

NUS PROJECT PLAN FOR THE
PRELICENSING ISSUES TASK FORCE SUPPORT GROUP

1.0 Project Objectives

The principal objective of this project is to provide independent technical support to the Prelicensing Issues Task Force in the conduct of their support for the Louisiana Power & Light Waterford 3 Steam Electric Station project. The purpose of the Task Force is described in the Task Force charter (Attachment A). The support provided may be in several areas, including performing independent assessments of issues raised in the NRC letter dated June 13, 1984, from Darrell G. Eisenhut to Mr. J. M. Cain (Attachment B).

2.0 Work Scope

2.1 General

The work scope of this project involves two principal aspects as covered in Items 2.2 and 2.3 below. Item 2.2 covers the NUS Support Group's efforts to assist the Task Force in carrying out its charter to perform an independent assessment for the LP&L CEO of the LP&L responses to the issues raised in Attachment B. Item 2.3 covers separate efforts by the NUS Support Group to provide inspections, validations, and other types of assistance as requested by LP&L on items not covered in the Task Force charter. See Section 2.3 below for further definition of this area.

The NUS Support Group's paramount objective is to ensure the independence of the Task Force's overall effort. Open and full discussions with LP&L and its contractors for purposes of obtaining a full understanding of the issues, proposed LP&L responses, and other information are encouraged. However, the validation efforts and recommendations to the Task Force are to be performed and developed independently of LP&L and its contractors. The major effort should be directed to enabling the Task Force to respond effectively to the concerns and directions in Attachment B. The effort should be expanded beyond the scope of that expressed in Attachment B where it may be necessary to do so to address the safety significance, generic implications or other broader implications of an issue. All such expansions should be discussed with and approved by the NUS Project Manager. The collective significance of all the issues must also be addressed.

The detailed nature of the work performed may vary as the project work progresses and as more facts become available. This project plan provides general guidance for the conduct of project activities. Based on the scope of a specific task within the project, additional procedures will be prepared as required to adequately control project activities. The activities related to the project can be grouped into seven broad categories as discussed below.

2.2 Initial Review of Issues

2.2.1 The initial activities conducted by NUS personnel will be to review the background on each of the 23 issues to

develop a complete understanding of the situations presented. NUS personnel with the appropriate backgrounds and experience will be assigned to this task. Activities will be coordinated closely with the Task Force members to assure that the project is proceeding properly. During the activities related to review of the background, close coordination will be maintained with LP&L and other personnel to assure that correct information is used by the NUS Support Group in conducting its activities.

2.2.2 Review Specific Issues

The reviewers of each of the issues should ensure that the LP&L responses present sufficient logic to enable the Task Force to specifically address the NRC concerns and directions in Attachment B, including their safety significance and generic implications of the specific issues. Each one of the issues outlined by the NRC in Attachment B will be assigned to a member of the NUS Support Group to evaluate and determine what courses of action should be carried out to validate the logic of the LP&L responses and ensure that all pertinent information related to that issue is brought before the Task Force.

2.2.3 Validation of Specific Issues

To develop validation procedures as the work related to reviewing specific issues and the background information related to them progresses, NUS personnel will develop lists of information to be validated independently by the Task Force and the NUS Support Group and the procedures to be used in validating the information. The purpose of this activity is to ensure the Task Force that the information contained in the response to the NRC is correct to the best of NUS knowledge. In addition, the validation procedures will contain elements intended to verify that corrective actions defined by LP&L in the response are properly carried out.

The procedures will be prepared by the NUS personnel familiar with the issue under consideration. All procedures developed that require field inspections will be approved by a qualified and certified NUS Level III inspector. Procedures related to documentation review, validation of responses by EBASCO and LP&L, and other activities will be approved by either NUS Level III inspection personnel, certified lead auditors, or appropriate engineering personnel. All procedures will be approved by the NUS Project Manager or designee. The logic employed in the procedures and the specific items to be validated or evaluated will be coordinated with the Task Force to the degree necessary.

The procedures prepared will be in the format most appropriate to the specific issues, but must contain at least the following information:

1. Actions to be taken by NUS
2. Details of carrying out these actions
3. Acceptance criteria
4. Reference documents
5. How the results of the validation process will be documented
6. The types of personnel required for conducting the validation activities, including their experience and qualifications

2.2.4 Validate LP&L Responses

The procedures developed for validation of the specific issues will be executed by the NUS Task Force Support Group personnel. The Project Manager is responsible for assuring that the procedures are carried out correctly and as outlined in the approved document. Statistical sampling techniques may be used where appropriate to assist in the validation effort.

2.2.5 Report Results of Evaluation and Validation Effort

Upon completion of the evaluation and validation efforts, the results will be documented for transmittal to the Task Force. During the course of the evaluation and validation efforts, any unusual findings or concerns that arise will be brought to the attention of the Project Manager and, if appropriate, the Task Force. In addition, any concerns raised will be discussed with LP&L personnel to help ensure that the correct documents are available for the work effort and to obtain any additional documented information required as the work proceeds.

2.2.6 Inspection Support

During the course of the evaluation and validation activities carried out by the NUS Support Group, it will be necessary to perform some inspections of field installations. These inspections will be carried out by personnel certified as quality assurance inspectors in accordance with ANSI N45.2.6-1973. The inspecting personnel will be certified as Level I, II, or III as appropriate under the requirements of ANSI N45.2.6-1973. The data gathered by the inspectors will be interpreted by NUS personnel certified as Level III inspectors or by appropriate engineering personnel. All inspections will be carried out in accordance with procedures reviewed and approved by the NUS Project Manager or his designee.

