AR REGU UNITED STATES NUCLEAR REGULATORY COMMISSION **REGION II** 101 MARIETTA ST., N.W., SUITE 3100 ATLANTA, GEORGIA 30303 50-389/80-15 and 50-335/80-34 Report Nos. Florida Power & Light Company Licensee: 9250 West Flagler Street Miami, FL 33101 Facility Name: St. Lucie Docket Nos. 50-389 and 50-335 License Nos. CPPR-144 and DPR-67 Inspection at St. Lucie site near Ft. Pierce, Florida Inspectors: ianed J aned Sianed einsorae Signed Accompanying Personnel: A. R. Herdt Approved by Conton A. R. Herdt, Section Chief, RCES Branch Date Signed SUMMARY Inspection on October 27-31, 1980

Areas Inspected

This routine, announced inspection involved 146 inspector-hours onsite in the areas of in-depth QA inspection of performance in piping and structural welding; housekeeping and storage of materials; previously identified inspection findings; IE Bulletin 80-08 response; and alleged items of concern in the area of welding.

Results



Of the 5 areas inspected, no items of noncompliance or deviations were identified in 3 areas; 5 apparent items of noncompliance were found in 2 areas (Deficiency -NDE certification program - Paragraph 6, Infraction-NDE performance - Paragraph 6, Infraction - Radiographic examination compliance - Paragraph 6, Infraction -Control of temporary attachments - Paragraph 6; and Infraction - Housekeeping -Paragraph 7).

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# DETAILS

#### 1. Persons Contacted

- Licensee Employees
- \*B. J. Escue, Site Manager, PSL-2 \*J. A. Thompson, Assistant Site Manager \*N. T. Weems, Assistant Manager QA Construction \*R. A. Garramore, Senior Resident Engineer \*W. M. Hayward, Supervising QA Engineer \*D. Cooper, Supervising QA Engineering \*K. N. Flanagan, Project Superintendent \*R. W. Zaist, Construction Superintendent \*L. V. Pelosi, Site Project Engineer \*W. F. Jackson, Welding Superintendent \*J. L. Parker, Project QC Supervisor \*J. D. Behres, Area QC Supervisor Mechanical \*H. Averbach, QC Supervisor \*J. W. Adams, Quality Engineer \*J. R. Luke, Quality Engineer L. Drummond, Quality Engineer \*L. T. Page, QA Engineer Records \*A. W. Bailey, Supervisor QA OPS \*T. C. Grozan, Nuclear Licensing (GO) \*W. M. Gaines, EPP \*G. Crowell, EPP

\*R. C. Rasbury, CPL

Other' licensee employees contacted included several construction craftsmen, QC technicians, and office personnel.

\*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on October 31, 1980 with those persons indicated in Paragraph 1 above. The items of noncompliance and other new items were discussed in detail. The licensee indicated that corrective actions were already under way on the majority of the findings.

3. Licensee Action on Previous Inspection Findings

(Open) Repeat Infraction 389/80-13-02: "Welding Filler Material Control". This item concerns the licensee's failure to control used and unused welding filler materials. Inspection of the work areas showed numerous examples which indicate that the licensee is in continued noncompliance. The licensee indicated that their QA program has identified this problem on many occasions. In view of the above it

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appears that the QA Department has not adequately exercised their prerogative to take effective corrective action to prevent recurrence. This item remains open.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in Paragraphs 6.a, 6.c. and 6.d.

5. Status of Previously Identified Inspector Follow-up Items (Unit 1)

(Open) Inspector Follow-up Item 335/80-31-01: "Review of Welder Qualification Audit". This item involves an audit of welder qualification committed to by the licensee as the result of a concern reported to NRC:RII. This item was discussed with the licensee, but the audit was not complete at the time of this inspection. This item remains open.

6. QA Inspection of Performance

This inspection was performed 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 requirements and commitments are met, and that prompt and effective action is taken to achieve permanent corrective action on significant discrepancies.

The following areas were examined to verify the inspection objectives:

- a. Field Drawings and Work Procedures
  - (1) The inspectors reviewed the below listed documents to determine whether the most recent revisions of field drawings, construction specifications and work procedures are in agreement with the SAR and system drawings.

Number	Title
2998-B-052, Rev. 4 (EBASCO)	"Piping Line List"
2998-B-052, Rev. 8 (CE)	"CE Portion of EBASCO Drawing 2998-B-052"
CE-100EMDRAC-2998-51 and -52, Rev. 7	"Safety Injection System Diagram"
2998-G199, Rev. 6 (EBASCO)	"Safety Injection System Piping Section and Details"
SI-N-5, Rev. 11 (BF Shaw)	"Safety Injection Piping"





(2) The inspectors reviewed the below listed documents to determine whether design changes have been properly provided, reviewed, approved and processed.

