U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/84-34

Docket: 50-382 Construction Permit: CPPR-103

Licensee: Louisiana Power & Light Company (LP&L)
142 Delaronde Street
New Orleans, Louisiana 70174

Facility Name: Waterford Steam Electric Station, Unit 3

Inspection At: Taft, Louisiana

Inspection Conducted: April 2-13, April 23 - May 4 and May 14 - May 25, 1984

Inspectors: Mack Peranich — July 17, 1984
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WATERFORD INQUIRY TEAM INSPECTION REPORT

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SECTION I

BACKGROUND, INSPECTION SCOPE, AND OBJECTIVES

A. Background

The Office of Inspection and Enforcement (IE) assigned an Inquiry Team to investigate the allegations fowarded to Mr. Jim Joosten of the Office of Commissioner Victor Gilinsky by a May 31, 1983, letter from a reporter from Gambit Publications, Incorporated (Gambit). The Inquiry Team interviewed Gambit personnel at their New Orleans offices on June 28, 1983. Discussions with Gambit personnel and a review of previously published Gambit articles on Waterford 3 resulted in the identification by the Inquiry Team of three quality assurance (QA) concerns based on certain issues raised in the Gambit articles.

The three quality assurance concerns and the issues related to the concerns were included in the Inquiry Team Report to the Director, IE, dated July 14, 1983, along with the Inquiry Team's recommendations for followup. The Director, IE, by his letter of August 4, 1983, requested a meeting with Louisiana Power & Light (LP&L) to discuss appropriate followup to the quality assurance concerns in the Inquiry Team Report enclosed with the August 4, 1983, letter.

At a meeting of IE and LP&L representatives on August 25, 1983, LP&L's plans for responding to the quality assurance concerns were discussed. LP&L subsequently issued letters of September 29, 1983, and February 20, 1984, to the Director, IE which included the licensee's responses to the quality assurance concerns and related issues, and provided other information requested by the Office of Inspection and Enforcement.

B. Inspection Scope and Objective

The objective of this inspection was to evaluate the adequacy of the LP&L Quality Assurance Program activities discussed in the LP&L letters of September 29, 1983, and February 20, 1984, to the Director, IE. The following quality assurance concerns and related issues were addressed in this inspection effort:

1. QA Concern: Adequacy of LP&L's QA Program During Construction

   Related Issues:

   - Contractor turnover of four plant systems to LP&L with numerous deficiencies.
   - LP&L did not know whether its QA program was being implemented.
   - LP&L did not take appropriate action on independent QA consultants' recommendations.

2. QA Concern: Waterford Unit 3 common basemat.

   Related Issues:

   - Leakage through cracking in the basemat (limited to one item of LP&L's reply).

3. QA Concern: QA Program dispute between Louisiana Power & Light (LP&L) and Combustion Engineering (CE).

   Related Issues:

   - LP&L 1974 audit of CE noting that CE's QA program had not incorporated the "new" LP&L QA requirements (Amendment 44, Gray Book).
   - Ebasco* December 1976 audit of CE-identified problems with CE's systems of records.
   - Communications between LP&L and CE.

The scope of the inspection consisted of a selective examination of principle LP&L QA program activities relative to:

- LP&L Task Force verification activities and findings
- LP&L QA Construction System turnover reviews and findings
- LP&L QA Operations System transfer reviews and findings
- Ebasco Quality Assurance Installation Records Group (QAIRG) System reviews and findings
- LP&L and Ebasco QA Program Corrective Action
- LP&L and Ebasco surveillance of contractor activities
- The QA Program contract dispute between LP&L and Combustion Engineering (CE)
- Other

*EBASCO Services Incorporated (EBASCO). Referred in this inspection report as "Ebasco," consistent with licensee references.

SECTION II

SUMMARY OF REPORT DETAILS IN SECTIONS III THROUGH VII -- AREAS OF INSPECTION AND NRC INSPECTION FINDINGS

NRC Inspection Report 50-382/82-14 documented the Louisiana Power & Light Company (LP&L) construction quality assurance (QA) identification of deficiencies in four turnover packages released by Ebasco to LP&L. Subsequently, Gambit Publications, Inc. (Gambit), published an article discussing the problem with Ebasco turnover of plant systems to LP&L and identified other issues relating to the Gambit QA concern on the adequacy of LP&L's QA program during construction. This and two additional Gambit QA concerns and related issues plus an interview with Gambit were subsequently addressed in the Inquiry Team Report and given to LP&L for response. The following is a summary of the areas inspected for each QA concern/related issue and of the NRC inspection findings, including status relative to close out. Inspection findings in this section are generally as documented in the following detail sections of this report. The findings are based on the NRC inspector examination and observations documented in Sections III through VII of this report.

A. Summary of Section III - Part A of LP&L's February 20, 1984, Reply to Director, IE

1. Inquiry Team Report - QA Concern and Related Issue

a. QA Concern: Adequacy of LP&L's QA Program During Construction

1) Related Issue: Contractor turnover of four plant systems to LP&L with numerous deficiencies.

a) Significance: This issue relates to the breakdown in LP&L's QA Program that resulted in a Notice of Violation and Civil Penalty (EA 82-109) being issued to LP&L.

b) NRC Inspection: The LP&L reply of September 29, 1983, and as further clarified on February 20, 1984, outlined the QA activities, including findings, that were conducted since the occurrence of the problem with the turnover of four plant systems to ensure the adequacy of the LP&L QA program for construction. The NRC inspection of these matters is covered under b through n below.

b. Part A.1, Verification of CB&I Work

1) Inspection

Through interviews with LP&L personnel, the NRC inspector learned that the physical verifications referenced by the LP&L reply had not been performed for the Chicago Bridge

and Iron (CB&I) installations as of this inspection, but were in the planning stage.

2) NRC Findings

The matter of physical verifications for work performed by CB&I will remain unresolved, pending licensee completion of this task and NRC review of the results prior to fuel load (382/84-34-01).

c. Part A.2, Task Force Review Procedures

1) Inspection

In response to the NRC Notice of Violation, LP&L developed a Task Force for review of quality records and for verification of the installation of selected safety activities performed by contractors prior to June 1, 1982. The Task Force verification sample was of essentially completed work by civil, structural, mechanical, electrical, and coatings contractors that, in most cases, was previously accepted by Ebasco and LP&L QA construction program procedures.

The NRC inspection of LP&L Task Force review procedures for review of documentation and walkdown of work performed by each contractor, as applicable, was accomplished through a review of the LP&L "Task Action Plan and Procedures for Installation Verification" and the examination of the Task Force Review team records of the walkdown verifications conducted for electrical and mechanical work. The inspection of the three generic problems identified by the Task Force verification for work conducted by American Bridge and GEO Construction Testing and with the CIWA tracking system is discussed below.

2) NRC Findings

a) The general activities outlined in the Task Force plan and procedures were considered adequate with the exception of the apparent absence of a specific requirement for LP&L management's involvement in the review and approval of sample size, scope, and depth of the verification prepared by the Team Leader.

b) The size, scope, and depth of raceway walkdowns with respect to electrical separation was apparently not adequate, as evidenced by the NRC CAT inspection findings, to assure compliance with licensee FSAR commitments in this area.

c) The LP&L Task Force review of mechanical documentation and physical installation appeared adequate.

d) In summary, the supplemental LP&L Task Force verification effort established in response to NRC letter

50-382/EA 82-109 was generally well planned and well described in procedures, although somewhat limited in scope and depth. The Task Force verification effort and findings did contribute to the overall LP&L and NRC assessment of the acceptability of the contractor work and effectiveness of LP&L's QA Program.

e) The inspection of items a through d above is closed.

d. Part A.2.a (American Bridge)

1) Inspection

The NRC inspection of the generic problem identified with the documentation generated by American Bridge (AB) and the Ebasco reinspection of work done by AB is addressed under i below.

e. Part A.2.b, GEO Construction Testing

1) Inspection

The matter of the disposition of the generic problem with GEO Construction Testing (GEO) documentation in the area of construction materials testing (CMT) personnel qualification records was examined by a review of applicable documents and through interviews with appropriate personnel.

NRC inspection found that for the disposition of this problem under NCR-W3-F7-116 (W3-6497), GEO had completed a 100% review of all CMT personnel and that all but one person was found to be adequately qualified through records of training certifications or written statements by other qualified GEO personnel (supervisors, managers, co-workers).

2) NRC Findings

a) The licensee's QA program for establishing and maintaining documentation of the qualification and certification of CMT personnel for some period prior to the 1982 corrective action by GEO was not in compliance with the licensee's commitment to 10 CFR 50, Appendix B, Criterion XVII, and ANSI N45.2.9-1973 for retention of inspector qualification records and with the licensee/contractor QA procedural requirement of ANSI N45.2.6-1973 (or subsequent issues), Section 2.2, Certification, and Section 5, Records.

b) The licensee is requested to conduct a review of supporting documentation for GEO corrective action stated in Attachment 6 of Nonconformance Report (NCR) W3-F7-116 (Ebasco W3-6487). This review should focus on the identification of CMT personnel in Categories

1, 2 or 3 who were apparently qualified solely on the basis of written statements from other individuals attesting to the individuals training and qualifications.

For such individuals, the licensee should pursue any new information or evaluations that could provide further assurance of the actual past work experience and training referenced by the written statement. The licensee should consider the guidance of IE Circular 80-22 in confirming employee qualifications via use of past employment.

c) Following the completion of the independent evaluation, the licensee is requested to review any new information on this matter and arrive at a determination of reportability of the identified deficiency under 10 CFR 50.55(e) or 10 CFR 21.

d) Items a) through c) remain open, pending further NRC review and inspection (382/84-34-02).

f. Part A.2.c, CIWA Tracking

1) Inspection

The LP&L disposition of the generic problem with tracking of contractor-initiated Conditional Identification Work Authorizations (CIWAs) was examined by a review of applicable documents and by interviews with appropriate personnel.

2) NRC Findings

The LP&L/Ebasco letter instructions on this matter appears to have adequately addressed the problem of the tracking of contractor-initiated CIWA requests, but the implementation of these instructions could not be verified due to lack of documentation of the review performed by LP&L/Ebasco. Therefore,

a) Pursuant to 10 CFR 50, Appendix B, Criterion V, LP&L should have incorporated the letter instructions in the contractor-initiated CIWA tracking program to ensure that such activities would be conducted and documented in accordance with prescribed, approved, and auditable procedures of the QA Program.

b) LP&L should establish appropriate instructions for the followup of remaining CIWA activities and for conducting a documented review of all past contractor-initiated CIWAs to ensure that they are in the tracking system for control and disposition of those documents.

c) Items a) through b) above remain open, pending further NRC review and inspection (382/84-34-03).

g. Part A.2 (and Part A.6) Audit Process Aspects

1) Inspection

The audit process, discussed on page I-6 of the Independent Safety Engineering Group (ISEG) report of the licensee's September 29, 1983, letter pertaining to LP&L QA Operations audits of transferred safety systems, was examined by a review of related program documents and by interviews with appropriate personnel. Inspection of audit findings is discussed under k below.

2) NRC Findings

The audit records required for planning, conducting, and recording of LP&L QA Operation audits of transferred systems were found to be consistent with licensee QA program requirements and the licensee's commitments to ANSI N45.2.12 (Draft 3, Rev. 0), May 1973, for conduct of audits. This item is closed.

h. Part A.3a & b, Task Force Findings, Attachment A-1

1) Inspection

The matter of the disposition of the Task Force verification findings listed by Attachment A-1 of LP&L's reply to the Director, IE, and LP&L's review for generic implications were examined by a review of applicable documents and by interviews with appropriate personnel. The filing and retrievability of referenced Inspection Reports (IR) was also examined.

2) NRC Findings

Based on the NRC inspection sample and examinations conducted, the NRC inspector believes there is reasonable assurance that all LP&L Task Force Attachment A-1 findings, and their stated dispositions, are acceptable and the potential generic implications of these findings have been adequately considered. Therefore, the NRC inspection in this area is closed.

i. Part A.3.b, OAIRG Review and Comprehensive Inspection Findings (American Bridge SCD 78) Attachment A-2

1) Inspection

The work performed by American Bridge is one of the generic problems identified by the Task Force verification as discussed in c and d above. Based on the results of the

Construction Appraisal Team (CAT) inspection sample (see Report No. 50-382/84-07, Sections IV.B.10 and V.B.5) of American Bridge field welds, shop-fabricated welds, welder qualification test records, welding procedures, radiographs, and structural steel members (including bolted connections), the NRC inspection of the Ebasco Quality Assurance Installation Records Group (QAIRG) inspection findings for work by American Bridge (Attachment A-2 of the licensee's February 20, 1984, reply) is considered completed, except for matters pertaining to documentation findings of work performed by American Bridge.

The NRC inspection of the resolution of Attachment A-2 documentation inspection findings will be conducted during the NRC followup inspection of the licensee's closeout of Significant Construction Deficiency 78 and NCR W3-6263, which include a review and acceptance of supporting documentation. The NRC inspection in this area will be conducted following licensee completion of necessary corrective action to resolve CAT inspection findings relative to Peden shop-fabricated welds in structural steel installed by American Bridge.

2) NRC Findings

This item is unresolved, pending closeout of CAT inspection findings and SCD-78 (382/84-34-04).

j. Part A.3.c, LP&L QA (Construction) Turnover Reviews, Attachment A-3

1) Inspection

LP&L Construction QA "status" or "turnover" reviews are conducted when systems are turned over from Ebasco to LP&L Startup. LP&L Construction QA conducts "transfer" reviews when systems are transferred to LP&L Operations.

The NRC inspection addressed the comments and responses of the ten (10) packages for systems rejected by LP&L QA Construction Turnover Reviews that are listed in Attachment A-3 of the LP&L February 20, 1984, reply. Inspection preparation included a review of LP&L QA Construction Turnover procedures, LP&L procedures for reporting under 10 CFR 50.55(e), other documents, and a review of the comments and responses listed in Attachment A-3, for the purposes of selecting a representative sample for inspection. The sample selected for inspection was considered to be representative of all the LP&L Attachment A-3 findings, responses, and corrective actions taken. The findings that had possible generic implications were thoroughly investigated and the actions taken reflected the present condition of the related hardware and records inspected.

2) NRC Findings

All actions taken were considered to be adequate. This finding is based on the NRC inspection performed of a representative sample of the LP&L QA Turnover Review audit findings in Attachment A-3 regarding disposition, corrective actions taken, and consideration given to the potential generic aspects of each. The NRC inspection of the Attachment A-3 findings is considered to be closed, except as otherwise noted under m below.

k. Summary of NRC Inspection Findings, Part A.3.c, LP&L Operations QA Transfer Reviews, Attachment A-5, Systems 2A, 8A, and 69

1) Inspection

The NRC review and inspection of LP&L Operations QA transfer review audit findings for Startup Systems 2A (Findings 1-7), 8A (Findings 1 and 2), and 69 (Findings 1 and 2) resulted in no items having generic implications with the possible exception of System 2A (Finding 3). The LP&L audit findings appeared to have no safety significance. One item of concern that showed up in the body of all three audit reports, but was not made a finding, was that there was no program for controlling specifications and drawings after system transfer. The new procedure which included these requirements is LP&L Project Management Procedure PMP-002, "Document Control," Revision 0, dated March 19, 1984. This procedure appears to resolve the LP&L concern.

2) NRC Findings

The NRC inspection of LP&L's findings is closed with the following exceptions which require LP&L to perform additional work:

a) CIWAs 826999 and 825550 should be amended to reflect the installed condition (System 2A, Finding 3).

b) Gould drawing 060617D needs to be changed to reflect the installed condition (System 2A, Finding 3).

c) The generic aspects of System 2A (Finding 3), for other CIWAs needs to be investigated.

d) The Startup CIWA program needs to be audited to determine if it satisfies the requirements of a nonconformance system.

e) Items a) through d) above remain unresolved (382/84-34-05).

1. Corrective Action, Relative to LP&L and Ebasco QA Programs for Plant System "Status" and "Transfer" Reviews

1) Inspection

LP&L, in their letter of January 4, 1983, stated that the QA breakdown relating to the construction transfer of four systems with numerous deficiencies was at the subtier levels and involved contractor/subcontractor organizations. The breakdown was attributed to inadequate walkdown of completed systems as a result of deficiencies in training and staff. LP&L corrective action outlined in the letter dated April 8, 1983, is referenced in LP&L's September 28, 1983, reply to matters in the Inquiry Team Report. LP&L supplemented this corrective action in a letter dated November 21, 1983.

This NRC inspection consisted of a review of both LP&L's and Ebasco's QA program before and after the QA breakdown to determine if program improvements were instituted to avoid recurrence and to assess the adequacy of program implementation which is covered elsewhere. The following are the analyses of LP&L's and Ebasco's QA program adequacy.

2) NRC Findings - LP&L

The NRC inspector observed that the LP&L QA Construction staff increased very little since the Civil Penalty. Based on NRC findings of program implementation, as addressed below, it is apparent that a larger staff would have increased the efficiency of the "status" and "transfer" reviews and allowed for additional surveillance to assess the adequacy of documentation and hardware and disposition of Ebasco and LP&L findings for the systems being transferred by Ebasco to LP&L. However, it is noted that the LP&L corrective action did not indicate that a sizable increase in permanent LP&L construction staff would be made. The inspection in this area is closed.

Also, procedures and documentation of LP&L Construction QA reviews do not reflect all of the items that are stated to have been examined during the review process. There is little evidence to support verbal statements made by LP&L that undocumented review procedures were performed. Therefore, LP&L needs to incorporate into approved procedures all the steps verbally stated as made during their "status" and "transfer" reviews, such as conducting an additional 10% review for rejected systems and the review of LP&L QA inspection findings for generic implications. In addition, a review is needed of those systems rejected to determine if an additional sample was taken. If so, then documentation should be included in the review folder; if not, then an additional sample should be taken. This item remains unresolved (382/84-34-06).

3) NRC Findings - Ebasco

It appears that the organization changes made after the Civil Penalty were substantial and, on a programmatic basis, an adequate resolution to the problems that resulted in the QA breakdown. Also, based on selected reviews of the Ebasco procedures, they are viewed as adequate to implement a QA program for review, turnover, and transfer of safety systems. The inspection of this programmatic area is closed.

m. Part A.5a, Deficiencies Noted for 5 of 67 Systems

1) Inspection

LP&L construction QA system status review of 67 of 85 systems, which LP&L indicated included at least 10% of documents for each contractor and a random sample walkdown of each system, was inspected by the NRC inspector to verify the adequacy of the sample, findings, corrective action, and generic applications. The NRC inspection sample included a review of the LP&L findings for 5 of the 67 systems discussed in LP&L's February 20, 1984, reply to Director, IE and a random sample of findings for other systems.

2) NRC Findings

a) The LP&L QA Construction transfer of systems without using documented procedures for conducting the transfer review is not in conformance with the requirements of 10 CFR 50, Appendix B, Criteria V. This and the following subitems remain open, pending further NRC review and inspection (382/84-34-07).

As a result of NRC inspection findings on the absence of: (i) documented procedures, (ii) documentation that verbal instructions for conducting another 10% sample inspection of rejected systems were implemented, and (iii) records of the adequate and timely disposition of LP&L QA Construction walkdown hardware findings for the 15 systems identified above, LP&L is requested to take the following action:

(1) All significant LP&L QA Construction findings; such as undersized welds, other hardware walkdown findings, and significant deficiencies in documentation, identified in the 15 above-referenced systems, need to be fully reviewed by LP&L and Ebasco QA. This review should ensure that all such LP&L findings were properly dispositioned as nonconformances, deficiencies, or deviations in accordance with LP&L/Ebasco QA programs, including evaluation for adequacy of corrective action, sample size, and generic implications.

The review should also verify whether the LP&L QA construction transfer letter to operations properly identified any open LP&L hardware findings for followup to LP&L operations prior to or after testing. If this was not the case for either situation, LP&L is requested to perform a review of the dispositioning of all significant LP&L QA Construction findings for all systems transferred to LP&L QA operations. The results of these reviews should be documented on appropriate quality assurance records, thereby ensuring that the reviews were performed by the appropriate personnel and that all LP&L findings were responded to by Ebasco in sufficient detail for LP&L to perform an adequate review of their disposition.

(2) Based on the results of the above-requested reviews, LP&L should notify the NRC of the disposition of any open item (NCR, DN, DR, or LP&L hardware finding, other than associated with undersized welds addressed elsewhere) that may not have been included in either the Ebasco or LP&L letters for transferring the systems to LP&L operations staff and, if not corrected, could adversely affect plant testing and operations.

b) Undersized welds for which the evaluation and disposition was not completed under NCR W3-5760, such as those associated with systems 36-1, 36-3, 46H, 46-E and NCR W3-7680, remain unresolved pending Ebasco closeout of the open NCRs and LP&L submittal of supplemental information for SCD 74 (382/84-34-08).

n. Part A.5.b, ISEG Walkdown of Four Systems

1) Inspection

System walkdown of four randomly selected systems by Independent Safety Engineering Group (ISEG) revealed no deficiencies and primarily dealt with small bore piping. The NRC inspection was to determine if the walkdown included all significant attributes and what the bases were for primarily verifying only small-bore piping installed by Mercury and Tompkins-Beckwith (T-B).

2) NRC Findings

The ISEG inspections were found to be limited in scope and depth when compared to the more comprehensive QA inspections. However, it is acknowledged that the intent of these ISEG inspections was not to duplicate those performed by QA but to provide an additional overview type of verification that certain key features of the selected

systems complied with the as-built documentation. This item is closed.

B. Summary of Section IV - Part B of LP&L's February 20, 1984, Reply to Director, IE

1. Inquiry Team Report - QA Concern and Related Issue

a. QA Concern: Adequacy of LP&L's QA Program during construction.

1) Related Issue: LP&L did not know whether its QA program was being implemented.

a) Significance: This issue, if substantiated, would represent a noncompliance with 10 CFR 50, Appendix B, Criterion I, which states:

"The applicant shall be responsible for the establishment and execution of the quality assurance program. The applicant may delegate to others such as contractors, agents, or consultants the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility therefore."

b) NRC Inspection: The LP&L reply of September 29, 1983 and as further clarified on February 20, 1984, described the audits and surveillances conducted by LP&L and Ebasco as the measures used for LP&L to know that its QA program was being implemented. The NRC inspection of this matter is covered under b through e below.

b. Part B.1, Placement of Ebasco QA Manager Onsite

1) Inspection

The NRC inspection consisted of a review of Ebasco QA program commitments in the SAR, and existing documentation and correspondence relative to the placement of the Ebasco QA Manager onsite.

2) NRC Findings

The actions taken in the placement of the Ebasco QA manager onsite were deemed to be proper and timely. This item is closed.

c. Part B.2, Ebasco Surveillance Reports

1) Inspection

The NRC inspection of this area was conducted by a review of Ebasco site QA audit reports forwarded to LP&L and currently located in LP&L files for 1975; by a check of the number listed on the file index for 1975 against the LP&L

September 29, 1983, Attachment II-1 (Table of Audits), which notes that 50 such audits were conducted; by a review of Ebasco's findings of 1976 that were not closed out until 1980; by a review of other documents; and by interviews with appropriate LP&L and Ebasco personnel. The inspection conducted under Section VII of this report on LP&L's surveillance of CE was also considered.

2) NRC Findings

a) The surveillance findings, as discussed by LP&L in Attachment B-1, were found to be accurate. This item is closed.

b) The NRC inspector's review of all Ebasco and LP&L audits and surveillances, however, indicates that the delayed resolution of Ebasco 1976 audit findings was an isolated incident and is not symptomatic of any widespread or generic problems.

In January 1980, a new system of tracking open items through the site computer was initiated, and repetition of this type of finding has been virtually eliminated. This item is closed.

d. Torrey Pines Technology (TPT) Report Discussed by LP&L's September 29, 1983, Response

1) Inspection

The LP&L reply referred to the TPT report results as evidence that this program was being implemented successfully. This NRC inspection consisted of a review of the TPT report and other NRC staff review thereof.

2) NRC Findings

Based on the NRC inspectors' review of the referenced documents and inspection observations, there is reasonable assurance, as concluded in the LP&L reply based on referenced listing of LP&L and Ebasco audits and the TPT report, that "LP&L, Ebasco, CE and Bergen-Paterson each had control procedures in place during the design of the Emergency Feedwater System which satisfied the commitments in the PSAR." This item is closed.

e. Summary Inspection Findings - Part B.1, B.2 and the TPT Report - Relative to the Gambit Issue

In regard to the above related issue that "LP&L did not know whether it's QA program was being implemented," except as noted below, it was determined by the NRC inspector that LP&L did have reasonable assurance, based on information received through LP&L's audit program, Ebasco's audit and surveillance program, and the TPT report, that the quality program in Chapter 17 of

the Final Safety Analysis Report (FSAR) was being implemented by LP&L contractors and vendors. Except for areas noted below for which followup is addressed in other NRC correspondence, this item is closed.

The above conclusion is limited however, to the stated scope of this inspection. It should not be considered applicable to certain past work delegated to contractors and identified by LP&L as contributing to the 1982 QA program breakdown or for other surveillance activities which have been identified as deficient as a result of the NRC CAT inspection or NRC Task Force Team assessment of allegations. In such cases, it is apparent that the LP&L audit and surveillance program was less than adequate in providing LP&L with sufficient and timely information regarding certain aspects of those contractors quality assurance programs that were not being effectively implemented.

