UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323

Report Nos.: 50-325/92-23 and 50-324/92-23

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket Nos.: 50-325 and 50-324 License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick 1 and 2

Inspection Conducted: August 11-21, 1992

Inspector: _____ 9/23/92
J. J. Lenahan Date Signed

Approved by: _____ 9/24/92
J. J. Blake, Chief Date Signed
Materials Processes Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of structural steel platform inspections, inspection and testing of concrete expansion anchors, results of coldside and hotside walkdowns, and followup on design/construction concerns.

Results:

In the areas inspected, violations or deviations were not identified.

The Phase I miscellaneous steel inspections were completed for Unit 2 in accordance with licensee commitments to NRC. The inspection personnel were well qualified. A weakness was identified in the licensee's hotside walkdown program - paragraph 4.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Brown, Manager, Engineering Support, Nuclear Engineering Department (NED)
*S. Callis, Licensing Engineer
*R. Godley, Manager, Regulatory Compliance
*J. Kolder, Manager, Outage Management and Modifications
R. Knott, Principal Engineer, NED
W. Monroe, Principal Engineer, NED
*J. Spencer, Plant General Manager
R. Tripp, Civil Engineer, NED
*S. Vann, Misc. Steel Project Manager, NED
H. Williams, Chief, Civil Engineer, NED
*K. Williamson, Manager, Onsite NED Unit

Other licensee employees contacted during this inspection included engineers, technicians, and administrative personnel.

Other Organizations

*R. Kosiba, Project Manager, Bechtel
J. O'Neal, Supervisor, Phase I Walkdown Inspections, Bechtel

Other Bechtel employees contacted during this inspection included six structural engineers performing Phase I walkdowns and four field engineers performing Phase II inspections.

Technical Advisory Committee - Miscellaneous Steel Verification Program

Dr. J. Fisher, Lehigh University
Dr. O. Gurbuz, Bechtel
Dr. G. Harstead, Harstead Engineering Associates
Dr. J. Stevenson, Stevenson and Associates
E. Thomas, Bechtel

NRC Resident Inspectors

*R. Prevatte
P. Byron
D. Nelson

*Attended exit interview

2. Miscellaneous Structural Steel Evaluation Program - Unit 2 (37701)

a. Background

Miscellaneous structural steel consists of platforms and other beams/columns which provide personnel access and/or support for piping, electrical raceways and conduits, HVAC ducts, instrumentation and other equipment not supported from the main building structures. Numerous deficiencies in miscellaneous steel have been identified by either the licensee or NRC, including lack of design calculations, lack of as-built drawings, missing bolts and welds, incorrect size members, undersized welds, missing members, and other construction deficiencies. The licensee retained Bechtel Power Corporation to perform walkdown inspections, prepare as-built drawings, and perform design calculations to qualify the miscellaneous steel. The inspector previously inspected the Bechtel program during an inspection performed in July, 1992 documented in NRC Inspection Report numbers 50-325,324/92-20.

b. Structural Steel Verification Program

The structural steel verification program is a two phase project with the purpose of establishing a high confidence that miscellaneous steel is adequate for plant operation and to document the current design basis of the steel. The Phase 1 portion of the program consists of walkdown inspection of the steel by two Bechtel structural engineers. The purpose of the program is to identify construction irregularities which could affect load capacity of the members, to identify non-standard connections, and to identify any potentially overloaded members. The inspector reviewed Bechtel procedure WDP-001, Revision 1, Phase I Engineering Walkdown Procedure for Reactor Building Miscellaneous Steel, which specifies the requirements for the Phase I walkdowns, and the requirements for documentation and evaluation of the walkdown results.

