UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-389/82-45

Licensee: Florida Power and Light Company
9250 West Flagler Street
Miami, FL 33152

Facility Name: St. Lucie 2

Docket No. 50-389

License No. CPPR-144

Inspection at St. Lucie site near Ft. Pierce, Florida

Inspectors: R. W. Wright — 11/2/82
R. W. Wright — Date Signed

A. G. Debbage — 11/2/82
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John W. York — 11-3-82
J. W. York — Date Signed

Approved by: C. M. Upright — 11/8/82
C. M. Upright, Section Chief — Date Signed
Engineering Inspection Branch
Division of Engineering and Technical Programs

SUMMARY

Inspection on October 4-8, 1982

Areas Inspected

This routine, unannounced inspection involved 155 inspector-hours onsite in the areas of onsite design activites; QA inspection of mechanical supports/restraints, piping, electrical, and instrumentation; review of as-built drawings relative to mechanical supports/restraints, piping, electrical, and instrumentation; a potentially generic construction deficiency report; and followup on a previous inspection item.

Results

Of the five areas inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*B. J. Escue, Site Manager, Plant St. Lucie Unit 2 (PSL-2)
*J. E. Vessely, Director of Nuclear Affairs, General Office
*W. B. Derrickson, Project General Manager
*P. Carier, Licensing Engineer
*N. T. Weems, Superintendent of St. Lucie Projects - Quality Assurance (QA)
W. F. Jackson, Welding Superintendent
*R. A. Symes, Supervising Engineer - QA
E. Case, QC Electrical Supervisor
C. Carlo, QC Mechanical Supervisor, Hangers and Supports
R. Behres, QC Mechanical Supervisor, Piping

Ebasco Service, Incorporated (Ebasco)

*G. H. Krauss, Site Project Engineer
V. J. Barone, Mechanical Lead Discipline Engineer (LDE)
P. N. Sheth, Supports/Restraints LDE
S. Vianelli, Design Engineer, Supports/Restraints
C. M. Arshad, Stress Analysis LDE
P. W. Gaffney, Electrical LDE
R. Russo, Structural LDE, Home Office
V. J. Gerley, Civil LDE
T. G. Karan, Architect Structural LDE
T. Harlan, Electrical Design Supervisor
*R. Gonzales, Instrumentation and Controls LDE
B. Whiteman, Document Control Supervisor
*R. A. Garramore, Senior Resident Engineer
D. Cessoni, Construction Civil/Electrical Area Engineer
W. Fox, Construction Electrical Supervisor
T. Shield, Construction Electrical Engineer
R. Wolen, Construction Electrical Engineer
J. Garozzo, Construction Instrumentation Engineer

Other employees contacted included construction craftsmen, technicians, QA/QC personnel, field engineers, and office personnel.

NRC Resident Inspector

*S. A. Elrod, Senior Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 8, 1982, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection findings listed below. There were no dissenting comments received from the licensee.

Inspector Followup Item 389/82-45-01, Failure to accomplish welding in accordance with approved FCR drawing and failure to provide a non-unique weld traveller for the subject welding, paragraph 6.b.(1)(c).

Inspector Followup Item 389/82-45-02, Corrective action on cable tray over-fill, paragraph 8.b.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (92706B)

The inspector looked into a potentially generic CDR condition that could have affected the St. Lucie facility. Region V reported in their Daily Report dated September 22, 1982, that finite element calculations disclosed that the omission of a two-inch thick layer of compressible material around containment sump penetrations which are embedded in concrete may result in unacceptable loadings being transmitted from concrete to the containment shell during a seismic event. The omission of the compressible material resulted from the failure to incorporate design assumptions specified by the containment contractor (CB&I) in Bid Documents into specifications and drawings utilized by the containment concrete contractor. Since CB&I was the prime steel containment contractor for St. Lucie, this deficiency could exist there also. Examination of the following FPL Unit 1 and 2 reactor building concrete drawings revealed that 2-inch Ethafoam 220 was definitely specified to be placed around the subject penetrations for the St. Lucie Plants:

2998-G-495 R4; 496 R3
8770-G-495 R4; 496 R6

Discussions with responsible construction engineering personnel and subsequent examination of the affected penetrations in Unit 2 confirmed that the 2-inch Ethafoam 220 has not been placed to date because required leak rate testing has not been conducted yet. Both construction and QC personnel assured the inspector that the subject compressible material will be placed per drawing prior to the penetrations being encased in concrete.

