an Electrical Maintenance Supervisor and the Shift Supervisor if a cell fails to meet acceptance criteria. This notification occurred; however, the procedure fails to specify what information should be conveyed. Finally, the procedure that was used includes all required battery surveillance testing performed by Maintenance personnel and as such the procedure is bulky, difficult to follow and does not flow in an orderly manner.

The electrical maintenance supervisor who was initially contacted by the technicians (in lieu of the normal first line supervisor) was not familiar with the ANO-2 battery technical specifications. In addition, an interview with this supervisor revealed that he lacked familiarity with the procedure being performed.

II. Previous Battery Surveillance Testing

Past battery surveillances on 2D11 and 2D12 were reviewed to identify other potential violations of the technical specification surveillance test criteria. The tests reviewed were those performed from August 1978 through September 1983. Upon completion of this review, it was noted that certain of the events described in the Notice of Violation were not, in total, correct. NRC's Notice of Violations indicated five findings. AP&L's review confirmed the details of two of these. Discrepancies between the findings and results of reviewed data for the remaining three findings are discussed below:

NRC Finding:

On December 30, 1982, with Unit 2 at power operation (mode 1), the 'A' train DC bus battery bank 2D11 was determined not to meet the operability requirements of TS Surveillance Requirements 4.8.2.3.2.b.1 and 4.8.2.3.2.b.2 because:

- 1) The voltage of one cell had decreased more than 0.05 volts from the value observed during the original acceptance test.
- 2) Approximately nine cells had corrected specific gravities less than 1.200.
- 3) All 60 cells had specific gravities that had decreased more than 0.010 from the value observed during the previous test.

On December 31, 1982, approximately 24 hours later, an equalizer battery charge on bank 2D11 was completed, and the licensee determined that the battery bank was operable. However, bank 2D11 was left in an inoperable condition because all 60 cells still had specific gravities that had decreased more than 0.010 from the value observed during the previous test. Throughout the period of December 30-31, 1982, Unit 2 remained at power operation.

AP&L Review:

- 1) Same as finding above.
- 2) Fourteen cells had corrected specific gravities less than 1.200.
- 3) Forty-six cells had specific gravities that had decreased more than 0.010 from the previous test. After the equalizing charge was completed, battery 2D11 was returned to service with one cell exhibiting a decrease in specific gravity of 0.011 from the previous test.

ATTACHMENT I (Continued)

Discussion:

The 12/30/82 data sheet indicated 13 cells with corrected specific gravities less than 1.200; however, upon review, a mathematical error was noted when temperature and electrolyte level corrections were applied to hydrometer readings. This resulted in an additional cell specific gravity being less than 1.200 for a total of 14. The previous quarter specific gravity values entered into the 12/30/82 surveillance test data table were found to be incorrect. During the previous quarter, the battery was equalized, subjected to an 18-month service test, equalized a second time, subjected to a 60-month discharged test and equalized a third time. The specific gravity data logged in the 12/30/82 table to be used to calculate specific gravity deviation from previous quarter was that gathered after the third equalize described above. The data that should have been used for comparison is that gathered after the first equalize.

NRC Finding:

On March 28, 1983, with Unit 2 at power operation (mode 1) battery bank 2D11 was again determined not to meet the operability requirements of TS Surveillance Requirements 4.8.2.3.b.1 and 4.8.2.3.2.b.2 because:

- 1) The voltages of four cells had decreased more than 0.05 volts from the values observed during the original acceptance test.
- 2) The specific gravity of one cell had decreased more than 0.010 from the value observed during the previous test.

On March 29, 1983, approximately 24 hours later, 2D11 completed an equalizer battery charge, and the licensee determined that the battery bank was operable. However, 2D11 was left in an inoperable condition because the voltage of one cell was still more than 0.05 volts less than its value observed during the original acceptance test. Throughout the period of March 28-29, 1983, Unit 2 remained at power operation.

AP&L Review:

- 1) Same as finding above.
- 2) There were no cells that had decreased more than 0.010 from the value observed during the previous test.

Post review results agree with finding that one cell was still more than 0.05 volts less than initial acceptance test data.

ATTACHMENT I (Continued)

Discussion: Review of the 3/28/83 data sheets resulted in the finding that the specific gravity values recorded from the previous quarterly test were, in fact, "as-found" uncorrected hydrometer readings rather than "as-left" corrected hydrometer readings. When the proper data was used for comparison to the 3/28/83 data, all cells were found to be within specification on specific gravity deviation.

NRC Finding: On July 26, 1983, with Unit 2 at power operation, 'B' train DC bus battery bank 2D12 was determined not to meet the operability requirements of TS Surveillance Requirement 4.8.2.3.2.b.2 because three cells had specific gravities that had decreased more than 0.010 from the value observed during the previous test. On July 27, 1983, approximately 24 hours later, 2D12 completed an equalizer battery charge, and the licensee determined that 2D12 was operable. Throughout the period July 26-27, 1983, Unit 2 remained at power operation.