2.3 NUS Support to LP&L for Activities Not Related to Prelicensing Issues

During the course of the activities in support of Waterford 3, LP&L may request that NUS provide inspection or other support to assist in the LP&L efforts related to resolving NRC concerns other than those addressed in Attachment B, such as inspections related to NRC construction appraisal team (CAT) activities. NUS personnel may be used in this capacity if approved by the Task Force and the NUS Project Manager. During these situations, NUS inspection personnel will perform inspections in accordance with LP&L-prepared procedures which have been reviewed by Support Group personnel and which have been remodified as necessary to ensure that they are suitable for use in fulfilling the requested function and which have been approved by the NUS Project Manager. Personnel assigned to such work shall be under the direction of the NUS Project Manager. In no case shall the NUS Project Manager assign NUS inspection personnel to assist LP&L in any situation that could cause a conflict of interest and jeopardize the independence of the NUS Support Group.

3.0 Project Organization

3.1 Prelicensing Issues Task Force

Attachment A to this project plan depicts the relationship of the Prelicensing Issues Task Force and LP&L management. Attachment C hereto shows the relationship between the Task Force and the Task Force Support Group. The Task Force has final responsibility and authority for directing the actions of the Prelicensing Issues Task Force Support Group and will remain cognizant of the activities carried out by the Support Group to ensure that they are in accordance with the requirements of the Task Force.

3.2 Project Manager

The Project Manager for the Prelicensing Issues Task Force Support Group is Mr. Peter V. Judd. Mr. Judd, as Project Manager, is responsible for being the primary interface with the Task Force and with NUS personnel assigned to the project at the site and at other locations. Mr. Judd will call upon the personnel resources of NUS Corporation as required to obtain personnel for assignment to the project.

3.3 NUS Staff

NUS personnel will be assigned to specific tasks related to the functions the Task Force charter based on their experience and qualifications, as previously discussed. The personnel assigned to review issues and develop validation procedures will have backgrounds and experience commensurate with the assignment that they are given. Similarly, personnel assigned to documentation reviews will have appropriate backgrounds for performing these activities. Attachment D shows the relationship between the Project Manager and

Support Group personnel. The NUS Personnel Department routinely conducts verification of the credentials for NUS employees. They have reviewed their files to provide assurance that personnel assigned to the project do in fact have the background, credentials, and experience outlined in their resumes; this information will be updated appropriately as new people are added to the project. Personnel assigned to inspection activities will be certified as Level I, II, or III inspectors in accordance with ANSI N45.2.6-1973.

4.0 Project Procedures

4.1 Activities performed by NUS personnel in addressing the 23 issues shall be prescribed in procedures as defined herein.

4.1.1 The initial review of LP&L's 23 responses is performed by NUS personnel, with appropriate backgrounds and experience, to develop an understanding of each of the issues and to determine LP&L's logic approach in response to the NRC directions. This review, consisting of preliminary evaluations into such areas as site control of records, personnel interviews, and utility/contractors implementing procedures is conducted to provide the necessary background information required to form the basis for validation and inspection efforts.

The results of this review will be documented in a summary, which delineates LP&L's logic approach, describes additional logic steps identified by NUS, and presents recommended actions (LP&L and NUS) needed to resolve the individual issue. This summary will be submitted to the Task Force. Formalized procedures are not required and are not considered necessary to control the aforementioned activities.

4.1.2 Detailed validation procedures shall be prepared, approved, and issued to NUS staff personnel performing independent validation activities. These procedures shall consist of documentation review procedures and inspection procedures.

Documentation review procedures shall be written to ensure the independence of the effort, shall prescribe the attributes requiring validation, and shall include checklists/tables, as required, to document and/or acquire objective evidence.

Inspection procedures shall be generated to provide (1) the quantitative and qualitative criteria necessary to perform the inspection and (2) checklists/tables as required to document and/or acquire objective evidence.

4.1.3 NUS personnel performing validation activities such as document reviews or field inspection shall receive training in the specific requirements of the validation activities. The type of training given in each instance shall be documented.



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June 20, 1984

J.M. CAIN
President and
Chief Executive Officer

W3B84-0445

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Mr. Larry L. Humphries
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SUBJECT: Pre-Licensing Issue Assessment
Task Force Charter

REFERENCE: Discussions in the Offices of Shaw, Pittman,
Potts & Trowbridge, Washington, D.C., June 13, 1984

Dear Messrs: Levine, Ferguson and Humphries:

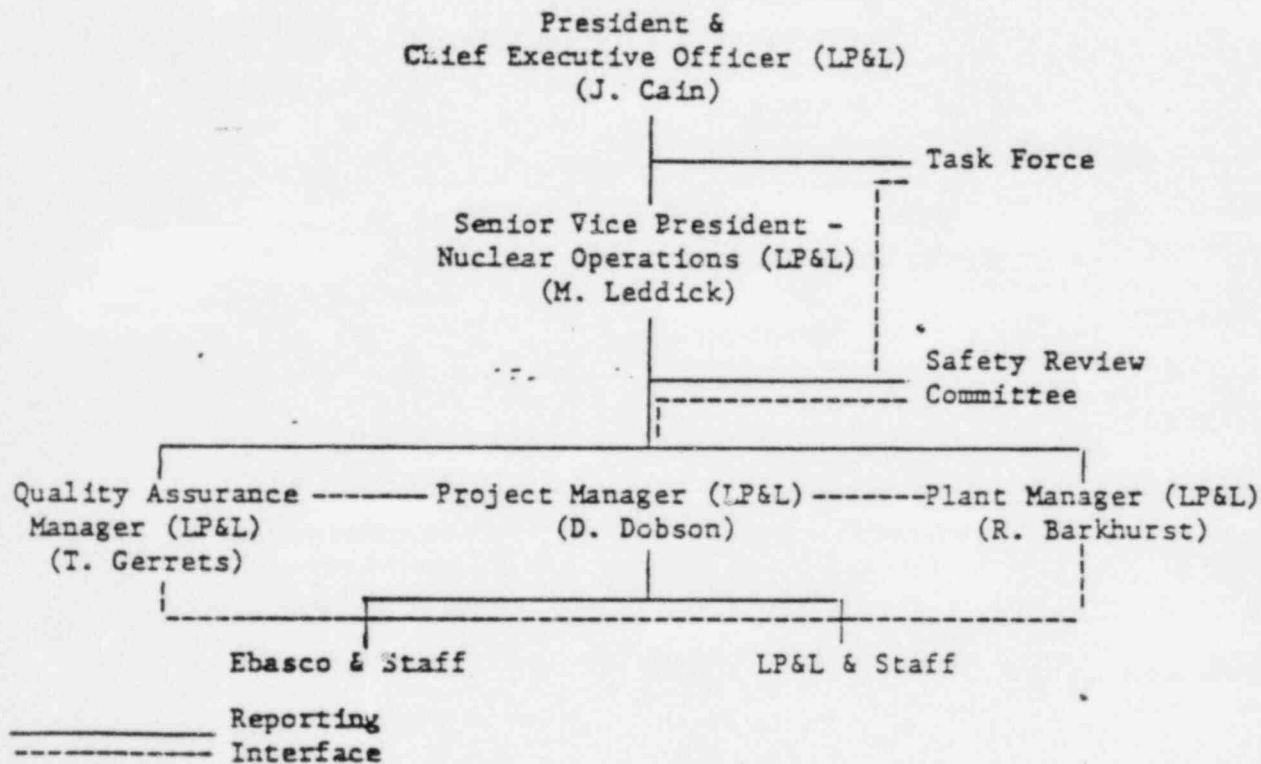
Pursuant to discussions in the referenced meeting, this formalizes agreements reached between us as to the charter of the subject Task Force.