> DCN-513.898 DCN-513.480 DCN-513.451

(3) The inspectors reviewed the below listed documents to determine whether work procedures adequately describe critical points and methods of installation as well as inspection and test hold points - to properly reflect design intent.

Numbers

#### <u>Title</u>

EBASCO Specification 62-72, "General Power Piping" Rev. 4

QI 9.1, Rev. 3

"Visual Inspection of Welds"

With regard to the above inspection, the inspectors questioned the licensee regarding the adequacy of his requirements for cold spring in piping. In response, the licensee stated cold spring requirements are contained in Construction Quality Control Quality Instruction Manual, Procedure, QI 9.1, Rev. 3, Attachment 1, Paragraph 1.2.6. Paragraph 1.2.6 states "Cold Spring is not allowed in the fit-up of piping joint. The fit-up shall be made without an excessive amount of mechanical force." The inspectors stated that the above requirement does not seem to provide adequate guidance for cold spring control.

The licensee indicated that they would examine the requirements further. The inspectors stated that the above would be an unresolved item identified as 389/80-15-08: "Cold Spring Control Requirements".

- b. Field Inspection
  - (1) The inspectors made a detailed inspection, including physical measurements, of a portion of the safety injection piping system as indicated below to determine whether equipment or systems are installed/erected as described by field drawings and construction specifications.

From (Weld No.)	<u>To (Weld No.)</u>	<u>Drawing No</u>
SI-410-FW-1	SI-410-FW-2	SI-N-5
SI-417-FW-1	SI-417-FW-3	SI-N-5





# SI-417-FW-3 SI-410-FW-1 SI-N-5 15 16 I-12-SI-410-1

(2) The inspectors interviewed craftsmen and foremen associated with safety-related piping fabrication and installation to determine whether their level of knowledge is adequate to provide the required quality of workmanship.

c. Quality Control

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(1) QC Inspection Reports

The inspectors reviewed nondestructive examination reports for the below listed welded joints to determine adequacy; whether deficiencies submitted by QC inspectors received proper corrective action where applicable; and if work controls were adequate.

Weld No. (B. F Shaw)	Drawing No.
6	I-10-SI-417-1
3	I-10-SI-417-1
1	I-10-SI-417-2
4	I-10-SI-417-2
15	I-12-SI-410-1
2.	I-12-SI-410-1
3	I-12-SI-410-2
1	I-12-SI-410-2
<u>Weld No. (FP&amp;L)</u>	
2-SI-475-FW-1	SI-N-5
2-SI-410-FW-1	SI-N-5
2-SI-410-FW-3	SI-N-5
2-SI-417-FW-3	SI-N-5



- (2) Quality Control Inspection
  - (a) Liquid Penetrant Examination (PT)

The inspectors observed liquid penetrant examination of four items identified below, to determine whether or not the examination was performed per Code requirements and licensee's written procedures. The applicable Code for nondestructive examinations is ASME Boiler and Pressure Vessel Code, Section V, 1977 edition with addenda thru summer 1977.

Item Examined	Weld Identification	<u>Class</u>
Electrical Penetration P/N P-OE6 Completed Butt Weld, Mat'l P1 to P8	2F-2-P-0E6-003	2
Electrical Penetration P/N P-OE7 Completed Butt Weld Mat'l P1 to P8	2F-2-P-0E7-003	2
Reinspection After Grinding Electrical Penetration P/N P-0E7	2F-2-P-0E7-003	2
Pipe Weld Mat'l P8 to P8 Spool Pc. I-6-SI-515-1 to Spool Pc. I-12-SI-149-1 Final Weld	2F-2-SI-0515-001	1

The following discrepancies were noted during observations of these examinations:

The inspectors observed a Level I examiner PT on 1 ASME Code Class 2 weld joint No. 2F-2-P-0E7-003 on electrical penetration No. P-0E7. The results of the examiner's evaluation was that the weld joint was acceptable without additional surface conditioning and he so indicated his acceptance on the weld traveler record. The inspectors, however, pointed out to the examiner, and a Certified Quality Control Supervisor, 9 linear indications 3/16-inch to  $\frac{1}{2}$ -inch in length. These from indications were located in the weld and one indication located in the ½-inch adjacent base material. Within the ½-inch adjacent base material required grinding to approximately 1/32-inch deep before the indication was removed. The Quality Control Supervisor who was also a Certified Level II examiner concurred with the inspectors

that this weld joint should have been rejected and all the linear indications removed. In addition the liquid penetrant re-inspection of the 9 rejected areas by a Level II examiner after grinding revealed additional rejectable indications.