Within this area, no violations or deviations were identified.

6. Onsite Design Activities (37055B)

The object of this inspection was to ascertain what design activities were being performed onsite and to determine if these activities are performed in accordance with technical and quality assurance requirements described in the FPL Topical QA Report.

a. General

(1) Functional Responsibilities for Onsite Design

Onsite design activities are performed by the Ebasco Site Support Engineering group (ESSE). The group is supervised by the site project engineer who reports to the PSL-2 project engineer in the Ebasco home (New York) office. ESSE has design engineers in the following disciplines: civil, electrical, instrumentation, and mechanical. These design engineers report to the site project engineer. All lead discipline engineers have delegation of authority letters from Ebasco, NY. These stipulate that the site engineers work under the home office lead discipline.

ESSE has a current manpower level of 120 and has a terminal in the office for direct communication with Ebasco headquarters. Design activities include piping isometrics for 2-inch pipe and under including drains, vents, and instrument location and connections; field run conduit, cable trays, tray filling, and cable routing; and seismic supports for 2-inch pipe and under. ESSE representatives stated that the design of larger seismic supports was being performed by Bergen-Paterson.

The responsibilities of ESSE are to review and approve field change requests (FCRs) which result in only minor project design changes; disposition nonconformance reports (NCRs); prepare design change notices (DCNs) which are minor design changes; consult with the home office for approval of FCRs which result in major design changes; and coordinate design activities between the home office and onsite construction groups. Ebasco engineering procedures define a minor change as one which has little or no impact on a safety-related system; all other changes are considered major. During September 1982, ESSE handled 800 FCRs, 60 DCNs and 280 NCRs.

(2) Design Procedure Review

Program requirements and procedures governing onsite design activities were reviewed for completeness and effectiveness. The procedures reviewed included the following:

Ebasco Engineering Department Procedures

E-3	Procedure for Controlling Original Drawings Requisitioned from the Drawing Files Room
E-7	Processing Drawings for Review and Approval
E-8	Approval Signatures On Ebasco Drawings
E-10	Identification of Information Required for Completion of Design Drawings
E-11	"As Built" Drawings
E-30	Preparation of Calculations
E-65	Control of Project Related Design Documents
E-69	Design Change Notice/Field Change Request
E-70	Notification of Proposed Design Changes in General Arrangement Drawings
E-76	Guidelines for Design Verification
E-77	Selection, Identification and Documentation of Design Inputs
E-80	Piping Activities Control Procedure
E-82	Ebasco Site Support Engineering (ESSE) Group
EP-8	IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment
QC-4, R4	Design and Engineering

FP&L Construction QC Quality Manual Procedures

QI 3.1, R2, Verification of Design Change
QI 9.1, R4, Visual Inspection of Welds

FP&L Site Quality Procedures

SQP-17, R3, Design Control
SQP-35, R1, Structural Steel Erection
AISC Manual - 7th & 8th Edition
Design of Welded Structures, Blodgett
Specification FLO 2998.469, Expansion Anchors
FPL SL2 Design Criteria, Concrete Expansion Type Anchors

The inspectors interviewed several ESSE engineering personnel (from the supports/restraints, civil, mechanical, electrical, instrumentation and control disciplines) and FP&L QA/QC personnel to determine whether they were knowledgeable of the requirements specified in the above applicable documents.

(3) Drawing Control

All original Drawing Transfers are done through the coordinator, who is responsible for the control and transfer of the drawings from the home office. Before transmittal, the coordinator insures that a sepia mylar of the original drawing is made by the cognizant home office discipline and kept on file and that a silver halide reproducible is made and transmitted to the drawing files in the New York Office (NYO). Receipt, updating, and safekeeping of original drawings at the site are the responsibility of the site project engineer. The site project engineer is required to sign and return a "Memorandum of Transfer" to the coordinator indicating his receipt of the listed drawings.

For those drawings presently less than 100% complete and still in the NYO, incorporation of outstanding FCRs, DCNs, and NCRs are accomplished by home office engineering as noted on the FCR, DCN, NCR prior to completion of the drawing (100% complete) and its transfer to ESSE.