C. Summary of Section V - Part C of LP&L's February 20, 1984 Reply to Director, IE

1. Inquiry Team Report - QA Concern and Related Issues

a. QA Concern: Adequacy of LP&L's QA Program during construction.

1) Related Issue: LP&L did not take appropriate action on independent QA consultants recommendations.

a) Significance: LP&L failure to take appropriate action on the independent consultants staffing recommendations could have contributed to the reported breakdown in LP&L's QA program.

b) NRC Inspection: The NRC inspection of this issue is covered under b below.

b. MAC Recommendations (1, 7, 8, 9, 15, and 18) and LP&L's Replies Responses

1) Inspection

The Management Analysis Company (MAC) issued a report in 1979 on their study of LP&L construction monitoring activities at Waterford 3. The present issue is whether LP&L took appropriate action on MAC's independent study recommendations. The MAC study was done at the request of LP&L. In general, the MAC recommendations were broad in scope and can be viewed as addressing quality, administrative, and cost considerations. The NRC review of the MAC recommendations and the LP&L responses resulted in selecting recommendations for "staffing" as the NRC inspection sample. These recommendations were considered most likely to have an impact on assuring quality.

The six selected MAC recommendations involved a generic

requirement for enhanced staffing to improve understanding, monitoring, verifying, coordination, etc. Therefore, the principal inspection effort was on the time-phased growth of LP&L QA manning levels. Reviews of the documents listed below and interviews of LP&L personnel formed the bases for this inspection effort.

The NRC inspectors observations noted that the first growth in QA staff did not begin until 2 years after the MAC report was published, and this increase was mainly due to the increased staffing of the QA Operations Group and not the QA Construction Group. These increases and other staff changes appeared to have evolved from necessity and not as a result of MAC's recommendations.

2) NRC Findings

After a detailed review of available data and interviews with personnel, the NRC inspector concludes that there was no apparent effort on LP&L's part to respond, in a timely manner, to MAC's staffing recommendations.

The NRC inspector believes that LP&L's lack of action on MAC's recommendation may have contributed partially to the QA breakdown that resulted in the 1982 civil penalty for LP&L.

The inspection relative to the consultants' recommendations is considered closed.

D. Summary of Section VI - Part D of LP&L's February 20, 1984, Reply to Director, IE

1. Inquiry Team Report - QA Concern and Related Issues

a. QA Concern: Waterford Unit 3 common basemat.

1) Related Issues. Leakage through cracking in the basemat.

a) Significance: The safety significance of this matter is being addressed by NRC licensing staff.

b) NRC Inspection: The NRC inquiry team inspection, however, did examine the one area addressed below that was addressed in LP&L's February 20, 1984, reply.

b. Annular Space Walk-Through

1) Inspection

A physical 360° walk-through inspection of the floor area in the annular space between the containment and the shield building at the lowest level (-1.5 ft) was conducted on two separate occasions; during the first and last week of the Waterford team inspection.

2) NRC Finding

The NRC inspector did not observe any wetness or moisture on the floor area or along the cushion/flexible material adjacent to the steel liner of the containment. This item is considered closed.

E. Summary of Section VII - Part E of LP&L's February 20, 1984 Reply to Director, IE

1. Inquiry Team Report - QA Concern and Related Issues

a. QA Concern: QA Program dispute between Louisiana Power and Light (LP&L) and Combustion Engineering (CE).

1) Related Issues: The Inquiry Team noted the following Gambit issues as the basis for the above QA concern:

° LP&L 1974 audit of CE noting that CE's QA program had not incorporated the "new" LP&L QA requirements (Amendment 44, Gray Book, WASH 1283).

° Ebasco December 1976 audit of CE identified problems with CE's systems of records.

° Communications between LP&L and CE.

° Statements of LP&L, CE, and Ebasco individuals.

a) Significance: The "new" QA program commitments provide additional guidance on an acceptable method of assuring compliance with 10 CFR 50, Appendix B. As associated with the above related issues, the new LP&L commitments result in enhancing the licensee's QA Program for the administration of the receipt, storage, preservation, retrieval, and disposition of records, including clarification on the period of retention for various types of lifetime and nonpermanent records.

Implementation of the "new" QA program commitment will provide additional assurance regarding the quality and quantity of CE QA records available to ensure that specified quality objectives have been achieved and for use in maintaining the safe operation of the nuclear power plant.

b) NRC Inspection: A summary of the NRC inspection of this matter is discussed below.

b. LP&L/CE Compliance with Amendment 44 of SAR

1) Inspection

The NRC review and inspection of the QA program dispute between LP&L and CE was examined through a review of (1) certain documents identified by Attachment E-1 of the licensee's February 20, 1984, response, (2) documents identified in the April 4, 1983, "Gambit" letter and obtained from the licensee for review during the on site inspection, (3) licensee QA program requirements invoked on CE, and (4) the implementation of the licensee's audit program and other programs for assessing CE's compliance with the licensee's QA requirements.

The purpose of this review was to assess the adequacy of the licensee's program for assuring and determining CE's compliance with LP&L's commitments in Amendment 44 of the PSAR to meet the intent and guidance of the NRC's "Gray Book" (WASH 1283) guides and standards.

2) NRC Findings

Based on the above review of the referenced documentation, it is clear that the "QA program dispute between LP&L and CE" was one involving a lengthy contract dispute to arrive at a mutually agreeable financial settlement. The dispute apparently affected to some degree the timeliness of CE's compliance with the licensee's commitment to the new quality assurance record requirements of ANSI N45.2.9-1974. However, based on the documentation reviewed, the identified audit deficiencies in CE's QA program relative to the "new" LP&L QA program requirements have been adequately resolved and, therefore, there is reasonable assurance that LP&L's QA program meets the intent and guidance of the QA Program commitments included in Amendment 44 to the SAR. This item is closed.

SECTION III

PART A OF LP&L'S FEBRUARY 20, 1984, REPLY TO DIRECTOR, IE

A. Inquiry Team Report - QA Concern and Related Issue

1. QA Concern: Adequacy of LP&L's QA Program During Construction

a. Related Issue: Contractor turnover of four plant systems to LP&L with numerous deficiencies.

1) Significance: This issue relates to the breakdown in LP&L's QA Program that resulted in a Notice of Violation and Civil Penalty (EA 82-109) being issued to LP&L.

2) Background. NRC Inspection Report 50-382/82-14, transmitted to LP&L by letter dated December 6, 1982, documented the LP&L Construction QA identification of deficiencies in four turnover packages released by Ebasco to LP&L. The findings of this report resulted in the Notice of Violation and Proposed Imposition of Civil Penalty that was issued to LP&L relative to the identified QA program breakdown on December 6, 1982.

Gambit published an article entitled, "Quality Control Failure at LP&L," on March 19, 1983, that discussed the problem with the contractor turnover of four plant systems with numerous deficiencies.

3) NRC Review and Inspection

The NRC review and inspection of the information provided by LP&L to the Director, IE, in response to the above QA concern and related issue was conducted between April 3 and May 25, 1983. The inspections documented in this Section of the report were conducted by:

NRC Inspector	Report Subsection	LP&L February 20, 1984 Reply - Part
Robert Schulz	A.2.b	A.1
Bill Marini* Mark Peranich Jack Bess	A.3.b	A.2 (first para.)
Mark Peranich	A.3.c	A.2.a,
Bert Freed* John Devers*	A.3.d	A.2.b
Bert Freed*	A.3.e, f	A.2.c and A.2 (last para.)

NRC Inspector	Report Subsection	LP&L February 20, 1984 Reply - Part
Dave Ross*	A.4.b	A.3.a & b, Attachment A-1
Dan Tomlinson		
Mark Peranich	A.4.c	Part A.3.b, Attachment A-2
Dan Tomlinson	A.4.d	Part A.3.c, Attachment A-3
Ray Mullikin	A.4.e.	Part A.3.c, Attachment A-5
Bert Freed*		
Robert Schulz Dan Tomlinson Ray Mullikin Mark Peranich	A.5.b	Part A.5.a
Robert Schulz Dan Tomlinson	A.5.c	Part A.5.b

* NRC consultant

2. Inspection - Part A.1

a. Background

The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following the staff review of certain information relative to Section I.B Results, pages I-2 through I-7 of that response, the Director, IE, by letter of January 16, 1984, requested the licensee to furnish the following information:

"Provide clarification of whether LP&L is planning to conduct some independent physical verification for the contractor work not previously subject to physical examinations by the Task Force review or the ISEG effort because of the ongoing Hot Functional Testing and Ebasco quality reviews."

The licensee responded on February 20, 1984, as follows:

"In Section 2.4.3 of the Task Force Review Summary Report dated April 8, 1983, and the Supplemental Report dated November 21, 1983, it is stated that physical verification was not performed due to Hot Functional Testing being conducted. This is the only section where it is stated that physical verification was not possible. It is stated that, as an alternate method of verification of adequacy, a review of the Chicago Bridge and Iron generated radiographs would be performed. This review was

accomplished and noted in Section 2.5.4 of the report. Since the review results of the radiographs are a direct indication of the physical condition of the installed hardware, it was felt there was no need to perform any further physical verification.

Subsequent to the issuance of the Supplemental Report, and to provide added confidence in the installation, the LP&L Quality Assurance Manager directed QA to perform the physical verification originally intended for the Task Force. The results of this walkdown will be documented on an LP&L Surveillance Report."

b. Inspection - Part A.1, Verification of CB&I Work

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
R. S. Leddick Sr.	Vice President, Nuclear Operations	LP&L
R. G. Bennett	QA Engineer	LP&L

2) Documents Examined

LP&L's February 20, 1984, reply to Director, IE.

3) Observations

Through interviews with LP&L personnel, including the Senior Quality Assurance representative, the inspector learned that the physical verifications, directed to be performed by the Quality Assurance Manager, had not been performed for the Chicago Bridge and Iron (CB&I) installations as of this inspection, but were in the planning stage. The inspector discussed these inspections with the LP&L Corporate Quality Assurance Manager and emphasized that any findings must be evaluated for adequacy of sample size and generic implications to determine if any deficiencies identified may affect hardware not included in the (sample) physical verification walkdown.

The licensee, in response to the inspector's question on why Combustion Engineering (CE) was not one of the contractors included in these additional physical verification walkdowns, clarified that, in most part, CE was a supplier to Nuclear Installation Services Co. (NISCO) and not an installer. NISCO installations are part of the physical verification walkdown program.

4) NRC Finding

The matter of physical verifications for work performed by CB&I will remain unresolved, pending licensee completion of this task and NRC review of the results prior to fuel load (382/84-34-01).

3. Inspection - Part A.2

a. Background

The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following the staff review of certain information on I-2 and I-6 of that response, the Director, IE, by letter of January 16, 1984, requested the licensee to furnish the following information:

"Describe the specific procedural controls of the referenced Task Force Installation review (page I-2) and QA auditing process (page I-6) which address the evaluation of the generic implications of the cause of a significant deficiency."

The licensee responded on February 20, 1984, as follows:

(A.2) "In response to NRC concerns over the four systems which experienced a breakdown in portions of the QA process, a Task Force Installation review was initiated to determine if the breakdown had generic implications and had occurred in other contractor's QA programs.

The Task Force review procedure included outlines for review of documentation and walkdowns of work performed by each contractor as applicable. The areas investigated for each contractor were similar, thus providing a mechanism for identification of problems or breakdowns of a generic nature. As a result, several generic problems were identified.

a. A problem was identified with the documentation generated by American Bridge. This problem resulted in a reinspection of the work done by American Bridge by Ebasco. This item was reported to the NRC as a 10 CFR 50.55(e) item.

b. A problem with GEO testing documentation in the area of construction materials testing personnel qualification records was identified. A comprehensive review of GEO personnel qualification records was performed.

c. A problem with Condition Identification Work Authorization (CIWA) tracking was identified.

This prompted changes to be made such that tracking would be improved.

The auditing process referred to on Page I-6 of the ISEG report pertains to LP&L Operations QA audits performed on safety systems that have been transferred. There have been no transfer audit findings that have resulted in the generation of a Significant Construction Deficiency prior to September 1, 1983. Due to the small number of deficiencies found during transfer audits and the even smaller number of deficiencies that are considered significant, it would be obvious should a generic problem exist. Discrepancies found during Operations QA transfer audits are not included in the trend analysis process unless a Nonconformance Report or Significant Construction Deficiency is identified."

b. Inspection - Part A.2, Task Force Review Procedures

The inspection of LP&L Task force review procedures for review of documentation and walkdown of work performed by each contractor as applicable, was accomplished through a review of the LP&L "Task Action Plan and Procedures for Installation Verification" and the examination of the Task Force Review Team records of the walkdown verifications conducted for the installation of electrical and mechanical work.

1) Persons Contacted

Name	Title	Organization
R. G. Bennett	QA Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L
R. A. Hartnett	QA Consultant	LP&L
R. I. James	QA Engineer	LP&L
J. Erickson	Project Management	LP&L
S. Shete	Project Engineer	LP&L
M. D. Mohumdro	QA Engineer	LP&L

2) Documents Examined

a) Task Force Action Plan and Procedures for Installation Verification

- QP 19
- QP 19.1 Rev. 0, Task Force Installation

- QP 19.1-D1, 1-7-83 - Electrical Verification
- QP 19.1-D2, 1-7-83 - Mechanical Verification

b) Documentation Work Packets for the "Electrical Task Force Verification"

c) Documentation Work Packets for the "Mechanical Task Force Verification"

- LP&L Audit No. W35-83-QP-19.1-W35-83-3

3) Observations

a) Action Plan and Verification Procedures

To resolve the problems detailed in the NRC Enforcement Action EA 82-109, LP&L produced the "Task Force Action Plan and Procedures for Installation Verification." That Action Plan established an organization and schedule for verifying the installed conditions and reviewing the related quality of "selected activities performed by contractors who performed safety-related activities prior to June 1, 1982." The Action Plan established a single Task Leader (Bennett), three Review Teams (Mohundro, Hartnett, and Richner as Team Leaders, and three Special Review Teams (Civil - Hussain, Tests - Sandridge, and Coatings - Pittman). Signed by the Senior Vice President, Operations, on January 7, 1983, the Action Plan set March 15, 1983, as the completion date for records reviews and walkdowns. The Action Plan specified the examination "for compliance to installation requirements" of the following contractors whose efforts were essentially complete:

(1) Combustion Engineering - reactor internals and alignment*

(2) American Bridge - structural steel erection

(3) Nooter, Inc. - pools/liners

(4) Chicago Bridge & Iron - containment*

(5) Fischbach and Moore, Inc. - supports and separation

* LP&L's Summary Report to Regional Administrator, Region IV, noted that no physical verification was conducted due to plant configuration in preparation for Hot Functional Test.

(6) Sline - coatings outside of RCV (SCD 56 of October 1, 1982, addressed coatings inside of RCB and had not been closed.)

(7) La. Industries - concrete supplier (Other contractors placed the concrete. The Task Force was to review test results for LA. Industries' concrete

(8) Peabody Civil and Peabody NDE - testing. (They performed only testing functions. The Task Force was to review personnel qualifications, records, etc., to verify the adequacy of Peabody's efforts.)

(9) J. A. Jones - soils/cement (Due to the nature of their efforts, physical inspection ability is limited. Selected documentation was to have been examined.)

(10) Fegles - shield wall and dome (Due to the nature of their efforts, physical inspection ability is limited. Selected documentation was to have been examined.)

The Action Plan also specified Gulf Engineering, NISCO, Ebasco Force Account, Tompkins-Beckwith, Mercury, Waldinger/Ebasco HVAC, and B&B Insulators as contractors actively involved in installation of structures and components. For those active, or "current," contractors, the Action Plan specified that no Task Force review would be required for "the installations and documentation being reviewed by the LP&L Construction QA and LP&L S/U [startup] Group."

Physical verification was specified to be performed by a walkdown team using a Team Leader-generated checklist. Dimensional checks were to be made, where applicable, "to assure agreement with engineered/as-built drawings." Records reviews were specified to be performed on a minimum of 10% "of the supporting documentation for the physical activity verified during walkdown." Verification of the as-built drawings was a principal objective. The Task Leader was given authority to expand the sample size to "establish a positive confidence level in the installed system and the supporting documentation."

Inspection results, incorporating documented evidence, were to be completed by Team Leaders and submitted to the Task Leader, who in turn was to compile and submit them to the Quality Assurance Manager. "Potential findings (were to) be processed in accordance with LP&L Quality Assurance Program."

b) Electrical Walkdown Procedures and Activities

The procedures applicable to the Task Force verification of electrical installations were reviewed by the NRC inspector. The general verification activities outlined by the procedures was considered satisfactory by the NRC inspector with the exception that the Team Leader is given ultimate responsiblity for sample size, scope, and depth, including need to enlarge the sample size, without higher level management review and approval.

All electrical walkdown activities, as documented on appropriate walkdown sheets, were reviewed. NRC inspector comments on the information documented are:

(1) Only one piece of electrical equipment (AUX.PNL.1A) was selected for verification during this walkdown program. This is not a sufficiently large sample size with which to draw a valid conclusion.

(2) Of a total of 82 cables and raceways walked down, 14 instances of missing raceway identification were identified. This high unacceptablity rate should have resulted in increased inspection activity in this area.

(3) As indicated on the "electrical raceway walkdown" forms, 7 cable trays and 39 conduits were walked down. The following are items of concern with regard to this sample:

- Two of the raceways indicated in this sample (tray C201-SAB and conduit 37243-SMD), although documented as being acceptable during this walkdown, were found to be in violation of electrical separation requirements during the NRC CAT inspection.

- Seventeen (17) additional raceways originally selected for inspection by the Team Leader were later removed from the sample due to "inaccessibility" or "congestion in the area" without apparent approval by the Team Leader. Due to the large number of electrical separation violations identified in "congested" and "out-of-the-way" areas during and subsequent to the NRC CAT inspection, the decision to remove these raceways from the walkdown sample appears to have been imprudent.

- All of these raceways appear to have been walked down on the same day by the same individual. In view of the above referenced unidentified separation violations and the quantity of raceways walked down on the same day, it does not appear that a sufficiently "in-depth" inspection of each raceway was performed.

c) Mechanical Walkdown Procedural Activities

The LP&L Task Force review of mechanical work was inspected for adequacy. The Task Force examined primarily documentation of Nuclear Installation Services Company (NISCO) and Combustion Engineering (CE) since hot functional testing prevented physical verification in most cases. The Task Force found that NISCO documentation indicated compliance with procedures and no corrective action was required. The limited physical verification indicated installation in accordance with drawings. The CE documentation indicated compliance with procedures.

As followup to the above Task Force conclusions, the NRC inspector reviewed the LP&L Task Force work packets for the following installations: pressurizer surge line; safety injection tanks 1A, 1B, 2A, and 2B; control element drive mechanisms 1,21, 22, 49, 50, 76, 77, and 91; fuel transfer system; and spent fuel racks.

The physical installation of each item described above was verified by the NRC inspector with the following comments:

- The configuration of the pressurizer surge line agrees with drawings; however, actual dimensions could not be verified because of the amount of lagging and insulation on the line.

- The general arrangement of the spent fuel racks agrees with the drawings, but actual dimensions could not be verified because of the flooding of the pools in preparation for fuel receipt.

4) NRC Findings

a) The general activites outlined in the Task Force procedures were considered adequate with the exception of the apparent absence of a specific requirement for LP&L management's involvement in the review and approval of sample size, scope, and depth of the verification prepared by the Team Leader.

b) The size, scope, and depth of raceway walkdowns with respect to electrical separation was apparently not adequate, as evidenced by NRC CAT inspection findings, to assure compliance with licensee FSAR commitments in this area.

c) The LP&L Task Force review of mechanical documentation and physical installation was adequate.

d) In summary, the supplemental LP&L Task Force verification effort established in response to NRC letter 50-382/EA 82-109 was generally well planned and well described in procedures and, although somewhat limited in scope and depth, and the Task Force verification findings, as inspected here for electrical and mechanical and under following Subsection A.4.b, did contribute to the overall LP&L assessment of the acceptability of contractor work and effectiveness of LP&L's QA Program.

e) The inspection of items a through d above is closed.

c. Inspection - Part A.2.a (American Bridge)

For the NRC inspection of the problem identified with the documentation generated by American Bridge (AB) and the Ebasco reinspection of work done by AB, refer to 4.c below.

d. Inspection - Part A.2.b, GEO Construction Testing

The matter of the disposition of the problem with GEO Construction Testing (GEO) documentation in the area of construction materials testing (CMT) personnel qualification records was examined by a review of applicable documents and through interviews with appropriate personnel.

1) Persons Contacted

Name	Title	Organization
R. G. Bennett	QA Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L
J. Kirby	QC Monitor	GEO

2) Documents Examined

a) LP&L letter to NRC, W3K83-1808/Q-3-A35.01, dated November 21, 1983

b) Ebasco letter to LP&L, W3QA-26787, dated October 27, 1983

c) LP&L letter to Ebasco, W3K-83-1440/Q-3-A35.02.10, dated 9/28/83, transmitting LP&L Site Audit Report W3S-QP-19.1-W3S 83-3 Reaudit 3.

d) GEO letter to Ebasco, 6782-C-280, dated August 5, 1983

e) Ebasco letter to LP&L, W3QA-25464, dated July 12, 1983

f) GEO NCR W3-F7-116 (Ebasco W3-6497) dated July 1, 1983

g) Ebasco letter to GEO, W3QA-25455, dated June 29, 1983

h) Ebasco letter to LP&L, W3QA-25454, dated June 29, 1983

i) LP&L letter to Ebasco, W3K-83-0766/Q-3-A35.02.10, dated June 8, 1983

j) Ebasco letter to LP&L, W3QA-25095, dated June 1, 1983

k) LP&L letter to NRC, W3I83-0115/Q-3-A35.02.01, dated April 8, 1983

l) LP&L letter to Ebasco, W3K-83-0442/Q-3-A35.02.10, dated April 8, 1983

m) Ebasco audit reports for construction testing organizations of Barrow-Agee, Peabody, and GEO, relating to the audit of Quality Programs and documentation, including certification of personnel.

n) GEO Audit Summary Reports, dated August 30, 1982, February 11, 1983, August 15, 1983 and February 8, 1984, relating to 100% review of CMT personnel certification.

o) Peabody Testing Services Administration Procedure 33.G.5 dated November 30, 1978, Qualification and Certification of Personnel.

p) GEO Personnel Certification Listing, for Memphis, Tennessee, dated December 16, 1983.

q) GEO Construction Testing interoffice correspondence, regarding personnel certification, dated February 3, 1984.

r) Ebasco audit reports relating to audit of CMT personnel qualifications, numbers: JG-75-10-4, AR-76-5-1, JG-76-7-2, GW-81-3-2, ASL-82-10-2, ASL-82-10-1, ASL-82-11-2, ASL-82-10-7 and RCB-83-2-3

3) Observations

Based on documentation reviewed, the GEO materials testing personnel qualification record problem was identified by LP&L audit W3S-83-3 (LP&L transmittal of results of audit to Ebasco was dated April 8, 1983). The audit reviewed documentation supporting qualifications of construction materials testing (CMT) personnel. Sixteen personnel folders (10%) were reviewed for compliance with GEO Procedure 33.G.5, issued 01/03/78 (updated 10/30/78).

The LP&L audit resulted in findings of nonconformance related to incomplete and missing certification documentation involving seven of the sixteen folders reviewed. The disposition of the audit findings is addressed in NCR W3-F7-116 (W3-6497). The NCR documentation states that GEO completed a 100% review of a total of 136 past and present personnel certification packages. The 100% review found that 70 of the certification packages contained no deficiencies. The remaining 66 packages were found to lack documentation, ranging from missing or incorrect certification to loss of qualification records.

The qualification status of the remaining 66 test personnel were placed in three categories. Category 1 included 39 persons (59%) with all required documentation on file to verify that the person met all qualification requirements and was certified in one or more test methods. Category 2 included 10 persons (15%) with insufficient documentation in the project files to verify that the person met all qualification requirements to be certified, but there is reason to believe that necessary documentation can be located in the dead storage files at the division office or other projects. Category 3 included 17 persons (26%) with insufficient documentation in the project files to verify that the person met all qualification requirements to be certifiable.

The corrective action by GEO indicated that personnel found to be in Categories 1, 2, or 3 were qualified with additional training records, records of previous CMT experience, signed letters of training, statements of work proficiency, and cosignatures of qualified personnel on many of the test and inspection reports. Further, that the listed test and inspection reports were compared with the dates of training and cosignatures of qualified personnel, revealing that all personnel in question with one exception either received documented training or were trained by the individuals whose cosignature also appeared on the test

reports. Signed letters regarding the above were placed in appropriate personnel qualification packages.

Through this method, GEO was able to qualify all but one person. The test reports for this one individual were recalculated by GEO with the results being acceptable.

Corrective action to preclude recurrence is stated by NCR W3-F7-116 (W3-6497), as follows:

"GEO Construction Testing conducts internal Quality Assurance Audits semi-annually. In these audits, it is now mandatory for the 100% review of current personnel qualification packages. This requirement has been in effect since August 1982 and has proven to be an effective means of personnel qualification verification.