The inspectors also observed a Level II examiner

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evaluated weld joint 2F-2-P-0E6-003 this is an ASME Class 2 weld. The examiner rejected the weld joint and had marked the areas requiring repair. The inspectors reviewed the PT indications marked and concurred with the examiner's evaluation in these areas, however, the inspector also pointed out 2 linear indications, one a heavy bleedout and the other not as profound, within  $\frac{1}{2}$ -inch of the weld. These were not marked for removal.

These are examples of inadequate NDE examiner performance and as such are a part of Infraction No. 50-389/80-15-02 "NDE Performance".

As a result of this examiner's failure to reject the 9 linear indications noted on weld joint 2F-2-P-0E7-003 the licensee informed the inspectors during the exit interview on October 31, 1980, that this individual will be recertified and all inspections previously performed by this individual will be reinspected. This item will be reported as an inspector follow-up item No. 50-389/ 80-15-10, "Certification of Level I PT examiner - Training and Experience."

(b) Magnetic Particle Examination (MT).

The inspectors observed magnetic particle examinations (MT) of one production pipe weld, weld joint No. 2F-2-CC-0050-002, which i a ASME Class 3, 8-inch diameter, component cooling water system weld. In addition the inspectors observed the MT of an AWS seismic qualified structural weld, joint No. 2F-2-STL-G803-015. The inspectors observed these MT examinations to determine whether MT was being performed in accordance with Code requirements and the licensee's written procedures. The applicable Code is the same as indicated above for liquid penetrant examination.

The following discrepancies were noted during the observation of the MT examination of weld joint No. 2F-2-STL-G803-015:

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- The inspectors noted that at times during the MT inspection, the application of powder by the examiner was extremely heavy and that the blow bulb used to remove the powder was held between the MT coil legs at a distance of approximately  $\frac{1}{2}$ -inch and squeezed rigously to remove this heavy concentration of powder. SE-109, "Standard Method for Dry Powder Magnetic Particle Inspection" which is invoked by Article 7, "Magnetic Particle Examination" of ASME Code, Section V and Paragraph 4.3.2 of the licensee's Magnetic Particle Inspection Procedure QI 9.4, Revision 1 states in part: "The powder shall be applied by lightly dusting a small quantity over the magnetized surfaces, and then removing the excess with a gentle air stream. The air stream shall be controlled so that it does not disturb or remove powder patterns indicative of discontinuities."
  - In addition, the inspectors noted that the red iron 2 powder used during the inspection did not contrast with some of the as-welded background surface, and the examiner was forced to use a flashlight to get better definition even though the lighting in the The inspector's area was more than adequate. observation was that a black powder should have been used for contrast with the weld surface This matter was discussed with the background. certified QC supervisor and he also concurred that black powder should have been used. Paragraph 5 of SE-109 and Paragraph 4.3.1 of the licensee's procedure states in part: "The color of dry particles shall provide adequate contrast with the background surface being examined."

It should be noted that the areas in question above were reinspected by the inspectors and only the examiner's technique and not the acceptances of this weld is of concern.

These are examples of inadequate NDE examiner performance as it relates to magnetic particle testing and are a part of Infraction No. 50-389/80-15-02.

'(c) Visual Examination

The inspectors visually examined final weld No. MS-0029-007 and noted that the transition between the weld and adjacent tee fitting was sharp, i.e., it did not have the smooth transition as described by ASME, Section III, Article 4000, Figure 4250-1. This joint had already been accepted visually. This is another example of Infraction No. 50-389/80-15-02 "NDE Performance."

(d) Radiographic Examination

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The inspectors reviewed radiographic films for the pipe welds, identified below, to determine whether Code requirements and licensee procedures were being met. The applicable Code is ASME Boiler and Pressure Vessel Code, Section V, 1977 edition with addenda thru summer 1977.

Joint Identification	System	<u>Pipe Size and Mat'l</u>
SI-0110-008	Safety Injection	6" Stainless Steel
SI-0417-002	Safety Injection	10" Stainless Steel
SI-0110-002	Safety Injection	6" Stainless Steel
MS-0029-007	Main Steam	34" Carbon Steel
P-15 FW-3	Penetration thru Containment wall	8" Carbon Steel
P-17 FW-3	Penetration thru Containment wall	8" Carbon Steel
P-19 FW-3	Penetration thru Containment wall	8" Carbon Steel
P-26 FW-3	Penetration thru Containment wall	12" Carbon Steel
P-29 FW-3	Penetration thru Containment wall	6" Carbon Steel
P-30 FW-3	Penetration thru Containment wall	6" Carbon Steel
P-32 FW-3	Penetration thru Containment wall	34" Carbon Steel
P-43 FW-3	Penetration thru Containment wall	8" Carbon Steel
P <del>,</del> 70 FW-3	Penetration thru Containment wall	10" Carbon Steel '
P-24 FW-3	Penetration thru Containment wall	8" Carbon Steel



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\*P-64 FW-3 Penetration thru 24" Carbon Steel Containment wall \*Unit 1 penetration; all others are for Unit 2.

