



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

IE Inspection Report No. 50-302/76-6

Licensee: Florida Power Corporation
3201 34th Street, South
Post Office Box 14042
St. Petersburg, Florida 33733

Facility Name: Crystal River 3
Docket No.: 50-302
License No.: CPPR-51
Category: B1

Location: Crystal River, Florida

Type of License: B&W, PWR, 2452 Mwt

Type of Inspection: Routine, Announced

Dates of Inspection: February 18-20 and March 2-5, 1976

Dates of Previous Inspection: February 10-12, 1976

Principal Inspector: K. W. Whitt, Reactor Inspector
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch

Accompanying Inspectors: R. F. Rogers, Reactor Inspector
Nuclear Support Section
Reactor Operations and Nuclear
Support Branch (March 2-5, 1976)

S. D. Ebnetter, Reactor Inspector
Engineering Support Section No. 1
Reactor Construction and Engineering
Support Branch (March 3-4, 1976)

A. R. Herdt, Reactor Inspector
Engineering Support Section No. 2
Reactor Construction and Engineering
Support Branch (March 3-4, 1976)

8002 280 682

F. Jape, Reactor Inspector
Reactor Projects Section No. 2
Reactor Operations and Nuclear Support Branch
(March 2-5, 1976)

Other Accompanying Personnel: None

Principal Inspector: K. W. Whitt 3/16/76
K. W. Whitt, Reactor Inspector
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch
Date

Reviewed By: R. C. Lewis for 3/17/76
R. C. Lewis, Chief
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch
Date

SUMMARY OF FINDINGS

I. Enforcement Items

There were no items of noncompliance identified during the inspection.

II. Licensee Action on Previously Identified Enforcement MattersA. Infraction

75-19-A1(II) The licensee has provided corrective action by revising procedure SP-305 to incorporate omissions related to test parameters and calibration. Appendix B of Procedure SP-305 has been deleted as being inapplicable. The inspector reviewed the corrective action and this infraction is considered closed. (Details IV, paragraph 3)

B. Deficiencies1. Failure to Follow Administrative Instructions

The licensee response to the deficiency involving failure to follow administrative instructions while initiating changes and deviations to test procedures has been reviewed. The corrective actions and the actions taken to prevent recurrence have also been reviewed. The inspector has no further questions in this area at this time. This item is closed. (Details I, paragraph 3)

2. Failure to Report the Failure of the Auxiliary Building Ventilation Duct

The licensee response to the apparent deficiency involving failure to report the partial collapse of the auxiliary building ventilation duct has been reviewed. Based on the information contained in this response IE Region II concludes that this item was not reportable and a deficiency did not occur. This item is closed. (Details I, paragraph 4)

III. New Unresolved Items76-6/1 Site Surveillance Audits

Corporate Quality Assurance requirements do not require that site surveillance audit findings be responded to in a timely manner. (Details I, paragraph 3)

76-6/2 Precritical Test Program

The scope of the licensee precritical test program does not appear to satisfy the recommendations of Regulatory Guide 1.68. (Details III, paragraph 3)

76-6/3 Post Fuel Load CRD Trip Test (TP 7 1 710 3)

The licensee's approved procedure does not reflect the full extent of rod testing described in Regulatory Guide 1.68. (Details III, paragraph 4.a)

IV. Status of Previously Identified Unresolved Items75-13/2 Turbine and Generator Trip from 100% Power

A licensee representative stated that these tests would be performed from the highest attainable licensed power level. This item is closed. (Details I, paragraph 7)

75-19/1 Temporary Procedures

A licensee representative stated that no temporary procedures would be used in the operation of the Crystal River 3 plant. This item is closed. (Details I, paragraph 8)

75-19/8 Indications in Class 2 Components

The licensee's investigation is basically complete with the exception of metallurgical examinations of selected samples. This item remains open pending the metallurgical examination and final data as delineated in the details of this report. (Details IV, paragraph 4)

V. Unusual Occurrences

None

VI. Other Significant FindingsA. Project Status

The fuel loading date has been changed from April 1976 to May 1976. All the safety related systems have been turned over to generation testing. Approximately 99% of the preoperational

test procedures have been approved; about 49% of the tests have been completed; and 25% of the test results have been approved. (Details I, paragraph 9)

B. Documentation of Test Results

The inspectors were contacted by an individual on site who expressed concern that test results were not being reviewed and documented in accordance with the administrative controls developed for testing activities. (Details I, paragraph 6)