Field responsibility for revisions of original drawings is limited to the incorporation of approved Design Change Notices (DCN), Field Change Requests (FCR), Nonconformance Reports (NCR), and other minor changes resulting from differences between as installed equipment/material and vendor drawings. Original engineering work is not permitted unless specifically documented and approved by the home office project engineer. Items requiring ESSE site incorporation are incorporated on the drawing by the date indicated on the FCR, DCN, or NCR. This date is no later than six months after the approval date on the document requesting the change. The Drawing Revision Block documents the FCRs, DCNs, and NCRs incorporated and/or considered for that revision of the drawing. Where FCRs, DCNs, and NCRs are marked as not requiring incorporation on the drawing, they are listed as not incorporated in the revision block or other appropriate location.

The cognizant ESSE lead discipline engineer (LDE) upon completion of a revision to a drawing submits two prints of the drawing to the home office cognizant discipline for review and approval. Home office approval and effective signoff may be accomplished in either of the following ways. The home office supervising engineer indicates his approval by signing both prints, keeping one on file in the home office and transmitting the other copy to

the ESSE LDE who is now authorized to sign the original drawing for him. Or at his discretion, the home office supervising engineer may review the prints, visit the site, and sign off the original drawing in person.

Within this area, no violations or deviations were identified.

b. Design Process Review

(1) Civil/Architectural Design Activities

(a) Design Procedures

The inspector conducted discussions with the ESSE LDE supervisors from the Civil/Architectural design groups and a principal designer and checker from within the group to determine whether they were knowledgeable of the requirements specified in their applicable design procedures specifications and references listed in paragraph 6.a.(2).

(b) Design Changes

The inspector reviewed the following FCRs, NCR, and DCN to determine whether the reason/need for the change was adequate, the change did not appear to compromise the original design intent, the change was reviewed and approved by "other than orginator", that design drawings were revised or are in the process of being revised, and that design calculations were independently verified.

FCR 2-3130U	Calculation No. AS-17
FCR 2-7646E	Calculation No. 2ESSE/CVL36
NCR 4110 MH	Calculation No. 2ESSE/CVL38
DCN 513.996	Calculation No. AS-16

For the above design changes, the inspector reviewed the design input criteria, specifications, references utilized, and calculations with ESSE designers to ascertain whether the onsite designers are working within the criteria and/or specifications established by the home office, that design calculations are verified by a qualified independent checker, and that these design changes are controlled and processed as required by Ebasco's QA program.

Examination of the calculations for NCR 4110 MH which involved designing a concrete expansion anchor system for restraints CH-85-R5 and CH-71-R1 revealed that a factor of safety of 7 was accepted for the installed arrangement

whereas FPLs design criteria, "Concrete Expansion Anchors" specified a minimum factor of safety of 15 for vibrating loads. An inspector telephone conversation with the home office LDE structural engineer confirmed the ESSE's LDE explanation that finite element analysis studies run on approximately 18 different similar cases had determined that a safety factor of 4 was acceptable for wedge type anchor bolts and that NRR had accepted these findings. This matter was not pursued any further after subsequent discussions with Region II anchor bolt specialists substantiated the acceptability of this safety factor.

(c) Field Inspection

The above listed (FCRs and DCN) design changes were physically inspected in the field to verify that the work was accomplished in accordance with the approved design disposition. All work was found acceptable with the exception of that performed by FCR 2-3130U. Examination of the welded support installed for the push button station serving valve V-3656PB revealed that it did not conform with the approved weld details as specified on the sketch to FCR 2-3130U in that there was insufficient weld length (10 5/8" vs 12" minimum specified) on two sides of the 3/16-inch fillet weld connecting the 3 1/2" X 3 1/2" X 3/16" tube steel section to the embedded plate. FPL QC inspection of this FCR work was waived in accordance with procedure QI 3.1 by the electrical area QC supervisor on March 14, 1981. In addition to the above length of weld problem, FPL procedure SQP 39 requires that a nonunique weld traveller be initiated for nonuniquely identified welds. The requests for such weld travellers are initiated by construction engineering and the travellers are prepared by the welding superintendent. Examination of the welding superintendent's records could not produce any evidence that a nonunique weld traveller was ever requested nor issued for the subject welding.

A similar problem was recently identified in this area as discussed in Inspection Report No. 389/82-43 transmitted to the licensee on September 29, 1982. In that this failure to control welding activities is another example of the previous unanswered violation, a separate violation will not be issued with this report. C. A. Julian, Region II Project Section Chief, discussed this matter by telephone on October 27, 1982, with R. J. Stevens, FP&L licensing engineer, who agreed to include this additional example in the FP&L response to the Notice of Violation transmitted by the Region II letter dated September 29. To assure appropriate followup and

closeout, this matter will be tracked as Inspector Followup Item 389/82-45-01, Failure to accomplish welding in accordance with approved FCR drawing and failure to provide a non-unique weld traveller for the subject welding.