The following discrepancies were noted during this review:

1. Radiographs for penetration No. 26 showed several penetrameters with a lead letter "F" positioned in the weld area on each exposure rather than on the adjacent base metal as required. Although a note on the reader's sheet stated that due to configuration, the penetrameters were placed on the weld, this statement proved to be erroneous based that one additional exposure was taken after weld repair with the penetrameters properly placed on the adjacent base metal. This joint should be re-radiographed with the penetrameters and lead letter "F" positioned on the base metal as specified in the ASME Code.

Paragraph T-263.1 of Article 2 of Section V states in part, "For welds, a source side penetrameter shall be placed adjacent to the weld seam except in instances where ... the geometric configuration makes it impractical ...."

2. A set of radiographs for penetration No. 32 were not dated. These films were in a film packet dated 1/1/80.

Paragraph T-236 of Article 2 of Section V requires the date of the radiograph to be plainly and permanently included on the radiograph.

3. Radiographs of penetration No. 19 for weld areas identified on the film reader's sheet as (15-22) and (22-29), had no location marker at the (22) position. Measurements could be made to verify adequate coverage, but location markers are required.

Paragraph T-237 of Article 2 of Section V states in part, "Location markers, which are to appear as radiographic images on the film, shall be placed on the part ... providing evidence on the radiograph that the required coverage of the region being examined has been obtained."

4. The radiographs of penetration No. 32, weld area (105-0), show a <sup>1</sup>/<sub>2</sub>-inch blob of metal (could be an arc strike) on the base metal approximately 3/4-inch from the weld edge. This indication was not reported on the film reader's sheet. This discontinuity, as viewed on the radiographs, could result in serious problems. In addition to the blob, there is, what appears to be remnants of weld metal



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from a temporary attachment. This was not reported on the film reader's sheet either. It is located about 5 inches from the weld edge and is about 3" long.

Paragraph T-292 of Article 2 of Section V requires the manufacturer to examine and interpret the radiographs and to record on a review form accompanying the radiographs the interpretation of each radiograph and disposition of the material examined.

5. The film reader's sheet for penetration No. 26 indicates a radiographic technique other than what was actually used. The reader's sheet states technique No. 3 when in fact technique No. 4 was used.

Paragraph T-293 of Article 2 of Section V requires detailed radiographic setup information to aid in the interpretation of radiographs.

6. The film reader's sheet for penetration No. 24 indicates that 2T sensitivity is required, but only 4T sensitivity is displayed on the radiographic films. The reader's sheet is in error, since 4T sensitivity is required by the ASME Code. Errors of this type point out a lack of attention to details which can result in more significant items being overlooked.

As noted above the applicable standard is ASME B and PV Code, Section V, 1977 edition thur summer 1977 addenda. The above examples are indicative of noncompliance with 10 CFR 50.55a. This item is Infraction No. 389/80-15-03 "Failure of Radiographic Examination to Comply With ASME Code Requirements."

7. The radiographs of SI-0417-002; exposure (0 - 8), indicate what appears to be unacceptable incomplete fusion (IF) and incomplete penetration (IP). This area was repaired once for IP, but it appears not all of the areas intended to be repaired, were actually repaired. An indication of IF at station marker "0" appears to have been overlooked on the original radiographs as this area was not repaired.It is noted that the the IF indication is not as prominent on the second set of radiographs as it was on the original films. Also, an indication of IP at station marker "7" appears to have been overlooked.

The licensee agreed to re-evaluate these radiographs and initiate action necessary to verify acceptability of the subject weld. This will be carried as Unresolved Item No. 389/80-15-09 "Potential Unacceptable Safety Injection Pipe Weld."



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- 8. The inspectors observed radiographic examination of main steam joint MS-0029-007 during the backshift. (This weld was discussed earlier in the paragraph on visual examination performance.)
- (e) Ultrasonic Examination

The inspectors observed ultrasonic examination of a seismic qualified AWS structural weld No. 2F-2-STL-G838-2-128 to determine whether the examination was performed in accordance with Code requirements and licensee's written procedures. The applicable Code is the same as that indicated above.

d. Quality Control Inspectors

(1) Discussions with Nondestructive Examiners

- (a) The inspectors held discussions with four liquid penetrant examiners, two magnetic particle examiners, one ultrasonic examiner and two certified NDE supervisors. The discussions centered on:
  - 1 How they carry out procedural requirements;
  - <u>2</u> Whether they had the necessary qualifications for the level of work being performed; and
  - <u>3</u> Whether they felt their findings received proper attention.

