Progress Energy

JAN 2 5 2006

10 CFR 50.55a(a)(3)(i)

SERIAL: BSEP 06-0015

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Response to Request for Additional Information Regarding Relief Request VRR-15, Emergency Diesel Generator Service Water Check Valves
(NRC TAC Nos. MC7354 and MC7355)

References:

1. Letter from Edward T. O'Neil to the U.S. Nuclear Regulatory Commission (Serial: BSEP 05-0063), "Relief Request VRR-15, Emergency Diesel Generator Service Water Check Valves," dated May 26, 2005 (ADAMS Accession Number ML051580384)

2. Letter from Edward T. O'Neil to the U.S. Nuclear Regulatory Commission (Serial: BSEP 05-0104), "Response to Request for Additional Information Regarding Relief Request VRR-15, Emergency Diesel Generator Service Water Check Valves," dated September 2, 2005 (ADAMS Accession Number ML052510430)

Ladies and Gentlemen:

By letter dated May 26, 2005, as supplemented by letter dated September 2, 2005, Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., requested NRC approval of a relief request for the third 10-year interval Inservice Testing Program for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The relief request involves an alternative that will verify the full stroke capability of certain service water system check valves on a nominal 24-month frequency, not determined by refueling outages, by valve disassembly and inspection in accordance with the guidelines provided in Position 2 of NRC Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs."

During a telephone conference call held on January 12, 2006, the NRC requested that CP&L adopt valve grouping, for the check valves identified in Relief Request VRR-15, consisting of eight groups of one valve each rather than two groups of four valves. The NRC also asked CP&L to integrate, into Relief Request VRR-15, the responses submitted by letter dated September 2, 2005, for a previous NRC request for additional information. Enclosure 1 provides an updated version of Relief Request VRR-15 which incorporates

Progress Energy Carolinas, Inc.
Brunswick Nuclear Plant
P.O. Box 10429
Southport, NC 28461

A047

these changes. Enclosure 2 provides a copy of the plant drawings listed as a reference in Relief Request VRR-15.

Please refer any questions regarding this submittal to Mr. Leonard R. Beller, Supervisor - Licensing/Regulatory Programs, at (910) 457-2073.

Sincerely,

Edward T. O'Neil
Manager - Support Services
Brunswick Steam Electric Plant

WRM/wrm

Enclosures:

1. 10 CFR 50.55a Request Number VRR-15
2. Plant Drawing D-02274, Sheets 1 and 2

cc (with enclosures):

U. S. Nuclear Regulatory Commission, Region II
ATTN: Dr. William D. Travers, Regional Administrator
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303-8931

U. S. Nuclear Regulatory Commission
ATTN: Mr. Eugene M. DiPaolo, NRC Senior Resident Inspector
8470 River Road
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**
ATTN: Ms. Brenda L. Mozafari (Mail Stop OWFN 8G9)
11555 Rockville Pike
Rockville, MD 20852-2738

Ms. Jo A. Sanford
Chair - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

Mr. Jack Given, Bureau Chief
North Carolina Department of Labor
Boiler Safety Bureau
1101 Mail Service Center
Raleigh, NC 27699-1101

10 CFR 50.55a Request Number VRR-15

Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(i)

- Alternative Provides Acceptable Level of Quality and Safety -

1. ASME Code Components Affected

The affected components are American Society of Mechanical Engineers (ASME) Code Class 3 6-inch nozzle check valves.

System:	Service Water
ASME Code Class:	Class 3
Category:	C
Component/Size:	6 inch check valve
Manufacturer:	Enertech
Model Number:	KRV
Material:	Grade 400 Monel
Affected Components:	1-SW-V683, 1-SW-V684, 1-SW-V685, and 1-SW-V686 2-SW-V683, 2-SW-V684, 2-SW-V685, and 2-SW-V686

The check valves are identical in manufacturer, size, model number, and materials of construction, and experience identical service conditions.

2. Applicable Code Edition and Addenda

The Code of Record for the third 10-year inservice inspection and inservice testing interval at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2 is the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition, with no addenda. This edition of the ASME Code invokes the 1987 Edition with 1988 Addenda of the "ASME Code for Operations and Maintenance Code of Nuclear Power Plants" (i.e., referred to herein as the OM Code).

The third 10-year inservice testing interval began May 11, 1998, and will conclude on May 10, 2008.

3. Applicable Code Requirement

OM-10, Paragraph 4.3.2.1 requires check valves to be exercised nominally every 3 months except as provided by Paragraphs 4.3.2.2, 4.3.2.3, 4.3.2.4, and 4.3.2.5.

OM-10, Paragraph 4.3.2.2(e) permits check valves to be full-stroke exercised during refueling outages, if not practicable during plant operation or cold shutdowns.

As an alternative to the valve movement requirements of OM-10, Paragraphs 4.3.2.4(a) and 4.3.2.4(b), OM-10, Paragraph 4.3.2.4(c) permits check valves to be disassembled every refueling outage to verify operability.

4. Reason for Request

Performing the check valve disassembly and inspection during refueling outages will add tasks to the refueling outage and potentially extend the refueling work window.

5. Proposed Alternative and Basis For Use

Proposed Alternative

In accordance with 10 CFR 50.55a(a)(3)(i), Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc., requests approval to verify the full stroke capability of the identified components on a nominal 24-month frequency, not determined by refueling outages, by valve disassembly and inspection in accordance with the guidelines provided in Position 2 of NRC Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs."

Basis for Use

In accordance with 10 CFR 50.55a(a)(3)(i), relief is being requested on the basis that the proposed alternative provides an acceptable level of quality and safety to that of the applicable Code requirement.