In addition, the GEO Construction Testing Quality Control Manager updates a monthly roster that includes the certification expiration dates, methods and levels of all personnel. This roster is transmitted to each project manager on a monthly basis."

Evidence that the above stated corrective action was being implemented was also inspected. This consisted of the NRC inspectors review of the records of the semiannual 100% reviews of current CMT personnel qualification and the referenced monthly rosters. Implementation of the stated corrective action was found to be acceptable.

The adequacy of GEO Construction Testing's resolution of NCR W3-F7-116 (W3-6497) for the Category 3 personnel was selectively examined further by an NRC consultant inspector. A summary of the selective examinations in this area follows:

Category 3 - Selective Examinations:

The following 17 GEO personnel were initially found to be in Category 3:

1. Adam Andras*
2. Alan Bennett
3. Alfred J. Rodrique*
4. Donna Bourne
5. Timothy Boutwell
6. John Fontaine
7. Sam Horton
8. Jessie Koenigsberg*
9. Mike Koual
10. Dean LeBlanc
11. J. P. Lozes
12. Lynda Medina*
13. Robert McNair
14. Alvin Mitchell
15. Howard Smith
16. Coleman B. McDonough, Jr.*
17. Judy Whisler*

*GEO personnel whose certification files were reviewed by the NRC inspector for verification of the adequacy of the disposition of Ebasco NCR W3-6497

GEO personnel (supervisors) who wrote letters attesting to the qualifications of certain GEO personnel included in the above list were Martin Dixon, Paul Elkin, and Gary Horwitch.

The following documentation was reviewed as part of the evaluation of the GEO review:

1. GEO Procedure 33.G.5-1978

2. ANSI N45.2.6-1978 "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants". (Comparable to the 1974 issue referenced by CMT contractor procedure QA-2, in effect prior to 1978.

3. The qualification/certification/training files of the individuals noted above with an (*) next to their name.

Personnel records subject to detail selective examinations and results include the following:

Judy Whisler and Lynda Medina: A review of their files show that their "Certification of Qualification" was not signed by the appropriate person(s), but that they did have the proper training and were qualified in accordance with GEO procedures.

Adam Andras' file was reviewed and showed that he had no record of training, but the file did contain a "Certification of Qualification," which was not signed by appropriate person(s). There was a letter signed by a Barry Cannon stating he had personally trained Adam Andras. Barry Cannon was found to be a certified inspector at the time he trained Adam Andras.

Coleman B. McDonough, Jr., did not have any records in his file for verification of his qualification, but there was a letter signed by a Martin Dixon (supervisor at the time in question), who was a certified inspector, stating that Coleman was properly trained and qualified to perform the assigned duties during the period in question.

Jessie Koenigsberg's file did not contain any records showing that he was qualified, but there were three signed letters from three certified inspectors (supervisors) stating Jessie's qualification. For example,

- Gary Horwitch stated "Jessie Koenigsberg...was appropriately certified during this period of his employment."

° Martin Dixon stated that he was "...aware that he (Jessie) was qualified and proficient in the work he was trained and assigned."

Alfred J. Rodrique's file did not contain any records showing that he was qualified. This person performed 10 daily aggregate tests over a period of 3 days. GEO performed a technical review of the work performed by him and found that all the calculations were correct. The NRC inspector reviewed the 10 test reports in question and also found that all the calculations were correct.

In conclusion, the NRC consultant inspector also reviewed a test log, which records information concerning tests performed by GEO on any said day, and discovered another qualified test prior to the test taken by Rodrique. The tests taken by Rodrique were not needed to satisfy established test requirements, but were performed only because a large concrete placement (627-1-01) of approximately 6000 cubic yards was being placed those 3 days and additional verification was conducted to assure that the concrete materials were continuing to be in accordance with specifications.

Considering the above, the NRC inspector reviewed the index file of approximately 250 audits conducted by Ebasco from 1975 through 1983 of organizations conducting construction material testing (CMT). Thirty-six audits most likely to address the area of CMT personnel qualifications were selected for examination. From these, and others identified by Ebasco QA at the request of the NRC inspector, nine Ebasco audits during this period were found to include reviews of CMT personnel qualifications. A review of the audit findings of the nine audit reports found that Ebasco did review a number of GEO personnel files relative to qualifications for CMT. Ebasco audit reports AR-76-5-1, dated May 3, 1976, and JG-76-7-2, dated July 28, 1976, recorded deficiencies in personnel qualification records. Audit JG-76-5-1, based on referenced Barrow-Agee Procedure No. QA-2 and ANSI N45.2.6, noted that the qualification records of two laboratory personnel (one Level I - Lab technician and one Level III - Project Manager) were not on site. Corrective action of June 10, 1976, by Peabody Testing Services noted that the deficiencies were corrected by updating personnel qualification files per Procedure QA-2. Audit JG-76-7-2, based on referenced Barrow-Agee Procedure No(s). QA-8, QA-5, QA-2, ANSI N45.2 and 10 CFR 50, Appendix B, noted that personnel qualification records did not indicate the name of the examiner. Corrective action noted on the Peabody Testing Services response of August 11, 1976, indicated "the name and qualification level of the examiner has been recorded on the applicable form in all personnel certification packages." However, apparently because of

the limited followup by Ebasco of corrective action or generic implications the Ebasco audit program was not successful in identifying the scope of the documentation problem with GEO personnel certifications identified as a result of LP&L audit W3S 83-3.

With respect to the 10 CFR 50.55(e) reportability of this problem to the NRC, the 7/7/83 disposition on Ebasco NCR W3-6497 was "inadequate information to evaluate reportability at this time." Ebasco QA verification of disposition of this NCR was dated 9/12/83. The results of LP&L Audit Report (W3S 83-3, Reaudit 3) transmitted to Ebasco QA closing out this item was dated 9/28/83.

4) NRC Findings:

a) The licensee's QA Program for establishing and maintaining documentation of the qualification and certification of CMT personnel for some period prior to the 1982 corrective action by GEO was not in compliance with the licensee's commitment to 10 CFR 50, Appendix B, Criterion XVII, and ANSI N45.2.9-1973 for retention of inspector qualification records and with the licensee/contractor QA procedural requirement of ANSI N45.2.6-1973 (or subsequent issues), Section 2.2, Certification, and Section 5, Records.

b) The licensee is requested to conduct a review of supporting documentation for GEO corrective action stated in Attachment 6 of Nonconformance Report (NCR) W3-F7-116 (Ebasco W3-6487). This review should focus on the identification of CMT personnel in Categories 1, 2, or 3 who were apparently qualified solely on the basis of written statements from other individuals attesting to the individuals training and qualifications.

For such individuals, the licensee should pursue any new information or evaluations which could provide further assurance of the actual past work experience and training referenced by the written statement. The licensee should consider the guidance of IE Circular 80-22 in conforming employee qualifications via use of past employment.

c) Following the completion of the independent evaluation, the licensee is requested to review any new information on this matter and arrive at a determination of reportability of the identified deficiency under 10 CFR 50.55(e) or 10 CFR 21.

d) Items a) thrugh c) remain open, pending further NRC review and inspection (382/84-34-02).

e. Inspection - Part A.2.c, CIWA Tracking

The LP&L disposition of the problem with the tracking of contractor initiated Conditional Identification Work Authorizations (CIWA) was examined by a review of applicable documents and through interviews with appropriate personnel.

1) Persons Contacted

Name	Title	Organization
R. G. Bennett	QA Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L
G. Barnard	Unit Coordinator Startup Maintenance (CSM)	LP&L
M. Jones	CIWA Processor	LP&L

2) Documents Examined

a) Ebasco letter to LP&L W3QA-26383, dated September 16, 1983

b) Rediform "Cable 30008D-SMD Ib visual inspection", dated September 13, 1983

c) Ebasco CSM letter WTW-0019, dated September 7, 1983

d) Ebasco letter to LP&L W3QA-26191 dated August 29, 1983

e) LP&L letter to Ebasco W3K-83-1177, dated August 16, 1983

f) Ebasco letter to LP&L W3QA-25454, dated June 29, 1983

g) Startup CIWA 837828 (April 25, 1983)

h) Task Force Review Sheet for finding FM15 W3S-83-QP19.1

i) Startup Administration Procedure for "Condition Identification Work Authorization" (CIWA), SAP-08 Rev. 10 (September 21, 1983)

j) Plant Operating Manual Administrative Procedure for "Condition Identification Work Authorization" (CIWA), UNT-5-002, Rev. 2 (January 30, 1984)

k) Log sheets for F&M originated CIWAs (March 17, 1983 to April 26, 1983)

l) LP&L CSM startup log sheets implemented per document 2.c above (September 7, 1983 - February 10, 1984)

m) Master Tracking System computer sheets (sample) for startup CIWAs

n) Startup CIWA daily tracking report (sample) (April 10, 1984)

3) Observations

a) A problem with CIWA tracking was identified because F&M originated two CIWA requests, CI 265 and CI 266, to do work related to the corrective action for finding F&M 15 (document 2.f above). The actual CIWAs could not be located by LP&L QA.

b) Inspector reviews found, as a matter of clarification, that a contractor originated CIWA request represents the initial input to a CIWA document. This is done by the contractor who partially completes a CIWA form by writing a description and a recommendation for the identified condition and assigns a unique tracking number, e.g., CI 265 and CI 266 logged in document 2.k above. This number is placed in the "referenced block" on the CIWA form and is used for tracking purposes by the contractor. The document is not considered a formal CIWA until the LP&L Coordinator Startup Maintenance (CSM) function approves the request, assigns a CIWA number, and enters that number and other indexing information into the computerized Master Tracking System in accordance with SAP-08, procedure. Also, to further ensure that formal CIWA documents do not get delayed or lost, the CSM transmits a daily startup CIWA tracking report to all work groups to provide information and direction regarding the status of CIWAs.

c) Ebasco letter to LP&L, dated 8/29/83, states Ebasco QA researched all available records and located CIWA 837828, which was reviewed by the inspector and found to have been issued to cover the work requested by CIWA request CI 265.

d) The CIWA, to cover the cable identification requested by CIWA request CI 266, was never located; however, the cable in question was verified by a visual inspection record and dated 9/13/83 as being properly identified.

e) In September 1983, the LP&L CSM implemented the program, described in Ebasco letters dated 9/7/83 and 9/16/83, to track all contractor-originated CIWA requests until the request was either rejected or

processed as a CIWA, as defined in observation 3.b above. The startup log sheets used in this tracking system indicates that 35 out of 60 CIWA requests were issued CIWA numbers. Further, the log shows that there have not been CIWA requests since February 10, 1984.

f) The LP&L CSM stated that there are no plans at this time to change SAP-08, Rev. 10 or to formally document the LP&L/Ebasco letter-tracking programs, discussed in observation 3.e above, as there have not been any CIWA requests since February 10, 1984.

g) With respect to the generic consideration of tracking contractor originated CIWA requests, LP&L CSM stated that they have verbally requested key LP&L personnel, responsible for coordinating CIWA requests, to perform a review of the records to determine the status of all contractor CIWA requests. The purpose of this review was to ensure that all contractor CIWA requests were adequately tracked. However, there is no objective evidence that this verbal instruction was either given or carried out.

4) NRC Findings

The LP&L/Ebasco letter instructions (documents 2)a) and 2)c) above) appear to adequately address the problem of tracking of contractor initiated CIWA requests, but the implementation of these instructions could not be verified due to lack of documentation of the review performed by LP&L/Ebasco. Therefore,

(a) Pursuant to 10 CFR 50, Appendix B, Criterion V, LP&L should have incorporated the letter instructions in the contractor initiated CIWA tracking program to ensure that such activities would be conducted and documented in accordance with prescribed, approved, and auditable procedures of the QA Program.

(b) LP&L should establish appropriate instructions for the followup of remaining CIWA followup activities and for conducting a documented review of all past contractor-initiated CIWAs to ensure that they are in the tracking system for control and disposition of those documents.

(c) Items a) through b) above remain open, pending further NRC review and inspection (382/84-34-03).

f. Inspection - Part A.2 (and Part A.6) Audit Process Aspects

The audit process, discussed on page I-6 of the ISEG report of the licensee's September 29, 1983 letter, pertaining to LP&L QA

operations audits of transferred safety systems was examined through a review of related program documents and by interviews with appropriate personnel. Inspection of LP&L QA operation audit findings is discussed under e below.

1) Persons Contacted

Name	Title	Organization
R. G. Bennett	QA Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L
S. C. Petty	Training Coordinator	LP&L
N. A. Vitale	QA Consultant	LP&L
W. M. Morgan	QA Operations Manager and Lead Auditor	LP&L
D. W. Delk	QA Engineer & Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L

2) Documents Examined

a) LP&L letter ["Audit Report SA-W3-QA-17, SUS 17, seismic monitoring"] W3K-83-1238/Q-3-A35.02.29, dated August 29, 1983. (Includes plan and checklists.)

b) LP&L letter ["Audit Report SA-W3-QA-69, SUS 69, vibration and loose parts monitoring"] W3K-83-1133/Q-3-A35.02.29, dated August 4, 1982. (Includes plan and checklists.)

c) LP&L letter ["Audit Report SA-W3-QA-8A, audit of system 8A (208/120-VAC),"] W3K-83-0069/Q-3-A35.02.09, dated January 18, 1983.

d) LP&L letter ["Audit Report SA-W3-QA-82-05 (2A) Audit of System 2A (DC System),"] W3K-83-0003/Q-3-A35.02.29, dated January 3, 1983. (Includes plan and checklists.)

e) Auditor Qualification records for J. B. Perez

f) Auditor Qualification records for G. W. Forgala

g) Auditor Qualification records for W. J. Baldwin

h) Auditor Qualification records for E. Dumas

i) Auditor Qualification records for C. W. Hooper

j) Auditor Qualification records for K. L. Berrett

k) LP&L QA procedure QP 18.10 Rev. 0, "Conduct of On-site Operations Quality Assurance Audits," dated August 18, 1982.

l) LP&L QA procedure QP 2.3 Rev. 2, "Training and Qualification of Audit Personnel," dated April 5, 1982.

3) Observations

a) Audit reports examined were written to document the QA Operations audits for four of seven safety systems transferred to the plant staff prior to September 1, 1983.

b) The QA program procedures for auditor training, qualification, and audits were in place before the auditing practices were employed for the four safety systems audited. The ISEGs review indicated that LP&L Operations QA personnel performed audits in compliance to the approved auditing procedures. The ISEG observation was found to be consistent with the results of the NRC inspector review of audit records (plans, checklists, and reports).

c) A sample of the qualification records reviewed for the lead auditors responsible for the audits of the four safety systems, were found to be consistant with the program requirements. Qualifications were based on the point system described in standard ANSI/ASME N45.2.23. Further review of the specific lead auditor records indicated that these lead auditors were qualified prior to the safety system audits that they performed.

4) NRC Findings

The audit records required for planning, conducting, and recording of LP&L QA Operation audits of transferred systems were found to be consistent with Licensee QA program requirements and the licensee's commitments to ANSI N45.2.12 (Draft 3, Rev. 0), May 1973, for conduct of audits. This item is closed.

4. Inspection - Part A.3

a. Background

The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following the staff review of certain information on pages I-2, I-3, I-4 and I-6 of that

response, the Director, IE, by letter of January 16, 1984, requested the licensee to furnish the following information:

(A.3) "Prepare a summary of the status of resolution of each procedural, documentation or hardware deficiency, or audit finding discussed in this part of the report. The summary should include identification of the organization/function that identified the deficiency, description of the deficiency, the attributed cause, and final disposition, including the results of an evaluation of its generic implications. Please address the following matters in your response.

(a) "Page I-2, Bottom Paragraph. The findings discussed in LP&L's summary report, including the related followup.

(b) "Pages I-3 and I-4. Deficiencies identified through the Ebasco QAIRG review, LP&L Task Force review, and the comprehensive inspection program completed for work accomplished by American Bridge.

(c) "Page I-6.

(1) "Deficiencies related to the approximately 13 systems rejected by QA.

(2) Deficiencies associated with four of the seven systems transferred to plant staff before September 1, 1983.

The licensee responded on February 20, 1984, as follows:

(A.3) "A summary of the status of the resolution of the deficiencies noted in LP&L's summary report on generic contractor concerns, Ebasco Quality Assurance Installation and Records Group (QAIRG) and Task Force reviews of American Bridge work, the comprehensive inspection program developed during the American Bridge reviews, and LP&L QA turnover and transfer reviews was requested.

"It should be noted that the LP&L Task Force review and summary report are the same effort. Also, the comprehensive American Bridge inspection program was identified as corrective action for addressing generic concerns found during the QAIRG review of American Bridge. Therefore, all findings resulting from the QAIRG review and comprehensive inspection are grouped together.

"Another item to be considered is the request for a cause and evaluation of generic concerns for each deficiency identified by each review. In the case of significant conditions adverse to quality, measures assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken are documented and reported to appropriate levels of management.

"Since the deficiencies identified by the QAIRG review for American Bridge were the only concerns which resulted in a Significant Construction Deficiency (SCD), these concerns are the only ones for which this information was provided. This will be discussed in the section devoted to the QAIRG Review and comprehensive reinspection program.

(A.3.a. & b.) "The Task Force review effort was previously addressed in Question A.2. A listing of the findings from each contractor and disposition of these findings is provided in Attachment A-1.

"Some of the dispositions indicated that the deficiency was cleared up by use of a Fischbach and Moore Inspection Report (IR). These reports are located on-site. However, due to the method of filing these reports with the applicable plant equipment documentation instead of filing them in numerical sequence, the inspection reports were not readily available.

(A.3.b.) "QAIRG Review and Comprehensive Inspection

"As previously stated, Significant Construction Deficiency 78 was generated as a result of the QAIRG review.

"CAUSE: The deficiencies in American Bridge documentation indicated a breakdown of the quality program sufficient to require a re-inspection program of bolted connections and welded connections completed by American Bridge in the Reactor Containment Building, Reactor Auxiliary Building, and the Fuel Handling Building.

"GENERIC CONCERNS: Some of the missing documentation was for bolted and welded connections of structural steel supporting or tying into safety-related systems. If left uncorrected, failure of those connections could have resulted in possible degradation of those safety systems.

"Corrective Action Taken

"Nonconformance Reports (NCRs) were issued to track and document deficiencies as they were identified. A procedure was issued which established the methods for performing and documenting the re-inspection of bolted connections and set forth criteria for acceptance or rejection and the measures to be taken for rework. A procedure was also issued which established the methods for performing the re-inspection of structural steel welded connections and the documentation of the information and data obtained from the re-inspection which was to be forwarded to Ebasco for review, analysis, and evaluation.

"NCR W3-6263 was issued to consolidate and close the majority of NCRs which had been issued as a result of the Ebasco QAIRG review of American Bridge installation records. All re-inspection is now complete, including reinspection of rework. All connections have been accepted and the supporting documentation has been reviewed and accepted by Ebasco Engineering and Quality Assurance. NCR W3-6263 has been closed.

"A summary of findings which resulted from this effort are listed in Attachment A-2.

(A.3.c.) "LP&L QA Turnover Reviews

"While gathering the requested information concerning QA status review packages (approximately 13 systems), it was determined after more in-depth investigation only ten (10) packages were actually rejected before September 1, 1983. This is in addition to the initial four (4) rejected by LP&L construction QA.

"A list of the comments and responses pertaining to each package and contractor is provided in Attachment A-3. None of these comments resulted in a Signficant Construction Deficiency.

"Due to the problems that were encountered in the turnover of the first four packages, SUS 59, 60A, 60B, and 60C, corrective action was taken and revisions were made in the turnover documentation review process. These systems were subsequently audited and found to be acceptable. Attachment A-4 explains why there are no findings and responses to the initially rejected audit packages for some of the contractors associated with these systems.

"LP&L Operations QA Transfer Reviews

"A listing of the audit of transfer package findings associated with four of the seven systems transferred and corrective actions is provided in Attachment A-5. None of these findings resulted in a Significant Construction Deficiency."

b. Inspection - Part A.3a & b, Task Force Findings, Attachment A-1

The matter of the disposition of the findings listed by Attachment A-1, and LP&L review for generic implications was examined by a review of applicable documents and through interviews with appropriate personnel. The filing and retrievability of the referenced Inspection Reports (IRs) was also examined.

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
R. G. Bennett	QA Engineer	LP&L
M. D. Mohundro	QA Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L
M. W. Alsworth	Utility Engineer	LP&L
A. M. Carver	Utility Engineer	LP&L
J. M. Guillot	Asst. to QA Manager	LP&L
M. Walsh	Res. Elec. Engineer	Ebasco
R. McGann	Civil Engineer	Ebasco
L. Biller	Site Support Engineer	Ebasco
D. Plershad	Site Support Engineer	Ebasco
J. Luchetski	Electrical Engineer	Ebasco

2) Documents Examined

a) Task Force Installation Verification, QP-19.1 Rev. 0, dated January 7, 1983.

b) Letter to LP&L from Ebasco, W3QA-25095, dated June 1, 1983, Subject: LP&L Audit Report W3S-83-QP-19.1W3S-83-3

c) Letter to LP&L from Ebasco, W3QA-25454, dated June 29, 1983, Subject: LP&L Audit Report W3S-83-QP-19.1-W3S-83-3, Reaudit #1

d) Letter to LP&L from Ebasco, W3QA-26191, dated August 29, 1983, Subject: LP&L Audit Report W3S-83-3, Reaudit #2

e) Letter to LP&L from Ebasco, W3QA-26383, dated September 16, 1983, Subject: LP&L Audit Report W3S-83-3, Reaudit #2

f) Letter to LP&L from Ebasco, W3QA-26473, dated September 19, 1983, Subject: Correction to LP&L Audit Report W3S-83-3, Reaudit #2

g) ISEG Special Report, dated September 28, 1983

h) Letter to LP&L from Ebasco, W3QA-26787, dated October 27, 1983, Subject: Supplement to LP&L Audit Report W3S-83-3.

i) Letter to NRC from LP&L, W3K83-1808/Q-3-A35.01, dated November 21, 1983, Subject: Supplemental Report to the Summary Report for the Quality Assurance/Engineering Task Force Review of Installed Structures/Components

j) Letter to LP&L from NRC, dated January 16, 1984, Subject: Requested clarification to ISEG Special Report

k) Letter to NRC from LP&L, W3P/84-0442/3-A104, dated February 20, 1984, Subject: Waterford 3 SES

l) Letter to Ebasco from LP&L, W3K-83-1440/Q-3-A35.02.10, Subject: Waterford SES Unit 3 Transmittal of Site Audit Report W3S-83-QP-19.1-W3S 83-3, Reaudit #3

m) Ebasco Inspection Report, #W3S-83-QP-19.1-W3S-83-3, dated August 15, 1983

n) Fischbach and Moore (F&M)

Inspection Report 303-46-535
Inspection Report 303-46-536
Inspection Report 303-46-540
Inspection Report 303-46-580
Inspection Report 122-59-454
Rework #5581
Rework #5-2-2-84
Nonconformance Report, NCR-W3-6421
Nonconformance Report, NCR-W3-6188/W3-988
Nonconformance Report, NCR-W3-7145
Deficient Material Notice, DMN-201
Engineering Discrepancy Notice, #EC-1285R1

o) Nooter

Nonconformance Report, NCR-W3-6560
Drawing Change Notification, DCN-AS-582
Nooter Drawing JN-D48541
Housing for Gates 3A and 3B Spent Fuel Cask Storage Pool (Ebasco #1564 3258 R3)

Nooter Drawing JN-D 48543 isometric view of housing for Gates 3A & 3B Spent Fuel Cask Storage Pool (Ebasco #1564 3260 R1)
Ebasco Drawing LOU 1546 G-916 Rev. 3, Fuel Handling Building Fuel Pit Liner Miscellaneous Steel
Ebasco calculations for bulkhead gates, pages 15 and 16, by Sundar, dated 10/9/73

3) Observations

The NRC inspector reviewed the Task Force Installation Verification Quality Procedure, which defined the verification effort that was conducted and resulted in the findings listed in Attachment A-1 of the licensee's reply.

The findings listed in Attachment A-1 were screened and a sample of nineteen (30%) were selected for NRC inspection. The inspectors examinations included a review of the stated findings and an assessment of the dispositon, corrective action taken, including the generic implications of each and the group of findings selected for examination. The sample included findings relative to work performed by: Fischbach and Moore (F&M) (10), Nooter (5), and GEO Construction Testing (4).

The findings and disposition status below are quoted from Attachment A-1. The observation is this inspector's comments. The inspection of findings from GEO Construction Testing is documented above, under Subsection A.3.d of this report.

Fischbach and Moore

a) Finding F&M-1-016: "Undersized welds"

Disposition: "Closed out with corrective action on Inspection Report (IR) 303-46-535."

Observation: The IR recorded that the fillet welds were undersized by 1/16 in. to 1/8 in. in several places. Welds were reworked to conform in May 1983. The action to prevent recurrence, stated in the June 29, 1983 letter to LP&L, discussed retraining of inspectors and orally testing them to ensure they knew proper inspection techniques and weld requirements. However, the inspectors who originally accepted the nonconforming supports were no longer employed by F&M QC.