VII. Management Interview

A management interview was held on February 20, 1976, with J. Alberdi, Project Manager and Members of his staff. The findings of the inspection relating to Class II preoperational test procedure verification and quality assurance audits were discussed. (Details I)

A second management interview was held on March 4, 1976, with Mr. Alberdi and members of his staff. The finding of the inspection relating to pre-service inspection of Class 2 components were discussed. (Details IV)

A third management interview was held on March 5, 1976, with Mr. Alberdi and members of his staff. The finding of the inspection relating to preoperational testing; hot functional testing, precritical testing, and operational procedures were discussed. (Details I, II, and III)

FPC was informed of the changes in Principal Inspector responsibilities from K. W. Whitt to F. Jape, effective March 9, 1976.

DETAILS I

Prepared by:

K. W. Whitt
K. W. Whitt, Reactor Inspector
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch

3/16/76
Date

Dates of Inspection: February 18-20 and March 2-5, 1976

Reviewed by:

R. C. Lewis for
R. C. Lewis, Chief
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch

3/17/76
Date

1. Individuals Contacted

Florida Power Corporation (FPC)

J. Alberdi - Project Manager
J. Barrett - Compliance Plant Engineer
G. P. Beatty - Plant Superintendent
J. C. Clapp - Manager, Site Surveillance Audits
T. C. Lutkehaus - Maintenance Engineer
E. E. Froats - Manager, Site Surveillance
J. C. Hobbs, Jr. - Manager, Generation Testing

2. Verification of Review and Approval of Category II Test Procedures

This item was identified in IE Report No. 50-302/75-11, Details I, paragraph 7, and subsequently discussed in IE Report Nos. 50-302/75-13, Details I, paragraph 4, and 50-302/75-19, Details I, paragraph 5. All the Category II test procedures selected for review have now been completed and approved by the licensee. The inspector has no further questions in this area. This item is closed.

3. Failure to Follow Administrative Instructions

This item of apparent noncompliance was identified in IE Report No. 50-302/75-19, Details I, paragraph 2. The response to this noncompliance which was transmitted to Region II by FPC letter dated February 5, 1976, has been reviewed. According to the response, there was no requirement for numbering changes to preoperational test procedures prior to February 12, 1975. On this date a memorandum was written by the administrative supervisor to generation testing personnel instructing them in the proper method of handling procedure changes. This memorandum was also reviewed by the inspector. A

preliminary review of a small number of test results packages of tests performed after February 12, 1976, indicates that better control of test procedure changes was being maintained. The procedure changes that had not been reviewed by the test working group have now been reviewed and approved. A licensee representative stated that the review of the test results including the procedure changes performed by FPC personnel indicates that the test was valid and that no data was compromised. The inspector has no further questions in this area at this time. This item is closed.

4. Failure to Report the Failure of the Auxiliary Building Ventilation Duct

This item of apparent noncompliance was identified in IE Report No. 50-302/75-19, Details I, paragraph 3. The response to this item which was transmitted to Region II by FPC letter dated February 5, 1976, has been reviewed. Based on the additional information received in the response, Region II has concluded that the partial collapse of the auxiliary building duct was not reportable; therefore, FPC was not in noncompliance for failure to report the event. This item is closed.

5. Quality Assurance Audits

There are two quality assurance groups representing the quality programs department presently located at the Crystal River 3 site. These groups are "Site Surveillance" and "Site Surveillance Audits." Both groups have implemented quality assurance audit programs as specified by sections 1.7 and 13.2.4 of the FSAR and the corporate quality assurance manual. Audits performed by each group were selected on a sample basis and reviewed by the inspector. Findings of the review are as follows:

a. Site Surveillance

Paragraph XVIII of section 13.6 of the FSAR states that FPC has approved quality assurance procedures for the auditing of the test program for compliance with Appendix B of 10 CFR 50, FSAR commitments, and specification requirements as described in section 13.2.4. Section 13.2.4.2 of the FSAR states that the FPC Nuclear Project Manager is responsible for the quality assurance function necessary to assure that the test program is being performed as specified. The quality assurance function shall be performed by FPC quality assurance. This function shall audit the conduct of tests and test results as a check for conformance with engineering design documents and other commitments.

The onsite group responsible for carrying out the details described above is site surveillance. This group is performing the audits as specified. However, the review of selected audits shows that audited organizations are not responding in a timely manner. Quality Program Policy 18.1, "Quality Program Audits," Section 4.4, states that a written response clearly delineating the corrective action to be initiated for each finding is prepared by the audited organization and submitted to the audit team leader. Copies of that response are then distributed and filed in accordance with the procedures for audit records.