(d) Drawing Control

Conversation with the ESSE project engineer revealed that each engineering discipline has been making a concerted effort to incorporate all outstanding FCRs, DCNs, and NCRs on affected drawings to reflect as-built conditions by December 1982. The Civil/Architectural group reportedly has obtained 70% of this goal to date.

The inspector conducted discussions with the ESSE LDE supervisors from the Civil/Architectural group and responsible site document control personnel concerning transmittal and control of drawings. Drawings were randomly selected from control sheets that identified the most current revision of the drawings used and the respective drawings in the master working files, construction engineering, and ESSE work areas were examined for agreement with the control list. Document control facilities for storage and control of drawings were examined.

Within this area, no violations or deviations were identified except as noted in paragraph 6.b.(1)(c).

(2) Mechanical/Piping, Supports/Restraints, and Stress Analysis

Discussions were held with the responsible lead discipline engineers of supports/restraints, stress analysis, and mechanical/piping to determine their functional responsibilities in the design process, the intercommunication between these disciplines both onsite and with the home office design organization, and to determine that their work was performed in accordance with the applicable procedures listed in paragraph 6.a.(2).

The support/restraint (S/R) and stress analysis (SA) group uses the S/R information request (SR-IR) for communication between disciplines. An SR-IR is prepared for each field change request (FCR) which records the impact on stress isometric drawings, stress calculations, and corresponding S/R drawings. Changes to the drawings are made on site and reissued through the document control center. Stress calculations are performed on site to verify approval of the changes made by the FCR. FCRs are sent to Ebasco, Lyndhurst, N.J. with Stress Analysis Memos; these are tracked in the Lyndhurst status report for computer processing

with program PIPESTRESS 20.0 at a later date. The status report on site was dated September 29, 1982, and this was checked to verify incorporation of changes. Approximately 20 SR-IRs and 25 stress analysis memos are generated monthly by the S/R and SA group. The following FCRs with corresponding SR-IR were reviewed and the impact on subsequent changes including stress calculations, stress analysis memos, and drawing revisions, were examined.

SR-IR	FCR	S/R DRAWING
192	2-8927E	RC-44-R8, R2
203	2-9058E	WM-141-R7
204	2-9144E	RC-2-R3A
205	2-9169E	B-25-R3
210	2-7808E	HD-84-R7
220	2-6157E	HD-76-R5
231	2-5980E	RC-39-R13
236	2-5708E	RC-49-R8
241	2-7608E	RC-44-R7
244	2-6815E	RC-55-R3, R1

In all cases, FCRs appeared to have been processed correctly and the revised drawings reflected the approved changes.

The mechanical/piping group is currently handling each month 120 FCRs, 150 NCRs, and 5 DCNs. The following FCRs were reviewed to ensure that the changes requested were approved and subsequently the drawings revised and reissued through the document control center:

FCR2-8031E	Replacement of Lost Valves
FCR2-8087E	Instrument Piping Connections
FCR2-9391E	Damper Switch Repositioning

A review of the FCRs showed that several were rejected by the mechanical design group. Discrepant Field Condition (DFC) reports were written by the design engineers and were forwarded to the quality control inspection supervisor for appropriate action. DFC numbers are assigned by the QC supervisor and logged for tracking purposes; these are used to inspect the FCR location and verify removal of the deficient condition. The following FCRs and related DFCs were reviewed to ensure that rejected changes were followed up by the QC inspection group to ensure removal of the deficient condition:

FCR	DFC	TYPE
2-1046E	10/2/82	Support/Restraint Installation
2-10371E	2332 - 9/26/82	Welding Request
2-10053E	2358 - 9/30/82	Pipe Shield Change
2-9908E	9/02/82	Pipe Insulation Modification

Within this area, no violations or deviations were identified.