A subsequent inspection by LP&L and Ebasco in June 1983 identified a problem in that undersize welds reworked and accepted by F&M were still not in compliance with drawing details. NCR-W3-6421 identified the problem. Two particular F&M inspectors had

accepted rework on twelve cable tray supports, each cable tray having approximately four welds. A 15% sample, or two supports were chosen for inspection by Ebasco and LP&L. Some undersize deficiencies were noted in that 15% sample.

Final resolution to finding F&M-1-016 under NCR-W3-6421 was to use as is. Ebasco civil engineers evaluated all the seismic cable tray supports in question and determined them "acceptable the way they were built." NCR-W3-6421 was closed in July 1983.

This inspector reviewed the training records of the two F&M inspectors. Both were certified as Level I weld inspectors in July 1981 and September 1981, after receiving scores of 93% and 98% respectively on the welding inspector exam.

In October 1983, a verification by LP&L of corrective actions to audit report findings determined that corrective action to F&M-1-016 was unacceptable. Numerous weld problems, including undersized welds, still existed and NCR-W3-7145 was written to track the corrective action. Evaluation by Ebasco Site Support Engineering (ESSE) Civil (Attachment 2 of NCR-W3-7145) stated, "Reanalysis of existing welds indicates that stresses are within allowable limits. Hence, as-built welds are acceptable and no rework required." The inspector was provided a copy of this reanalysis and verified that there were calculations performed to support the stated disposition for the reworked welds. With this reanalysis, NCR-W3-7145 was closed out on March 14, 1984.

b) Finding F&M-2-024: "Excessive weld fit up gap."

Disposition: "Close out with corrective action IR 303-84-580."

Observation: The IR recorded that the weld fitup gap varies from 1/4 in. to 5/16 in., which is in excess of 3/16-in. allowed by procedure. NCR-W3-6188 (F&M W3-998) signed by Ebasco Engineering and Quality Assurance provides a disposition to IR-303-84-580 as follows: "Connections mentioned in description of nonconformance have been reviewed. Reported welds with excessive fit-up gap can be accepted since both connections are lightly loaded." The action taken to prevent recurrence, stated in the June 29, 1983, letter to LP&L, was to retrain inspectors (same as F&M-1-016).

c) Finding F&M-3-008: "Undersized weld"

Disposition: "Closed out with corrective action on IR-303-46-536."

Observation: The IR recorded that the welds were undersized by approximately 1/16 in. and in two areas by 3/32 in. Welds were reworked to conform in May 1983. The action taken to prevent recurrence, stated in the June 29, 1983 letter, to LP&L, was to retrain inspectors (same as F&M-1-016 above). IR-303-46-536 was addressed in NCR-W3-6421 (same as F&M-1-016 above) with final resolution to use as is.

d) Finding F&M-8-007: "Undersized Weld"

Disposition: "Accepted for use as is."

Observation: IR-303-46-540 recorded the two items identified by F&M-8-007, Item 1, fitup gap exceeds the 3/16-in. gap allowed by procedure and was subsequently used as is on NCR-W3-988/W3-6188 (see Finding F&M-2-024, above).

Item 2, undersize weld was reworked to conform in May 1983. Action taken to prevent recurrence, stated in the June 29, 1983, letter to LP&L, was to retrain inspectors (same as F&M-1-016 above).

e) Finding F&M-11-002: "Undercut weld"

Disposition: "Weld reinspected and accepted for use as is."

Observation: Task force records reported an undercut weld; however, the weld was reinspected by LP&L and Ebasco and found to be acceptable. Therefore, Finding F&M-11-002 was invalid and no corrective action was necessary.

f) Finding F&M-14B, 14C, 14D, 14E: "Plot point is not identified on tray."

Disposition: "Closed out with corrective action on IR-122-59-454."

Observation: The IRs recorded that the cable trays have plan markers missing. IR-122-59-454 was closed out by issuing Deficient Material Notice DMN-201, which in turn was superseded by Engineering Discrepancy Notice (EDN) EC-1285. The plan markers recorded as missing were installed in accordance with Ebasco Rework Control Form number 5-2-2-84 on 5/2/84. EDN-EC-1285 R1 was closed on 5/3/84.

Therefore, the stated disposition is incorrect in that the problem was transferred to EDN-EC-1285 which was closed out during this inspection.

g) Finding F&M-14F: "Conduits not marked."

Disposition: "Open Item"

Observation: The finding stated that conduits were not marked in accordance with the applicable drawing. Ebasco inspection report W3S-83-QP-19.1-W3S-83-3, dated 8/15/83, verified that all conduits in question are permanently marked. Therefore, the finding was either invalid or conduits were marked before 8/15/83.

Nooter

h) Nooter Finding #1A & 1B: "Drawing dimensions in error."

Disposition: "Re-evaluated and accepted for use as is."

Observation: Re-inspection and evaluation by Ebasco and LP&L determined that a reference drawing, not a design drawing, was used in writing Finding #1A and #1B. The items were found to be within tolerance to the applicable design drawing. Therefore, the original Finding #1A and #1B were determined to be invalid. No corrective action was required.

i) Nooter Finding #1E: "Stiffener spacing in error."

Disposition: "Re-evaluated and accepted for use as is."

Observation: The inspector reviewed DCN-AS-582 that was issued to revise drawing LOU-1564-G-916 R3 to reflect the as-built conditions for spacing of the fuel pit liner stiffeners from the specified 1'0' to the actual 1'± 1/2". The Ebasco Design Calculations and Nooter Fabrication drawings for the stiffeners were requested and provided by LP&L QA. Based on the inspectors review of the drawings, the DCN, and the calculations, the added 1/2" tolerance does not compromise the original design for the stiffeners.

j) Nooter Finding #2A: "Undersized welds."

Disposition: "Accepted as is."

Observation: Welds were typically 1/4-in. fillet welds at base of a pool liner. All accessible welds were reinspected. Ebasco engineering stated on Attachment 2 of NCR-W3-6560 that "Existing liner welds are structurally acceptable."

k) Nooter Finding #2C: "Undersized welds."

Disposition: "None required, use as is."

Observation: Undersized welds were documented on NCR-W3-6560, disposition was the same as for Finding #2A above.

General Note: In summary, the generic implications of the problems were addressed and dispositioned, as noted above.

No contractor corrective action was taken to prevent recurrence because Nooter was no longer on site.

In regard to the disposition of Nooter Findings #2A and #2C as well as other similar welding problems, the acceptance criteria from the AWS D1.1 and AISC requirements were relaxed by LP&L, based on studies by Ebasco engineering and an outside metalurgical engineering consultant.

Inspection Reports, as well as other documents requested, were found to be readily available.

4) NRC Findings

Based on the above NRC inspection sample and examinations conducted, the NRC inspector believes there is reasonable assurance that all LP&L Task Force Attachment A-1 findings and their stated dispositions are acceptable and the potential generic implications of these findings have been adequately considered. Therefore, the NRC inspection in this area is closed.

c. Inspection - Part A.3.b, QAIRG Review and Comprehensive Inspection Findings (American Bridge, SCD 78) Attachment A-2

The NRC CAT inspection of work performed by American Bridge is also discussed in 3.c above. Based on the results of the CAT inspection sample (see NRC IR-50-382/84-07, Section IV.B.10 and Section V.B.5) of American Bridge field welds, shop fabricated welds, welder qualification test records, welding procedures, radiographs, structural steel members, including bolted connections, the NRC inspection of the Ebasco QAIRG inspection for work by American Bridge findings, listed in Attachment A-2 of the licensee's February 20, 1984, reply is considered completed, except for documentation findings on work performed by American Bridge.

The NRC inspection of the resolution of Attachment A-2 documentation inspection findings will be conducted during the NRC followup inspection of the licensee's close out of Significant Construction Deficiency 78 and NCR W3-6263, which included a review and acceptance of supporting documentation. The NRC inspection in this area will be conducted following licensee completion of necessary corrective action to resolve CAT inspection findings relative to Peden shop fabricated welds in structural steel installed by American Bridge.

1) NRC Findings

This item is resolved, pending closeout of CAT inspection findings and SCD-78 (382/84-34-04).

d. Inspection - Part A.3.c, LP&L QA (Construction) Turnover Reviews, Attachment A-3

The NRC inspection addressees the comments and responses of the ten (10) packages for systems rejected by LP&L QA Turnover Reviews that are listed in Attachment A-3 of the LP&L February 20, 1984, reply. Inspection preparation included a review of LP&L QA Turnover procedures, LP&L procedures for reporting under 10 CFR 50.55(e), other documents noted below, and a review of the comments and responses listed in Attachment A-3, for purposes of selecting a representative sample for inspection.

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
L. L. Bass	Nuclear Construction QA Manager	LP&L
B. M. Toups	QA Engineering Technician	LP&L
R. S. Sandrige	QA Engineering Technician	LP&L
R. G. Pittman	QA Engineer	LP&L
R. G. Bennett	QA Engineer	LP&L
L. A. Stinson	Regional QA Manager	Ebasco
R. Chinnici	QA Engineer	Ebasco
L. Richardson	Assistant QA Manager	T-B

2) Documents Examined

(a) ASP-IV-50, "Release and Turnover from Construction to Waterford Start-up"

(b) ASP-IV-75, "Records and Documentation Turnover to LP&L from Ebasco"

(c) SAP-06, "Release and Turnover, from Construction to the Start-up Group"

(d) SAP-08, "Condition Identification and Corrective Action"

(e) QASP-15.3, "Evaluation and Reporting of 10 CFR 50.55(e) Deficiencies and Possible 10 CFR 21 Defects"

(f) Construction record packages for piping isometric: drawings CC-1C-746, CC-1C-792, CC-1C-747, CC-1C-727, CC-1C-793, CC-1C-725

3) Observations

a) The NRC inspector reviewed the audit comments and responses for nine of the specific items noted in Attachment A-3 of the licensee's reply. Each of these

was reviewed for the accuracy of the finding, accuracy and adequacy of the response, possible generic implications, and reportability under the provisions of 10 CFR 50.55(e). Each of the specific items selected, the responses to those items, and details of the NRC inspector's review are listed:

(1) Comment: Isometric drawing CC-1C-746 welds SW-3, SW-4, SW-5, and SW-6 records indicated that fitup of the weld joints was performed on October 22, 1982, and final visual inspection was performed on October 21, 1982.

Response: Records were changed to indicate that final visual inspection was performed on October 22, 1982.

Observation: The NRC inspector ascertained that the QC inspector actually performed the final inspections on October 22, 1982. This was accomplished by reviewing a personal daily log maintained by the QC inspector to track the inspections he performed.

(2) Comment: Isometric drawing CC-1C-792 states that piece number 5 is schedule 80 pipe, but the heat number for the installed piece number 5 (JA1252) indicates that it is actually schedule 160 pipe.

Response: The QAIRG re-review now reflects the correct status and has been presented to T-B for their resolution.

Observation: This item was identified and documented on field change request (FCR) MP-341, dated December 28, 1978. This FCR was written because DRAVO fabricated a piping formation containing a 6000# fitting with a boss attached for a temperature detector. The boss was installed 180° out of position and could not be used. A new boss was installed in the correct location and the schedule 160 pipe was welded into the mislocated boss. The dimensions of the hole in the boss necessitated the use of schedule 160 pipe for capping-off rather than the schedule 80 pipe listed on the drawing bill of materials. All documentation for this change was in the record package and the change was "red-lined" onto the "as-built" drawing as required.

(3) Comment: Isometric drawing CC-1C-747, FW-4, needs final penetrant testing (PT) for 16-in. pipe acceptance.

Response: QAIRG rereview reflects correct status, PT has been performed and accepted and awaiting the report from GEO Testing Corporation.

Observation: The NRC inspector reviewed the record package for isometric drawing CC-1C-747 and noted that it contained PT reports for an original, a repair, and a final inspection of this weld. The final acceptance inspection was performed on December 15, 1982, and included the entire weld and adjacent areas. This record package appeared to be complete with the addition of this report.

(4) Comment: Isometric drawing CC-1C-727 record package contained a sheet 21 (weld record), Revision 1, for FW-11 that did not document a repair. Why was this form generated?

Response: FW-1 Sheet 21, Revision 1, was generated to establish a quality control (QC) hold point on step #306 and to reverify steps 20, 29, and 31.

Observation: After reviewing the record package for isometric drawing CC-IC-727, the NRC inspector questioned cognizant LP&L and T-B QA personnel and learned the form was generated to document a reverification of component and weld numbers, welders stamp, isometric number, liquid penetrant inspection, and final visual inspection. Generation of this form is a procedural requirement when reinspection or reverification is performed.

(5) Comment: Isometric drawing CC-IC-793, FW-4, and FW-5-spool number 205B-A1 is added material, and T-B needs a heat number.

Response: QAIRG rereview reflects correct status and has been presented to T-B for resolution.

Observation: The NRC inspector reviewed the record package for isometric drawing CC-IC-793. The heat number for spool 205B-A1 (HT#L43734) was recorded on the bill of materials for this isometric. The heat numbers of installed components are required to be recorded on the bill of materials, but duplicate recording on the isometric drawing or the weld control sheets is not mandatory. This spool piece was added after a damaged area was removed from spool 205B, and the recording of the material heat number was done in accordance with the T-B control procedure.

(6) Comment: Isometric drawing 1C-CC-725, FW-15. On the weld record sheet, item 30b has not been signed by QC.

Response: Hold point 30b is now signed.

Observation: Item 30b on the weld control sheet is a hold point for liquid penetrant inspection. The attached inspection report indicates that a penetrant inspection was performed on August 1, 1981, and that the welded joint exhibited acceptable porosity. Confirmation of the test having been performed was entered on the weld control record, was initialled by "WRS," and was dated December 18, 1982. Through a QC error, the hold point was not signed off even though the inspection report in the record package clearly shows the work was performed.

(7) Comment: Startup system 59 (Mercury Co) item 4. Support 662-22 (type 000-H36N) was fabricated from bulk material OCR 655-73 and OCR 690-14. The 690-14 shows fabrication welding of the 690 flange to the 655 plate by welder M-39. However the 262-1 form for support 622-22 shows fabrication welding also by welder M-72.

Response: The LP&L comment has been documented in a Discrepancy Notice (DN) dated October 15, 1982. A response will be given to LP&L after satisfactory closure of the DN.

Observation: A review of the record package indicates that support 622-22 was fabricated in several steps on several different dates. The component parts were cut from bulk material on February 26, 1980. A partial fabrication of the support was performed by welder M-39 on March 21, 1980, with the final fabrication completed by welder M-72 on April 14, 1980. A review of the certifications for both welders indicates that both were qualified to perform this welding on the dates recorded. It is common practice for one qualified welder to tack an assembly together and another qualified welder to perform the final welding on the same assembly.

(8) Comment: OCR-532, item 3 records include a 262-1 and 277-A form for support 270-7. This support is not on isometric drawing 163-T-012A, Revision 5.

Response: Forms 262-1 and 277A for support 270-7 have been removed from system 59 and OCR-532. Support has now been included with system 60B.

Observation: A review of the record packages indicates that support 270-7 was removed from system 59 and was transferred to system 60B. The support, which was shown on isometric drawing 163-T-012A, Revision 5, has been removed and is now shown on isometric drawing 167-T-037A, Revision 5. The attendant forms 262-1 and 277A for support 270-7 have also been transferred to the proper record package. This appears to be merely a failure to move the forms from one package to another after the change was made.

(9) Comment: Generic, finding 8. Mercury red-lined isometric drawings in 60B package are not stamped "as-built," signed, and dated by Mercury QC person who verified installation conformity to the red-lined isometric. Violation of Mercury Procedure SP-77, "Control of As-built Information."

Response: This item is still open and Mercury has issued NCR-703, dated August 20, 1982.

Observation: The NRC inspector reviewed all of the isometric drawings for startup system 60B and found that they have been properly marked "as-built." Each of the isometrics now has a control number, a signoff by Mercury document control, and Ebasco document control. Each isometric is signed and dated by Mercury QC. The NRC inspector reviewed Mercury NCR 703 and found that Mercury performed a full review of all isometric drawings and updated them to "as-built" status as a result of the NCR. The NCR was "rolled-over" as Ebasco NCR W3-4383 and verification of the corrective actions taken was performed by Ebasco. Revision 5 of Mercury Procedure SP-667, dated September 30, 1982, changed paragraph 6.1.6 and no longer requires the Mercury QC inspector to sign the drawings as being true "as-built" isometrics.

4) NRC Findings

The NRC inspector considers the sample selected for inspection to be representative of all the LP&L Attachment A-3 findings, responses, and corrective actions taken. It was noted that findings having possible generic implications were thoroughly investigated, and the actions taken reflected the present condition of the related hardware and records inspected. All actions taken were considered to be adequate.

Therefore, based on the depth of the above NRC inspections and reviews performed of a representative sample of the LP&L QA Turnover Review audit findings in Attachment A-3 regarding disposition, corrective actions taken, and consideration given to the potential generic aspects of each, the NRC inspection of the Attachment A-3 findings is considered to be closed, except as otherwise related to NRC findings noted under 5.c.4) below.

e. Inspection - Part A.3.c, LP&L Operations QA Transfer Reviews, Attachment A-5, System 2A, System 8A, and System 69/Findings

This inspection was conducted to assess the findings of the LP&L Operation QA transfer reviews associated with three of the seven systems transferred to operations and corrective actions for the disposition of the LP&L findings. Inspection preparation included a review of LP&L transfer procedures, 10 CFR 50.55(e) regulations for reporting of a deficiency, and a review of all inspection findings listed in Attachment A-5 of LP&L's February 20, 1984, reply for the three systems. Considering the operational status of systems 2A, 8A and 69, a 100% sample was selected for inspection. Each finding was reviewed for accuracy, adequacy of the response, possible generic implications, and reportability under 10 CFR 50.55(e). The results of the inspection of each of the findings for the three systems inspected and related audit disposition comment is documented below.

1) System 2A, Findings 1-7

a) Finding 1

The finding stated that the System In-Service Form was not completed for System 2A (DC System) as required by LP&L Procedure SAP-40, Section 4.1.1. This form documents the testing status, lists the associated operating procedures and provides for the required signatures when a system is transferred from Startup to Plant Staff.

Disposition: The response to this audit finding stated that the System In-Service Form was needed only if the system was transferred as "in service." According to Startup, System 2A was actually transferred as "complete and operable with acceptable deficiencies," which did not require the System In-Service Form to be completed. Systems are now transferred per revised Form SAP-40.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-82-05(2A), dated January 3, 1983

(b) LP&L Startup Administration Procedure SAP-40, "System Transfer from Startup Group to Operating Staff," Revision 0, dated February 4, 1982

(c) LP&L Startup Administration Procedure SAP-40, "System Transfer from Startup to Plant Staff," Revision 1, dated November 16, 1982

(3) Observations

The NRC inspector discussed this finding with the LP&L QA group that performed the subject audit. It was stated that the finding was the result of a misunderstanding of the terminology used in the transfer procedure. The auditor agreed with LP&L Startup that the system was not in the "in service" status as had originally been believed. Subsequently, Procedure SAP-40 was revised to alleviate any further confusion on terminology.

(4) NRC Findings

The NRC inspector is satisfied that a procedural violation did not occur and that the integrity of this safety-related system was not compromised. The revision of Procedure SAP-40 appears to be an adequate resolution to the confusion that created the audit finding. The NRC inspection of this finding is considered closed.

b) Finding 2

The finding stated that LP&L Administrative Procedure UNT-1-008, Section 5.3.6, required that every department head review and add the initials of their department to the "responsibility" column of the Master Tracking System (MTS). Contrary to the above, the audit found that the responsible department's initials were being omitted.

Disposition: The LP&L Plant Staff's corrective action response to the audit was to add the responsible department's initials to the MTS. Also, training was given to personnel responsible for inputing data into the MTS. In addition, it was stated that the original intent of Section 5.3.6 of Procedure UNT-1-008 was to have department heads review the MTS and agree with the responsibility and due dates; not add the department's initials. This procedure was superseded by Procedure UNT-TEM-003 to reflect the original intent.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-82-05(2A), dated January 3, 1983

(b) LP&L Administrative Procedure UNT-TEM-003, "Review and Approval of System Transfer," Revision 2, dated December 5, 1983

(c) Ebasco "HP Master Tracking User Guide," Revision 8, dated January 1984

(d) Ebasco Master Tracking System computer printout as of February 16, 1984

(3) Observations

The MTS is a data file that tracks open items from initiation to closure.

An examination by the NRC inspector of the February 16, 1984, MTS computer printout showed no instances in which the initials of the responsible departments were not listed. A review of department heads responsibilities in Procedure UNT-TEM-003 revealed that the previous misleading requirement was removed. In addition, the department head's duties appear clear and concise in this procedure.

(4) NRC Findings

It appears that the training given to personnel for inputing data into the MTS was successful as indicated by no missing department codes in the sampled MTS computer printout. Also, the procedure revision appears to be the correct solution to reduce further confusion in actual intended requirements. The NRC inspection of this finding is considered closed.

c) Finding 3

The findings stated that it is not possible to determine with any degree of confidence which bolts, nuts, and washers were used in some battery post lugs.

Disposition: A summary of the stated disposition follows. The LP&L review of the documents associated with the Safety Battery 3 AB-S temporary bolt replacement concluded that the proper bolts are installed and that no corrective action is required to preclude repetition.

(1) Persons Contacted

Name	Title	Organization
R. G. Bennett	QA Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L
B. Wier	Test Dir. (SU)	LP&L
M. Walsh	Resident Electrical Engineer	Ebasco

(2) Documents Examined

(a) Audit SA-W3-QA-82-05 (2A) Report Sheet 6, and Finding #3 of Attachment A-5 of LP&L, February 20, 1984, LP&L response letter.

(b) CIWAs - 811253 (5/3/81), 812904 (8/27/81), 813518 (9/30/81), 825550 (5/17/82), and 826999 (6/18/82).

(c) Purchase Request - 51125

(d) Request on Stores - 10758 (e) NCR-E172-81 (3/6/81)

(f) Purchase Order L09650-H, L15247-B

(g) Material returned to stores 11007

(h) Gould drawing 060617D - LP&L #1654-1048 RO (4/15/74)

(i) Gould Battery, Instruction Manual LP&L #5817-889 RO (5/18/78)

(3) Observations

The examination of the documents and discussions with personnel associated with this finding and visual inspection of the hardware resulted in the following observations:

(a) The permanent battery post lug bolts for Safety Battery 3 AB-S cell #34 were misplaced during cell replacement and had to be replaced by substitute bolts (CIWAs 812904 and 813518).

(b) The temporary bolts were replaced with permanent bolts during CIWA 825550 per CIWA 826999.

(c) The engineering evaluation conducted by CIWA 826999 states that the 316 stainless steel (SS) bolts, on purchase requisition 51125, were acceptable for use in the battery cells. Purchase requisition 51125 ordered 316 SS 3¼-in. bolts.

(d) The corrective action statement in document 2.a above, states that 3½-in. bolts were too long and that 2 3/4-in. bolts were installed on safety battery 3AB-S.

NOTE: The startup engineer assigned to this matter, stated that the threaded shoulder on the 3¼-in. bolt was not long enough to obtain the contact pressure necessary for the required electrical connection when the nut was tightened to the required torque.

(e) CIWA 825550 indicates that 2 3/4-in. 316 SS hex head bolts, which were obtained under ROS #10758, were installed and the

connection received a satisfactory intercell resistance check.

(f) Gould Drawing 060617D LP&L #1564 - 1048 RO requires a 5/16 to 3-in. machine screw and 5/16 SS nut and washers.

(g) Gould Battery Instruction Manual LP&L #5817-889 RO, bill of material, calls for 5/16 in. - 18 hex bolt 3¼-in. long SS with SS nuts and washers. Gould drawing 060617D, which is part of this instruction manual, lists a 5/16 3¼-in. SS machine screw and 5/16 SS nut washers.

(h) The audit finding in document 2.a above characterized the documentation related to this matter to be too confusing to arrive at a conclusion on acceptability of the as-built condition.

(i) The NRC inspectors' visual observation of the installed bolts noted the following:

(1) The thickness of the battery post with two bars attached is such that it is doubtful that a 2 3/4-in. bolt with washers would be long enough to attach a nut.

(2) The actual bolts installed are 316 SS 3¼-in. hex head with nuts and washers.

(4) NRC Findings

(a) The NRC inspector is satisfied that the bolts installed on the 3AB battery cell #34 are 316 SS 3¼-in. hex head, which is the proper configuration in accordance with the bill of materials listed in the Gould Instruction Manual for the NCX-2400 battery cells. Further, the adequacy of the installation is verified by the required intercell resistance measurements which would preclude having a bad electrical connection. However, corrective action is required to resolve the following comments.

(1) Since the as-built condition is different from the 316 SS 2 3/4-in. bolts as stated in observation 3(d) and (e). above, those records should be ammended to reflect the installed condition.

(2) Gould drawing 060617D needs to be changed to reflect the proper bolt configuration and provide a reference back to the bill of material listed in the Instruction Manual in order to prevent future errors. This is considered unresolved.

(3) The licensee should assure that the generic aspects of this audit finding 3 for other CIWAs is adequately resolved.

d) Finding 4

The finding stated that according to 10 CFR 50, Appendix B, Criterion X, ". . . A program for inspection of activities affecting quality shall be established . . . Mandatory inspection hold points, which require witnessing or inspection . . . and beyond which work shall not proceed without the consent of its designated representative are required." Contrary to this criterion, the audit discovered that Ebasco QC Request for Conditional Release No. 81-116R1 released battery disconnect switch cabinets 3A, 3B, and 3AB for installation and use up to, but not including, cold hydro. However, work had proceeded beyond cold hydro at the time of the audit.