A licensee representative stated that since no time frame had been assigned to the requirement for response to audits, there was no evident deviation from any commitment. The inspector stated that it did not appear that the intent of the quality assurance manual was being satisfied in that the responses to audits were not provided in a timely manner to assure that timely corrective actions are taken. The audits, by number, that were reviewed along with the date of the audit and response status is provided below:

<u>Audit No.</u>	<u>Date of Audit</u>	<u>Written Response</u>
144	6/8/75	None Received
160	8/4/75	None Required
166	1/21/76	None Received
181	10/27/75	None Received
188	12/22/75	None Received
191	12/24/75	1/8/76
195	1/7/76	None Received
200	1/16/76	None Required
209	1/23/76	None Required
217	1/28/76	None Required
218	2/3/76	None Received
221	2/2/76	None Received
224	2/5/76	None Received
230	2/10/76	None Received
234	2/13/76	None Required

Before the inspector left the site, a licensee representative stated that appropriate quality documents would be revised to incorporate instructions to assure timely response to the quality assurance audits. This was designated unresolved item 76-6/1.

b. Site Surveillance Audits

Section 12.2.4.3 of the FSAR states that the FPC Director - Quality Programs is responsible for the quality surveillance of the test program necessary to assure that quality control and quality assurance functions are effective. The FPC Manager Quality Surveillance Audits is his designated representative for the Crystal River 3 project. Seven of the most recent audits performed by the site surveillance audits group were reviewed. The audits reviewed were:

- QS-107, "Quality Document Files"
- QS-108, "Quality Assurance Procedures"
- QS-109, "Pre-service Inspection Documentation"
- QS-110, "Evaluation of Operations Program for Special Nuclear Material"
- QS-111, "Compliance Audit, Operational Compliance Section"
- QS-112, "Audit of Test Working Group, Test Program Control"
- QS-113, "Control of Procurement Documents"
- SCMS-003, "Adverse Trending"

The audited organization had responded to these quality surveillance audits in a timely manner in most cases. Audit SCMS-003 identified three areas of adverse trending. These areas were: Control of Test Instrumentation, Control of Temporary Test Devices, and Control of Equipment Maintenance During Preoperational Testing. The audit report indicates that trends toward inadequate controls in these areas could be an indication that system testing is not being sufficiently controlled. A response to the audit has been provided by generation testing, but the evaluation of the response had not been completed at the time of the inspection. The inspector has no further questions concerning these particular audits at this time.

6. Documentation of Test Results

During this inspection, the inspector was contacted by an individual on site who expressed concern that the thoroughness of the review of test results by the licensee is being reduced in favor of higher productivity. The individual stated that he felt that a reduction in the scrutiny of test results by licensee reviewers including the test working group could be an indication of lack of attention to the performance of the tests. At least one example was provided to support the concern that the administrative controls of testing and review of test results have not been adhered to. The areas of concern will be reviewed in depth by Region II inspectors during subsequent inspections. These concerns appear to coincide with the findings identified by the site surveillance audits group in audit report SCMS-003.

7. Turbine and Generator Trip from 100% Power

This unresolved item (75-13/2) was identified in IE Report No. 50-302/75-13, Details I, paragraph 6, and subsequently discussed in Report No. 50-302/76-1, Details I, paragraph 5. A licensee management representative stated that these tests will be performed from the highest attainable licensed power. A review of test procedure 7 1 800 13 0, "Unit Loss of Electrical Load Test," indicates that the generator trip test will be performed from 100% power or as close as is possible to achieve. The inspector has no further questions in this area at this time. This unresolved item is closed.

8. Temporary Procedures

This unresolved item (75-19/1) was identified in IE Report No. 50-302/75-19, Details I, paragraph 4. During this inspection a licensee representative stated that temporary procedures would not be used in the operation of the Crystal River 3 Plant, in that they are not permitted by the proposed Technical Specifications for the operating phase. All references to temporary procedures in administrative instructions have already been removed or are in the process of being removed. This unresolved item is closed.