The roles of UNC and NUS will be to act as a task force in providing assessment and advice in responding to the NRC letter of June 13, 1984. It is important to emphasize that both UNC and NUS will maintain sufficient independence in order to provide to me as Chief Executive Officer of LP&L an independent professional assessment regarding the functions listed below. Your assessments will be formalized and sent to the Director of the Office of Nuclear Reactor Operations at the same time they are provided to me.

- The Program Plan and implementation schedule requested in the NRC letter.
- The adequacy of responses and resolutions (including validation of data and sources, as appropriate) of the matters set out in the NRC letter.

- The safety significance of the matters listed in the NRC letter with respect to:
 - Fuel load and testing up to 5% power
 - Operation above 5% power
- The adequacy of the past QA/QC program in light of the matters listed in the NRC letter, and the resolution of such matters.
- Recommend institutional or programmatic changes that are deemed appropriate during plant operation in light of the lessons learned as a result of the matters set forth in the NRC letter, and the LP&L responses hereto.

The following abbreviated organization chart is provided to clearly depict that the Task Force is to have access to and interface with all necessary elements of the Waterford staff but is to report directly to me.



Very truly yours,

J.M. Cain
J.M. Cain

JMC:DED:pb

cc: G. Charnoff, R.S. Leddick, D.E. Dobson



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 13, 1984

Docket No. 50-382

Mr. J. M. Cain
President & Chief Executive Officer
Louisiana Power and Light Company
317 Baronne Street
New Orleans, Louisiana 70160

Dear Mr. Cain:

SUBJECT: WATERFORD 3 REVIEW

On April 2, 1984, the staff began an intensive review effort largely conducted onsite, designed to complete those issues necessary for the staff to reach its licensing decision on Waterford Unit 3. These issues covered a number of areas including allegations of improper construction practices at the facility. As we indicated to you, the staff would promptly notify you of issues that could potentially affect the safe operation of the plant.

We have recently identified the items listed in the enclosure that have potential safety implications for which we require additional information. It should be noted that they are being provided to you before the NRC staff publication of its SSER which will document its assessment of the significance of these and all of the other issues examined. The issues in the enclosure represent an extensive staff audit of information related to the plant.

As a result, you are requested to propose a program and schedule for a detailed and thorough assessment of the concerns. This program plan and implementation schedule will be evaluated by the staff before consideration of issuance of an operating license for Waterford 3. This program plan should include and address the cause of each of these potential problems identified; the generic implications and the root cause of the concern on

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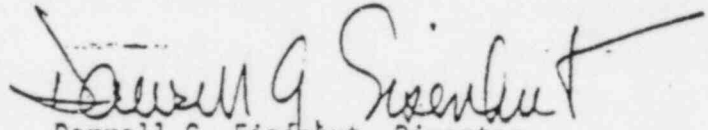
Mr. J. M. Cain

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June 13, 1984

other safety-related systems, programs or areas; and the collective significance of these deficiencies. Your program plan should include the proposed LP&L action to assure that such problems will be precluded from occurring in the future.

Sincerely,



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
See next page

Mr. J. M. Cain

- 3 -

June 13, 1984

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POTENTIAL SAFETY IMPLICATIONS1. Inspection Personnel Issues

As a part of the NRC staff's review, the credentials of quality assurance and quality control inspectors were examined. Included in this effort were the verification of previous job experience and qualifications and certification of personnel as inspectors.

The following items were found: -----

- (1) NRC reviewed inspector certifications for 37 of the 100 Mercury QC inspectors, including certifications for all Level III personnel. Twelve inspector certifications were found questionable due to insufficient education or experience.
- (2) The certification records of 38 Tompkins-Beckwith (T-B) QC inspectors were selected at random and reviewed. Fourteen inspector certifications were found questionable due to insufficient education or experience.
- (3) A 30% sample by the staff of inspector certifications of the Mercury QC work force revealed that no verification of past employment was documented. A sample by the staff of inspector certifications of the Tompkins-Beckwith QC work force produced similar results.

The safety significance of these findings is that unqualified inspectors may have inspected safety-related systems, thereby rendering verification of the quality of these systems indeterminate. LP&L shall: (1) verify the professional credentials of 100% of the site QA/QC personnel, including supervisors and managers, (2) reinspect the work performed by inspectors found unqualified, and (3) verify the proper certification of the remaining site QA/QC personnel to ANSI N45.2.6-1973.