Disposition: The response to the audit was to revise the conditional release to include hot functional testing and energizing.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-82-05(2A), dated January 3, 1983

(b) Ebasco QC Request for Conditional Release No. 81-116R1, dated January 14, 1982

(c) Ebasco QC Request for Conditional Release No. 81-116R2, dated December 2, 1982

(d) Ebasco QC Request for Conditional Release No. 81-116R3, dated January 25, 1983

(e) Ebasco QA Deficiency Report No. DEF 81-9-37, dated September 24, 1981

(f) Ebasco QA Material Receiving Inspection Report No. MRR-81-02931, dated September 28, 1981

(g) Ebasco letters to Systems Control, Inc., dated January 5, November 15, and December 16, 1982

(h) Ebasco letter to General Atomic Technologies, dated March 1, 1983

(3) Observations

A review of the documents revealed that the conditional release for the battery disconnect switch cabinets resulted from the fact that the required documentation was not received with the equipment at the time of receipt inspection. The missing documents were (1) insulation resistance tests, (2) IEEE 323 environmental qualification tests, (3) IEEE seismic qualification tests, and (4) IEEE cable qualification tests. The four items above were identified on Ebasco Deficiency Report DEF 81-9-37.

Subsequently, per the LP&L audit finding, Revision 2 was made to the Request for Conditional Release on December 2, 1982, to release the cabinets up to and including hot functional testing. The conditional release was again revised (Revision 3) on January 25, 1983, to release the cabinets up to fuel load. DEF 81-9-37 was closed on March 4, 1983, after Ebasco received and accepted all missing documentation.

An interview with LP&L Operations QA revealed that the violated condition of Revision 1 of "Request for Conditional Release 81-116" was that cold hydro was performed without the necessary documentation being received and approved. However, LP&L stated that the cold hydro was only a milestone and that the equipment was not used during cold hydro. Thus, by revising the conditional release, LP&L closed the audit finding.

(4) NRC Findings

The NRC inspector concludes that the condition limit of the conditional release was indeed violated. However, this deviation had no safety-related impact on the transferred system. Personnel making the Request for Conditional Release should have used a realistic hold point date and not some arbitrary milestone as was done in this case. The NRC inspection of this finding is considered closed.

e) Finding 5

The finding stated that three preoperational tests associated with the 125 V DC system were reviewed and that some data sheets were missing. LP&L Preoperational Test Procedure SPO-02-002 required various measurements (specific gravity, voltage, temperature) to be recorded on Attachment 8.2.3.1. The data from this attachment was then used to record parameters for numerous steps in the procedure. This attachment could not be located at the time of the audit. Test Procedure SPO-02-001 required a copy of the equalization charge data sheet to be attached. It also could not be found.

Disposition: The response to the finding was that the missing data sheets were found in the maintenance record files and, subsequently, were included with the official test procedures. LP&L Startup initiated a program to review all test procedures to assure that all required data sheets were included in the test packages. Startup also stated that the tests were not adversely affected by the missing data sheets.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-82-05(2A), dated January 3, 1983

(b) LP&L Startup Preoperational Test SPO-02-001, Revision 1, dated June 1, 1981

(c) LP&L Startup Preoperational Test SPO-02-002, Revision 0, dated October 13, 1980

(3) Observations

A review by the NRC inspector of both preoperational test procedures revealed that the missing data sheets were correctly filed with the procedures. Even though the data sheets were not filed with the test procedures at the time of the audit, the procedure steps corresponding to the data sheets were signed and dated indicating that the data sheets were filled out.

(4) NRC Findings

It appears that a procedural violation did occur. However, the required data sheets were completed and the overall tests were not affected by the data sheets being filed in the wrong place. This finding appears to have no safety significance. The NRC inspection of this finding is considered closed.

f) Finding 6

The finding stated that the acceptance criteria for three preoperational tests specified the time required for the battery charger (11 to 17 hours) to restore the respective battery banks to full charge while also supplying an additional load (26 to 45 amps). Battery Charger Specification LOU-1564.280B stated that "Each battery charger shall be able to restore the battery to full charge in 12 hours after an emergency discharge while supplying an auxiliary load of 7 amps." The audit stated that the source of the acceptance criteria used in the preoperational tests was LP&L's response to NRC Question 040.79. The audit also found that the FSAR Chapter 8 did not have these requirements incorporated. In addition, there was no evidence to indicate that Battery Charger Specification LOU-1564.280B was to be revised to indicate this acceptance criteria or to reference LP&L's response to NRC Question 040.79. Changing the design input of the operational requirements without documenting the source of the change and identifying the change in appropriate documents is contrary to the requirements of ANSI N45.2.11.

Disposition: LP&L Startup responded to the audit finding by stating that the data included in the

specification was provided to the vendor to assure proper battery charger sizing. The tests were conducted to assure the equipment performed as required by plant procedure/technical specifications. Using the data of the specification for the charger, the vendor furnished a 150 amp charger for the NCX 1200 batteries and a 200 amp charger for the NCX 2400 batteries. Using the vendor's linear equations for battery charger sizing, the requirements for a 150 amp charger for the NCX 1200 batteries and a 200 amp charger for the NCX 2400 batteries was not changed by the response to NRC Question 040.79. The audit finding was left open pending inclusion of the NRC Question into the FSAR.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L
R. Savoie	Licensing Coordinator	LP&L
R. Foley	Licensing Coordinator	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-82-05(2A), dated January 3, 1983

(b) Waterford 3 FSAR

(c) LP&L Startup Preoperational Test SPO-02-001, Revision 1, dated June 1, 1981

(d) LP&L Startup Preoperational Test SPO-02-002, Revision 0, dated October 13, 1980

(e) LP&L Interoffice Correspondence (W3K83-2007, Q-3-A35.02.29), dated December 19, 1983

(f) LP&L Battery Charger Specification LOU-1564.280B, Revision 5, dated November 4, 1983

(3) Observations

After interviews with LP&L QA Operations and Licensing, the NRC inspector found that, even though the specification cited by the response to NRC Question 040.79 was not incorporated into the FSAR or Battery Charger Specification LOU-1564.280B, the tests were performed to this specification. LP&L considered the response to the NRC Question to be valid and usable. They stated that all responses to NRC Questions would be incorporated into the FSAR at a later date. This specification will become part of the FSAR as required by 10 CFR 50.71.

(4) NRC Findings

The NRC inspector concludes that since the battery charger specifications used during the preoperational tests were more conservative than the approved specifications, the integrity of this system was not compromised in any way. The response to NRC Question 040.79 will be incorporated into the FSAR at a later date and, thus, the NRC inspection of this finding is considered closed.

g) Finding 7

The finding stated that during the review of a number of CIWAs directly associated with System 2A it was noted that many required the generation of nonconformance reports (NCRs), but none were apparent. Three procedures (UNT-AP-015, QR-15, and UNT-1-007) provided direction to the Quality Control Department for the generation and processing of NCRs. These procedures were apparently not followed. Some examples listed were CIWAs 826999, 800017, 811237, 811492, and 822237. These CIWAs were dispositioned "Use-As-Is."

Disposition: LP&L Startup supported the non-issuance of NCRs by stating that the definition of "Use-As-Is" did not warrant an NCR.

(1) Persons Contacted

Name	Title	Organization
G. Barnard	Unit Coordinator Startup Maintenance	LP&L
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L

Name	Title	Organization
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-82-05(2A), dated January 3, 1983

(b) LP&L Administrative Procedure UNT-1-007, "Nonconformances and Corrective Actions," Revision 4, dated June 10, 1983

(c) LP&L Administrative Procedure UNT-5-002, "Condition Identification and Work Authorization," Revision 2, dated January 30, 1984

(d) LP&L Startup Administration Procedure SAP-08, "Condition Identification and Corrective Action," Revision 10, dated September 21, 1983

(e) LP&L Audit No. SA-W3-QA-83-17, dated October 28, 1983

(f) LP&L checklist for Audit No. SA-W3-QA-84-15

(3) Observations

It was stated in an interview with LP&L QA Operations that the CIWA is in itself a nonconformance report. At one time Ebasco would review the CIWAs and initiate an Ebasco NCR if the condition warranted it. However, this caused some confusion and is no longer done. Thus, the main concern is whether or not the CIWA satisfies the requirements of nonconformance control.

A discussion of the different types of nonconformance reporting is important. Ebasco initiates NCRs during construction. After the system is "turned over" to LP&L, the Startup Group writes CIWAs for nonconforming conditions (hardware). The LP&L Plant Staff initiates LCIWAs for nonconformances after the system is transferred from Startup.

LP&L QA Audit No. SA-W3-QA-83-17 performed from June 6, 1983, through July 20, 1983, reviewed the LCIWA program. The LCIWA was compared against

the ANSI N18.7 requirements for nonconformance control. In addition, scheduled Audit No. SA-W3-QA-84-15 will look at the LCIWA program. However, there is no evidence to show that an audit has been performed on the Startup CIWA program.

(4) NRC Findings

The NRC inspector concludes that no matter what a report is called (NCR, CIWA, LCIWA), if the conditions of 10 CFR 50, Appendix B, and ANSI N18.7 are satisfied then each is adequate. The audits performed show that a concerted effort has been made to assure that the LCIWA program is meeting these requirements.

However, the NRC inspection of this finding is being left unresolved pending an audit of the CIWA program. Of particular concern is that there exists no apparent procedure to trend for recurring nonconforming conditions in the CIWA program.

2) System 8A/Findings 1 & 2

a) Finding 1

The finding stated that the System In-Service form was not completed for System 8A (208/120 VAC) as required by LP&L Startup Administrative Procedure SAP-40, Section 4.1.1. This form documents the testing status, lists the associated operating procedures, and provides for the required signatures when a system is transferred from Startup to Plant Staff.

Disposition: The response to this audit finding stated that the System In-Service Form was needed only if the system was transferred as "in service." According to Startup, System 8A was actually transferred as "complete and operable with acceptable deficiencies," which did not require the System In-Service Form to be completed. Systems are now transferred per revised SAP-40.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L

Name	Title	Organization
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L
J. B. Perez	QA Engineer & Auditor	LP&L
D. W. Delk	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-8A, dated January 18, 1983

(b) LP&L Startup Administration Procedure SAP-40, "System Transfer from Startup Group to Operating Staff," Revision 0, dated February 4, 1982

(c) LP&L Startup Administration Procedure SAP-40, "System Transfer from Startup to Plant Staff," Revision 1, dated November 16, 1982

(3) Observations

The NRC inspectors discussed this finding with the LP&L QA group that performed the subject audit. It was stated that the finding was the result of a misunderstanding of the terminology used in the transfer procedure. The auditor agreed with LP&L Startup that the system was not in the "in service" status as had originally been believed. Subsequently, Procedure SAP-40 was revised to alleviate any further confusion on terminology.

(4) NRC Findings

The NRC inspectors are satisfied that a procedural violation did not occur and that the integrity of this safety-related system was not compromised. The revision of Procedure SAP-40 appears to be an adequate resolution to the confusion that created the audit finding. The NRC inspection of this finding is considered closed.

b) Finding 2

The finding stated that the auditors discovered a failed aluminum lug that had landed on a copper bus in distribution panel PDP 388A. A CIWA was generated from this discovery, but an NCR was not generated as the auditors thought should have been done.

Disposition: The response to the audit was that procedural requirements for CIWAs state that the nonconforming item need only be identified and clearly described. Thus, the nonconforming item did not need an NCR.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L
J. B. Perez	QA Engineer & Auditor	LP&L
D. W. Delk	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-8A, dated January 18, 1983

(b) LP&L Administrative Procedure UNT-1-007, "Nonconformances and Corrective Actions," Revision 4, dated June 10, 1983

(c) LP&L Administrative Procedure UNT-5-002, "Condition Identification and Work Authorization," Revision 2, dated January 30, 1984

(d) LP&L Startup Administration Procedure SAP-08, "Condition Identification and Corrective Action," Revision 10, dated September 21, 1983

(e) LP&L Audit No. SA-W3-QA-83-17, dated October 28, 1983

(f) LP&L checklist for Audit No. SA-W3-QA-84-15

(3) Observations

It was stated in an interview with LP&L QA Operations that the CIWA is in itself a nonconformance report. At one time Ebasco would review the CIWAs and initiate an Ebasco NCR if the condition warranted it. However, this caused some confusion and is no longer done. Thus, the main concern is whether or not the CIWA satisfies the requirements of nonconformance control.

A discussion of the different types of nonconformance reporting is important. Ebasco initiates NCRs during construction. After the system is "turned over" to LP&L, the Startup Group writes CIWAs for nonconforming conditions (hardware). The LP&L Plant Staff initiates LCIWAs for nonconformances after the system is transferred from Startup.

LP&L QA Audit No. SA-W3-QA-83-17 performed from June 6, 1983, through July 20, 1983, reviewed the LCIWA program. The LCIWA was compared with the ANSI N18.7 requirements for nonconformance control. In addition, scheduled Audit No. SA-W3-QA-84-15 will look at the LCIWA program. However, there is no evidence to show that an audit has been performed on the Startup CIWA program.

(4) NRC Findings

The NRC inspector concludes that no matter what a report is called (NCR, CIWA, LCIWA), if the conditions of 10 CFR 50, Appendix B, and ANSI N18.7 are satisfied, then each is adequate. The audits performed show that a concerted effort has been made to assure that the LCIWA program is meeting these requirements.

However, the NRC inspection of this finding is being left unresolved pending an audit of the CIWA program. Of particular concern is that there exists no apparent procedure to trend for recurring nonconforming conditions in the CIWA program.

3) System 69/Findings 1 and 2

a) Finding 1

The finding for System 69 (Vibration and Loose Parts Monitoring) stated that contrary to LP&L Administrative Procedure UNT-1-008, Revision 1, the duties of the staff engineer were being performed by the system transfer engineer.

Disposition: The response to the finding was that the procedure was deleted and LP&L Administrative Procedure UNT-TEM-003 was issued in its place to reflect the current practice. tice.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Auditor	LP&L
J. B. Perez	QA Engineer & Auditor	LP&L
D. W. Delk	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-69, dated August 4, 1983

(b) LP&L Administrative Procedure UNT-TEM-003, "Review and Approval of System Transfer," Revision 2, dated December 5, 1983

(3) Observations

The NRC inspector reviewed the current procedure and verified that the changes stated by LP&L were made and are still in effect.

(4) NRC Findings

The NRC inspector concludes that the resolution to the finding was adequate. A procedural

violation did occur. It appears that the procedure was incorrect, but the intended requirements were being followed. The NRC inspection of this finding is considered closed.

b) Finding 2

The finding stated that contrary to LP&L Administrative Procedure UNT-TEM-003, Revision 0, the Nuclear Project Support Group was not updating drawings for transferred or non-tranferred systems. This function was being performed by the Startup Engineer and the Plant Staff Engineer during walkdown and by the Ebasco Engineer upon request.

Disposition: The response to the finding was to revise LP&L Administrative Procedure UNT-TEM-003 to reflect current practice.

(1) Persons Contacted

Name	Title	Organization
W. M. Morgan	QA Operations Manager & Lead Auditor	LP&L
K. L. Berrett	QA Consultant	LP&L
B. W. Smith	QA Consultant	LP&L
W. J. Baldwin	QA Engineer & Auditor	LP&L
J. B. Perez	QA Engineer & Auditor	LP&L
D. W. Delk	QA Engineer & Auditor	LP&L

(2) Documents Examined

(a) LP&L Audit No. SA-W3-QA-69, dated August 4, 1983

(b) LP&L Administrative Procedure UNT-TEM-003, "Review and Approval of System Transfer," Revision 2, dated December 5, 1983

(3) Observations

The NRC inspector reviewed the current procedure and verified that the changes stated by LP&L were made and are still in effect.

(4) NRC Findings

The NRC inspector concludes that the resolution to the finding was adequate. A procedural violation did occur. It appears that the procedure was incorrect, but the intended requirements were being followed. The NRC inspection of this finding is considered closed.

4) Summary of NRC Findings, for Operations QA Transfer Reviews, Attachment A-5, Systems 2A, 8A, and 69

a) Generic Implications

The NRC review of LP&L's findings for Startup Systems 2A, 8A, and 69 resulted in no items having generic implications with the possible exception of System 2A, Finding 3.

b) Safety Significance

The findings appear to have no safety significance.

c) Other

One item that showed up in the body of all three audit reports, but was not made a finding, was that there was no program for controlling specifications and drawings after system transfer. The new procedure which included these requirements is LP&L Project Management Procedure PMP-002, "Document Control," Revision 0, dated March 19, 1984. This procedure appears to resolve the LP&L concern.

d) Open Items

The NRC inspection of LP&L's findings is closed with the following exceptions, which require LP&L to perform additional work:

(1) CIWAs 826999 and 825550 should be amended to reflect the installed condition (System 2A, Finding 3).

(2) Gould drawing 060617D needs to be changed to reflect the installed condition (System 2A, Finding 3).

(3) The generic aspects of System 2A, Finding 3, for other CIWAs needs to be investigated.

(4) The Startup CIWA program needs to be audited to determine if it satisfies the requirements of a nonconformance system.

e) Item d) above remains unresolved (382/84-34-05).

5. Inspection - Part A.5

a. Background

The licensee responded to the QA concerns in the Inquiry Team Report of September 29, 1983. Following the staff review of certain information on page I-5 of that response, the Director, IE, by letter of January 16, 1984, requested the licensee to furnish the following information:

(A.5)"In regard to certain points related to the discussed physical reviews on page I-5, provide a listing identifying the hardware (system/component) selected for physical verification and any identified deficiencies for:

(a) Five of the 67 safety-related systems reviewed by LP&L construction QA.

(b) All portions of the four randomly selected safety-related systems walked down by ISEG."

The licensee responded on February 20, 1984, as follows:

(A.5)"It should be noted that physical verification walkdowns were not made on all QA status review packages (safety-related systems). Physical verifications were done primarily on small bore piping, the majority of which was installed by Mercury and Tompkins-Beckwith. The small bore piping portions of the status review packages were selected for walkdown because of generic implications drawn from the first four QA status review packages that had been rejected."

(a) Pages 6-10 of the licensee's response identified the requested 5 of the 67 systems, with deficiencies noted. The systems included Component Cooling Water-36-1, RAB Chilled Water-46E, Containment Vessel 48, Primary Sampling-54-9, and Boron Management-56A.

(b) Pages 10 and 11 of the licensee's response also identified all portions of the four randomly selected safety-related systems, as requested. The systems included emergency feedwater, steam supply to emergency feedwater, charging system, and letdown system. No deficiencies were noted by the ISEG physical verification walkdowns.

b. Inspection - Corrective Action, Relative to LP&L and Ebasco QA Programs for Plant System "Status" and "Transfer" Reviews

The NRC Inquiry Team interview with Gambit resulted in a report that identified issues questioning the adequacy of LP&L's QA program during construction. A major issue was the construction transfer of four systems from Ebasco to LP&L with numerous

deficiencies discovered by LP&L QA Construction during their system "status" review and by the NRC during an inspection conducted on May 16 through July 15, 1982. The issue represented a breakdown in LP&L's QA program and resulted in a Notice of Violation and Civil Penalty being issued to LP&L on December 6, 1982.

This NRC inspection consisted of a review of both LP&L's and Ebasco's QA program adequacy before and after the QA breakdown to determine if program improvements were instituted to avoid recurrence and to assess the adequacy of program implementation which is covered elsewhere. The following are the analyses of LP&L's and Ebasco's QA program adequacy.

1) LP&L QA Construction Program Adequacy

a) Persons Contacted

Name	Title	Organization
L. L. Bass	Nuclear Construction QA Manager	LP&L
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
R. G. Bennett	QA Engineer	LP&L
R. G. Pittman	QA Engineer	LP&L
R. S. Sandridge	QA Engineering Technician	LP&L
R. I. James	QA Engineer	LP&L
G. F. Koehler	QA Engineer	LP&L

b) Documents Examined

(1) LP&L QA Procedure QP-17.5, "Quality Records Status Review," Revision 0, dated January 25, 1983.

(2) LP&L QA Procedure QASP-17.5, "Quality Records Review," Revision 1, dated March 22, 1984.

(3) LP&L letter (W3K-84-1148/Q-3-A35.02.33) of May 14, 1984.

(4) LP&L Status Review Packages for Startup Systems (SUS) 39, 46B-9, 60A, 43C, 47, 53A, and 58.

(5) LP&L Transfer Review Packages for Startup Systems (SUS) 43A, 53A, 56B, 52A.

(6) Various LP&L organization charts.

(7) LP&L Safety-Related System Transfer Status, dated May 17, 1984.

c) Observations

The four systems that resulted in the Civil Penalty were rejected by LP&L QA Construction during their "status" review conducted from April to June 1982. "Status" reviews are conducted when systems are turned over from Ebasco to LP&L Startup. LP&L QA Construction conducts "transfer" reviews when systems are transferred to LP&L Operations. LP&L stated that the reason for the QA breakdown was inadequacies at the contractor level and not LP&L's program deficiencies. However, the NRC reviewed the areas of staffing and procedure adequacy to determine whether changes in these programs improved the LP&L review process.

(1) LP&L QA Construction Staffing Adequacy

At the time of the "status" review of the four rejected systems, LP&L QA Construction consisted of six personnel. In July 1982, the QA staff increased to seven LP&L personnel plus three additional contractor/non-LP&L personnel. This personnel level has had only a slight increase (one employee) since 1982.

(2) LP&L QA Procedure Adequacy

The LP&L review that resulted in the rejection of the first four systems with numerous deficiencies and NRC Enforcement Action EA 82-109 was accomplished without an approved records review procedure. LP&L QA Procedure QP-17.5 became effective on January 25, 1983. This procedure provided instructions for conducting a "status" review of quality-related records before the preoperational testing of the startup systems. This procedure was available for all "status " reviews conducted after the first four rejected systems. The "status" reviews are conducted by LP&L QA Construction to provide the startup staff with data on the status of each system to determine the acceptability of the system for preoperational testing.

Procedure QP-17.5 was revised and issued as LP&L QA Procedure QASP 17.5, Rev. 1, dated March 22,

1984. The revision includes instructions for conducting both "status" and "transfer" reviews. A "transfer" review is performed by LP&L QA Construction for acceptance of a system. Accepted systems are transferred by letter to operations staff. The transfer letter is used to identify any open items requiring attention and resolution by operations.

Procedures QP-17.5 and QASP 17.5 require that a minimum ten percent sample of turnover documentation for each system be reviewed. In addition, a random inspection of the physical installation is required to be performed to assure documentation agrees with completed work. The NRC inspectors were informed by LP&L that a minimum 3% percent physical sample is chosen for physical verification.

LP&L was asked that if, when a system is rejected, an additional 10% documentation sample is reviewed to assure that additional deficiencies are not in the remaining documentation. LP&L stated that they do perform an additional 10% review. However, this was not stated in Procedure QP-17.5, and the revision to this procedure (QASP-17.5) only requires an unspecified sample reviewed for T-B pipe supports and hangers. An NRC inspection of LP&L "status" review package for SUS 46B-9 (computer room HVAC) discovered an LP&L rejection of Mercury work. However, the NRC could find no evidence that an additional sample was reviewed. An LP&L QA Engineer stated that an additional sample was taken, but was not documented.

There is no procedure or program to require an evaluation of LP&L QA Construction review findings for generic implications. Thus, the NRC staff requested that LP&L perform a generic review of findings discovered during their "status" and "transfer" reviews. The LP&L letter of May 14, 1984, stated that no generic problems were found. The NRC made a cursory review of LP&L findings and could find no evidence of generic problems.

d) NRC Findings

The NRC inspector observed that the LP&L QA Construction staff increased very little since issuance of the Civil Penalty. Based on the results of NRC inspection of LP&L and Ebasco QA Program implementation, a larger staff would have increased the efficiency of the

"status" and "transfer" reviews and allowed for additional surveillances to assess the adequacy of documentation and hardware, and disposition of Ebasco and LP&L findings for the systems being transferred by Ebasco to LP&L. The inspection in this area is closed.

Also, procedures and documentation of LP&L QA Construction reviews do not reflect all of the items stated to be examined during the review process. There is little evidence to support verbal statements made by LP&L that undocumented review procedures were performed. Therefore, LP&L needs to incorporate into approved procedures the steps verbally stated as made during their "status" and "transfer" reviews, such as conducting an additional 10% sample of rejected systems and the review of QA inspection findings for generic implications. In addition, a review is needed of those systems rejected to determine if an additional sample was taken. If so, then documentation should be included in the review folder; if not then an additional sample should be taken. This item remains unresolved (382/84-34-06).

2) Ebasco QA Construction Program Adequacy

a) Persons Contacted

Name	Title	Organization
A. M. Cutrona	Quality Site Manager	Ebasco
L. A. Stinson	Regional QA Manager	Ebasco
P. Pittman	QA Coordinator	Ebasco

b) Documents Examined

(1) Ebasco Procedure ASP-IV-50, "Release and Turnover from Construction to Waterford Start-Up," "G" Draft, dated February 25, 1982.