The Phase II portion of the miscellaneous structural steel inspection program consists of obtaining detailed field measurements to update design documents, preparation of as-built drawings, performance of a detailed structural analysis, and preparation of a load tracking program which will identify the location and magnitude of loads carried by the structural steel. The inspector reviewed Bechtel procedure WDP-002, Revision 1, Phase II Walkdown Procedure for Reactor Building Miscellaneous Steel and Drywell Platform

Steel, which specifies the requirements for the Phase II walkdowns and documentation of the walkdown results. Appendix A of the procedure specifies the criteria for weld verification. Paragraph A.3.4 of Appendix A states that visual inspection of the welds would be performed without removal of surface coatings or slag. However, some welds have been identified during the Phase I walkdown in the Unit 2 reactor building, and during Phase II inspections performed on the elevation 80 platform in the Unit 2 drywell, which have a lumpy, bumpy appearance due to the presence of a layer of slag. The licensee's chief welding engineer and Bechtel's senior welding engineer examined selected welds on the elevation 80 platform, after examining photographs of the welds. They concluded that the photographs tended to exaggerate the weld defects and indicate that weld quality was poorer than it actually was. They recommended that welding engineers should use chipping hammers, picks, files, etc at their discretion to remove paint and/or suspected slag to better evaluate weld quality. The inspector reviewed Bechtel Interoffice Memorandum to T. E. Logan from R. Breitmeistor, dated August 10, 1992, Subject: Brunswick Steam Electric Plant, Job No. 21963, which summarized the results of the review of the welding irregularities. The inspector discussed the need to revise Appendix A and other sections of procedure WDP-002 to provide specific guidelines to be used to evaluate and disposition welding irregularities. Subsequent to the inspection, the inspector discussed welding visual inspection requirements with licensee and Bechtel engineers. The licensee indicated that procedure WDP-002 will be revised to include criteria established in NCIG-01, Visual Welding Acceptance Criteria (VWAC), with some modifications to reduce personnel exposure and airborne contamination due to ALARA considerations. The revised procedure will be reviewed by the inspector in a future inspection of the Phase II walkdown results.

c. Review of Phase I Inspection Results

The inspector randomly selected the completed reactor building Phase I inspection packages listed below, reviewed them for content and completeness, and reviewed the type and number of irregularities identified. Phase I documentation packages reviewed were as follows:

2-RB-A-E1 26-7, L-M/19R-20R
2-RB-A-E1 34-9, M-N/18R-19R-A
2-RB-A-E1 34-9, M-N/18R-19R-B

2-RB-A-E1 48-6, M-N/18R-19R
2-RB-A-E1 48-6, M-N/19R-20R
2-RB-D-E1 90, N-P/21R-22R
2-RB-D-E1 114-5, P-S/21R-22R
2-RB-D-E1 114-5, P-S/23R-24R
2-RB-D-E1 98-3, P-R/21R-23R
2-RB-D-E1 98-3, P-R/23R-24R
2-RB-D-E1 98-3, R-S/21R-22R
2-RB-D-E1 98-3, R-S/22R-24R
2-RB-D-E1 60-8, R-S/23R-24R
2-RB-D-E1 78-6, P-S/21R-22R
2-RB-D-E1 78-6, P-S/22R-24R
2-RB-D-E1 60-1, P-S/23R-24R
2-RB-D-E1 60-1, P-S/22R-23R
2-RB-D-E1 60-1, P-S/21R-22R
2-RB-D-E1-60-8, P-R/23R-24R
2-RB-D-E1 63-6, R-S/22R-23R
2-RB-A-E1 48-6, L-M/18R-19R
2-RB-A-E1 48-6, K-L/19R-20R
2-RB-A-E1 48-6, K-L/18R-19R
2-RB-C-E1 48-6, L-M/22R-23R
2-RB-B-E1 98-3, P-S/20R-21R
2-RB-B-E1 60-1, P-R/18R-20R
2-RB-C-E1 66-6, K-L/23R-24R
2-RB-C-E1 77-11, K-L/23R-22R
2-RB-C-E1 60-8, L-M/23R-24R
2-RB-C-E1 77-11, L-M/21R-22R