9. Plant Statusa. Construction

Plant construction was reported as being 97% complete. All safety related systems have been turned over to generation testing; however, all of the systems still have exceptions to be resolved.

b. Testing

Identified test procedures that have not been approved include five preoperational test procedures, two zero power test procedures, ten power escalation test procedures and one radiation shield survey procedure. One hundred and sixty three of the 336 tests identified have been completed. Twenty one of the completed tests have test deficiencies to be resolved. The results of 83 tests have been approved. Less than ten systems have been turned over to operations.

c. Operations

Three hundred and sixty five operational procedures have been identified. Of these, 253 have been approved. Plant operations has accepted turnover of five systems.

d. Fuel Load Date

The fuel load date has been changed by the licensee from April 1976, to May 1976. Preparations for hot functional testing were in progress during the inspection. Primary system temperature was being held just under 200°F until secondary system chemistry could be brought within the required limits. Completion of hot functional testing is in the critical path of the schedule of activities to be completed prior to fuel loading.

DETAILS II

Prepared by:

Frank Jape3-12-76

F. Jape, Reactor Inspector
 Reactor Projects Section No. 2
 Reactor Operations and Nuclear
 Support Branch

Date

Dates of Inspection: March 2-5, 1976

Reviewed by:

R. C. Lewis for3/17/76

R. C. Lewis, Chief
 Reactor Projects Section No. 2
 Reactor Operations and Nuclear
 Support Branch

Date

1. Individuals ContactedFlorida Power Corporation (FPC)

T. C. Lutkehaus - Maintenance Engineer
 W. R. Nichols - Operations Supervisor
 D. W. Pedrick, IV - Compliance Engineer
 C. G. Goering - Compliance Auditor
 G. R. Westafer - Technical Support Engineer
 K. O. Vogel - Computer and Controls Engineer
 P. L. Breaux - Shift Supervisor
 T. N. Mount - Nuclear Operator
 G. P. Beatty - Nuclear Plant Superintendent

Babcock and Wilcox (B&W)

J. J. Kelly - Testing Superintendent
 T. G. Pitts - System Test Engineer
 J. R. Bohart - System Test Engineer
 J. Renner - System Test Engineer

VOLT

E. T. Childress - System Test Engineer

2. Witness of Integrated Hot Functional Testing

The inspector witnessed a portion of the initial heatup phase of test procedure TP 7 1 600 0, "Hot Functional Testing." The primary coolant system was at a nominal 190°F and 950 psig during periods of inspector observation.

In general, the inspector verified that the proper procedure was in use, test prerequisites were met, the required systems to support the ongoing testing were placed in service as prescribed by procedures, crew actions were timely, attentive and responsive, and the records being maintained were as prescribed by the test program guide.

Discussions with operators and testing personnel revealed that they were using the current copy of the procedure. The operators at the control panels in the control room and those in charge of operating equipment in other locations throughout the plant were observed to be attentive and responsive.

The chronological log was reviewed and found to contain detailed information concerning the conduct of testing. Data from TP 600 11, "Emergency Feed System and OTSG Control," and TP 600 38, "Reactor Diagnostic System Baseline Data," which are a part of the hot functional testing program, were examined to determine if prerequisites were met and plant systems required for testing were in service. Also, the inspector verified that jumpers and lifted leads were being installed, removed and recorded as required by Test Program Guide 1.6, "Temporary Test Device Control."

Additional portions of hot functional testing will be witnessed at various testing plateaus.

3. Fire Prevention and Protection

Work control procedures for the prevention of and protection against fires were examined and comments were discussed with licensee management.

The licensee has provided CP 118, "Cutting, Welding and Grinding Permit," to control the use of open flame and welding activities by use of a special work permit. The inspector noted that the procedure does not restrict the issuance of a permit during reactor operational modes 1, 2, 3 or 4. Licensee management responded by agreeing to restrict the issuance of a permit for work in vital areas during certain operational modes. The inspector also noted that approval of a special work permit is by a responsible supervisor, and that this individual is not specifically identified. Licensee management stated that the maintenance foreman would be the responsible supervisor in most cases. For clarification purposes, approval authority would be defined in CP 118.

The procedure requires a fire watch to be established but does not state the duties and responsibilities of this individual. For example the procedure does not require the fire watch to notify the control room shift supervisor in case of a fire. Licensee management stated that this area of concern would be added to the procedure.

In a previous inspection report^{1/} a comment was made regarding the licensee's policy on use of water to extinguish fires involving electrical equipment. This comment has been resolved in EM 216, "Duties of the Nuclear Plant Fire Brigade." There are no further questions on this comment.

In response to the comment^{1/} regarding plans or procedures for alternate methods of reactor cooldown upon loss of the normal or preferred method, licensee management stated that an intensive review of existing emergency procedures was conducted and no new procedures are required. The inspector concurred with this position.