(3) Electrical/Instrumentation

The inspector reviewed the functional responsibilities of the Ebasco Site Support Engineering (ESSE) Group related to the design process for the electrical work and the instrumentation and controls work with the responsible lead discipline engineers and discussed the use of the applicable engineering procedures listed in paragraph 6.a(2). The inspector selected and reviewed the following Design Change Notices (DCNs) and Field Change Requests (FCRs) that are representative of current electrical and instrumentation work:

DCN NUMBER	SUBJECT
513.2025	Revise Wiring Diagram RTG Board in Control Room
513.2092	Instrument Installation Details for Cooling Water Flowmeter Sensing Lines
513.2099	RTGB Wiring Diagrams for Separate Input Power for Containment Spray Pump Controller Power Supply
513.2157	Fire Stop and Air Seal Material
513.2171	Power Distribution and Power Main Feeds
513.2201	Four Position, 8 Contacts Selector Switch
513.2206	Pressurizer Backup Heater Bank B-1
513.2210	Routing Additional Cables Through Conduit 2175X
513.2214	Routing Additional Cables Through Conduit 28088H

FCR NUMBER	SUBJECT
2-6823E	Modification Reliance Electric Intraboard
2-8175E	Routing of Instrumentation Tubing
2-8266E	Hydrogen Analysis System Sampling Tubing
2-8539E	Routing of Cable 23184 D to Reactor Refueling Machine Electrical Junction Box
2-8803E	Level Switches for L. P. Heater 2-2A
2-8808E	Relocate Radiation Monitors RD 26-31 and RIM 26-31
2-8821U	Heat Tracing of Chemical Seal
2-8958U	Modification to Vendor Cable Terminations
2-10508U	Sound Powered Communications Embedded Conduit

The inspector had discussions with the responsible ESSE engineers and designers for representative DCNs and FCRs, reviewed the referenced drawings, and ascertained the status of the onsite design and field craft work. The inspector verifed the accuracy of the drawing revisions referenced in a representative group of the above DCNs and FCRs with the Ebasco documentation control group. The inspector observed work in the field relative to the following DCNs and FCRs.

(a) DCNs - 513.2099 and 513.2206
(b) FCRs - 2-8266E, 2-8803E, 2-8808E, and 8958U

The review of the above DCNs and FCRs confirmed discussions with the ESSE group leader that the onsite design work is limited to minor modifications on items which rarely are classed as safety related. The design changes are usually made to accommodate construction engineer requests to relocate equipment, to reroute cables or conduits, to incorporate changes developed by the human factor studies, or to implement minor changes resulting from NRC requirements in the Safety Evaluation Report, NUREG 0843 for PSL-2.

Within this area, no violations or deviations were identified.

c. Audits

Audits of ESSE have been conducted by FPL site QA; the audit reports were examined during the NRC inspection June 14-18, 1982, and recorded in report 50-389/82-25. No FPL audits have been conducted since then but the licensee stated that they planned to conduct a routine audit during October 1982.

Audits of ESSE have also been conducted by Ebasco, NY. The audit reports prior to the June 1982 inspection are also recorded in report 50-389/82-25. An audit was conducted August 30 - September 3, 1982, and the report #1849-1863 was reviewed. The objective was to verify that ESSE was conforming to the applicable engineering procedures; and to review the current stress analysis verification (SAVE) program. Project engineering and all the design disciplines were included in the audit. A number of minor infractions were identified such as printing names when signatures were required on some calculation sheets, or not signing full names as required by procedure. The audit team identified a need in the SAVE program for a system to close out deficiencies identified during the plant walkdown inspection. The team concluded that ESSE is generally complying with the engineering procedures.

Within this area, no violations or deviations were identified.

7. QA Inspection of Performance (35061B)

This inspection was conducted to determine whether site work is being performed in accordance with NRC requirements and SAR commitments, the QA/QC program is functioning in a manner to assure that requirements and commitments are met, and prompt and effective action is taken to achieve permanent corrective action on significant discrepancies.

The following areas were examined to achieve the inspection objectives:

a. Piping Activities

The following drawings and construction specification were reviewed.

- Ebasco Plant Design Drawing No. 2998-G-080 Rev 8 dated August 12, 1982

- Shaw Piping Isometric Drawing No. BF-M-7 Rev 10 dated March 2, 1982

- Ebasco Specification No. FLO-2998-099, Sub No. 62-72, "General Power Piping," Rev 5

The isometric drawing BF-M-7 which details an area of the Feedwater (Auxiliary) System was chosen by the inspectors for an evaluation of the QA/QC program. This isometric shows the position of the piping spool pieces fabricated by B. F. Shaw and the field welds necessary to join these spool pieces. The following field weld travellers and related QC inspections were reviewed by the inspectors:

- Spool Pieces BF-35-3 to BF-35-2
- Valve I-SE-09-5 Serial No. 2 to Spool Piece BF-35-3
- Valve I-SE-09-5 Serial No. 2 to Spool Piece BF-35-2
- Spool Pieces BF-35-4 to BF-35-5
- Spool Pieces BF-35-3 to BF-35-4

The inspectors reviewed the receiving inspection records for the following two piping spool pieces:

- Spool Piece No. I-4-BF-33-3
- Spool Piece No. I-4-BF-34-1

The inspectors reviewed nonconformance reports (NCRs) 4266M, 4232M, and 4065M to verify that the action taken corrected the items, that the cause of the NCR was identified, that proper effective action was initiated to prevent recurrence in similar areas, and that reportability to NRC was considered.

Parts of the Feedwater System were walked down with two QC piping inspectors. Visual inspections were performed and dimension measurements taken, plus areas where some nonconformance modifications had been achieved were noted in this walkdown. Parts of the following specifications used by the QC inspectors were examined.

- FP&L QI 9.1, Visual Inspection of Welds, Rev 4
- FP&L QI 9.2, Inspection of Field Welding, Rev 3

The training records that qualified these two QC inspectors for piping inspection were examined.

The inspectors reviewed the monthly trend analysis for September 1982 and FP&L procedure QI 2.6, Evaluation of Control Effectiveness/Trend Analysis.

The inspectors reviewed the following QA site audits to verify QA/QC program effectiveness relative to piping activities:

- Audit No. QSL-CST-82-18 in the area of field welding control

- Audit No. QAC-PSL2-82-08 in the area of control of special processes

Originally, Ebasco transmitted piping drawings to B. F. Shaw who converted these drawings to isometrics and fabricated the piping spool pieces. Ebasco assumed the responsibility for the isometrics by September 1981 and therefore no additional audits were necessary after 1981. The licensee stated that a copy of an audit conducted by Ebasco/FP&L on January 28, 1981, was on file in the Miami office.

Within this area, no violations or deviations were identified.

b. Electrical/Instrumentation Area

The following drawings, construction specification, and work procedure were examined to determine whether the most recent revisions of these documents were in agreement with the SAR and to determine that the revisions were properly reviewed, approved, and processed. The work procedure was checked to determine whether critical points and methods of installation, as well as inspection hold points, are adequately described to reflect design intent.

(1) 2998-B-327, Sheet 671, Rev 2 (FCR-5514) Main Feedwater Isolation Valve HCV-09-2A

(2) 2998-G-394, Sheet 1, Rev 5 (FCR 6434 E) RAB-Elev 43'-0- Conduit, Trays and Grounding (Note: FCR had not been incorporated into drawing to date).

(3) 2998-E-090, Sheet 30 and 39, Rev 3 (DCN513.1384) RAB Conduit Layout Below Elev 62'-0.

(4) 2998-B-271, Electrical General Installation Notes, Sheet 3-4, Rev 5 (FCR 1799); Sheet 6-4, Rev 2 (FCR 3722); Sheet 6-7, Rev 1 (FCR 3722) and sheets 7-1 and 7-2, Rev 1 (FCR 1688).

(5) SQP-22, Rev 10, Cable Termination and Splicing

The inspector performed a field examination of the equipment and/or items identified by the above revisions to determine whether the installation agreed with the revision. Only that portion covered by the revision change was examined and, in the case of the general construction specification, selected items were examined.

The inspector reviewed nonconformance reports 2010E, 4218E, 3401E, 3788E, 3846E, and 3120E to verify that the action taken corrected the items and, where applicable, that the cause of the deficiency was identified, that reportability to NRC was considered, and that proper effective action was initiated to prevent recurrence in affected and similar areas.

The licensee has a program to detect quality trends in discrepancies. This program is initiated by SQP-21, Corrective Action; TQR 15.0, Nonconforming Materials, Parts or Components (paragraph 15.2.4.f); and QP 15.1, Control of Nonconforming Materials, Parts or Components - Plants Under Construction (paragraph 5.4.2). The inspector examined the Quarterly Analysis Report of Electrical NCRs and deficiency reports (DRs) on memorandum QAC-PSL-82-677 dated October 5, 1982.

Within this area, no violations or deviations were identified.