The inspection results contained in the above walkdown packages were properly documented. The inspector also reviewed the qualification records of the eight Phase I walkdown personnel. These individuals are all graduate civil engineers with extensive structural engineering experience

d. Results of Field Walkdown Inspections

The inspector selected seven of the Phase I walkdown packages listed above, walked down the structural steel platforms, and compared the data in the walkdown packages with actual field conditions. The packages selected by the inspector documented results of Phase I inspection completed by two of the four Bechtel Phase I inspection teams. Members of the teams accompanied the inspector during the walkdown inspections. Areas walked down were those documented in the following packages:

2-RB-A-E1 26-7, L-M/19R-20R
2-RB-A-E1 34-9, M-N/18R-19R-A
2-RB-A-E1 34-9, M-N/18R-19R-B
2-RB-A-E1 48-6, L-M/18R-19R

2-RB-A-E1-48-6, M-N/18R-19R
2-RB-C-E1-48-6, L-M/22R-23R
2-RB-D-E1-60-1, P-S/22R-23R

During the walkdown inspections, the inspector questioned the Phase I inspection team personnel regarding the classification of irregularities documented in the walkdown packages. The inspector also examined connections where no irregularities were identified by the Bechtel personnel. The Bechtel engineers were very knowledgeable, were cognizant of the inspection procedure (WDP-001, Rev. 1) requirements, and were able to identify discrepancies in structural steel construction per procedural requirement. The inspector concurred with the classification of the irregularities determined by the Bechtel engineers. The inspector identified one minor discrepancy in walkdown package 2-RB-A-E1 34.9 M-N/18R-19R-B. This involved a connection where a length of threaded rod with two nuts was used in a connection instead of the high-strength bolt specified on the design drawings. However, this has no negative significance on the overall adequacy of the Phase I walkdown results.

The inspector also conducted a walkdown inspection in the Unit 2 drywell and observed Bechtel Phase II walkdown inspection personnel obtaining the data required for the Phase II portion of the structural steel verification project. The Phase II personnel were obtaining field measurements to prepare as-built drawings. The inspector also examined connections on the elevation 17, 38, 52, 67, and 80 platforms and noted that similar type defects are present as those identified in the Phase I walkdowns in reactor building steel located outside the drywell.

e. Technical Advisory Committee (TAC) Meeting

The inspector attended a meeting of the Technical Advisory Committee (TAC) held at the site on August 14, 1992. The Technical Advisory Committee for the miscellaneous steel verification program is composed of recognized experts in the area of structural steel design. The purpose of the TAC is to review the overall miscellaneous structural steel verification program, review design criteria, review the analytical approach used to perform design analysis of the platform steel, and provide technical guidance on evaluation and correction of construction deficiencies. The TAC also reviews deviations from American Institute of Steel Construction (AISC) standard construction

practices which have been identified during Phase I walkdown inspections and makes recommendations for dispositioning the deficiencies. The following subjects were discussed during the meeting:

- Overview of the analysis of the platform
- Treatment of attachment loads
- Limits of the analysis prior to start-up
- Review of calculation guidelines for addressing generic irregularities
- Review of welding deficiencies on elevation 80 drywell platform
- Discussion of irregularities identified during Phase I walkdowns. Phase I walkdown results were presented by Bechtel Phase I team members.
- Technical comments on irregularities identified during Phase I walkdowns including:
  - Acceptability of flame cut and oversize holes without washers for friction connections
  - Acceptability of stacked washers for friction connections
  - Acceptability of clip angles made from flat plates with single fillet welds on inside of plates
  - Maximum size gaps between connected members
  - Unused holes in members/connections
  - Acceptability of square copes
  - Excessive gaps between end of beams and embed plates

The TAC also made general comments on walkdown procedures and design procedures. The recommendations of the TAC are documented in meeting minutes which are reviewed for accuracy at the next scheduled meeting.

f. Conclusions

The inspector concluded that the Phase I miscellaneous structural steel verification walkdowns have been completed for Unit 2 in accordance with procedural requirements and good engineering practices, and comply with the licensee's commitments to NRC. The Phase I walkdown personnel were well qualified. The Phase II inspections are in progress for the Unit 2 drywell and the RHR platform steel. No Phase I inspections were performed in these areas due to ALARA considerations. The Phase II walkdowns will be completed in these areas prior to start-up. Approximately 450 irregularities were identified during the Phase I walkdowns which require evaluation and/or repair prior to startup. The

visual weld inspection procedures which will be utilized during the Phase II walkdowns are currently being revised by the licensee. These procedures will be reviewed by NRC in a future inspection.