One examiner indicated that one of the ultrasonic indications which he reported to be in a structural weld had been called a base metal indication and accepted by Engineering. The weld in question was No. 2F-2-STL-G838-275 in the main steam tressel safety-related steel work. The inspectors reviewed the UT report and the disposition of the weld repair request (WRR) after having visually inspected the weld in question. The WRR No. 1726 had been dispositioned by referring to an Engineering memo No. FM-2-80-2456 which states that base metal indications should only be considered if they are within 3/16-inch of the weld zone. Indications beyond the 3/16-inch zone are acceptable.

After reviewing the documentation for this weld the inspectors could not ascertain how it was determined that the indication was beyond the 3/16-inch zone. At the request of the inspectors, the engineers showed how the indication was located by plotting the UT report dimensions on a scale drawing of the weld joint. The inspectors noted that the scale drawing of the weld had

a weld groove which measured approximately 7/8-inch at its widest spot. (This did not compare favorably with the weld which measured approximately 1-3/8-inch wide at that same location.) When asked about this, the engineers were apparently not aware of this weld size. After viewing the weld with the inspectors, the licensee's engineers immediately began examinations trying to determine the exact size of the weld, in order to determine whether, in fact, the reported indication was outside the 3/16-inch area of interest. (The apparently wider than expected weld gap would tend to indicate that the indication is in fact in the heat affected zone.) The status of this weld was still in question and will be carried as Unresolved Item No. 50-389/80-15-06 "Evaluation of Repair Requests."

During the examination of this weld the inspectors noted that the bolt holes in the plate containing the weld had been elongated. When asked whether the holes were acceptable the licensee's engineers were not able to make a determination. This question will be carried as Unresolved Item No. 50-389/80-15-07 "Unfairness of Bolt Holes."

(b) Review of Qualification Records

The inspectors reviewed the qualification records for individuals qualified to perform visual, liquid penetrant, magnetic particle, ultrasonic and radiographic examinations. The following discrepancy in qualification records was noted:

The inspectors reviewed the qualification folder for the Level I liquid penetrant examiner who had accepted the weld joint which had 9 rejectable linear indications as noted in Paragraph 6c above. His certification records indicated that he was certified as a Level I examiner in visual inspection, liquid penetrant and magnetic particles examination. However, a review of his previous employment records did not indicate he had sufficient documented practical experiences or classroom training to be certified as a Level I examiner as required by Table 6.2.1A of SNT-TC-1A 1975 Edition of Attachment 1, page 1 of the licensee's procedure QI'2.7, Revision 5. In addition, five records of qualification in this examiner's qualification folder indicated that he held a Level II certification. The five records consisted of the following:

<u>1</u> Inspection Personnel Eye Exam

2 Indoctrination Training Record



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- <u>3</u> Inspection Qualification Sheet
- 4 Position Description Sheet
- 5 Construction Quality Control Training Record
- (c) Review of Qualification Test and Practical Examination Test Specimens
  - 1 The inspectors reviewed visual examination as it related to training and qualification test specimens. Numerous test specimens (hardware) were reviewed to determine whether the defects and surface conditions, required to be evaluated by the licensee's written Procedure, 9.1, Revision 3, and by ASME Code were adequately illustrated.

The following discrepancies were noted:

- <u>a</u> The test specimens, shown to the inspectors, are not formally included in the training program.
- The one test specimen, currently being used b for a qualification test specimen, is considered inadequate to verify the examiner candidate's proficiency in visual examination. The qualification examination needs to include specimens representative of the type of welds and joint fitups the examiner is expected to evaluate in production, as required by Paragraph NB-5521 of Section III. For example, the test should consist of pipe joints to be fitup, which tests the examiner candidate's ability to use measuring devices as well as his knowledge of fitup requirements; at least the majority of the weld defects listed in the licensee's procedure should be included; socket or fillet welds should be included in addition to the pipe joint already in use.
- <u>c</u> Several defects/surface conditions are not included in the hardware samples, i.e., burn thru, cracks, blow holes, 3 to 1 taper at the end of counterbores, the land on a weld prep.
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The inspectors also reviewed magnetic particle and liquid penetrant examinations, only as it related to training and qualification test specimens. The following test specimen deficiencies were noted:



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MT test specimen No. 6 which is one of the two a currently used test plates for testing MT candidates for examiner certification is not typical of MT welding defects and does not adequately appraise the examiner's ability to actually identify common welding defects. The defects in the test sample are chisel marks that could be seen visually and which an examiner would be expected to have removed prior to MT. In addition the number of indications are not recorded on the evaluation sheet, so determining if the examiner has identified 90% of the known indications as required by Paragraph 8.6.4 of SNT-TC-1A and Paragraph 5.4.2 of the licensee's Procedure QI 2.7 is a matter of opinion in lieu of established fact.