2. Missing N1 Instrument Line Documentation

The staff examined the documentation concerning installation of safety-related N1 instrument lines. Part of that review dealt with the situation where there is a change of design classification for systems. As a result of the staff review it was determined that communications between LP&L and Ebasco prompted a revision to be written by Ebasco to an LP&L drawing to clarify the "class break" for N1 instrument lines. The revision imposed ASME Class requirements for all installations between the process piping and the instruments for instrument lines installed after April 7, 1982. Prior to the revision a class break was defined to show the location where ASME class stopped and ANSI B31.1 applied.

Although ANSI B31.1 does not relate to records retention, 10 CFR 50 Appendix B does require special process controls, traceability, installation and inspection records. Therefore, for locally mounted N1 instruments, even though they were installed prior to April 7, 1982,

these records could not be located. Examples of the instruments lines with no supporting installation and inspection records for zones classified as ANSI B31.1 are LT-SI-0305B; LT-SI-0305D; PS-CH-0224X; PS-CH-0224Y and PS-CH-0224Z.

Examples of the type of deficient data are weld reports, welder identification, weld filler material, base material and weld inspection results.

The NRC staff concluded that based upon the lack of quality records, for instrumentation installation to B31.1 the requirements of 10 CFR 50, Appendix B and the related other QA program elements may not have been complied with.

The lack of documentation to demonstrate the quality of installation of these safety related lines calls into question the acceptability of these installed components.

LP&L shall; (1) Provide the missing documentation required by 10 CFR 50 Appendix B for the B31.1 instrumentation for local mounted instruments; (2) Review other design changes and documentation for all safety-related N1 instrumentation systems to assure all system installations were properly documented and inspected; and (3) If the documentation cannot be located, action must be taken to assure affected portions of safety-related system comply with NRC requirements.

3. Instrumentation Expansion Loop Separation

As a part of its review of NCRs the staff identified a concern in NCR W3-7702. This NCR was written as a result of Mercury OCR Package 1782. Drawing 172-L-012-C Revision 4 had a handwritten note on it identifying two lines DPR-RC-9116 SMB (HP) and DPT-RC-9116 SMA-(HP) where the separation criteria had been violated. The violation occurs where these instrument lines from different trains leave the tube tracks and form an expansion loop before returning to the continuation of the tube track. Lack of separation could result in failure of redundant lines that could prevent a safety function.

LP&L shall correct the separation criteria violation found in System 52A. They shall also provide a program for review of other safety-related systems for separation criteria violations and take the necessary corrective actions.

4. Lower Tier Corrective Actions Are Not Being Upgraded to NCRs

The staff reviewed the Corrective Action system to verify if lower tier corrective action documents were being properly upgraded to NCRs as required by 10 CFR Part 50, Appendix B Criteria XV and XVI. Specifically the staff looked at a number of Field Change Requests (FCRs), Design Change Notices (DCNs), and Engineering Deficiency Notices (EDNs) selected

from printouts of safety-related equipment and systems document issuance logs. The selected documents were reviewed for content and basis for issuance (i.e., before the fact design change or after the fact nonconformance). Finally a walkdown was performed to verify proper identification and change control completion. In addition Tompkins-Beckwith (T-B) Discrepancy Notices (DNs) were reviewed.

As a result of its review the staff found that the following issues.

- a. Field Change Requests - Sixty-three FCRs and 21 revisions to FCRs were evaluated. It appears as though 35 should have been NCRs and another 4 reflected conditions that may have warranted an NCR. The list below provides examples of FCRs that should have been NCRs.

F-MP-1818	F-AS-1631
F-AS-3698	F-E-3089
F-AS-3648	F-MP-2138
F-AS-2338	F-MP-2151
F-MP-1434	F-E-2288

- b. Design Change Notices - Fourteen DCNs and 5 revisions to DCNs were reviewed. It appears as though 4 of those should have been upgraded to NCRs. Listed below are examples of these.

DCN-703 and Revision 1
DCN-1C-478
DCN-ME-30
DCN-E-790

It appears as though the problems identified in DCN-703 are related to FCR-MP-2138 and may have been reportable under 10 CFR Parts 21 or 50.55(e).

- c. Engineering Discrepancy Notice (EDNs) - Seventy-six EDNs were reviewed for proper identification and control. Of those 76, it appears as though 51 of those should have been NCRs. Examples of these are listed below.

EDN-EC-1476
EDN-E-1548
EDN-EC-1502
EDN-EC-1479

In addition during the review, another 35 were "voided" with no action taken. The voiding action was performed by a clerk. Examples of voided EDNs are as follows:

EDN-EC-0630
EDN-EC-1175
EDN-EC-1176
EDN-EC-1140

- d. Tompkins-Beckwith - The staff reviewed a sample of the handling of information requests and Discrepancy Notices by Ebasco. As a result of that review it appeared that a number of these items should have been upgraded to NCRs. Examples of these are listed below.

W-6519	W-5755
W-6183	W-742
W-6322	W-5917
W-3656*	W-381
W-1876	W-5824*
W-4112	W-5047
W-5692	W-5416
W-6243	W-5916
W-6349	W-2105
W-728	W-4968*
W-4648*	W-4969*

The asterisked (*) items all related to incorrect heat numbers being entered incorrectly or clerical errors being made on rod slips.

In summary, the staff found that the QA program requirements for nonconformance identification, control and proper action do not appear to have been complied with.

LP&L shall review all FCRs, DCNs EDNs, and T-6 DNs to assure that proper corrective action was taken, including an adequate review by QA. This action shall include the steps required by 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, and for Construction Deficiency Reporting, 50.55(e). Also included in this review shall be the examination of improper voiding of all other design changes or discrepancies notices that affected safety-related systems or that were misclassified as non-safety related.