8. Review of As-Builts (37051B)

This inspection was conducted to determine whether as-built design and construction drawings/specifications correctly reflect the as-built conditions of the plant, changes from the original design were properly reviewed and approved, and plant seismic and other stress calculations are based on as-built conditions.

a. Piping As-Built

The inspectors had previously reviewed the licensee's program for generation of as-built drawings, "Stress Analysis Design Verification of Seismic Class I Piping" referenced in Inspection Report No. 50-389/82-41 dated September 10, 1982. Three isometrics were sampled for the following attributes:

- Supports-location, type, and configuration
- Pipe welds-location and identification
- Piping-location, size, and configuration

The following three isometrics were sampled:

- Isometric No. SI-N-16 in the Safety Injection System
- Isometric No. I-24-CS-3 in the Containment Spray System
- Isometric No. BF-M-7 in the Feedwater System

An indepth review was made of the status of the schedule for completion of as-built design drawings. All of the as-built drawings are expected to be completed and sent to the Ebasco Stress Analysis Group by December, 1982. Ebasco had completed and reviewed some of these documents at the time of the inspection.

Within this area, no violations or deviations were identified.

b. Electrical/Instrumentation Area

The inspector selected the following three Class 1E conduit and three Class 1E cable tray runs for examination. The examination was to assure that location and routing, supports, separation, loading, and identification are in accordance with drawings.

CONDUIT OR CABLE TRAY	DRAWING NO.
20609E - 3(SB)	FSG-2998-E090, Sheet 13, Rev 8, "RAB Conduit Layout Below Elev 43'-0"
21528Q - 3(SB)	FSG-2998-E090, Sheet 21, Rev 10, "RAB Conduit Layout Below Elev 62' Area 21"
21518D-2(MB)	FSG-2998-E090, Sheet 27, Rev 8, "RAB Conduit Layout Below Elev 62' Area 27"
L2301 (SA)	2998-G-372, Sheet 7, Rev 4 "RAB Elev 0.50, Cable Tray Support" (Zones E-H and 3-6)
P2414 (SB)	2998-G-372, Sheet 9, Rev 4, "RAB Elev 19.5 Cable Tray Support" (Zones G-L and 5-10)
L2326 (MB)	2998-G-372, Sheet 13, Rev 2 "Cable Vault Cable Tray Support" (Zones E-G and 6-9)

Three Class 1E Cables (21171A-SA, 20503C-SA, and 20388F-MD) were selected for examination. The pull cards were used to check the routing, identification, protection, and separation of these cables. The wiring diagram was used to check the terminations at one end only. A vertical run of cable tray segment appeared to be overfilled with low voltage cables [cables were well above the side rails]. The cable tray is C2323-SA near plot point 9421 located in the electrical switchgear room in the RAB at elevation 43'. St. Lucie Drawing 2998-B-271, Electrical General Installation Notes, sheet 4-1, paragraphs 4.21 and 4.22 gives criteria for cable tray fill. Paragraph 4.22 states that physical appearance is not a criteria by which tray fill can be determined and paragraph 4.21 states the Control and Instrumentation cable tray fill shall be limited to 40% fill normally and 46% fill in selected cases. This item was discussed with the ESSE group. They acknowledge the finding and indicated that there were more cable tray segments that were overfilled. They stated that this was being tracked on the Cable and Raceway System Report A-1 (FLO 2998 B-328). The September 1982 reports lists the specific tray identified by the inspector. ESSE indicated that a fix would be determined at some future date. They also indicated that cable pull in these trays has ceased except in cases where there is no other routing possible. This item is identified as inspector followup item 50-389/82-45-02, Corrective action on cable tray overfill.

Five plant changes identified as FCR-10692E, 9973E, 9257U, 8548U, and 8403E not yet incorporated into as-built drawings were examined to determine status of licensee's review, approval, and revision of these identified changes from the original design. These changes were properly processed and the as-built action required by the FCR was verified in the field.

Five as-built changes on construction drawings identified as FCR-7654U, 7726U, 8596U, DCN 513.1582, and 513.1424 were examined in the field to verify the as-built condition. These changes were properly reviewed, approved, and incorporated into construction drawings.

Within this area, no violations or deviations were identified.

9. Inspector Followup Item (IFI) (35060B)

(Closed) IFI (389/82-18-01): Clarification of internal and onsite construction and design activity audit frequency. The inspector examined FPL Topical QA Report TQR 18.0, R5, Section 18.2.25 and found the subject audit frequencies now specified therein are in agreement with Appendix C of the Topical Report and Regulatory Guide 1.144. There are no further questions on this matter.