<u>b</u> Test specimen No. 10, which is exclusively used for testing PT examinees, is also so grossly defective that it is not typical of PT indications that an examiner would normally be expected to encounter. All indications described on the evaluation sheet for this test specimen can also be seen visually. In addition, the number of rejectable indications are not noted. However, the Quality Control Supervisor who administers the test indicated that there were in the neighborhood of around 40 to 50 rejectable indications. This weld would also be expected to be rejected visually by any qualified examiners.

The inspectors concern that test specimens which are not typical of normal weld defects. and are so gross that it does not test the ability of the examinee in the specific discipline that he is certifying in, appears to be one factor that may have resulted in the examiner's failure to identify tight linear discussed indications as in Infraction 50-389/80-15-02. As noted previously, failure to establish the number of known indications in test specimens and also failure to have adequate test specimens for the intended certification of an examinee, in a specific discipline, is in noncompliance with SNT-TC-1A, the licensee's Procedure QI 2.7, Revision 5 and 10 CFR, Appendix B, Criterion IX. This item will be identified as a Deficiency item No. 50-389/80-15-01, "NDE Certification Program Discrepancies".

#### e. Quality Control Procedures

The inspectors reviewed FP&L's Nondestructive Examination Procedures listed below to determine whether the procedures meet Code requirements, are adequate to properly control the work, and are detailed to instruct the QC inspector on exactly what he should be looking for (especially acceptance criteria) when making inspections or observing a test.

#### Procedure No.

### <u>Title</u>

QI	9.1,	Revision 3	Visual Inspection of Welds
QI	9.2,	Revision 2	Inspection of Field Welding
QI	9.3,	Revision 2	Radiographic Inspection
QI	9.4,	Revision 1	Magnetic Particle Inspection
QI	9.5,	Revision 4	Liquid Penetrant Inspection
QI	9.9,	Revision 1	Ultrasonic Inspection of Struc- tural Welds
QI	2.7,	Revision 5	NDE Personnel Qualification and Certification

# f. Nonconforming Items Report (NCR)

The inspectors reviewed the licensee's program for the documentation and control of nonconforming items. The program includes Nonconformance Reports (NCRs), Deficiency Reports (DRs) and Weld Repair Requests (WRRs). The inspectors selected a number of NCRs, DRs, and WRRs for review.

## g. Materials and Equipment

(1) The inspectors examined/reviewed the items and certification documentation for the below listed components to determine whether meaningful inspections were made to verify that material meets specifications and to what degree the licensee/ contractor had inspected or verified performance by the vendor; item meets design and purchase order requirements; and the documentation is adequate; and the item meets design intent.

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Component	Heat or Control No.
Tube 12.750 x 0.330	19222
ECC. Reducer 12" x 10"	JFVL
Elbow 10", 90°	JHJZ
Con. Reducer 10" x 8"	JGOE
Elbow 12", 90°	JFVM

(2) Welding material purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and Code requirements:

Type	Process	<u>Size</u>	<u>Heat No.</u>
ER-308	GTAW	3/32	27516
308-16	SMAW	3/32"	0328
308-16	SMAW	1/8"	56724
ER308L	GTAW ·	0.045"	Y3189T308L
308-16	SMAW	3/32"	56493
ER-308L	GMAW	1/16"	8900
ER-308	Sub Arc	3/32"	462317
H5300	Sub Arc		Lot 16

(3) The inspectors reviewed the purchase documents and certification records for the liquid penetrant materials listed below to ensure they met the Code requirements concerning total amounts of sulfur and halogens permitted.

<u>Material</u>	<u>Type</u>	<u>Batch No</u>
Liquid Penetrant	SKL-NF/S	80-E-005
Liquid Penetrant	K017	54-E803
Liquid Penetrant	SKL-NF/S	79 <b>-</b> H063
Penetrant Cleaner	SKC/NF	80-E116

Penetrant Cleaner	КО19	56-H829
Liquid Penetrant	SKL-NF/S	80-F006
Developer	SKD-NF	80-E116
Developer	SKD-NF	78-E125
Developer	SKD-NF	80-8048