5. Vendor Documentation - Conditional Releases

As a part of the staff review of the QA program, the staff evaluated the Ebasco vendor QA program. In assessing this program, the staff specifically looked at the receipt inspection program and the conditional release system.

As a result of its evaluation, the staff found certain deficiencies with the handling of conditional certification of equipment (C of E) for Combustion Engineering supplied equipment. For example, one conditional C of E for the reactor vessel and internals was issued because as-built drawings, material certifications, and the fabrication plans had not been forwarded when the equipment was delivered to LP&L in 1976. The missing documents were sent to Ebasco sometime in 1978, according to the Ebasco quality records supervisor, but were apparently lost prior to being placed in the Ebasco document control system. The conditional

certification of equipment was found when a check of all files was made in April or May 1984. The missing documents have been requested from CE, and a deficiency report was issued and placed on a master deficiency list. This problem has existed since July 20, 1976.

The safety significance of this is that problems with the vendor QA records could affect installed safety related equipment. LP&L shall examine their records and determine if all conditional certifications of equipment have been identified, reviewed, and promptly resolved.

6. Dispositioning of Nonconformance and Discrepancy Reports

The staff conducted a review of Ebasco nonconformance reports (NCRs) randomly selected from the Ebasco QA vault and the NCR tracking system. The selected NCRs were reviewed for content, compliance with procedures, accuracy, completeness of the disposition and final closure. Of the NCRs reviewed it is the staff's judgement that approximately one third contained questionable dispositions. Other NCRs were found still open.

The implied safety significance is that improperly dispositioned NCRs or lack of NCR closure could place the quality of installation in question.

For example, Ebasco NCR W3-5564 identifies that welds were painted before the final weld inspection was performed. The NCR was closed out with a letter stating that the final inspection will be performed to inspect only for undercutting and lack of weld material where installation drawing calls for weld material. No paint was to be removed therefore the inspector could not inspect for welding defects.

The NCRs reviewed by the staff dealt with a wide variety of issues. The following is a list of example Ebasco NCRs that the staff feels contain questionable dispositions or exceeded closure time requirements.

Ebasco W3 NCRs

NCR-7139	NCR-7177	NCR-3912	NCR-7182	NCR-5563
NCR-7181	NCR-7184	NCR-6159	NCR-6723	NCR-3919
NCR-7547	NCR-6221	NCR-1650	NCR-6511	NCR-6623
NCR-4219	NCR-5586	NCR-7432	NCR-7180	NCR-4137
NCR-6165	NCR-4088	NCR-7099	NCR-6786	NCR-6597
NCR-7533	NCR-7170	NCR-7140	NCR-5565	

The staff also found similar type problems related to Mercury NCRs in that the dispositions were questionable; supporting documentation could not be located; rework appears to have not been accomplished; NCRs were not processed; a sufficient basis was not provided; and closure basis was inadequate.

The following NCRs fall into these categories:

Mercury NCRs

180	420	528	568	625
255	429	540	591	656
268	438	554	594	658
363	487	560	595	
380	491	565	614	

Additionally during this review the staff found problems with Ebasco discrepancy reports (DRs) in that it appears some DRs should have been elevated to NCRs; closure references were incorrect or inappropriate; closure action was improper; documentation was inaccurate; closure was via a DR, should have been an NCR; disposition failed to address the discrepancy; and the disposition of "use-as-is" had insufficient basis.

The following DRs fall into these categories:

Ebasco DRs Related to Turnover Packages

Q2-CS-1C-27	BD-1C-1143
Q2/3-FW/1C-851	Q1-RC-LWS-RC-2
Q2-SI-1C-89	LW3-RC-29
QMC-APD-P47E	Q2-LW3-SI-10F/E
CH-1C-342	CC-1C-6

The staff concludes that some Ebasco and Mercury NCRs and Ebasco DRs were questionably dispositioned and that LP&L shall (1) Propose a program that assures that all NCRs and DRs are appropriately upgraded and adequately dispositioned and corrective action completed, and (2) correct any problem detected.

7. Backfill Soil Densities

The staff found that records are missing for the in-place density test of backfill in Area 5 (first 5' starting at Elevation -41.25'). These documents are important because the seismic response of the plant is a function of the soil densities.

LP&L shall (1) Conduct a review of all soil packages for completeness and technical adequacy and locate all records and provide closure on technical questions, or (2) conduct a review of all soil packages for completeness and technical adequacy and where soil volumes cannot be verified by records as meeting criteria, perform and document actual soil conditions by utilizing penetration tests or other methods, or (3) Justify by analysis that the soil volumes with missing records, or technical problems as defined after the records review, are not critical in the structural capability of the plant under seismic loads.

8. Visual Examination of Shop Welds During Hydrostatic Testing

The staff's review of hydrostatic tests conducted by Tompkins-Beckwith (T-B) for their installed ASME Class 1 and Class 2 piping systems found a lack of proof of the visual inspection of all shop welds during the tests. Inspection of all welds for leakage is required by the ASME Code and is essential to ensure the structural integrity of the piping system. LP&L shall provide documented evidence that shop welds were indeed inspected during the hydro tests. If the appropriate inspection documents do not exist or cannot be located, LP&L shall submit a statement attesting to shop weld inspection by the responsible personnel of LP&L or Ebasco who had witnessed the hydro tests.

9. Welder Certification

The staff reviewed the records for the installation of the supports for certain of the instrumentation cabinets in the Reactor Containment Building (RCB). The review included an examination of procurement records for the support material, weld rod control documents, welder certification records, and QC inspection records.

Based on the staff review it appears that documentation is missing on the support welds and it is not clear that the welders were certified for all of the weld positions used. Thus the quality of the supports for the instrument cabinets are indeterminant.

LP&L shall attempt to locate the missing documents and determine if the welders were appropriately certified. If the documentation cannot be located, appropriate action must be taken to assure the quality of the cabinet supports.