(2) Ebasco Procedure ASP-IV-50, "Release and Turnover from Construction to Waterford Start-Up and Area Transfer to Waterford Plant Staff," "0" Issue, dated July 11, 1984.

(3) Ebasco Procedure QAI-9, "Review and Handling of Construction Installation Records," Revision 1, dated October 6, 1981.

(4) Ebasco Procedure QAI-9, "Review and Handling of Construction Installation Records," Revision 2, dated April 19, 1983.

(5) Ebasco Procedure QAI-15, "Quality Surveillance of Site Contractors," Revision 0, dated July 16, 1982.

(6) Ebasco Procedure QAI-15, "Quality Surveillance of Site Contractors," Revision 4, dated September 24, 1982.

(7) Ebasco Procedure QAI-29, "Review and Recurrence Control of Adverse Trends Reported by the Ebasco Trend Analysis," Revision 0, dated January 17, 1984.

(8) Various Ebasco QA organization charts.

c) Observations

LP&L, in their letter of January 4, 1983, acknowledged a partial QA breakdown that resulted in the imposition of a Civil Penalty. They stated that the breakdown was at the sub-tier levels and involved contractor/subcontractor organizations. The breakdown was attributed to inadequate walkdowns of completed systems as a result of deficiencies in training and staffing.

The QA changes implemented after the Civil Penalty resulted in numerous program changes. The NRC staff review of Ebasco's QA program adequacy is divided into the areas of staffing and procedural requirements.

(1) Ebasco QA Staffing Adequacy

The LP&L January 4, 1983, letter stated that a corrective step taken by Ebasco to avoid further violations was to form a QA Surveillance Group to increase QA involvement in in-process construction activities including hardware installation, walkdown inspection/system testing, and system turnover. A major objective of this group is to perform random physical inspections to assure contractor compliance to established requirements. Ebasco, according to this letter, increased its documentation review, quality control and supervisory staffs, and retrained the personnel involved in the review of documentation.

The formation of the Ebasco QA Surveillance Group began the week of July 12-16, 1982. Onsite personnel were obtained for this Group and the recruiting of offsite personnel began during this week. Training and certifying of onsite surveillance personnel also began that week, and

new personnel were trained and certified during the week of August 23-27, 1982.

Also, Ebasco found that their QA reviewers performed work for various contractors. They felt that this was not effective because reviewers were constantly dealing with different types of hardware. Ebasco initiated a program to assign personnel to review records from the same contractor. This reorganization shows up in the Ebasco organization chart of May 1, 1983.

As of May 1, 1983, Ebasco had 273 QA personnel. This was an 80% increase over the 152 QA personnel on-board as of October 1, 1982, and a 327% increase over the 64 QA personnel on-board as of February 1, 1982.

The Ebasco Surveillance Group significantly increased the number of surveillances made of contractor work. Ebasco performed 232 surveillances in 1982, which is more than double those of any preceding year.

(2) Ebasco QA Procedure Adequacy

The formation of the Ebasco QA Surveillance Group resulted in the creation of Procedure QAI-15 which gave instructions for the Group. The procedure adequately handles the resolution of deficiencies discovered by processing through the Ebasco nonconformance control system. However, deficiencies are not analyzed for generic implications through this procedure. See Construction Appraisal Team (CAT) Report No. 50-382/84-07, for an evaluation of the corrective action program at Waterford 3.

Ebasco Procedure QAI-9 gives guidelines to Ebasco personnel for the collection, handling, and review of construction/installation QA records and their transmittal to the Ebasco QA Records Supervisor for handling and maintenance. This procedure also describes the status review of records required to support the startup testing program. Contractor exceptions are resolved through the existing corrective action program (NCR, DN, etc., generated). Deficiencies that are unable to be resolved prior to submittal for turnover to LP&L are documented and transmitted to LP&L with the entire package. This lets LP&L know all open items outstanding on that system. In addition, comments made by LP&L QA Construction during their "status" or "transfer" reviews

are handled and resolved under Procedure QAI-9. Although the procedure is not totally clear on this matter, the NRC inspectors were informed by Ebasco that they interpreted it to mean that. Revision 2 of Procedure QAI-9 (April 19, 1983) requires deficiencies to be resolved through the corrective action program; Revision 1 (October 6, 1981) did not.

Procedure ASP-IV-50 provides for controling and documenting the status of the actual physical release and turnover of equipment, systems, subsystems, and areas from Construction through Construction Management to the LP&L Waterford Startup Group.

On January 17, 1984 Ebasco issued Quality Assurance Instruction QAI-29. This procedure provides instruction for the review and the required action that is to be taken when adverse trends are reported by Ebasco. The review is made of the Ebasco Trend Analysis. The Trend Analysis is a computerized tabulation of nonconformances broken down by contractor and specific nonconforming condition. However, only deficiencies that become a nonconformance report (NCR) are included in the analysis. When adverse trends are noticed by the Ebasco Quality Assurance Engineer, the appropriate discipline department head is required to be notified requesting action be taken to provide recurrence control. The NRC inspector was informed by Ebasco that action has been taken from results of the Trend Analysis and has resulted in a smaller number of NCRs. However, Ebasco could show no documentation stating that corrective action was taken as a result of the Trend Analysis.

d) NRC Findings

It appears that the substantial organization changes made after the Civil Penalty were, on a programmatic basis, an adequate resolution to the problems that resulted in the QA breakdown. Also, based on selective reviews performed, Ebasco procedures appear adequate to implement a QA program for review, turnover, and transfer of safety systems. The inspection of this programatic area is closed.

c. Inspection - Part A.5.a, Deficiencies Noted For 5 of 67 Systems

LP&L construction QA system status review of 67 of 85 systems, which LP&L indicated included at least 10% of documents for each contractor and a random sample walkdown of each system, was

inspected by the NRC inspector for basis of sample, findings, corrective action, and generic applications.

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
R. S. Leddick	Sr. Vice President Nuclear Operations	LP&L
M. W. Alsworth	Utility Engineer	LP&L
A. M. Carver	Utility Engineer	LP&L
R. G. Bennett	QA Engineer	LP&L
B. M. Toups	QA Engineering Technician	LP&L
P. R. Snowden	QA Engineer	LP&L
L. L. Bass	Nuclear Construction QA Manager	LP&L
R. G. Pittman	QA Engineer	LP&L
K. L. Shipp	QA Engineer	Middle South Services
L. A. Stinson	Regional QA Manager	Ebasco
R. Belline	QA Supervisor	Ebasco
S. Cockrell	Welding Engineer	Ebasco
P. Pittman	QA Coordinator	Ebasco

2) Documents Examined

a) LP&L's response of September 29, 1983

b) LP&L's response of February 20, 1984

c) ASP-IV-50, "Release and Turnover from Construction to Waterford Startup"

d) ASP-IV-75, "Records and Documentation Turnover from Ebasco to LP&L"

e) SAP-06, "Release and Turnover from Construction to the Startup Group"

f) SAP-08, "Condition Identification and Corrective Action"

g) QASP-15.3, "Evaluation and Reporting of 10CFR50.55(e) Deficiencies and Possible 10 CFR 21 Defects"

h) Regulatory Guide 1.84, "Design and Fabrication Code Case Acceptability - ASME Section III Division 1"

i) ASME Code Case N-316

j) LP&L Letter W3K83-0808 dated June 15, 1983

k) NCR-W3-2461

l) NCR-W3-5760

m) NCR-W3-7680

n) Isometric Package LW3-CC-47

o) Isometric Package LW3-BM-18

p) LP&L Transfer Status Matrix of May 17, 1984

q) LP&L status reports for startup systems (SUS) 72-A, 55-A, 18-3, 71-B2, 46-E, 46-B, 46-B9, 56-A, 46-C, 36-1, 43-B, 36-3, 59, 46-H, and 91-E. Also for the above systems, LP&L QA Construction letters to Ebasco of identified deficiencies in documentation and hardware and Ebasco QAIRG letter responses thereto.

r) Also, as noted in observations below

3) Observations

Through interviews with LP&L personnel, the NRC inspector learned that there was no statistical basis for the samples, as both the documentation reviews and physical verification walkdowns were being done to provide additional assurance that the systems met their intended safety function and complied with all federal regulations, codes, and standards.

At the close of the inspection on April 6, 1984, by the NRC inspector, the licensee had neither reviewed the corrective action for the findings as received from Ebasco, nor received all required information from Ebasco concerning the resolution of their findings. Therefore, the generic applications of any findings or combination of findings that effect hardware or documentation not included in the sample could not be evaluated by the licensee. The inspector randomly selected for review some of the findings from the sample licensee inspection of the 67 systems.

The following findings were reviewed by the inspector for significance:

LP&L Finding	System/ISO/Weld/No.	NRC Review
a) Walkdown shows 90° ell, Weld Control Record states 45° ell	RAB Chilled Water/LW3-CC-47/FW-2	The drawing required a 90° ell and the weld control record indicated that a 90° ell was installed. The LP&L finding was in error. The certified material test report was acceptable for a 90° ell.
b) Welds undersized	RAB Chilled Water/LW3-CC-47/SW-1-R1, 6RW-1, SW38, and SW-39.	No documentation available indicating dimensions of 4 undersized welds.
c) Weld is pipe to tee, not 90° ell as shown on Weld Control Record	RAB Chilled Water/ACIC-61 SW-59	The Weld Control Record did not show a 90° ell but a tee. A physical Field Check identified the item to be a tee with a heat number of C344. The certified material test report was acceptable for a tee. The LP&L finding was in error. The tee was the correct installation.
d) ISO Shows Valve V720, Weld Control Record shows V727. Walkdown verified valve to be V729.	RAB Chilled Water/AC-LW3-50/ SW-64	Drawing was difficult to read but sepia showed valve to be V727. A physical Field Check identified the item to be V727. Item is installed correctly.
e) No traceability number found on spool.	RAB Chilled Water/AC-IC-1222/FW-3, FW-18, FW-6, FW-17, and FW-14.	The Weld Control Records identified heat numbers traceable to certified material test reports. The heat numbers installed were verified and documented by quality control inspectors. The ASME Boiler and

LP&L Finding	System/ISO/Weld/No.	NRC Review
		Pressure Vessel Code requires heat number on the item or traceability to the item. Traceability has been maintained.
f) Coupling not on walkdown ISO.	Boron Management/LW-3-8M-18/ FW9, FW10.	Although couplings were not on the walkdown ISO, the couplings were documented on the Weld Data Record and the certified material test reports were found to be acceptable.
g) Weld is to 90° ell, Heat #VBV, not to flange A2163 as indicated on weld record.	Boron Management/LW3-BM-18/ SW6-RW-1.	Weld is supposed to be 90° ell Heat #VBV, not to flange. Certified material test report was acceptable. LP&L inspector misread drawing location of weld.

The inspector concluded that findings (a), (c), (d), (e), (f), and (g) are not significant and do not have generic implications. However, LP&L findings (a), (c), (d), and (g) indicate that LP&L inspectors need further training on interpretation of drawings.

Finding (b) revealed that undersized welds have not been documented as to amount of undersize. In subsequent discussions with the licensee, it was determined that all licensee identified undersized welds would be measured and the deficiencies documented, with results transmitted to appropriate licensee personnel for determination of corrective action and evaluation of generic implications.

During a followup inspection of this matter, another NRC inspector reviewed the record package for isometric LW3-CC-47 and found that NCR W3-7680, dated April 12, 1984, documented the actual dimensions of these and other small-bore piping welds and included them as part of Significant Construction Deficiency (SCD) 74. This NCR was written after the missing documentation was discovered during the earlier NRC inspection and mention of it was made to Ebasco and LP&L on April 6, 1983.

Another NRC inspector review revealed that NCR's W3-2461 and W3-5760 indicate that LP&L, T-B, and Ebasco were aware of similar undersize small-bore piping weld conditions as early as 1981. LP&L letter W3K83-0808, dated June 15, 1983, stated the intent of the licensee to implement ASME Code Case N-316 as the basis for accepting the welds without making repairs. The Ebasco engineering evaluations for the disposition of the undersized welds, consolidated under NRC W3-5760, was referred to other NRC Waterford 3 Task Force staff for evaluation of the acceptability of Ebasco's disposition. The results of the staff evaluation are provided below.

Evaluation of Undersized Schedule 80 Socket Welds (SCD 74)

The NRC staff investigated the disposition of NRC 5760 (SCD 74) involving undersize fillet welds on schedule 80, 2 in. and under piping, ASME Section III class 2 and 3. The disposition was found to be satisfactory. The 544 fillet welds were initially reinspected by T-B QA. Of these, nine were flange welds. Five of the nine flange welds did not meet the ASME Section III fillet weld size requirements. Ultimately, all schedule 80 ASME Section III 2 in. and under flange welds were reinspected and those found to be undersized were reworked to meet the Section III fillet weld size requirements.

Of the remaining 535 socketed welds reinspected, 54 did not meet the ASME Section III size requirements. The 54 undersized welds were evaluated using the allowable size requirements established by ASME Code Case N-316. Two of the 54 did not meet the Code Case requirement.

Based on the low rejection rate upon application of the Code Case requirements, it was deemed unnecessary to reinspect the balance of the schedule 80 fitting socket welds, except for the following:

"In order to apply the code case it was necessary to use a more conservative stress intensification factor in the pipe stress analysis. Therefore, it was necessary to establish in which pipe regions the stresses would exceed the ASME Section III allowable stress resulting from the application of the higher code case stress intensification factor. In those regions where the stress exceeded the allowables the code case could not be applied to the fillet weld size requirements, the ASME Section III Code weld requirement must be used. As a result of the analysis an additional 125 schedule 80 socket welds were reinspected. Three of the 125 reinspected welds did not meet the Section III Code requirement and were subsequently reworked.

The disposition of SCD 74 (NCR 5760) is considered satisfactory for the following reasons:

1. All flange welds were inspected and reworked as required to meet the size requirements of the Code.

2. Less than 0.4% of the remaining welds originally inspected did not meet the size requirements of Code Case N-316.

3. The welds in highly stressed piping regions where code case N-316 could not be applied were reinspected and reworked as required to meet the code requirements."

(End of NRC Staff Evaluation)

With respect to the undersized welds covered by NCR W3-7680, a review of this matter documented in a memorandum dated May 23, 1984, addresses 12 undersized schedule 30 socket welds not originally included in the inspection sample conducted as part of SCD 74. Some of the statements of J. DeBruin are" "It is my assessment that this NCR has no impact on the original SCD evaluation" and "... The worst undersized conditions documented in NCR 7680 are bounded by the finite element analysis performed as part of SCD 74."

However, at the time of the completion of this inspection, the final disposition of the undersized welds under NCR W3-7680 was still open. Therefore, this item remains unresolved pending Ebasco disposition of NCR W3-7680 and LP&L submittal of supplemental information for SCD 74.

The inspector also reviewed numerous LP&L findings included in the 67 system sample inspection with regard to nature of deficiency, number of findings, and Ebasco responses. The findings are associated with the following:

System	Identification No.
46B9 - Computer Room HVAC	LP&L Letter W3K-83-557, Mercury (Instrumentation Contractor)
36-3 - Component Cooling Water	Fischbach & Moore (Electrical Contractor) 36-3, Revision 2
46B - Computer Room HVAC	Fischbach & Moore (Electrical Contractor) 46B
36-3 - Component Cooling Water	Tompkins-Beckwith, (Piping Contractor) 36-3, Revision 0
46E - RAB Chilled Water	Tompkins-Beckwith, (Piping Contractor) 46E, LP&L Letters W3K-83-0342 and W3K-83-0343.

The NRC inspector learned that the LP&L findings, after transmittal to Ebasco, were not normally documented on nonconformance reports, deficiency reports, or deficiency notices. Instead, the findings were being resolved informally or by letter from Ebasco. In addition, many of the responses by letter from Ebasco did not furnish enough detail for LP&L to determine either if adequate corrective action has been taken or if the findings have generic implications. For example, LP&L identified two different heat numbers for one piece of stainless steel tubing (Item No. OCR1311 Computer Room HVAC - Mercury) and Ebasco replied that the item had been closed out. Ebasco's answer failed to indicate if the item had to be replaced, which heat number was correct, and the cause of the deficiency. Without this type of information, the licensee is unable to evaluate the corrective action and its possible generic implications. During subsequent discussion, the LP&L QA personnel informed the NRC inspector of their review of the LP&L findings for generic implications on a discipline basis, but at the time of this part of the NRC inspection there was no documentation of the informal reviews or program procedure to require an evaluation of LP&L QA Construction review findings for generic implications. Thus, the NRC staff requested that LP&L perform a generic review of findings discovered during their "status" and "transfer" reviews. Subsequently, a LP&L letter of May 14, 1984, summarizing the results of the NRC requested review, stated that no generic problems were found. The NRC limited review of the documentation and findings associated with the LP&L review at that time did not, except as noted for findings associated with undersized welds, find other potential indications of generic problems.

The NRC inspector discussed LP&L letters for transferring systems reviewed by LP&L QA Construction to LP&L Operations with the LP&L QA Construction Manager. Examples of these letters were shown to the NRC inspector. The QA Manager stated that all open items (NCRs, DN, DRs, etc.) identified on Ebasco transfer letters are reviewed and included on LP&L transfer letters. Therefore, through these letters, LP&L Operations personnel are properly notified of the open items, which are then reviewed for significance before testing of the system, or elements thereof. Further, LP&L QA and Operations staff ensures that all open items that could affect the testing or operation of the system are resolved as required by LP&L QA Operation CIWA procedures.

The NRC inspectors review of LP&L QA procedures noted that LP&L Procedure OP-17.5, Quality Records Status Review, Rev. 0, dated January 25, 1983, did not include instructions for "transfer" reviews. Furthermore, the procedures for status reviews did not address the verbal instructions discussed by the LP&L QA Manager, particularly with regard to

conducting another 10% sample inspection of rejected systems. The LP&L QA Procedure QASP-17.5, Quality Assurance Records Review, Rev. 1, March 22, 1984, also did not describe the system for identification of open items, as discussed by the QA Manager. It was also noted, based on the NRC inspector's review of the LP&L Safety Related System Transfer Status listing, that a number of the plant systems were transferred and accepted by LP&L Plant Operations before the date of issuance of the Revision 1 procedure, which included instructions for LP&L QA Construction conduct of transfer reviews.

A following NRC inspection at Ebasco onsite offices by the NRC team leader and another NRC inspector pursued what Ebasco was doing to ensure that all of LP&L "status" and "transfer" findings have been adequately dispositioned.

Discussions between NRC inspectors and the Ebasco, QA Coordinator and others revealed that, apparently as follow-up to the NRC inspectors April 6, 1984 comments on need to ensure that LP&L undersized welds and other findings were adequately dispositioned, Ebasco was in the process of reviewing all LP&L findings for that purpose. As a result of these discussions, Ebasco QA personnel indicated that 15 systems or subsystems still remained open because certain items had not been corrected or verified as corrected by Ebasco or LP&L QA. Based on the Ebasco QA Coordinators list, this included systems or subsystems 18-3, 36-1, 36-3, 43B, 43B9, 46C, 46E, 46H, 55A, 56A, 59, 69B, 71B2, 72A, and 91E. Copies of letters of LP&L QA Construction documentation and walkdown comments sent to Ebasco and of Ebasco letter responses for the above-referenced systems were reviewed by the NRC inspector. Two examples of missing documentation by Ebasco to address LP&L QA Construction walkdown findings are Ebasco letters W3-QA1RG-0545 of June 10, 1983, for SUS 55A and W3 QA1RG-0544 of June 10, 1983, for SUS 46E. As of May 17, 1984, LP&L system transfer status records show that SUS 55A was accepted by LP&L QA Construction on January 23, 1983, and by LP&L plant staff on January 9, 1983, and SUS 46E was accepted by LP&L QA Construction on April 30, 1984 (date in writing). Therefore, SUS 55A was one of those systems transferred and accepted by LP&L operations before issuance of LP&L procedures (QASIP-17.5, Rev. 1, March 22, 1984) for LP&L QA Construction performance of transfer reviews. Other of the 15 systems listed above that were transferred before issuance of QASAP-17.5, Rev. 1, are 36-1, 43B, 46C, 56A, 59, and 76. Systems 69B and 71B2, if transferred with system 69 and 71B, would also be in that category. The system 71B2 records package did not include an Ebasco letter response to LP&L QA walkdown hardware findings identified by LP&L letter W3K-83-1140, dated August 5, 1983.

A further investigation by another NRC inspector on the last week of this inspection period, revealed that the majority of these 15 systems or subsystems have been accepted by LP&L Construction and Operations QA. Four systems (SUS 36-1, SUS 36-3, SUS 46E, and SUS 46H) remain open pending resolution of construction findings on undersized welds (other than addressed under NCR 5760) and the issuance of a supplement to the NRC inspectors comments on adequate resolution of LP&L QA SCD-74. SCD-74 relates to undersized small-bore piping welds on pipe to fitting joints only. Details on 12 of the undersized welds not previously addressed by the SCD are discussed in Ebasco's memorandum from J. DeBruin to S. Horton/J. Pertuit, dated May 23, 1984, with a supplemental SCD 74 report to follow at some later date. Subsystem SUS 91-E remains open as it is part of the total system 91 that encompases five areas of electrical equipment throughout the plant. As of this writing, none of the five areas have been submitted by Ebasco for LP&L acceptance. The subsystem of system 46B, the control room HVAC, also remains open. Several hardware discrepancies are documented for this system and are presently being corrected. The NRC inspector did not confirm the status of the other systems that remain open, but was assured that all LP&L QA Construction walkdown findings would be addressed.

Not included on this list were the six miscellaneous areas encompassed by SUS 99 (99-C, 99-E, 99-H, 99-I, 99-M, and 99-P), which covers all items in the plant that do not fall specifically into any other system. The items in these categories may be safety-related or nonsafety-related, but none have any impact on startup, testing, or operation of the plant. Because of this, all SUS 99 categories have been given a relatively low priority and will be last of the systems to be closed.

As a result of the above inspections and following completion of the Ebasco reverification, the followup requested under 4) below of LP&L systems walkdown, verification, and record review programs should result in adequate disposition of LP&L inspection findings and provide reasonable assurance as to the safe operation of the plant. The end result should be that each of the startup systems necessary for plant startup, testing, and operation have been or will be adequately reviewed and walked down by LP&L and Ebasco QA to ensure that all discrepant conditions in hardware and documentation are properly identified and dispositioned.

4) NRC Findings

a) The LP&L QA Construction transfer of systems without using documented procedures for conducting the transfer review is not in nonconformance with the requirements of 10 CFR 50, Appendix B, Criteria V.

This and the following subitems remain open, pending further NRC review and inspection (382/84-34-07).

As a result of NRC inspection findings on the absence of (i) documented procedures, (ii) documentation that verbal instructions for conducting another 10% sample inspection of rejected systems were implemented, and (iii) records of the adequate and timely disposition of LP&L QA Construction walkdown hardware findings for the 15 systems identified above, LP&L is requested to take the following action:

(1) All significant LP&L QA Construction findings, such as undersized welds, other hardware walkdown findings, and significant deficiencies in documentation, identified in the 15 above-referenced systems, need to be fully reviewed by LP&L and Ebasco QA. This review should ensure that all such LP&L findings were properly dispositioned as nonconformances, deficiencies, or deviations in accordance with LP&L/Ebasco QA programs, including evaluation for adequacy of corrective action, sample size, and generic implications. The review should also verify whether the LP&L QA construction transfer letter to operations properly identified any open LP&L hardware findings for followup to LP&L operations prior to or after testing. If this was not the case for either situation, LP&L is requested to perform a review of the dispositioning of all significant LP&L QA Construction findings for all systems transferred to LP&L QA operations. The results of these reviews should be documented on appropriate quality assurance records, thereby ensuring that the reviews were performed by appropriate personnel and that all LP&L findings were responded to by Ebasco in sufficient detail for LP&L to perform an adequate review of their disposition.

(2) Based on the results of above-requested reviews, LP&L should notify the NRC of the disposition of any open item (NRC, DN, DR, or LP&L hardware finding, other than associated with undersized welds addressed elswhere) that were not included in either the Ebasco or LP&L status or transfer letters to LP&L operations staff and, if not corrected, could adversely affect the testing or operations of the plant.

b) Undersized welds for which the evaluation and disposition was not completed under NCR W3-5760, such as those associated with for systems 36-1, 36-3, 46H, 46-E and NCR W3-7680, remain unresolved pending Ebasco

close out of the open NCRs and LP&L submittal of a supplemental information for SCD 74 (382/84-34-08).

d. Inspection - Part A.5.b, ISEG Walkdown of Four Systems

System walkdown of four randomly selected systems by the Independent Safety Engineering Group (ISEG) revealed no deficiencies and primarily dealt with small bore piping. The NRC inspector was to verify if the walkdown included all significant attributes and what the justification was for primarily verifying small bore piping installed by Mercury and Tompkins-Beckwith.

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
R. S. Leddick	Sr. Vice President, Nuclear Operations	LP&L
M. W. Alsworth	Utility Engineer	LP&L
A. M. Carver	Utility Engineer	LP&L
P. R. Snowden	QA Engineer	LP&L

2) Documents Examined

a) LP&L's response of September 29, 1983 and enclosures. ISEG Special Report, "ISEG Review of NRC Concerns," dated September 25, 1983, page I-6.

b) LP&L's response of February 20, 1984.

c) ASP-IV-50, "Release and Turnover from Construction to Waterford Start-Up."

d) ASP-IV-75, "Records and Documentation Turnover from Ebasco to LP&L."

e) SAP-06, "Release and Turnover from Construction to the Startup Group."