The subject of fire prevention and protection was discussed at the management meeting at the conclusion of the inspection. Licensee management was informed that the inspector's comments are expected to be fully resolved prior to license issuance. Licensee management acknowledged this understanding.

4. Maintenance Procedures

The licensee's plans and policies for controlling maintenance activities were discussed with the Maintenance Engineer, the Technical Support Engineer and the Compliance Engineer. The licensee's policy for corrective and preventive maintenance is presented in AI 600, "Conduct of Maintenance," and AI 900, "Conduct of Technical Support." Both of these documents are currently being revised.

FPC has agreed, in Section 12.4 of the FSAR, to provide procedures as prescribed by RG 1.33, "Quality Assurance Program Requirements - Operation," and in Section 1.7.6.7.1 of the FSAR, to establish a program relative to safety related structures, systems, equipment and components as presented in ANSI 18.7-1972, "Administrative Controls for Nuclear Power Plants."

^{1/} IE Inspection Report No. 50-302/75-16, Details VI, paragraph 3.

During the discussion on maintenance procedures, it was pointed out that procedures for electrical, instrument and mechanical equipment are required by Section 6.5.1.6a of the proposed Technical Specification to be reviewed by the Plant Review Committee (PRC). Licensee management acknowledged this requirement. Also, whenever equipment is to be removed from service for maintenance, the procedure must cover the details for removal and subsequent restoration, including testing or checkout of the equipment. Calibration and surveillance procedures may be used for maintenance purposes if the required removal and restoration details are covered. Also if existing operational procedures cover the removal and restoration details, these may be referenced in the maintenance procedure.

During the inspection, maintenance procedures were not available for NRC inspector review. Licensee management stated that examples would be available for NRC review in the near future. The inspector emphasized to licensee management during the discussion and at the management interview the need to review and resolve any issues pertaining to maintenance procedures prior to issuance of an operating license.

DETAILS III

Prepared by: R. F. Rogers 3/11/76
R. F. Rogers, Reactor Inspector
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch
Date

Dates of Inspection: March 2-5, 1976

Reviewed by: R. C. Lewis 3/17/76
R. C. Lewis, Chief
Reactor Projects Section No. 2
Reactor Operations and Nuclear
Support Branch
Date

1. Personnel Contacted

G. P. Beatty, Jr. - Nuclear Plant Superintendent
D. W. Pedrick, IV - Compliance Engineer
E. E. Froats - Manager, Site Surveillance
J. C. Hobbs, Jr. - Manager, Generation Testing
G. R. Westafer - Technical Support Engineer

2. Review of Preoperational Test Procedures

A review of approximately one-fourth of the Class I and Class III preoperational test procedures was completed to determine licensee compliance with Regulatory Guide 1.68, "Preoperational and Initial Startup Test Programs for Water-Cooled Power Reactors" and FSAR Section 13.2.5, "Test Procedure Development and Review." The selected tests were representative of the total scope of the test program. It was verified for each test that a procedure existed which was properly reviewed and approved by plant personnel and that test objectives were consistent with the test title.

3. Precritical Test Program

The inspector reviewed approximately 10 category I and II tests required prior to initial criticality. The scope of testing was compared with the requirements of Regulatory Guide 1.68 Appendix A Section B.1., "Precritical Tests - After Fuel Loading" and FSAR Table 13-2, "Post Fueling - Precriticality Test Summary". Many of the tests required to be performed after fuel loading and prior to initial criticality had 600 series numbers which indicates completion during hot functional testing prior to fuel loading. The Generation Testing Department computer test summary for February 27, 1976, indicates that three (3) 700 series (post fuel load - initial

critical) tests are now planned. FSAR Table 13-2 and RG 1.68 both list approximately 10 required tests. Some of the 600 series tests included steps to be performed following fuel loading.

A licensee representative stated that a comparison would be made between the existing test program and FSAR/RG 1.68 requirements to determine what additional testing is required. The scope of the post fuel load - precritical test program is unresolved and is designated Unresolved Item 76-6/2.