10. Inspector Qualifications (J. A. Jones and Fegles)

The NRC staff reviewed the qualification and certifications of QC inspectors in the civil/structural area. The review included the qualifications of four Ebasco inspectors, five J. A. Jones inspectors and eight Fegles inspectors. The inspector qualifications were compared against the requirements of ANSI N45.2.6 and the contractor's procedures.

The staff found that four of the five J. A. Jones inspectors and two of the eight Fegles inspectors failed to meet the applicable certification requirements related to relevant experience. Since these inspectors were involved in the inspection of safety-related activities, the fact that they may not have been qualified to perform such inspections, renders the quality of the inspected construction activities as indeterminant.

LP&L shall review all inspector qualifications and certifications for J. A. Jones and Fegles against the project requirements and provide the information in such a form that each requirement is clearly shown to have been met by each inspector. If an inspector is found to not meet the qualification requirements, the licensee shall then review the records to determine the inspections made by the unqualified individuals and provide a statement on the impact of the deficiencies noted on the safety of the project.

11. Cadwelding

The staff reviewed the Cadweld activities related to the deficiencies identified in NCR-W3-6234. The staff is concerned that the applicant has provided only limited data (in other than the raw form) to the NRC on the statistics of the Cadweld testing program conducted during construction. The data provided stated that for the base mat 3,673 splices were made with 81 tests run, showing an average strength of 95,397 psi with a range of 60,750 - 107,051 psi. For the entire project the applicant has stated that 14,293 splices were made of which 591 were tested with 6 of those failing to meet tensile requirements. It is noted that the above NCR has been reopened as a result of the CAT inspection and all issues have not been resolved.

LP&L shall provide the Cadweld data for the project in such a form that it can be readily compared to the acceptance criteria used for the Waterford 3 project. This will require breaking down the Cadweld data by building or structural element such as the base mat, NPIS walls that are not part of RAB or FHB, containment interior structures etc. Additionally, the data should be broken down by test program type (production or sister), bar size, bar position and cadwelder. Data shall be provided in each category on total splices made, visual rejects, production tests and failures, and sister tests and failures. Data shall also be provided on welder qualification and requalification including dates.

Based on discussions with LP&L representatives the NRC staff has been informed that efforts in this area are underway, but this information is needed for staff review.

12. Main Steamline Framing Restraints

As part of the NRC staff's review, the installation and inspection of the main steamline framing restraints above the steam generators was examined to determine if the as-built drawings reflect the actual installation. The NRC staff found no problems with as-built conditions, but found that several bolted connections had not been inspected (or documented) for the framing. The failure to perform (or document) the inspections render the quality of these framing restraints as indeterminant.

Based on discussions with LP&L representatives the staff was informed that the subject inspections are in progress. LP&L shall complete the inspections of the restraints and make the documentation of such inspections available to the staff.

13. Missing NCRs

During the NRC's review of Ebasco's NCR Processing System the card index file of NCRs was examined and the staff noted that there are missing reports in the consecutively numbered NCRs. Specifically W3-27, 814, 859, 981, 1053, 1102, 1109, 1228, 1349, and 1438 are missing from your card index file. Others were also noted to be missing from the Ebasco QA vault.

LP&L shall (1) obtain the missing NCRs, explain why these NCRs were not maintained in the filing system, review them for proper voiding, and (2) assure that when an issue is raised to an NCR, it is then properly filed for tracking and closure.

14. J. A. Jones Speed Letters and EIRs

During the Ebasco QA review of J. A. Jones speed letters and engineering information requests, several items that could affect plant safety were noted. Based on its sample of these actions, the staff does not expect that any of these items will significantly affect plant safety. Nevertheless, the applicant should complete the actions identified in these reviews and issues raised shall be resolved promptly.

15. Welding of "D" Level Material Inside Containment

The staff reviewed the welding of "D" level material for containment attachments. The containment spray system structural component welds were chosen for specific detailed review. The welds on the containment spray piping supports were checked for weld rod traceability and welder identification and certification. The applicant was unable to produce the documentation sought for the staff review.

The applicant shall (1) locate the documentation and verify the adequacy of the information, or (2) perform a material analysis and NDE work, or (3) rework the welds. The staff shall be promptly informed of the applicant's approach and the documentation shall be made available for staff review.

16. Surveys and Exit Interviews of QA Personnel

In a memorandum dated January 3, 1984, R. S. Leddick, LP&L Vice President for Nuclear Operations, directed that the LP&L Quality Assurance (QA) personnel conduct interviews of the on-site contractor QA personnel to elicit any concerns the contractor staff may have regarding the quality of construction of Waterford Unit 3. That memorandum also indicated that exit interviews would be similarly conducted with the contractor personnel prior to their leaving the Waterford 3 project. A total of 407 such interviews were conducted beginning in January 1984. Individual responses were sent to the specific employee(s) who raised the concern.

Exit interviews with the contractor QA employees (resigned, transferred, or terminated) began on January 16, 1984. A compilation of the concerns raised during those interviews were forwarded for followup on May 22, 1984.

The NRC staff reviewed all of the question re forms and responses to the questions identified by the LP&L QA staff. In some cases, the NRC review identified additional potential issues, beyond those identified by LP&L, and responses that did not address the intent of the concerns. Nevertheless, the staff found that the majority of the concerns raised are being or have been addressed as part of all of the other NRC review efforts associated with Waterford 3.

As a result of the staff review, it is not evident that the survey and exit interviews have been vigorously pursued by LP&L to investigate the issues raised for safety significance, root cause, and generic implications. For example, the exit interviews began in January and are continuing. However, the process of reviewing the content of those interviews did not begin until late May 1984. For some of the interviews, additional information should have been obtained from the person interviewed but the interviewers did not indicate on the form whether or not they sought additional facts. Finally for a number of areas, issues or potential problems were acknowledged but it is not clear that any followup action occurred.