3) Observations

a) NRC Inspection, Week of April 6, 1983

The inspector learned through interviews with LP&L personnel that the four randomly selected systems examined by ISEG focused on the Mercury and Tompkin-Beckwith work that related to the area of the reported

QA breakdown. The scope of the ISEG examination involved:

(1) Only a small sample.

(2) Most of the small bore pipe was covered with insulation.

(3) Weld size was not inspected.

(4) Material traceability was not inspected.

The attributes checked included correct weld numbers and location; correct hanger and support location and identification; general appearance of hangers and components (bolts, pins, orifice plates, etc.); correct location of branch lines, valves, strainers, orifices, drains and vents; and general configuration of the system per the drawings.

b) NRC Inspection, May 14-15, 1984

The NRC inspector interviewed the persons listed above and found that the "four randomly selected systems" that were walked down by the ISEG were actually only parts of two systems. Selected were part of the emergency feedwater system (SUS-73), part of the steam supply to the emergency feedwater pump (SUS-73), part of the charging system (SUS-53A), and part of the letdown system (SUS-53A). These were selected because of past observations noted on similar small-bore piping systems fabricated by Tompkins-Belkwith (T&B). No attempt was made by the ISEG to conduct a comprehensive QC inspection of four separate systems. The ISEG was made up of engineering personnel who conducted only an as-built walkdown inspection to verify such items as configuration, component locations, general appearance, hanger locations, and weld locations. The identification was verified for all orifices, valves, vents, fittings, hangers, and welds. The NRC inspector reviewed the isometric drawings of the partial systems inspected and discussed the scope of the inspection with the team leader. The ISEG was made up of five engineers and necessary support personnel as a result of conversations with the Inquiry Team. The intent of the ISEG was not to perform complete reinspections but only to provide assurance by a group independent of the Quality Assurance Department that the systems conform to the as-built drawings. The scope of the ISEG was limited due to the small number of people involved and to the fact that the people involved were not from the QA/QC Department.

The ISEG inspection appears to have been very limited both in the amount of hardware inspected and in the depth of the inspections performed. Prior to the ISEG inspection, however, both hardware and software for the systems had been inspected by LP&L QA. Inspection findings and comments by QA were formally transmitted to Ebasco for resolution and response. When the responses to each item were received, a second review was conducted by LP&L QA to verify that the responses and corrective actions were acceptable and that they were implemented as stated. This verification was performed by QA personnel with expertise in the particular discipline of each finding or comment (electrical, civil, structural, mechanical). This licensee QA verification of corrective actions has been documented for each finding on each system turned over by Construction QA. Because each system was reviewed by individuals familiar with various disciplines, and because the results were documented, it was considered unlikely that any generic condition would not be recognized and identified.

4) Findings

a) The ISEG inspections were found to be limited in scope and depth and added confidence when compared to the more comprehensive QA inspections. However, the intent of these ISEG inspections was not to duplicate those performed by QA but to provide an additional overview type of verification that certain key features of the selected systems complied with the as-built documentation. This item is closed.

SECTION IV

PART B OF LP&L's FEBRUARY 20, 1984 REPLY TO DIRECTOR, IE

A. Inquiry Team Report - QA Concern and Related Issue

1. QA Concern: Adequacy of LP&L's QA Program During Construction.

a. Related Issue: LP&L did not know whether its QA program was being implemented.

1) Significance: This issue, if substantiated, would represent a noncompliance with 10 CFR 50, Appendix B, Criterion I, which states:

"The applicant shall be responsible for the establishment and execution of the quality assurance program. The applicant may delegate to others such as contractors, agents, or consultants the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility therefor."

2) Background: As followup to the Inquiry Team interview with Gambit on June 28, 1983, the team held a meeting the next day to review information the NRC acquired from Gambit before and during the interview. The purpose of the team review was to identify the other Gambit issues related to the main problem areas (QA concerns) identified by the Gambit editor during the interview. This meeting resulted in identifying the above issue as related to the above QA concern.

3) NRC Review and Inspection

The NRC review and inspection of this matter consisted of a review of the information on pages II-1 through II-7 of the report enclosed in LP&L's letter of September 29, 1983, to the Director, Office of Inspection and Enforcement, and the inspection documented below relative to LP&L's QA program for the audit and surveillance of contractors. The pertinent LP&L PSAR, Section 17, QA program commitments in this area were also taken into consideration during this review. With respect to the LP&L September 29, 1983, reply, the scope of the licensee Independent Safety Engineering Group (ISEG) review was given as follows:

"ISEG reviewed approximately 1020 documents which included the following:

1) documentation associated with audits conducted by LP&L of CE, Ebasco, and other contractors from 1974 to 1977.

2) documentation associated with site audits during 1974-1977,

3) documentation associated with other audits the results of which were reported to LP&L 1974-1977.

The Torrey Pines Technology (TPT) Report was reviewed and in particular the conclusion regarding Task A of the report as it relates to quality assurance."

The LP&L results of ISEG review were reviewed by the NRC inspector and were generally considered to adequately address the issue in question. However, certain aspects of the LP&L reply required further NRC review and inspection, as follows below. This part of the NRC inspection and review was conducted by NRC inspectors Dan Tomlinson and Mark Peranich.

2. Inspection - Part B

a. Background

The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following staff review of certain information in Section II, in general, and on Pages II-3 and II-4 of that response, the Director, IE, by letter dated January 16, 1984, requested the licensee to furnish the following information:

(B1) "For items (1) and (2), provide additional information on the timing of actions taken regarding placement of the Ebasco QA manager onsite and the requirement for LP&L QA to receive all Ebasco QA reports.

(B2) "For item (4), summarize Ebasco surveillance findings in 1976 (and later years) that were not closed out until 1980. The summary should describe the deficiency or audit comment, attributed cause, and final disposition, including discussion, if applicable, of controls and actions taken to ensure appropriate disposition of any of the items with outstanding deficiencies that may have been installed or stored-in-place before the deficiencies were resolved."

The licensee responded on February 20, 1984, as follows:

(B1) "[Item (1)] The concept establishing the need for the onsite Ebasco QA Manager was initially formulated in a meeting of LP&L with Ebasco concerning Ebasco site QA reorganization. This is recorded in Exhibit A to 'Ebasco Meeting Minutes' of 12/22/77.

"The establishment and announcement of the arrival date of the Ebasco site QA manager is recorded in an Ebasco letter to LP&L dated 2/21/78.

"The arrival on site of the Ebasco QA manager on 3/31/78 confirms LP&L's acceptance.

"[Item (2)] The LP&L Project Quality Assurance Engineer made a verbal request to receive all Ebasco QA audits in 1976. Ebasco audits without findings had been received informally until this requirement was confirmed early in 1978, when LP&L QA was included on distribution for the Ebasco audits without findings. It should be noted that LP&L QA has always received Ebasco site QA audit reports that contained findings.

(B2) "A summary of Ebasco surveillance findings that were not closed out until 1980 is included as Attachment B-1."

b. Inspection - Part B.1, Placement of Ebasco QA Manager Onsite

The NRC inspection of this area was conducted through a review of the Program commitments in the SAR for Ebasco staff onsite, inspection of Ebasco meeting minutes of December 22, 1977, and by interviews with appropriate LP&L and Ebasco personnel.

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
L. L. Bass	Nuclear Construction QA Manager	LP&L
L. A. Stinson	Regional QA Manager	Ebasco

2) Documents Examined

LP&L's Audit Responses dated February 20, 1984, "Ebasco Meeting Minutes" dated December 22, 1977, Final Safety Analysis Report (FSAR), Chapter 17

3) Observations

The NRC Inspector reviewed "Ebasco Meeting Minutes" of December 22, 1977, which discussed the proposed restructuring of Ebasco's Site QA/QC operations. Mentioned in these meeting minutes was the requirement for a Quality Assurance Program Supervisor to be located onsite. Ebasco, in these minutes, appointed a temporary supervisor and committed to having the position filled permanently by March 31, 1978.

A subsequent letter from Ebasco to LP&L further confirmed this by naming the person selected for the position and stated again that he would be on site by March 31, 1978. He arrived on site before March 31, 1978, and remained in

this position for the duration of the plant construction phase.

The Final Safety Analysis Report (FSAR), Section 17, paragraph 1.8.3.2, describes the Ebasco Quality Organization and the duties of each subgroup. It states that the field organization will consist of an "Ebasco Site Quality Compliance Supervisor" with other Quality Compliance Representatives, as required, on a full time basis. It was decided at the meeting of December 22, 1977, upgrade this position to a level commensurate with the responsibilities.

4) Findings

These actions were deemed to be proper and timely. The upgrading of the position enhanced the Ebasco QA organization from that described in the FSAR at a time when construction and QA/QC activities were very high. The position was filled by a person with acceptable qualifications and experience in the areas of U.S. Navy and Commercial Nuclear Quality.

c. Inspection - Part B.2, Ebasco Surveillance

The NRC inspection of whether LP&L was aware of Ebasco surveillances and the status of the QA program implementation was conducted through a review of Ebasco site QA audit reports in LP&L files for 1975; a check of the number listed on the file index for 1975 against the LP&L September 29, 1983, Attachment II-1 (Table of Audits), which notes that 50 such audits were conducted; Ebasco 1976 audit findings that were not closed out until 1980; the review of other documents as noted below; and by interviews with appropriate LP&L and Ebasco personnel.

1) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
L. L. Bass	Nuclear Construction QA Manager	LP&L
B. M. Toups	QA Engineering Technician	LP&L
R. G. Pittman	QA Engineer	LP&L
L. A. Stinson	Regional QA Manager	Ebasco

2) Documents Examined

a) LP&L Table of Audits, September 29, 1983
b) Records Vault Index of Ebasco Audits (onsite)

c) Ebasco Audits Performed of Combustion Engineering Activities
d) Records Vault Index of Ebasco Audits (offsite)

3) Observations

The NRC inspector reviewed Attachment B-1 to the LP&L response letter of February 20, 1984. This attachment states that four surveillances performed by Ebasco during 1976 contained findings that were not closed until 1960. The four surveillances involved a total of nine findings, five of which were attributed to "Auditor Error." Each of the four surveillances contained at least one finding that fell into this category and the failure to close these surveillances was also found to be an auditor error. During a routine Ebasco review of Ebasco audit/surveillance open items, it was found that these had never been closed. Actions taken on the non-auditor error were reviewed by Ebasco QA and all were closed. It is apparent from the nature of the surveillance observations that these items had no generic or safety significance.

The Team Leader requested the NRC inspector to perform a review of all Ebasco and LP&L surveillances and audits accomplished both on and off site from January 1, 1976, through December 31, 1979, to further verify that this situation was not generic. The NRC inspector reviewed the records for approximately 1,100 audits and surveillances from this time period and found only one that appeared to have taken an unusually long time to disposition. Ebasco Audit No. EL75-5-3 was begun on May 27, 1979, but was not closed until August 17, 1982. By reviewing the vault records for this audit, it was determined that the corrective actions and recurrence prevention measures required that the major cause of the time delay was attributed to a total rewrite of the implementing procedures and changes to the Ebasco QA Manual. Because the original findings were found to be the only examples of this type of finding, it is deemed that there are no generic implications attached.

4) Findings

a) The surveillance findings, as noted in Attachment B-1, were found to be accurate.

b) The NRC inspector's review of all Ebasco and LP&L audits and surveillances indicates that the Ebasco-delayed closeout of the 1976 audit findings was an isolated incident and not symptomatic of any widespread or generic problems. In January 1980, a new system of tracking open items through the site

computer was initiated and repetition of this type of finding has been virtually eliminated.

d. Inspection - Torrey Pines Technology (TPT) Report Discussed by LP&L's September 29, 1983 Response.

1) Persons Contacted

Quality Assurance Branch Staff, NRC

2) Documents Examined

a) Torrey Pines Technology Report (GA-C16900), Volume I; Executive Summary Independent Design Review of Waterford SES No. 3 Emergency Feedwater System.

b) NRC Memorandum, W. P. Haass, Deputy Chief Quality Assurance Branch, to T. M. Novak, Assistant Director for Licensing, dated July 9, 1983, Subject: SSER Concerning IDVP of Waterford.

3) Observations

A July 19, 1983, NRC memorandum from W. Haass to T. Novak describes the Independent Design Review of the Waterford 3 Station by Torrey Pines Technology (TPT) as follows:

"The TPT review performed in accordance with a staff-approved program plan, included a technical review of the Emergency Feedwater (EFW) System design to determine if the design control process adequately converted the design basis of the EFW System into an adequate design. In addition, the program included a physical verification to measure the conformance of the as-built structure to the requirements of the design documents. The objective of the program was to provide increased assurance that the overall design and construction of the station has been properly conducted."

The NRC QA Branch SSER included the following conclusion relative to its review of the TPT report:

"The independent design review of the Waterford Steam Electric Station, Unit 3 by TPT indicated that the quality assurance program, design process, and procedures for the EFW system are acceptable except for four findings where appropriate corrective actions have been described. The results of this evaluation provide increased assurance that the QA program established and implemented by LP&L and its principal contractors did effectively control the overall design and construction activities for Waterford Steam Electric Station, Unit 3. Although deficiencies were identified, the overall design and construction activities were adequately performed so that no adverse impact on

safety was found. Therefore, with respect to assurance of proper design and construction, the NRC staff concludes that there is an acceptable basis for granting authority to operate the facility at power levels up to and including full power."

4) Findings

Based on the NRC inspectors' review of the referenced documents and inspection observations, there is reasonable assurance, as concluded in the LP&L reply, "that LP&L, Ebasco, CE and Bergen-Patterson each had control procedures in place during the design of the Emergency Feedwater System which satisfied the commitments in the PSAR."

e. Summary of Part B.1, B.2 and the TPT Report - Regarding the Related Issue

1) In regard to the above Related Issue of "LP&L did not know whether it's QA program was being implemented," except as noted below, it was determined by the NRC inspector that LP&L did have reasonable assurance, based on information received through the audit and surveillance program of LP&L and Ebasco, that the quality program in Chapter 17 of the Final Safety Analysis Report (FSAR) was being implemented by LP&L contractors and vendors. This conclusion was reached following the review of Section 17 of the Waterford 3 PSAR; LP&L's response of September 29, 1983; LP&L's response of February 20, 1984; and the audits and surveillances mentioned above. Except for areas noted below for which followup is addressed in other NRC correspondence, this item is closed.

The above conclusion is limited to the stated scope of this inspection. It should not be considered applicable to certain past work delegated to contractors identified by LP&L as contributing to the 1982 QA program breakdown or for other surveillance activities which have been identified as deficient as a result of the NRC CAT inspection or the NRC Task Force Team assessing Waterford Allegations. In such cases it is apparent that the LP&L audit and surveillance program was less than adequate in providing LP&L with sufficient and timely information regarding certain aspects of those contractors quality assurance programs that were not being effectively implemented.

SECTION V

PART C OF LP&L's FEBRUARY 20, 1984, REPLY TO DIRECTOR, IE

A. Inquiry Team Report - QA Concern and Related Issues

1. QA Concern: Adequacy of LP&L's QA Program during construction.

a. Related Issue: LP&L did not take appropriate action on independent QA consultants recommendations.

1) Significance: LP&L failure to take appropriate action on the independent consultants' staffing recommendations could have contributed to the reported breakdown in LP&L's QA program.

2) Background: This matter was brought to NRC attention by the Gambit article of March 19, 1983, entitled "Quality Control Failure at LP&L," and was subsequently incorporated in the Inquiry Team Report as an Gambit issue related to the above QA Concern.

3) NRC Review and Inspection: The NRC review and inspection of the information provided by LP&L to the Director, Office of Inspection and Enforcement (IE), in response to the above QA concern and related issue in the Inquiry Team Report, was conducted between April 3 and May 25, 1983, by NRC inspector Ray Mullikin.

2. Inspection - Part C

a. Background: The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following the staff review of certain information relative to Section III.B of that response, the Director, IE, by letter of January 16, 1984, requested the licensee to furnish:

"A chronological summary of staffing increases discussed in LP&L's response, items 1, 7, 8, 9, 15, and 18, to the consultants recommendations. Additionally, if applicable, identify which aspects of the increase in QA/QC staffing discussed in this part of the report relates to the staff increases made by LP&L in response to the findings of NRC Inspection Report 50-382/82-14."

The licensee responded on February 20, 1984, as follows:

"Attachments C-1 through C-4 summarize LP&L staffing increases. The 'onboard' figures do not reflect temporary changes due to hiring, transfer, of resignation. Attachment C-5 summarizes Quality Assurance contract employee staffing. Attachment C-6 summarizes Quality Control staffing. Quality Control is part of

plant staff, therefore, the LP&L staff shown on Attachment C-6 are also shown on Attachment C-3. Attachment C-7 summarizes all LP&L and contract employees engaged in Quality Assurance or Quality Control.

"In addition, Appendix W, Recapitulation of Conclusions and Recommendations, to the Decision Management Company's (DMC) report to the Louisiana Public Service Commission on the Waterford 3 project dated January 6, 1984, is enclosed as Attachment C-8. This independent consultant's report supports the responses given in Section III of the ISEG report.

"No specific staff increases can be attributed solely to NRC Inspection Report 50-382/82-14. LP&L staffing increases were based on an evaluation of the identification of the need for additional qualified personnel by various sources, including independent consultants' evaluations of different aspects of the Waterford 3 project and NRC evaluations such as Inspection Report 50-382/82-14."

b. Inspection - Part C MAC Recommendations

The Management Analysis Company (MAC) issued a report in 1979 on their study of LP&L construction monitoring activities at Waterford 3. At issue, presently, is whether LP&L took appropriate action on MAC's independent study recommendations. The MAC study was done at the request and expense of LP&L. In general, the MAC recommendations are broad in scope and can be viewed as addressing quality, administrative, and cost considerations. The NRC review of the MAC recommendations and LP&L responses resulted in selecting recommendations for "staffing" as the NRC inspection sample. These recommendations are considered most likely to have an impact on assuring quality.

1) Summary of MAC Recommendations and LP&L Replies

The following are the MAC recommendations on staffing adequacy, Nos. 1, 7, 8, 9, 15, and 18, and LP&L's responses presented in LP&L's September 29, 1983, letter to the NRC:

a) Recommendation No. 1

LP&L should acquire additional manpower in the QA area in order to:

- Audit critical activities such as cable pulling, welding, hanger/snubber work, etc.
- Provide more coverage in the field.
- Ensure that contractor QA records are in auditable and buyable order.

LP&L Response

LP&L has increased its authorized QA staffing from a level of 10 at the time of the MAC report to the present level of 28. LP&L QA also has 16 contract employees currently on its staff.

Since the MAC report was issued, LP&L has conducted 115 audits and 105 surveillances (as of August 1, 1983) of site contractors including the following critical activities identified in the report.

	Audits	Surveillances
Cable/Cable Pulling	7	9
Welding	7	2
Piping/Hanger/Snubber Installation	2	20
QA Records	8	-

LP&L has established a surveillance group within Ebasco to follow in-process work.

LP&L QA reviews in detail approximately 10% of the turnover documentation.

LP&L has set up a task force to provide a limited scope audit of contractor activities before the normal turnover status review cycle. This audit has been geared as much as possible to the physical verification of equipment in accordance with design drawings.

b) Recommendation No. 7

LP&L should gain a better understanding of Ebasco's work that reflects project performance in the area of planning, scheduling, productivity, performance, percent complete, variance, etc.

LP&L Response

LP&L has added personnel and has improved its understanding of Ebasco's production work.

c) Recommendation Nos. 8-9

LP&L should have a comprehensive understanding of the positions and strategy taken by Ebasco and contractors and the inputs utilized to develop these. LP&L should closely monitor Ebasco and contractors in design

changes, resolutions of interference, and verification of total plant design completion.

LP&L Response

LP&L has increased its Waterford 3 project staff. LP&L has located much of the additional engineering manpower at the Waterford 3 site to ensure a proper understanding of the positions and strategies of Ebasco and to increase LP&L involvement in engineering decisions. Additional LP&L manpower has been devoted to reviewing the as-built system and to verify the total plant design completion.

d) Recommendation No. 15

LP&L QA and Project Coordination should monitor and LP&L Engineering should resolve problems associated with:

- Mechanical installation - hangers, snubbers, embed, Class 1 piping, etc.
- Welding
- Tying onto existing rebar
- Cable pulling

LP&L Response

As reported in the responses to recommendations 1, 8, and 9, LP&L has increased its support staff at the Waterford site. The regular audits and surveillances continue to be conducted by LP&L, and engineering involvement has been increased.

e) Recommendation No. 18

LP&L should strive to have more of the permanent Waterford 3 staff actively participating in startup.

LP&L Response

LP&L instituted an agressive program to actively involve permanent Waterford 3 personnel in startup functions; e.g., hot functional tests, system turnover, etc.

2) Inspection - MAC Recommendations (1, 7, 8, 9, 15, and 18) and LP&L's Responses

The six selected MAC recommendations involve a generic requirement for enhanced staffing for the purposes of understanding,

monitoring, verifying, coordination, etc. Therefore, the principal inspection effort was on the time-phased growth of LP&L QA manning levels. Reviews of the documents listed below and interviews of the below-listed personnel formed the bases for this inspection effort.

a) Persons Contacted

Name	Title	Organization
T. F. Gerrets	Corporate Quality Assurance Manager	LP&L
R. G. Bennett	QA Engineer	LP&L
C. J. Savona	QA Engineer	LP&L

b) Documents Examined

(1) "A Report on Waterford 3/Grand Gulf Study," prepared for the State of Louisiana Public Service Commission by Decision Management Company, Inc., dated January 1984.

(2) LP&L letter (W3P83-3289) to the NRC dated September 29, 1983.

(3) NRC letter (EA-82-109) to LP&L forwarding "Notice of Violation/Proposed Civil Penalty," dated December 6, 1982.

(4) NRC letter to LP&L forwarding NRC Inspection Report No. 50-382/82-14, dated December 6, 1982.

(5) LP&L letter (W3I83-0001, Q-3-A35.02.01) to the NRC in reply to the Notice of Violation, dated January 4, 1984.

(6) NRC Note to Files concerning August 25, 1983, meeting with LP&L (Waterford), dated September 20, 1983.

(7) LP&L QA organization charts from December 21, 1979, to April 4, 1984.

c) Observations

(1) LP&L Staffing Adequacy

A review of the available documents revealed the following evolution of LP&L QA staffing levels:

Date	Authorized	On Board
1/76-1/81	10	7
7/81	10	8
1/82	21	13
7/82	21	21
1/83	30	29
10/83	46	26

In addition, LP&L hired contract QA personnel beginning in January 1982. One contract employee was hired by January 1982, and the total increased to 24 by January 1983. The contract personnel level dropped to 20 by July 1983. As of March 26, 1984, there were 35 LP&L QA personnel and 14 contract QA personnel at Waterford 3.

There is no evidence to indicate that a request for additional QA personnel was made by LP&L before August 14, 1981. This is over 2 years after the MAC study was completed.

LP&L has stated that, in the 4 years (1979-1983) following the issuance of the MAC report, they performed 115 audits and 105 surveillances of site contractor performance. However, in the 4 years (1975-1978) before issuance of the MAC report, LP&L performed 227 audits and 124 surveillances.

In January 1984, Decision Management Company (DMC) prepared a report for the State of Louisiana Public Service Commission on DMC's study of Waterford 3. Two of the conclusions contained in the report by DMC are as follows:

- The timeliness of LP&L's response to report (MAC) recommendations was relatively slow during the construction phase.

- Before 1982, LP&L's QA staff was small as compared to the industry norm, but highly capable and dedicated.

The NRC issued to LP&L a Notice of Violation (NOV)/ Proposed Civil Penalty on December 6, 1982, for a partial QA breakdown at Waterford 3. LP&L responded to the NOV on January 4, 1983, acknowledging the breakdown and listed the corrective steps that would be taken to avoid further violations. One step was to

enlarge the LP&L QA organization and supplement it with contract personnel to provide broader QA coverage of safety-related site activities.

(2) LP&L Monitoring of and Coordination with Ebasco

An interview with LP&L QA revealed the following information about MAC recommendations 7, 8, 9, 15, and 18.

- In 1982, LP&L took steps to improve its understanding of Ebasco's production work by creating a Cost and Scheduling Group and a Startup Performance Group located on site.
- LP&L also moved its project engineering staff to the site in 1982.
- LP&L believed its audit and surveillance program was adequate to monitor problems with construction activities.
- LP&L acknowledged its startup responsibilities. Ebasco did startup test before transfer of a system, and LP&L would do it again after transfer.
- The LP&L staffing changes and increases resulted from LP&L planned organization changes and not necessarily from MAC's recommendations.

d) Findings

After a detailed review of available data and interviews with personnel, the NRC inspector concludes that there was no apparent effort on LP&L's part to respond, in a timely manner, to MAC's staffing recommendations.