4. Review of Precritical Test Procedures

The following procedures were reviewed for consistency with the requirements of Regulatory Guide 1.68 Appendix C, "Preparation of Procedures", FSAR Table 13-2, "Post Fueling - Precriticality Test Summary," and the specific references indicated below.

a. Post Fuel Load CRD Trip Test TP 71-710-3

A final draft of this procedure was reviewed for consistency with Regulatory Guide 1.68, and FSAR Table 13-2. The following problems were noted:

- (1) RG 1.68 Appendix A Section B.1.c. requires that rod drop time measurements for each rod be performed under hot and cold conditions at both rated flow and with no flow. The test procedure requires time measurements only under full flow and hot conditions.
- (2) RG 1.68 Appendix A Section B.1.c. requires that the fastest and slowest rod each receive an additional ten (10) rod drop time measurements for each core condition of temperature and flow. The test procedure requires that only three (3) additional measurements be made for the one core condition.
- (3) Test prerequisites which have safety significance require further review in light of reactivity insertions. For example, Step 8.1.6 requires that the reactor protective system be verified as "Reset" rather than being tested as operable.

A licensee representative stated that the procedure would be revised to incorporate these concerns. Items (1) through (3) above collectively constitute Unresolved Item 76-6/3.

b. Pressurizer Test TP 71 600 12

This procedure was reviewed as approved and the inspector had no further questions.

c. Initial Fuel Loading Procedure FP 202

This procedure was reviewed for conformance to Regulatory Guide 1.68, Appendix C Section B, "Fuel Loading" and FSAR Section 13.4.5, "Initial Reactor Fuel Loading." The inspector noted that radiation control practices and precautions to support the fuel loading were not well defined and the action to be taken in the event of damaged fuel elements was not covered. A licensee representative stated that these items would be addressed in a revision to the procedure.

tation and verified that the proposed corrective action had been implemented. Procedure SP-305 had been revised to incorporate quantitative acceptance criteria, test parameters and a positive provision to retest tubes when calibration drift occurs. In addition, Appendix B of Z-QA-301, which was not applicable to B&W steam generators, has been deleted. The inspector had no further questions and this item is closed.

4. Unresolved Item 75-19/8 Ultrasonic Indications in Class 2 Systems

It was reported in IE Report 50-302/75-19 that numerous ultrasonic indications had been detected during the preservice inspection of the mainsteam lines, feedwater lines and auxiliary feedwater lines. The licensee has performed an engineering evaluation of the condition which indicates that these indications are geometrical in nature.

Initial analysis and actions are documented in IE Reports 75-19 and 76-2; the latter report detailed the fact that complementary nondestructive examinations were in disagreement and that a mockup weld was being constructed. The mockup weld was examined by various techniques.

The licensee welded a mockup of a typical main steam line weld using the same field welding procedure and post weld heat treatment, weld joint configuration, same welders as best as possible and the same heat of pipe material. The licensee took radiographs of this mockup at the 3/8 level as well as the final weld after post weld heat treatment. Liquid penetrant inspection and ultrasonic examination using the 45° shear wave were also performed on this mockup weldment. So as to correlate these examinations, the licensee performed radiography on weld 18 MS (Typical field weld MS 24 to RCSG 1B) and MS 17A (Typical shop weld fabricated by MW Kellogg). It is to be noted that the ultrasonic data had been obtained during the preservice inspection.

The licensee also performed a macroexamination at 10X of the mockup weldment for metallurgical structure and defects. Based on these evaluations, the licensee stated that the indications are geometrical in nature due to the weld joint design.

Representatives of GAI reviewed the preservice inspection data and subsequent analyses related to the weld joints in question. Their conclusions are documented in correspondence to FPC dated February 27, 1976. The inspectors talked with one of the GAI representatives who reiterated the conclusion of the referenced correspondence - the UT indications are geometrical, the welds appeared to be of excellent quality, and that due to the weld joint design the value of ultrasonic examination is questionable. He further stated that

at other sites where this particular weld joint design had been used similar results had been found. As a result of this, GAI no longer uses this particular weld joint configuration if the final joint must be ultrasonically examined.

The inspectors reviewed the radiographs which all showed no rejectable indications, but did indicate machining marks which could produce the ultrasonic indications being seen. The inspectors reviewed all the appropriate weld data sheets, field and shop welding procedure, ultrasonic inspection data, weld joint design and the metallurgical sample of the mockup weldment.

The licensee stated that samples of the mockup weldment are going to be more fully metallurgically examined primarily in structure and root cracking. The inspectors inquired about the possibility of examining the installed welds visually on the inside diameter to ascertain whether similar machine marks were visible. The licensee stated this may not be possible, however, it may be possible through MW Kellogg, who machined the weld joint preparation, to determine whether these machining marks are typical in this weld joint configuration.

This unresolved item is to remain open until the metallographic analysis is complete, the visual and/or correlation of the machine marks observed on the mockup and the installed welds; and the submission of the final data with the licensee's evaluation on these UT indications.