The NRC staff is concerned that the LP&L program to investigate issues does not promptly and thoroughly examine the specific areas and the programmatic implications of them. Other successful programs have utilized independently staffed groups to assess each issue raised and formally report to senior utility management on their findings and recommended corrective actions. These elements are not evident in the LP&L process. As a result, LP&L should develop and implement a formal program for handling issues raised by individuals. One of the first tasks to be dealt with by the program should be the review of the responses previously provided to the QA survey and during the exit interviews.

17. QC Verification of Expansion Anchor Characteristics

A review of Mercury Construction Procedure SP-666, Revision 8, "Drilled-In Expansion Type Anchors in Concrete for Category I Structures," revealed that it does not require QC verification of many characteristics necessary to ensure proper installation of concrete expansion anchors. These characteristics include:

- Spacing between adjacent anchors
- Spacing between an anchor and the edge of a concrete surface
- Spacing between an anchor and an embedded plate
- Minimum anchor embedment depth
- Grouting of unused/abandoned holes in the concrete
- Mounting plate size
- Size of holes in mounting plates and hole distance from plate edges

Although most of the above characteristics are addressed in Section 6.1 "installation," they are not included within Section 6.2 "Inspection," as items requiring QC verification. In addition, QC Inspection Report Form 277A, Rev. May 1982, "Equipment Installation (Anchors)," does not list these attributes as inspection points.

Therefore, Procedure SP-666 should be revised to include all necessary inspection attributes, and a reinspection program should be initiated. This program should be of sufficient size and scope to indicate whether these concrete anchors, in general, are able to perform their intended function. Detailed results should be made available to the NRC staff for review.

18. Documentation of Walkdowns of Non-Safety Related Equipment

A review of the design and evaluation of the non-safety instrument air piping, tubing, and their supports indicated that the general recommendations of Regulatory Guide 1.29, "Seismic Design Classification" were considered. This non-safety equipment is installed in areas with safety related equipment, such as the containment and auxiliary building areas. From the information provided relative to this system, it is apparent that the potential for system failure was considered in the design.

Also a number of procedures and controls were implemented to further assure that these non-safety related components would not affect safety related equipment. However, the followup documentation of the final walkdowns did not list the reviewed equipment in detail and therefore it could not be concluded that the instrument air piping and tubing (and their supports) had been adequately addressed regarding potential physical damage to safety-related equipment.

Therefore, documentation should be provided that clearly shows what equipment was reviewed during the walkdowns and on what bases it was concluded that the installation was acceptable.

19. Water in Basemat Instrumentation Conduit

In examining the safety significance of the allegations, the NRC staff performed system walkdowns as a means of verifying the as-built conditions. During one of those walkdowns, the staff noted that there was water in an electrical conduit that penetrated the basemat. If the seals in that conduit should fail there is a potential direct path for ground water to flood the auxiliary building basement. LP&L should review all conduit that penetrates the basemat and terminates above the top of the basemat to assure that these potential direct access paths of water are properly sealed.

20. Construction Materials Testing (CMT) Personnel Qualification Records

The Inquiry Team effort included a review of the disposition of the generic problem identified during the LP&L Task Force verification relative to GEO Construction Testing (GEO) documentation for personnel qualifications in the area of, CMT.

The utility should conduct a review of supporting documentation for GEO corrective action stated in Attachment 6 of NCR W3-F7-116 (Ebasco W3-6487). This review should focus on the identification of CMT personnel placed in GEO Categories 1, 2 or 3 who were apparently qualified solely on written statements by other individuals attesting to the individuals training and qualifications. For such individuals, the applicant should pursue any new information or evaluations which could provide further assurance in support of the actual past work experience and training referenced by the written statements.

21. LP&L QA Construction System Status and Transfer Reviews

The Inquiry Team assessment of the Ebasco QA disposition of LP&L QA Construction documentation and walk-through hardware findings for a sample of the sixty-seven systems transferred to LP&L operations resulted in NRC questions on the adequacy of Ebasco and LP&L QA Construction disposition of those findings. As a result of the NRC questions LP&L and Ebasco QA initiated a review to ensure that all LP&L QA Construction findings were adequately dispositioned. Ebasco QA had identified 15 systems or subsystems (Nos. 18-3, 36-1, 36-3, 43B, 43B9, 46C, 46E, 46H, 55A, 59, 69B, 71B2, 72A, and 91E) where the LP&L findings may not have been properly dispositioned during the transfer of these systems to LP&L operations.

Based on the above, LP&L is requested to complete the review of all significant LP&L status and transfer review findings, such as undersized welds and other hardware walk-through and documentation findings. This review should ensure that these findings have been properly closed out or identified to LP&L operations for their closeout. For any LP&L open findings not properly identified on the status or transfer letters to LP&L operations, LP&L should determine whether this condition adversely affected the testing conducted for those systems.

22. Welder Qualifications (Mercury) and Filler Material Control (Site Wide)

The staff reviewed inprocess weld records for the installation of instrumentation systems by Mercury Company. Systems reviewed included Reactor Coolant, Safety Injection, Component Cooling Water, Main Steam, Main Feed, and Charging Water. The staff selected welders from these records and reviewed their qualifications to the welding process used during the time frame of actual welding.

Based on the staff's review it appears that some Mercury welders were not qualified. Problems included: welders not qualified to the correct welding procedure; welders qualified for a specific process, even though they were not tested for that process; and actual dates on qualification records appeared questionable, the welder may have welded prior to being tested. The staff concludes that there are questions relative to the Mercury welder qualification status.

Also during this review the staff evaluated the controls being used to control filler material. The staff found that the requirements for "rebaking" of low hydrogen electrodes did not meet the requirement of the ASME and AWS Codes. The Codes require low hydrogen electrodes to be rebaked at temperatures of 450° to 800°F for two hours. The site practice for all site contractors was to rebake at 200°F for eight hours. Justification for this Code deviation has not been provided by LP&L .