Violations or deviations were not identified.

3. Sampling and Inspection Program for Drilled-In-Anchors Units 1 and 2 (37702)

The licensee committed to inspect drilled-in anchors installed in concrete during original plant construction. These anchors support various types of equipment including conduit and cable tray supports, HVAC ducts, piping, structural steel, and instrumentation. This inspection program is being undertaken because of the improperly installed bolts discovered in structural steel clip angle supports for masonry walls in the diesel generator building. The licensee's inspection program is covered by Design Guide III.17, Inspection of Drilled-In Anchors at BNP. The inspection program includes performing ultrasonic testing (UT) to measure the length of the bolts installed in the anchors, and loosening the bolts in twenty-five percent of the anchors to physically measure the bolt length and verify the presence of the anchor sleeve in the concrete. The inspection program did not include those anchors supporting piping since these anchors were inspected and tested under IE Bulletin 79-02, Pipe Support Base Plate Design Using Concrete Expansion Anchors. The licensee performed walkdown inspections and drawing reviews to establish the total population of anchors installed in the plant supporting various types of equipment. A sample size was selected for inspection and testing based on statistical methods established by MIL STD-105E, Sampling Procedures and Tables for Inspection by Attributes, May 10, 1989, for all equipment other than structural steel. The licensee decided to inspect and test 100 percent of the anchors supporting structural steel. The total population of anchors and sample size supporting each type of equipment is summarized in the drilled-in anchor installation inspection status report. This report lists the number of anchors for each commodity by building area (elevation) for the diesel generator building, service water intake structure, the control building, and the Unit 1 and Unit 2 reactor buildings. The inspector reviewed the status report and discussed the overall anchor inspection program and results with the responsible engineer. The inspector and the engineer walked down the reactor buildings and the diesel generator buildings and examined anchors supporting structural steel. After the walkdowns the inspector examined inspection documentation for selected anchors identified during the walkdowns. During the walkdowns the

inspector identified four anchors in a surface mounted plate supporting a structural steel platform at elevation 10 along column line K, between Column 19 R and 18 R in the Unit 2 reactor building and between column lines 2R and [illegible] in the Unit 1 reactor buildings which had not been included in the anchor inspection program. The inspector also identified a column base plate on elevation 80 near column lines 23R and R in Unit 2 and column lines 7R and R in Unit 2. The inspector also identified other anchors in areas which were considered inaccessible for the anchor inspection program. The fact that these anchors had not been examined during this special anchor inspection program does not affect the validity of the results of the program. However, the inspector expressed a concern to licensee management that an independent review of this program has not been performed by any individuals other than those directly involved in the work. Four improperly installed anchors were identified: one had no sleeve installed in the concrete, one had a loose sleeve, and two had bolts of an insufficient length (i.e. short bolts). There were no cases of fraudulent installation similar to those identified in the masonry walls in the diesel generator building. A large number of bolts could not be loosened for inspection without damaging the anchor installation. The cause of these frozen bolts was attributed to corrosion by the licensee. The licensee found that these bolts could be loosened by exerting a large force on the bolts which greatly exceeded the installation torque values, and when the bolts were finally loosened, the anchors sleeve would become loose. After this occurred on 12 anchors, the licensee decided not to attempt bolt removal using an effort which would result in damage to the anchor. The licensee issued trouble tickets to repair the anchors damaged by the inspection process.