The first growth in QA staff did not begin until 2 years after the MAC report was published, and this increase was mainly because of the increased staffing of the QA Operations Group and not the Construction Group. These increases and other staff changes appear to have evolved from necessity and not as a result of MAC's recommendations.

The NRC inspector feels that LP&L's lack of action on MAC's recommendations may have contributed partially to the QA breakdown that resulted in a civil penalty for LP&L.

The inspection relative to the consultants' recommendations is considered closed.

SECTION VI

PART D OF LP&L's FEBRUARY 20, 1984, REPLY TO DIRECTOR, IE

A. Inquiry Team Report - QA Concern and Related Issues

1. QA Concern: Waterford Unit 3 common basemat.

a. Related Issues: Leakage through cracking in the basemat.

1) Significance: The safety significance of this matter is being addressed by NRC licensing staff.

2) Background: This matter was the subject of discussion in several Gambit published articles and, as a result, was subject to the Inquiry Team observations during a visit to the Waterford Unit 3 site on June 30, 1983. Inquiry Team Observations relative to the above QA concern and related issue are included as Attachment 2 of the Inquiry Team Report. In the September 29, 1983, response to this QA concern, LP&L made reference to an enclosed Harstead report. During the staff review of the Harstead report, it was not clear whether the report addressed one specified observation of wetness along the top of the knuckle region of the steel containment in the annular space between containment and the shield building at the lowest level (-1.5 ft). As discussed below, LP&L consequently was requested to provide additional information to clarify the status of wetness in the annular space.

3) NRC Review and Inspection: The NRC review and inspection of the information provided by LP&L to the Director, Office of Inspection and Enforcement (IE), in response to the above QA concern and related issues in the Inquiry Team Report, for the matter of wetness in the annular space at the lowest level was conducted between April 3 and May 25, 1983, by NRC inspector Mark Peranich.

2. Inspection - Part D

a. Background: The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following the staff review of certain information in Section IV of that response, the Director, IE by letter dated January 16, 1984, requested the licensee to furnish the following:

"Update on the status of LP&L observations relative to the wetness/collection of water discussed on page 5 of Attachment 2 of the NRC inquiry team report pertaining to the annular space between containment and the shield building along the knuckle region of steel containment."

The licensee responded on February 20, 1984, as follows:

"A walk-through of the annulus area starting at penetrations #66 and #71 and continuing in a westerly arc for 25 to 30 feet on January 26, 1984, revealed no wetness or collection of water along the knuckle region of steel containment. Prior to this walk-through, observations in this area conducted since the NRC inquiry team was on-site has revealed no additional water collection or wetness. It is also noted that the base of the containment vessel in this area has been cleaned and field painted and no surface corrosion exists."

b. Inspection - Annular Space Walk-Through

A physical 360° walk-through inspection of the floor area in the annular space between the containment and the shield building at the lowest level (-1.5 ft) was conducted on two separate occasions during the first and last week of the period of the Waterford 3 Team inspection.

1) Finding

The NRC inspector did not observe any wetness or moisture on the floor area or along the cushion/flexible material adjacent to the containment steel liner. This item is considered closed.

SECTION VII

PART E OF LP&L's FEBRUARY 20, 1984, REPLY TO DIRECTOR, IE

A. Inquiry Team Report - QA Concern and Related Issues

1. QA Concern: QA Program dispute between Louisiana Power and Light (LP&L) and Combustion Engineering (CE).

a. Related Issues: The Inquiry Team noted the following Gambit issues as the basis for the above QA concern:

° LP&L 1974 audit of CE noting that CE's QA program had not incorporated the "new" LP&L QA requirements (Amendment 44, Gray Book).

° Ebasco December 1976 audit of CE identified problems with CE's systems of records.

° Communications between LP&L and CE.

° Statements of LP&L, CE, and Ebasco individuals.

1) Significance: The "new" QA program commitments provide additional guidance on an acceptable method of ensuring compliance with 10 CFR 50, Appendix B. As associated with the above related issues, the new LP&L commitments result in enhancing the licensee's QA Program for the administration of the receipt, storage, preservation, retrieval and disposition of records, including clarification of the period of retention for various types of lifetime and nonpermanent records. Implementation of the "new" QA program commitment will provide additional assurance regarding the quality and quantity of CE QA records available to ensure that specified quality objectives have been achieved and for use in maintaining the safe operation of the nuclear power plant.

2) Background: This matter was brought to NRC attention by the Gambit articles of April 16 and 23, 1983, entitled "Quality Assurance in Doubt" and "NRC 'Looking Into' Waterford III," respectively. The NRC Resident Inspector informed the Waterford 3 Team that following the publication of the Gambit articles, he had reviewed certain documentation on this matter with the licensee. It was the licensee's position that the documentation demonstrated that CE had agreed in 1974 to meet the intent of the new quality assurance program requirements for records, but CE was claiming that this represented an increase in the scope of work in excess of the orginal contract agreement.

3) NRC Review and Inspection: The NRC review and inspection of the information provided by LP&L to the Director, Office of Inspection and Enforcement (IE), in response to the above QA concern and related issues in the Inquiry Team Report, was conducted between April 3 and May 25, 1983, by William Belke and Mark Peranich.

2. Inspection - Part E

a. Background: The licensee responded to the QA concerns in the Inquiry Team Report on September 29, 1983. Following the staff review of certain information relative to the Independent Safety Engineering Group (ISEG) results in Section V.A. (pages V-I through V-3) of that response, the Director, IE, by letter dated January 16, 1984, requested the licensee to furnish a:

"Chronological summary of approximately 75 documents reviewed by ISEG, including a description of the subject and purpose of the document. To the extent applicable, identify which of the correspondence or other documentation reviewed by LP&L relates to the documents referred to by question 18.d, e., i, k, q, s, and t of the Gambit Publications letter to LP&L dated April 4, 1983."

The licensee responded on February 20, 1984, as follows:

"A chronological summary listing of documents reviewed by ISEG is enclosed as Attachment E-1. Those documents reviewed which correspond to the specific documents referred to in your question are noted in the attachment."

b. Inspection - LP&L/CE Compliance with Amendment 44 of SAR

The NRC review and inspection of the QA program dispute between LP&L and CE was examined through a review of (1) certain documents identified by Attachment E-1 of the licensee's February 20, 1984, response, (2) documents identified in the April 4, 1983 "Gambit" letter and obtained from the licensee for review during the on site inspection, (3) licensee QA program requirements invoked on CE, and (4) the implementation of the licensee's audit and other programs for assessing CE's compliance with the licensee's QA requirements.

The purpose of this review was to assess the adequacy of the licensee's program for assuring and determining CE's compliance with LP&L's commitments in Amendment 44 of the PSAR to meet the intent and guidance of the NRC's "Gray Book" guides and standards.

1) Persons Contacted

Name	Title	Organization
T. Gerrets	Corporate Quality Assurance Manager	LP&L
R. G. Bennett	QA Engineer	LP&L
D. Lester	QA Consultant	LP&L
G. L. Constable	NRC Sr. Resident Inspector	NRC
K. Sinister	Commercial Contract Manager	LP&L
P. R. Snowden	QA Engineer	LP&L

2) Documents Examined

a) Documents referenced by "Gambit" April 4,1983, letter, question 18, items (a)-(v):

Gambit

Item #	Document		Date
a.	Ebasco	Letter: LW3-727-73	11/30/73
b.	LP&L	Letter: LPL 2615	11/29/73
c.	LP&L	Letter: LPL 2616	11/29/73
d.	LP&L	PSAR	3/72
e.	LP&L	Amendment 44 to PSAR	1/74
f.	Ebasco	Letter: LW3-401-74	7/02/74
g.	CE	Letter: C-CE-1900	9/20/74
h.	CE	Letter: C-CE-3725	11/10/76
i.	CE	Letter: C-CE-3803	12/07/76
j.	Ebasco	Letter: LW3-2101-76	11/02/76
k.	LP&L	Handwritten Notes: Problems encountered during the December 15-17, 1976, EBASCO/LP&L records audit at CE-Chattanooga	12/17/76
l.	CE	Letter: C-CE-4319	5/31/77
m.	Ebasco	Meeting Minutes, LW3-775-77 of meeting held on 4/19/77	4/22/77
n.	Ebasco	Letter: LW3-2354-76	12/13/76
o.	CE	Quotation: RWK-5276	11/29/76
p.	Ebasco	Letter: Number Unspecified, Subject: Delays on Waterford project and project payment	10/08/76
q.	LP&L	Memorandum: To LP&L's A.E. Henderson, Jr., from LP&L's R. E. Hastings. Subject: Comments on	6/08/77

		CE quality assurance claims, reference C-CE-4319 (LP&L unable to retrieve)	
r.	Ebasco	Letter: RKS-W77-079	6/29/77
s.	CE	Minutes of meeting scheduled for 8/4/77 in CE's Windsor office: in attendance; W. D. Mawhinny, R. K. Stampley, A. E. Henderson, B. R. Maza, D. N. Galligan and top CE QA personnel	9/28/77
t.		Minutes of meeting scheduled for 8/3/77 in Ebasco's New York offices, attended by LP&L and EBASCO QA personnel. (LP&L unable to retrieve)	
u.	CE	Letter: C-CE-4609	9/16/77
v.	Ebasco	Letter: LW3-1907-77	9/01/77

b) Documents referenced by Attachment E-1 of February 20, 1984, LP&L response to NRC:

Documents		Date
(1)	Item 15, LP&L audit reports of CE 74-2/1 and 74-2/2	7/12/74
(2)	Item 18, LP&L (J. Wyatt) letter to Ebasco (M. Weber)	7/29/74
(3)	Item 24, CE (A. Gaines) letter to Ebasco (M. Pederson)	9/13/74
(4)	Item 30, LP&L (R. Meyer) letter to (Ebasco) (R. Stampley)	12/10/75
(5)	Item 42/43, Ebasco (R. Stamply) to CE (W. Mawhinney),	11/19/76
(6)	Item 50, Ebasco (R. Stamply) to CE (W. Mawhinney)	3/03/77
(7)	Item 52, LP&L (D. Aswell) to Ebasco (R. Stamply)	3/17/77
(8)	Item 53, CE (W. Mawhinney) to LP&L/Ebasco (R. Stamply)	4/12/77
(9)	Item 60, Ebasco (R. Stamply) to LP&L/Ebasco (D Aswell)	7/25/77
(10)	Item 63, CE (W. Mawhinney) to LP&L/Ebasco (R. Stamply)	9/28/77
(11)	Item 64, Ebasco (R. Stamply) to CE (D. Aswell)	10/31/77
(12)	Item 66, Ebasco (R. Stamply) to CE (W. Mawhinney)	11/17/77
(13)	Item 70, Ebasco/LP&L (H. Johnson) to CE (L. Shackford)	12/01/78
(14)	Item 71, LP&L (D. Aswell) to CE (R. Newman)	6/10/81

c) Other documents:

Documents	Date
(1) LP&L Open Items Log for status of CE audits for any items pertaining to records	None (on-going log)
(2) LP&L Unresolved Item Report CE-81-1 for the LP&L Audit of CE on May 3-6, 1982	5/6/82
(3) LP&L (T. Gerrets) to CE (J. Veirs)	6/01/82
(4) LP&L Unresolved Item Report	8/15/83
(5) LP&L (J. Fort) response to Gambit	4/6/83
(6) NRC (R. Ridenhour) (J. Collins) to R.C. DeYOung on Waterford Allegations	1/11/84
(7) NRC (R. C. DeYoung) to J. Collins on Waterford Allegations	11/04/83
(8) NRC (R. C. DeYoung) to LP&L (J. Cain)	9/20/83
(9) NRC (J. Lieberman) Note to Files	9/20/83
(10) LP&L (J. Cain) to NRC (R. C. DeYoung)	9/29/83
(11) Ebasco QA Manual Data Applicable to ASME Code	
(12) Audit Reports of LP&L or Combined LP&L and Ebasco Audits of CE's QA Program:	

Letter or Report

Date	Recorded QA Record Nonconformances
09/22/72	None
11/20/72	None
05/24-25/73	(1) QA record nonconformance - lack procedure for record retention
11/07/73	None
03/28-29/74	None
07/11-12/74	(2) QA record nonconformances - ° Lack of objective evidence for meeting intent and guidance of AEC Reg. Guides ° Lack of implementation procedures for AEC Reg. Guides
12/1-3/75	(1) QA record nonconformance - need to develop procedures checklists for two orders
06/15-17/76	None
12/15-19/76	(1) QA record nonconformance - inadequate record retention in accordance with ANSI N45.2.9
03/7-9/77	(1) QA record nonconformance - no description for protective conditions provided during storage of CE's QA records
05/31/78	None
10/2-4/78	None
06/26-28/79	(1) QA record nonconformance - lack of dates for issuing vendor audit reports
03/12-14/80	None
04/20-23/81	(1) QA record nonconformance - no audit system established for QA record storage system as outlined in ANSI N45.2.9

05/3-6/82	(1)	QA record nonconformance - incorrect class assigned to QA record
08/15-19/83	(1)	QA record nonconformance - lack of environmental controls for CE's storage of radiographs

(13) Ebasco Audits of CE:

Letter Date	Recorded QA Record Nonconformances
11/05/76	None
09/26/80	None
10/20/83	None

(14) LP&L to CE, closeout of June 26-28, 1979, LP&L audit of CE — 07/26/79

(15) LP&L to Ebasco, review of CE audit open items — 02/20/76

(16) Gambit article — 04/16/83

(17) Supplement 80, CE/LP&L contract — 12/11/78

(18) Sample of CE QA/QC Chattanooga record procedures — 1974-1976

(19) Ebasco to CE, results of reaudit and closure of 12/15-17/76 audit findings — 11/18/83

3) Observations

a) Summary of pertinent audit findings and corrective actions for audits of CE's QA program:

(1) July 11-12, 1974, audit:

(a) The LP&L July 11 and 12, 1974, audit of CE revealed two (2) nonconformances:

- Lack of evidence for compliance with Gray Book
- Lack of procedures and methods to implement the Gray Book guidance

(b) The September 13, 1974, CE reply to Ebasco describes the corrective action taken to correct the LP&L findings for the July 11 and 12, 1974, audit.

(c) The LP&L December 10, 1975, letter to Ebasco indicates the reaudit of the deficiencies to assure the corrective action taken by CE was acceptable.

(2) December 15-19, 1976 audit:

(a) The Ebasco March 3, 1977, letter to CE revealed that during a December 15-19, 1976,

audit of CE, there was inadequate implementation of the requirements for record retention in the vault area.

(b) The April 12, 1977, CE reply to LP&L provides the corrective action taken to correct the LP&L/Ebasco findings during the December 15-17, 1976, audit.

(c) The November 18, 1983, letter to CE from Ebasco indicates the correction action taken by CE was acceptable.

(3) March 7-9, 1977 Audit:

(a) The LP&L March 17, 1977, audit report of the LP&L audit of CE on March 7-9, 1977, revealed the scope of 10 CFR 50 Appendix B criteria II, III, V, VI, XII, XVI, XVII, and XVIII of the CE QA program to be acceptable. One area was noted not to be acceptable in that the description did not provide measures for protective conditions during storage of CE's QA records.

(b) During a reaudit of CE on April 25-27, 1978, by LP&L, a review was performed on Revision 4 of the CE QA Program Topical Report Description, CENPD-210. This report had been recently approved by NRC.

(c) The LP&L April 25-27, 1977, reaudit found that Revision 4 of the CE QA Program Topical Report Description adequately addressed the concerns found during the March 7-9, 1977, audit and consequently, this item was closed.

(4) April 20-23, 1981 Audit:

(a) The LP&L June 10, 1981, letter to CE for the April 20-23, 1981, audit identifies a nonconformance that an audit system has not been established for the QA record system as outlined in ANSI N45.2.9-1974; i.e., "At CE/Windsor, periodic audits were conducted, but most of the recent audits of LP&L's records and record storage facilities was apparently incomplete and the audit report was lost. The audit was scheduled to be redone and a report issued."

(b) An LP&L May 6, 1982, Unresolved Item Report (CE81-1) closed out this audit report with

the CE response, "An audit to verify compliance to purchase order requirements is being scheduled to be performed during July 20, 1981. Upon completion of this activity, a schedule will be developed for future audits."

(c) The LP&L June 1, 1982, audit report for the LP&L audit of CE on May 3-6, 1982, revealed the audit scope covered the CE QA Manual, CE Engineering Manual, and previous audit open items. Item CE 81-1 (above) was reaudited and closed out with a new nonconformance, CE 82-1/2, "The auditors determined that a quality class 2B was assigned to New England Archives during close-out of 81-1/1. A quality class 1 should be assigned to comply with N45.2.9 - 1974." The LP&L recommendations were, "Request CE to notify LP&L when the next audit of New England Archives is scheduled. Arrange to have a LP&L Nuclear Representative to participate in this audit."

(d) The LP&L August 15, 1983, Unresolved Item Report found the next New England Archives audit acceptable and closed item CE 82-1/2.

b) Summary of pertinent correspondence or instructions by LP&L for CE: To Meet The NRC "Gray Book" and ANSI N45.2.0 Guidance:

(1) LP&L November 1973 letters to Ebasco and CE state that LP&L has committed to N45.2.9 (see above April 4, 1983 "Gambit" letter referenced documents, items 18(a), (b), and (c)).

(2) November 1973 Request by LP&L for CE to comply with N45.2.9 (Gambit #18 a, b, c).

(3) LP&L January 1974 PSAR Amendment 44 commits LP&L to N45.2.9 (see above April 4, 1983 Gambit letter referenced documents, item 18 (d) and (e)).

(4) July 2, 1974, Request by Ebasco for CE to comply with N45.2.9 (Gambit #18, f).

(5) September 20, 1974, CE Response was that CE is preparing to meet N45.2.9, costs for implementing these changes need to be developed (Gambit #18, g).

(6) November 10, 1976, to LP&L Pg. 7, CE informs LP&L that CE had revised and added procedures to meet

N45.2.9 intent by late 1973. CE wants to be compensated for the additional costs of these increased QA requirements (Gambit #13, h).

(7) December 7, 1976 - CE transmittal of CE Draft PSAR to meet Gray Book - CE Notes LP&L has not amended contract to take credit (Gambit #18, i).

(8) May 31, 1977, CE to LP&L - Detailed letter discussing history of project, QA reports and costs (Gambit #18,l).

(9) September 16, 1977, CE to Ebasco - To expedite SAR input LP&L has not amended contract (Gambit #18,u).

(10) Ebasco QA Manual requires NSSS (CE) to maintain documentation in accordance with the ASME Boiler and Pressure Vessel Code.

c) Summary of Supplement 80, Contract Agreement Between LP&L and CE

Supplement 80, dated December 11, 1978, provides for a signed agreement between LP&L and CE to resolve the dispute pertaining to CE's claim of an increase in the scope of quality assurance requirements. Pertinent contract provisions that address the quality assurance dispute are:

(1) General

"This supplement records the agreement between contractor and owner for...the compromise of dispute arising under the contract up to July 1, 1976..."

(2) Item 2. Quality Assurance

"During the course of the Contractor's engineering and procurement efforts, the Contractor claims to have been required to revise its Quality Assurance Programs to meet evolving quality requirements of the NRC and industry as invoked by the NRC. "These changes and revisions allegedly resulted in the requirements of the NRC and industry as invoked by the NRC. These changes and revisions allegedly resulted in the requirements of the Contractor's Quality Programs being in excess of those nulified in the Contract. The Owner had denied responsibility for added costs.

"As a settlement of this dispute Contractor shall provide Quality Assurance Programs in accordance

with the requirements as contained in The Code of Federal Regulations 10 CFR 50 Appendix B dated July 20, 1970; The American National Standards Institute ANSI N.45.2-1971; and the Nuclear Regulatory Commission Requirements commonly referred to as the Gray Book and entitled 'Guidance of Quality Assurance Requirements During Design and Procurement Phase of Nuclear Power Plants' and revision I thereto which was issued May 1974.

"The aforementioned Quality Assurance Program shall apply to Waterford III engineering, material procurement and/or fabrication which remained to be accomplished at the time the aforementioned Quality Assurance Programs were adopted, but shall not apply to engineering, material procurement and/or fabrication which had been completed at the time said programs were adopted."

The above Supplement 80 contract agreement was discussed by the NRC Inspectors with the LP&L Commercial Contract Manager. The Contract Manager confirmed that the contract reference to "at the time the aforementioned Quality Assurance Programs were adopted" pertains to the Revision 1 May 1984 date of the issued Gray Book, i.e., WASH-1283.

d) Summary of Observations

(1) CE was notified on November 29, 1973, that they should comply with the Gray Book guidance. LP&L notified the NRC of their intent to meet the guidance of N45.2.9 (Gray Book) in Amendment 44 to their QA program description in January 1974. CE indicated in a November 10, 1976, letter to LP&L that CE revised and added procedures to meet the intent of the 1973 Gray Book, but requested that CE be compensated for the additional costs of increased QA requirements. The Supplement 80 Contract, dated December 11, 1976, documents the compromise between LP&L and CE in settling the contract dispute concerning quality assurance. Consequently, as settlement of this dispute, CE was obligated to provide QA programs in accordance with the requirements of Appendix B to 10 CFR 50 dated July 22, 1970, ANSI N45.2-1971, and the NRC Gray Book, "Guidance on QA Requirements During Design and Procurement of Nuclear Power Plants", WASH-1283, Revision 1, dated May 1974.

(2) The review of the LP&L audit report files for CE indicates that LP&L has performed audits on CE's QA program since June 1971 at the rate of at least once per year, as required, and with an average of twice per year through 1978. The review of the LP&L audit files, associated documentation, and corrective action for audit findings indicates that all quality program deficiencies pertaining to CE's system of quality assurance records identified during and following the resolution of the QA contract dispute have been adequately resolved.

(3) The NRC inspector reviewed a sample of CE's QA program procedures for the implementation of QA requirements for records of manufacturing at CE facilities. The procedures reviewed were issued for use during the period of 1974-1976. These procedures referenced other procedures for the maintenance of QA records and development of required QA records check lists for each contract, which were not part of the NRC inspector's review. However, based on policy set forth in the basic CE QA program procedures reviewed, coupled with Ebasco and LP&L audit findings documented during the 1974-1976 period, there is reasonable assurance that CE was required by LP&L to establish and implement the Gray Book and the ANSI N45.2.9 quality assurance requirements in accordance with the Supplement 80 contract agreement. The procedures reviewed were issued for use during the period of 1974-1976. Coupled with the Ebasco and LP&L audit findings documented during 1974-1976, it provides further evidence that the requirements of ANSI N45.2.9 were being implemented by CE.

4) Findings

a) Based on the above review of the referenced documentation, it is clear that the "QA program dispute between LP&L and CE" was one involving a lengthy contract dispute to arrive at a mutually agreeable financial settlement. The dispute apparently did affect to some degree the timeliness of CE's compliance with the licensee's commitment to the new quality assurance record requirements of ANSI N45.2.9. However, based on the documentation reviewed, the identified audit deficiencies in CE's QA program relative to the "new" LP&L QA program requirements have been adequately resolved and, therefore, there is reasonable assurance that LP&L's QA program meets the intent and guidance of the QA program commitments included in Amendment 44 to the SAR. This item is closed.

GLOSSARY OF ABBREVIATIONS

AB	American Bridge
AISC	American Institute for Steel Construction
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASP	Administrative Site Procedure
AWS	American Welding Society
B-P	Bergen Patterson
CAT	Construction Appraisal Team
CB&I	Chicago Bridge and Iron
CCW	component cooling water
CE	Combustion Engineering, Inc.
CIWA	Condition Identification Work Authorization
CMT	construction materials testing
CSM	Coordinator Startup Maintenance
DCN	Design Change Notice
DMC	Decision Management Company
DMN	Deficient Material Notice
DN	Discrepancy Notice
Ebasco	EBASCO Services Incorporated
EDN	Engineering Discrepancy Notice
EFW	emergency feedwater
ESSE	Ebasco Site Services Engineering
F&M	Fischbach and Moore, Inc.
FCR	Field Change Request
FSAR	Final Safety Analysis Report
GAMBIT	Gambit Publications, Inc.
GEO	GEO Construction Testing
HVAC	Heating, Ventilation, and Air Conditioning
IE	Office of Inspection and Enforcement
IDVP	Independent Design Verification Program
ISEG	Independent Safety Engineering Group
ISO	isometric drawing
IR	Information Request; Inspection Report
LP&L	Louisiana Power and Light Company, also referred to as Licensee or Applicant
LCIWA	LP&L Plant Staff CIWA
MAC	Management Analysis Company
NCR	Nonconformance Report
NISCO	Nuclear Installation Services Co.
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
OCR	Operations Control Report (Mercury Co. Traveler Form)
PSAR	Preliminary Safety Analysis Report
PT	penetrant testing
QA	Quality Assurance
QAIRG	Quality Assurance Installation Records Group
QASP	Quality Assurance Site Procedure
QC	Quality Control
QP	Quality Procedure
RAB	Reactor Auxiliary Building
RCB	Reactor Containment Building
SAP	Startup Administrative Procedure
SAR	Safety Analysis Report

SCD	Significant Construction Deficiency
SES	steam electric station
SS	stainless steel
SSER	Supplement, Safety Evaluation Report
S/U	startup
T-B	Tompkins-Beckwith, Inc.
TPT	Torrey Pines Technology