AP&L Review: Two cells were found to have specific gravities that had decreased more than 0.010 from the previous quarterly test value. After equalizing all cells were within specification.

Discussion: The 7/26/83 data sheet does, in fact, indicate three cells to be out of specification on specific gravity deviation. However, further review has indicated that the electrolyte level correction factor used on one cell was in error. The cell was within specification when the correct factor was used.

The following summary is a tabulation of the findings from a review of quarterly tests performed on battery 2D11 from August 1978 through September 1983:

8/11/78	As found and as left, 35 cells voltage decreased more than 0.05 volts from initial acceptance test data. No corrective action was taken.
8/25/78	All cells within specified limits.
11/17/78	As found and as left, 2 cells voltage decreased more than 0.05 volts from initial acceptance test data. No corrective action was taken.
3/10/79	As found and as left, 22 cells voltage decreased by more 0.05 volts from initial acceptance test data. No corrective action was taken.
6/18/79	All cells within specified limits.

ATTACHMENT I (Continued)

9/14/79	As found and as left, 35 cells voltage decreased more than 0.05 volts from initial acceptance test data; 41 cells specific gravity decreased more than 0.010 from previous quarter. No corrective action was taken.
12/10/79	As found and as left, 2 cells voltage decreased by more than 0.05 volts from initial acceptance test data. No corrective action was taken.
3/15/80	Data could not be located on 26 cells. All other cells were within specified limits.
5/28/80	As found and as left, 1 cell voltage decreased by more than 0.05 volts from initial acceptance test data; 17 cells specific gravity less than 1.200; 23 cells specific gravity decreased by more than 0.010 from previous quarter. Quarterly comparison of specific gravity was not made on 26 cells due to missing data. No corrective action was taken.
8/21/80	All cells within specified limits.
12/8/80	All cells within specified limits.
2/25/81	As found and as left, 1 cell specific gravity decreased more than 0.010 from previous quarter. No corrective action was taken.
4/20/81	All cells within specified limits.
6/10/81	As found and as left, 59 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
7/6/81	As found and as left, 2 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
9/24/81	All cells within specified limits.
12/22/81	As found and as left, 2 cells voltage decreased by more than 0.05 volts from initial acceptance test data. No corrective action was taken.
3/22/82	All cells within specified limits.
6/28/82	All cells within specified limits.
10/01/82	The quarterly surveillance test data recorded on 10/1/82 is the data taken after the 60 month discharge and equalize cycle. As such, the usefulness of comparing specific gravities to the 6/28/82 data is questionable. Data was taken, however, prior to the 18-month service test and the 60

ATTACHMENT I (Continued)

month discharge test on 9/18/82. From this data, one cell was found to exhibit a voltage decrease of more than 0.05 volts from the initial acceptance test data. Subsequent to the 60 month test and equalize, all cells were within specified limits on 10/01/82.

- 12/30/82 As found, 14 cells specific gravity was less than 1.200; 1 cell voltage decreased by more than 0.05 volts from initial acceptance test data; 46 cells specific gravity decreased by more than 0.010 from the previous quarter using the as left data subsequent to the first of three equalize charges on 9/18/82. The battery was equalized on 12/31/82, however, as left data indicates specific gravity value of one cell had decreased by more than 0.010 from the data of 9/18/82.
- 3/28/83 As found, 4 cells voltage decreased by more than 0.05 volts from initial acceptance test data. An equalizing charge was placed on the battery, however, the as left data indicates the voltage of cell was still greater than 0.05 volts from initial acceptance test data.
- 6/22/83 As found, 1 cell voltage had decreased by more than 0.05 volts from initial acceptance test data. After an equalizing charge was placed on the battery, all cells were within specified limits.
- 9/22/83 As found, 5 cells voltage had decreased by more than 0.05 volts from initial acceptance test data. The battery was equalized, after which 6 cells voltage had decreased by more than 0.05 volts.

The following summary is a tabulation of the findings from a review of quarterly tests performed on battery 2D12 from August 1978 through September 1983.

- 8/11/78 This was the first test reviewed and as such specific gravity comparison to a previous quarter was not calculated. All cells were within limits.
- 12/1/78 As found and as left, 2 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
- 3/11/79 As found and as left, 26 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
- 6/18/79 All cells within specified limits; however, the total maximum combined interval time for three consecutive surveillance intervals above was 3.38 times the specified interval.
- 9/14/79 As found and as left, 15 cells specific gravity was less than 1.200; 24 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.