During the anchor inspection program, the engineers and other inspection personnel identified numerous deficiencies regarding anchor installation. These included abandoned holes in concrete near installed anchors, edge distance violations, oversized holes in surface mounted plates, and corrosion problems. These problems are included in the inspection data as engineering observations. Trouble tickets were issued to document and correct these problems. Licensee engineers are preparing a detailed final report which will document the inspection program. The inspector will review the completed report in a future inspection.

Violations or deviations were not identified.

4. Walkdown Inspection Programs (Unit 2) 62700

In April, 1992, after the units were shutdown due to structural deficiencies identified with the diesel generator building masonry walls, licensee engineers conducted walkdown inspections of areas which are normally inaccessible (due to high radiation levels) when the units are at power. This inspection effort was designated the "Hotside Walkdown." The hotside walkdown inspection program and results were reviewed by NRC inspectors during inspections documented in NRC report numbers 50-325, 324/92-18 and 50-325,324/92-20. The inspectors questioned the thoroughness of the hotside walkdown inspection efforts based on additional discrepancies identified by the inspectors. An inspector follow-up item, number 325,324/92-18-02 was identified to perform evaluations of the licensee's inspection efforts. Other problems identified by the inspectors included lack of written procedures to perform the hotside walkdowns, although licensee engineers were furnished written inspection checklists to use during the walkdowns, and failure to perform walkdown in the drywells and torus areas. During the current inspection, the inspector, accompanied by licensee engineers walked down the Unit 2 MSIV pit, the Unit 2 elevation 61 penetration room, and the Unit 2 elevation 20 MSIV steam tunnel and reviewed the hotside walkdown inspection findings. The inspector identified the following findings which licensee engineers did not identify during their walkdown inspections:

- Elevation 20 MSIV steam tunnel - Two loose HVAC duct supports, improperly installed conduit support, and pipe hanger attached to east wall which had spalled concrete adjacent to two of four baseplate expansion anchors. The anchors appeared to be partially pulled out of concrete.

- Elevation 61 penetration room - Three improperly installed unistruct conduit supports.

- Elevation 50 MSIV pit - Possible undersized weld on feedwater pipe support and potentially overspanned conduit supports.

The weld on a 3/4 inch plate supporting a spring can from one of the main steam piping whip restraints appeared to be undersized. This problem will be examined by licensee welding inspection personnel. The potentially overspanned conduits were identified to NED personnel. Subsequent to the inspection, NED personnel confirmed the conduits were overspanned. An operability review was to be performed on

the overspanned conduits. The problems identified by the inspector were documented on trouble tickets.

The fact that NRC inspectors continue to identify hardware deficiencies in the areas where hotside walkdown inspections were performed by licensee engineers indicate a weakness in the licensees hotside walkdown program. The inspector discussed with licensee management, the need for an independent review of the hotside walkdown inspection results. This review should be performed using an approved procedure. Discussions with licensee engineers disclosed that walkdown inspections have been started in the drywells. These inspections will be performed using Administrative Instruction A[illegible] Walkdown Inspection and PNSC Outage Prestartup Checklist Instruction, supplemented by other training to assist licensee inspection personnel in identification and documentation of deficiencies. The inspector will perform additional reviews of the hotside inspection program, including the torus and drywell walkdowns in a future inspection.

Licensee engineers also performed walkdown inspections in areas of the plant normally accessible during plant operation. This program was designated the "Coldside Walkdown Inspection." These walkdowns were also performed using inspection checklists, and not a detailed written procedure. More than 2000 deficiencies were identified during these walkdowns. The inspector walked down the Unit 1 and 2 cable spreading room with the licensee engineer responsible for performing the walkdown in this area. The inspector did not identify any new findings in this area. The inspector discussed the coldside walkdown inspection programs with several licensee engineers who performed the walkdowns. These discussions disclosed that the background and experience level varied significantly between individuals performing the walkdowns, and that the time spent performing the walkdowns in similar areas varied between various inspection teams. This could affect the thoroughness of the coldside walkdowns. Discussions with licensee engineers disclosed that some areas were not inspected, e.g. the control room area above the acoustical tile ceiling where there are a large number of installed conduit and cable tray supports. The inspector will review the coldside inspection program in a future inspection.