- h. Control of Temporary Attachments and Their Removal
  - (1) During the inspectors inprocess inspection of welding and NDE, the inspectors noted that weld travelers at fit-up inspection did not indicate that temporary attachments were installed, nor was the immediate area around the temporary attachment Paragraphs NB-4231.2, NC-4231.2 and in marked. part Paragraph ND-4435 of Section III of the ASME Code, 1977 edition thru summer 1977 addenda permits the use of attachments which are welded to the component during construction but which are not incorporated into the final component, such as alignment lugs or straps, tie straps, braces, postweld treatment equipment, heat preheat equipment provided the following requirements are met:
    - (a) The material is identified and is suitable for welding but need not be certified material.
    - (b) The material is compatible for welding to the component material to which it is attached.
    - (c) The welding material is compatible with the base material and is certified in accordance with NB-2130, and NC-2130.
    - (d) The welder and welding procedure are qualified in accordance with NB-4320, NC-4300 or ND-4321.
    - (e) The immediate area around the temporary attachment is marked in a suitable manner so that after removal the area can be identified until after it has been examined in accordance with (g) below.

- (f) The temporary attachment is completely removed in accordance with the procedures of NB-4211, or NC-4211.
- (g) After the temporary attachment has been removed, the marked area is examined by a magnetic particle or liquid penetrant method in accordance with the requirements of NB-5110, or NC-5710 and meets the acceptance standards of NB-5340, NB-5350, NC-5340 or 5350 whichever is applicable.
- (h) The attachment weld or the area after removal of the attachment is postweld heat treated in accordance with NB-4620, NC-4600 or ND-4620.

Specific examples noted during this surveillance inspection consisted of the following:

Item	<u>Weld Number</u>	<u>Class</u>
Spool pc. CC-37-4 TO	2F-CC-0037-005	3
Spool pc. CC-37-5		
Preheat Equipment		

P/N P-0E7 2F-2-P-0E7-003 2

2F-2-P-0E6-003

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P/N P-0E6

A review of the licensee's procedure QI 9.1 and discussions with Florida Power and Light Company (FP&L) Quality Control Supervisor revealed that temporary attachments are inspected on the final weld in accordance with QI 9.1 only when the area where the temporary attachment was removed can be The licensee agreed that procedural identified. and/or to verification controls insure FP&L reinspection of all temporary attachments as required by Section III of the ASME Code was an oversight in the QC program. Failure to establish adequate measures for the control of temporary attachments and their removal is in noncompliance with 10 CFR 50, Appendix B, Criterion IX. This is an infraction and will be identified as item number 50-389/80-15-04, "Inadequate Controls for Temporary Attachments."

i. Audits

The inspectors reviewed the following audits in the area of welding and NDE:

QAC-PSL2-80-08	Welding Control
QAC-PSL2-80-21	Special Processes
QAC-PSL2-80-24	HVAC Contractor
0AC-PSI 2-80-30	Weld Filler Materia

The audits appear to be predominately documentation oriented. The inspector stated that the subject of auditing work as well as documentation was an area of concern and would be listed as Inspector Follow-up Item 50-389/80-15-11, "Audits."

Within the areas examined no items of noncompliance or deviations were identified except for the following:

Infraction	Paragraph 6c(2)(a)2
Infraction	Paragraph $6c(2)(d)\overline{6}$
Deficiency	Paragraph $6d(1)(c)\overline{2}$
Infraction	Paragraph 6h(1)(h)

7. Independent Inspection

The inspectors conducted walk-through inspections of the reactor building, auxiliary building, material storage facilities and fabrication shops.

During the inspection of the reactor and auxiliary buildings, the inspectors noted an inordinate amount of garbage accumulating in all areas of these structures. There was also a fair amount of construction debris in the areas but the inspectors were primarily concerned with the following indicators of poor housekeeping:

- a. On Monday, October 27, 1980, the inspectors found a large number of cans of liquid penetrant materials, PVC adhesive materials, and insecticide sprays laying around the lower level of the containment. (Some of the liquid penetrant materials and the PVC adhesive materials were labelled as highly inflammable.)
- b. On the same day food remnants, food wrappers and containers, as well as beverage cans were found throughout the containment and auxiliary buildings.



c. On Monday through Thursday, uncontrolled welding electrodes were found throughout the reactor, auxiliary, turbine and diesel generator buildings.

The conditions noted during these inspections indicate that the requirements for housekeeping during the construction phase of nuclear power plants ANSI N45.2.3-1973 are not being met. In fact, the inspectors found no evidence that any of the requirements of ANSI N45.2.3 for the establishment of and surveillance of housekeeping zones are being adhered to. The inspectors informed the licensee that the status of the housekeeping would be categorized as an Infractin No. 50-389/80-15-05, "Housekeeping" in that adequate measures in the form of procedures, etc., have not been implemented to provide adequate housekeeping.