LP&L shall (1) Attempt to locate the missing documentation and determine if the welders were properly qualified, or (2) If the documentation to support proper qualification cannot be located, LP&L shall propose a program to assure the quality of all welds performed by questionably qualified welders.

LP&L shall also provide engineering justification for the allowance of "rebake" temperatures and holding times that differ from the requirements of the ASME and AWS Codes.

23. QA Program Breakdown Between Ebasco and Mercury

The staff review included evaluation of the implementation of the QA programs of LP&L, Ebasco, and Mercury. The staff performed a followup on the previous 1982 NRC review that resulted in NRC enforcement action and a civil penalty. The most recent staff review indicated that LP&L, Ebasco, and Mercury did not followup on the corrective action commitments made to the NRC.

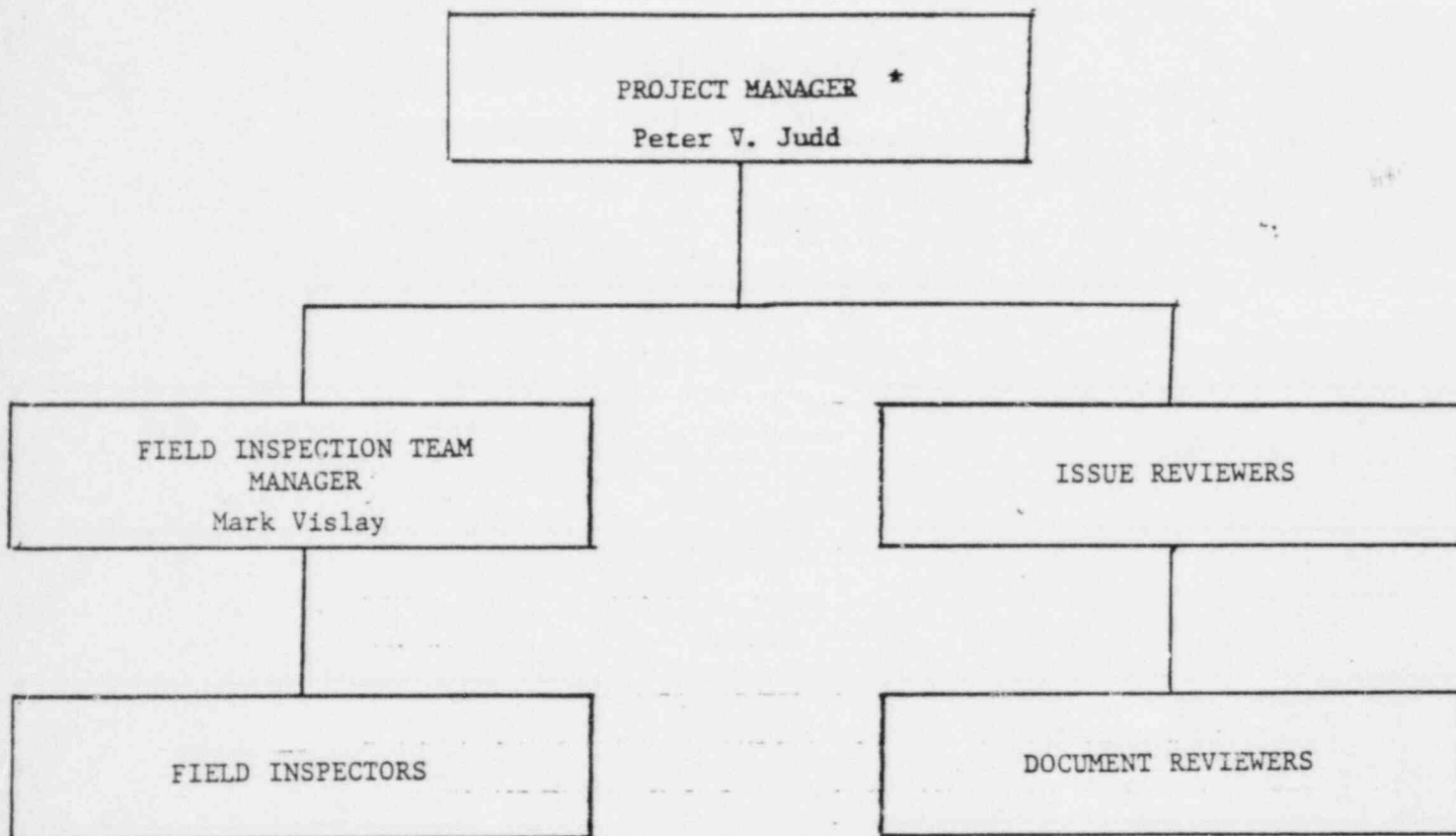
Additionally LP&L, Ebasco, and Mercury failed to audit the entire QA program as required (LP&L only performed one-third of their scheduled audits for a five year period). The audits that were conducted identified some problems, however the required corrective actions were not completed. Management audits, performed by outside consultants, identified problems and concerns that LP&L also failed to take corrective action on.

The results of the NRC task force effort indicate that an overall breakdown of the QA program occurred. Most problems identified by the NRC had been previously identified by the QA programs of LP&L, Ebasco, and Mercury. But the failure to determine root cause and the lack of corrective action allowed the problem to persist.

LP&L shall provide an assessment of the overall QA program and determine the cause of the breakdown, together with corrective action to prevent recurrence. This overall assessment is necessary to provide assurance that the QA program can function adequately when the plant proceeds into operations.

PRELICENSING ISSUE TASK FORCE SUPPORT GROUP ORGANIZATION

ATTACHMENT D



*This position originally filled by B. Naft until the arrival of P. V. Judd on site, July 11, 1984.

PRELICENSING ISSUE TASK FORCE SUPPORT GROUP ORGANIZATION

ATTACHMENT C