Violations or deviations were not identified.

5. Design/Construction Concerns

The inspector reviewed the following three areas of concern to NRC: Design of Latches for Recirculation Riser Doors,

Effect of Installation of Lead Shielding on RHR Piping Supports, and Deficiencies in Conduit Supports.

a. Design of Latches for Recirculation Riser Doors

(1) Concern: During walkdowns conducted in the current and previous inspections in the Units 1 and 2 drywells, the inspector examined the latches on the doors which close around the recirculation lines in the sacrificial shield wall. The inspector questioned licensee engineers regarding the purpose of the latches, and their design capacity.

(2) Discussion: The inspector reviewed calculation number 0-1534A-230, Latch for Sacrificial Shield Wall, dated February, 1990. This calculation was completed to evaluate the configuration of the existing 1/4 by 1 inch bar latch. A summary of the design basis of the original design calculations was included as Attachment A to calculation 0-1534A 230. The original latch design shown on construction drawing numbers 9527-F-1863, Revision 4, was two one-inch diameter steel bars, one at the top of the doors and one at the bottom. However, during review of the original plant design in 1970, questions were raised regarding the effects of a pipe break in the annulus between the reactor vessel and shield wall on the sacrificial shield wall. The design engineers concluded that the maximum accident pressure could exceed the allowable value of 41 psi used in the design of the sacrificial shield wall, but that partial opening of the doors would relieve pressure inside the sacrificial wall. The one-inch diameter bars were replaced by 1/4 by 1 inch bars during original plant construction. The evaluation performed under calculation 0-1534A-230 was to determine the maximum internal pressure in the drywell which would result in failure of the latches so that the doors would open. The design calculation concluded that the 1/4 by 1 inch bar latch would not yield until the internal pressure in the sacrificial shield wall reached 32 psi. Although this was below the maximum wall design pressure of 41 psi, licensee engineers redesigned the latch so that it would yield when the internal sacrificial shield wall pressure exceeds 1 psi. This was accomplished by notching the 1/4 by 1 inch bar latches. Sketch number SK-S-89-095-17 was issued to fabricate and install the new latch under plant modification

PM 89-095, which was the recirculation piping replacement project. During walkdown inspections performed in the drywells, the inspector verified that the installed latches were fabricated in accordance with the details shown on the sketch.

(3) Conclusions: The purpose of the latches is to keep the sacrificial shield wall doors closed during normal plant operations. During accident conditions, the latches will yield (fail) and permit the doors to open to relieve pressure inside the sacrificial shield wall.

b. Effect of Installation of Lead Shielding on RHR Piping Support

(1) Concern: During a review of a list of "projects in working," the inspector questioned a problem on the list regarding misuse of lead shielding on RHR piping. The "project in working" list was prepared when the onsite QA group was disbanded and replaced with the Corporate Nuclear Assessment Department (NAD).

(2) Discussion: The inspector questioned licensee engineers regarding the misuse of lead shielding on RHR piping. These discussions disclosed that the problem involved the RHR steam condensing line. The shielding was installed on the piping which is located above the Health Physics offices in the Unit 1 reactor building, elevation 20 columns lines S and 7R. Licensee engineers determined that the primary concern was the effect of the shielding on the embedded plates which serve as an anchor point between stress ISOS 502 and 504 A. The anchor point (embed plate) is support mark number 1E11-49A337. The licensee performed a short term structural evaluation of this problem in Calculation number 1E11-504A-08, RHR Mark number 1E11-49A337. The inspector reviewed the calculation which showed that the stresses in the embed plate were below allowable values. Review of correspondence regarding this problem disclosed that site engineering personnel requested a short term qualification be performed to document the acceptability of the installed lead shielding in a hand written memorandum dated April 11, 1989. The STSI calculation was not completed until March 20, 1990, a time span of 11 months, which exceeds the 30 day time period specified in C&L procedure ENP 12 for performance of an operability assessment. This is similar to