8. Review of IE Bulletin No. 80-08, Examination of Containment Liner Penetration Welds

IE Bulletin 80-08 was issued on April 7, 1980, and requested licensees to determine whether their facility contained the flued head design for penetration connections, or other designs with containment boundary butt welds between the penetration sleeve and process piping as illustrated in Figure NE 1120-1, winter 1975 addenda to the 1974 edition and later editions of the ASME Boiler & Pressure Vessel Code. If the licensee's facility does contain this design then the licensee was requested to determine whether welds were made with a backing ring and whether or not volumetric examination was conducted by radiography. The Bulletin indicates that weld joints with a backing ring that have not been radiographed, are of particular interest as they are potentially defective.

In response to the Bulletin, Florida Power & Light Company (FP&L) forwarded letter L-80-323 dated September 29, 1980, which provided a listing of all Unit 2 penetration welds. This letter indicates that all joints were, or will be, radiographed and that backing rings were not used.

During the visit to St. Lucie, the inspectors requested the radiographs and records for several of the welds listed in the FP&L letter in order to review the films for compliance to Code requirements. The films were retrieved, but it was subsequently determined that these radiographs were not for the type of joints referenced in the Bulletin. In discussions with the licensee it appears that the joints described in the Bulletin were fabricated by the vendor, thus the radiographs and records would not be available at the St. Lucie Site.

Now that there is a clearer understanding of what joints the Bulletin refers to, the licensee has agreed to review their letter for Unit 2 and either modify it or revise it such that it reflects the information asked for in the Bulletin. It should be noted that the licensee's response to the Bulletin for Unit 1 penetrations was obtained by the

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inspectors while at the site. Thus, the contents of this letter (L-80-215) have not yet been reviewed by Region II. In view of the misunderstanding regarding Unit 2 joints, the licensee agreed to also review the information provided for Unit 1 to determine if it is what the Bulletin requested.

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#### 9. Concern Regarding Welding Practices

The Region II office was contacted by an individual who expressed the following concerns in substance:

a. Welding procedures for work on the primary cooling loop were not followed. Specifically, QC Inspection Report M80-1713 addresses a practice where 0.045" wire is being twisted together to make tack welds. The one weld specifically identified was RC-112005. The FP&L welding superintendent was aware of the practice described above and did nothing about it.

The inspectors reviewed FP&L Inspection Report M80-1713, Weld Material Requisition Report SL-87111 (welding filler material for Weld Joint No. RC-112005), Weld Traveler for Weld Joint RC-112005, Weld Data Change Request for Weld Joint No. RC-112005 dated October 10, 1980 and Welding Procedure Specification 50, Revision 7. The inspectors determined that the use of 0.045" diameter filler wire was properly authorized and documented consistent with the licensee's QA/QC program and the ASME B&PV Code prior to the start of welding. The linear volume of two twisted 0.045" diameter welding filler wires is greater than that (one .045" diameter rod) authorized by the October 10, 1980 note to the traveler and less than that authorized by the Welding Procedure Specification (one 0.093" diameter rod). Therefore the use of two twisted 0.045" diameter welding filler wires for tacking Joint RC-112005 is consistent with the requirements of the ASME Code, and the licensee's QA/QC program. The licensee indicated that the use of two twisted 0.045" diameter welding filler rods was necessary because the 0.045" diameter filler material authorized (Code No. 088) was the only material on site that conformed to the chemistry requirements of the CE specification covering welding filler material for the reactor coolant system.

b. Weld rod and filler material control is not maintained during the night shifts. Weld rods and filler material have been observed on the floor of the auxiliary building on numerous occasions. FP&L takes the position that QA is responsible for all weld rod/filler material control. There is no QA/QC inspector surveillance of welding during the night shifts.

The above was identified by NRC Inspection Report RII:WPK 50-389/80-13 as an infraction identified as "Welding Filler Material Control". The licensee stated that there was only



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infrequent QA surveillance of welding during the night shift. This item is further discussed in Paragraph 3.

c. The Project QC Supervisor (FP&L night shift supervisor) destroyed an NCR which was initiated because a QC/ANI hold point had been bypassed. The NCR, M80-1764, dealt with weld CS-26-001 in the containment spray system and was dated October 17, 1980. When destroying the NCR, the supervisor stated that the hold point was not required by the Code. The individual also indicated that the weld was subsequently ground out and rewelded, but failed inspection and a second NCR was generated.

The inspectors reviewed General Inspection Report M80-1764, the traveler for Weld Joint CS-26-001 and WRR-1889. The inspectors determined that the repair welding and the actions taken as a result of the missed ASME required hold point to the date of this inspection were consistent with the licensee's QA/QC program and the ASME B&PV Code. By the licensee's QA/QC program, the supervisor was justified in destroying the NCR coupled to M80-1764 because repairs could be accomplished using existing procedures.

The inspectors have no further questions as the licensee's program identified and corrected the problem.

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