ATTACHMENT I (Continued)

12/10/79	As found and as left, 2 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
3/15/80	All cells within specified limits.
5/28/80	As found and as left, 3 cells specific gravity was less than 1.200; 16 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
8/21/80	All cells within specified limits.
12/8/80	As found, 50 cells specific gravity decreased by more than 0.010 from previous quarter. An equalizing charge was placed on the battery. Data taken immediately after equalize indicated that all cells were within specified limits.
2/26/81	All cells within specified limits.
5/6/81	All cells within specified limits.
6/12/81	As found and as left, 3 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.
7/21/81	All cells within specified limits.
10/22/81	All cells within specified limits.
1/11/81	The test copy of the test for this surveillance interval could not be located.
4/26/82	As found, all cells were within specified limits. The battery was equalized, however, and as left, 1 cells specific gravity had decreased by more than 0.010 from the 10/22/81 quarterly data.
7/23/82	As found, 2 cells specific gravity decreased by more than 0.010 from the previous quarter. The battery was placed on equalizing charge. Data taken immediately after the equalizing charge was terminated indicated all cells were within specified limits.
8/23/82	All cells within specified limits.
11/1/82	All cells within specified limits.
1/26/83	All cells within specified limits.
4/25/83	All cells within specified limits.

ATTACHMENT I (Continued)

7/26/83

As found, 2 cells specific gravity had decreased by more than 0.010 from the previous quarter. The battery was placed on equalizing charge. Subsequent readings indicated all cells were within specified limits.

The following summary is a tabulation of the findings of a review of 18-month tests performed on batteries 2D11 and 2D12 from August 1978 through September 1983.

2D11

10/10/79 All parameters within specified limits.

4/22/81 All parameters within specified limits.

9/21/82 Recorded data indicates a resistance of 0.02 ohms in the correction between cells 24-25. The data sheet did not indicate whether the data was as found or as left, however, the procedure clearly states that corrective action will be taken if resistance is greater than 0.01 ohm.

2D12

10/11/79 All parameters within specified limits.

5/6/81 All parameters within specified limits.

9/16/82 All parameters within specified limits.

Review of the 60-month surveillance tests performed on 2D11 (10/1/82) and 2D12 (9/28/82) indicated compliance with Technical Specifications. The seven-day surveillance test results were not reviewed.

III. Review of Other Surveillance Testing

In order to determine if the weakness in battery surveillance testing was an isolated problem, additional reviews were conducted of other surveillance testing. Within the electrical maintenance area, this consisted of a review of recently completed surveillances, and included the majority of most surveillance test procedures within the electrical maintenance area. A total of sixty-one different procedures and over seven hundred completed surveillances were reviewed. Although a number of procedural inadequacies were identified, no additional cases of Technical Specification limits being exceeded have been identified. Additional reviews in this area are continuing.

A sample of surveillance procedures outside of the electrical maintenance area was also reviewed. This review was conducted by AP&L Quality Assurance and consisted of approximately sixty different surveillance procedures and over one hundred recently completed surveillance tests. This review revealed that one additional Technical Specification surveillance limit involving diesel fuel oil for both ANO-1 and ANO-2 was exceeded and appropriate actions not taken. This

ATTACHMENT I (Continued)

involved the sampling of diesel fuel oil for both ANO-1 and ANO-2. Specifically, ANO-1 Technical Specification 4.6.1.4.e and ANO-2 Technical Specification 4.8.1.1.2.b require verification of diesel generator operability at least once per 92 days for ANO-2 and monthly for ANO-1. The surveillance testing includes, among other things, requirements relative to the properties of the diesel fuel oil. On six occasions extending from July 1978 to June 1983 diesel fuel oil sample results exceeded the specified limits of water and sediment content or viscosity. These were not identified as Technical Specification violations at the time and therefore appropriate actions were not taken. In each case subsequent routine resampling showed the fuel oil to be within specified limits. In all cases, the subsequent resample was completed within six days. The cause of that violation was similar to the station battery surveillance violations in that the procedures did not identify the limits on fuel oil water and sediment content and viscosity as Technical Specification limits. Additional details of this event are contained in LER 50-313/83-026/01T-0.

IV. Evaluation of Battery Capability

Each of the two redundant station batteries provides dc power to various loads in the event of a loss of the ac power sources (off site power and emergency diesel generators) to the battery chargers. These loads include dc control power for off site power selection, dc control power and field flashing to the emergency diesel generators, dc control power to the reactor protection system and engineered safety features actuation system, dc control power to the emergency feedwater system, and dc power to the vital ac inverters.

Following discovery on September 26, 1983, that the September 22, 1983, quarterly battery surveillance had indicated several cells to be out of Technical Specification tolerances, a review of the condition of the station battery 2D11 was conducted to determine what effect this condition had on the battery's capability to perform its intended function. This review included reviews by AP&L engineering personnel and discussions with the battery vendor.

This review showed that the battery was capable of performing its intended function and that there is no indication of any significant degradation in battery capacity. This conclusion is based on the fact that cell voltages and specific gravities were within acceptable limits per the manufacturer's recommendations and IEEE 450-1980, there were no significant cell to cell deviations, and the battery responded normally to an equalize charge.

Review of previous out of tolerance conditions yielded similar results. While there were several occasions when battery cell voltages or specific gravities were out of limits as specified in the Technical Specifications, these conditions did not indicate a loss of battery capacity in accordance with the most current IEEE standard. Specifically, there were no cases of cell voltages less than 2.13 and no cases of specific gravities below 1.200 and trending downward.