the problem identified by the inspector as violation item 325,324/92-14-05 during an inspection conducted April 27-May 29, 1992. Another example of failure to perform STSI in accordance with ENP-12 was documented in Nonconformance Report number A-89-053. The licensee's corrective action to resolve the problem regarding untimely STSI reviews will be reviewed in closeout of violation item 325,324/92-14-05. The licensee completed the long term evaluation of support number 1E11-49A337 in calculation number PS-E11-502. The inspector reviewed page numbers 255 through 262 of this calculation which showed the stresses in the embed plate were acceptable for long term loading conditions specified in the FSAR and the licensee's design criteria. A similar problem with installation of lead shielding on the same piping in Unit 2 was also identified and evaluated by the licensee. This affected support number 2E11-49A337. Long term evaluation of this support was documented in pages 271 through 276 of calculation number PS-E11-002-89106. The stress were found to be acceptable.

(3) Conclusions: The "misuse" of lead shielding on the RHR piping was evaluated by the licensee. Stresses were found to be acceptable in the affected support. Installation of lead shielding on any safety related piping now requires approval by NED design engineers, prior to installation.

c. Deficiencies in Conduit Supports

(1) Concern: Deficiencies in conduit supports have been identified by the licensee during the coldside and hotside walkdown inspections. Areas containing oversparned conduits were identified by the inspector on the north wall of the Unit 2 MSIV pit (See paragraph 4, above) and by the licensee in other areas.

(2) Discussions: A large number of conduit support deficiencies were identified during the hotside and coldside walkdowns. These included missing conduit straps, missing or loose nuts, missing hanger rods, and damaged conduits. These problems have been documented on trouble tickets. The licensee has attributed the cause of these problems to be deficiencies in either original construction or in maintenance activities. The licensee has implemented a program to either

repair or evaluate the deficiencies prior to restart of the plant.

Problems with overspan conduits have been previously identified by the licensee. Examples of overspan conduits are as follows:

- A power supply conduit for Unit 1 LPCI valve 1-E11-F015B was identified in the overhead of the elevation 20 reactor building area. Four supports were found to be either not attached or insufficiently attached, which affected seismic qualification of the conduit. The conduit was found to be inoperable due to failure to meet seismic requirements. This problem is documented in NRC inspection report numbers 50-325,324/91-25. A noncited violation was cited for failure of the conduit to be seismically qualified in accordance with 10 CFR 50, Appendix A requirements.

- Conduits to remote safe shutdown cabinet 1 JRRB4 were found to have a disconnected support. This problem was evaluated by the licensee in Calculation number 1CAC-0015, Elevation of line number ∇8ZB1 and ∇87B2. The conduit was found to be operable for short term conditions. NED recommended that the disconnected support be restored as soon as practicable.

- Nonconformance Report number E-82-013, Conduit Supports not Meeting Installation Requirements Shown on UE&C Drawings, was identified in August 1982 regarding numerous conduit support installation deficiencies, including overspan, lack of lateral support, improper tightening of conduit clamps, and excessive unsupported vertical drops. A limited engineering evaluation was performed which accepted these conditions with some recommendations to perform corrective action to restore the original design margin.

During the current inspection, the inspector identified overspanned conduits on the north wall of the Unit 2 MSIV pit. This problem is discussed in paragraph 4, above.

(3) Conclusions: There have been numerous deficiencies identified in conduit support

installations. These deficiencies include overspanned conduits. The inspector will evaluate the adequacy of the licensee's program to identify these problems as part of the evaluation of the hotside and coldside walkdown program in a future inspection.

Violations or deviations were not identified.

6. Exit Interview

The inspection scope and results were summarized on August 21, 1992, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.