These check valves open to provide flow paths for cooling water to the emergency diesel generators, and close to ensure service water system train isolation. These are simple check valves, with no external means of exercising the valves or determining obturator position. Due to the absence of isolation valves and vent and drain connections, there is no practical way these check valves can be back-flow (i.e., closure) tested. Therefore, the only means of determining valve operability is to observe system parameters. Since there are no position indicating devices on these check valves and no flow instrumentation installed on the emergency diesel generator service water supply headers, verification of full flow through these check valves is not possible.

The valves are located in the diesel generator building adjacent to the machinery to which they supply cooling water. Each valve is oriented horizontally. The valves operate in a saltwater environment and are only operated during the monthly diesel generator testing, quarterly partial stroke testing, and during a system hydraulic test that is performed once every other refueling outage (i.e., approximately every four years). The design of these check valves is very robust, and the valves see limited operation; therefore, the potential for wear is minimal. Being nozzle check valves, the piston does not oscillate during diesel generator operation, which eliminates the primary contributor to wear in check valves.

NRC Generic Letter 89-04, Position 2, "Alternative to Full Flow Testing of Check Valves," provides NRC guidelines to develop a sample disassembly and inspection program where the licensee determines that it is burdensome to disassemble and inspect all applicable valves each refueling outage. The program involves grouping similar valves and testing at least one valve in each group during each refueling outage. A different valve of each group is required to be disassembled, inspected, and manually full-stroke exercised at each successive refueling outage, until the entire group has been tested. The identified check valves will be assigned to eight valve groups, each group consisting of a single check valve.

The valves will be disassembled and inspected on a nominal 24-month frequency. This valve grouping and inspection frequency is acceptable, as described in Generic Letter 89-04, Position 2, and is further supported by NUREG-1482, Revision 0, "Guidelines for Inservice Testing at Nuclear Power Plants," Appendix A. Following check valve disassembly and inspection, the check valve will be partial stroke tested.

The valves have been routinely disassembled and inspected during normal at-power operation as part of the 24 month emergency diesel generator inspection. The time allotted for the diesel generator inspection is approximately 72 hours. The Technical Specification Limiting Condition for Operation allows the emergency diesel generator to be out of service for seven days. The 24 month diesel generator inspection consists of inspections and maintenance of the diesel engine, generator, and supporting systems such as lubrication oil, fuel oil, starting air, and cooling water.

The approximate time period for the work associated with the check valve inspection is 4 to 5 hours, and are usually performed in the first 24 hours of the diesel generator inspection work. Due to the physical arrangement of the valves, both check valves on a diesel generator are inspected at the same time.

Since their installation in 1994/1995, these valves have not exhibited any signs of wear or degradation. However, early signs of degradation would likely not have an impact on valve operability. This would allow ample time to obtain additional replacement parts, if needed. The Brunswick Plant maintains one new replacement check valve in stock. In the event that a deficiency was found that warranted inspections of the other check valve groups, the additional inspections would be planned and carried out within the framework of the 12 week rolling schedule used at the Brunswick Plant.

Isolation of the affected check valves is accomplished by closing two upstream motor-operated butterfly valves (i.e., one valve on each unit's service water supply line to the diesel) and manually closing a single butterfly valve on the common discharge line. The butterfly valves used to isolate the affected check valves are not leak tested, as they are Category B valves and there are no taps available to perform leak testing. Historically, the isolation valves have performed well, with only one instance of one of the isolation valves leaking to a point that inhibited inspecting the check valves.

In the event that one of the isolation valves should lose isolation capability during the inspection, it would cause a reduction in service water header pressure on the affected unit. This results in an alarm in the control room and entry into plant procedure 0AOP-18, "Nuclear Service Water System Failure." 0AOP-18 directs closure of manual upstream isolation valves, isolating one unit's service water header into the diesel generator building. Service water to the remaining three emergency diesel generators is provided from the other unit's nuclear service water header.

A flooding event in the out-of-service diesel generator cell will not impact the three remaining diesel generators in the adjoining cells. Level switches in the room sumps would alert the control room of a flooding condition.

The check valve disassembly and inspection does not add time to emergency diesel generator out-of-service time and can be completed well within the allowed Technical Specification Limiting Condition for Operation time of 7 days. There is no net adverse impact associated with performing the online inservice testing of these check valves since the work is performed when the diesel generator is already unavailable (i.e., during online diesel generator maintenance and surveillance activities). Overall diesel generator maintenance activities are performed within the restrictions of the Technical Specification Limiting Condition for Operation, and the risk is managed in accordance with 10 CFR 50.65 requirements. As such, there is no increase in plant risk associated with the check valve disassembly and inspection activity during plant operation versus during refueling.

Performing this task during refueling outages will add tasks to the refueling outage and potentially extend the refueling work window.

Based on the above, the proposed alternative to verify the full stroke capability of the identified check valves on a nominal 24-month frequency, and not during refueling outages, by valve disassembly and inspection will provide an acceptable level of quality and safety.

6. Duration of Proposed Alternative

Use of the alternative is proposed for the remainder of the current 10-year inservice testing interval.

7. Precedents

This proposed alternative is similar, but not identical, to a check valve relief request submitted by the Kewaunee Nuclear Power Plant in a letter dated February 16, 2004 (i.e., ADAMS Accession Number ML040550405), as supplemented by letter dated May 6, 2004 (i.e., ADAMS Accession Number ML041400247) and approved by NRC letter dated July 1, 2004 (i.e., ADAMS Accession Number ML041680247). The Brunswick and Kewaunee alternatives are similar in that the Brunswick alternative would verify full stroke capability of the check valves by disassembly and inspection on an operating cycle frequency, but not during refueling outages. The Brunswick and Kewaunee alternatives differ in that the

approved Kewaunee disassembly frequency is a nominal 18 months whereas the proposed Brunswick disassembly frequency will be a nominal 24 months.

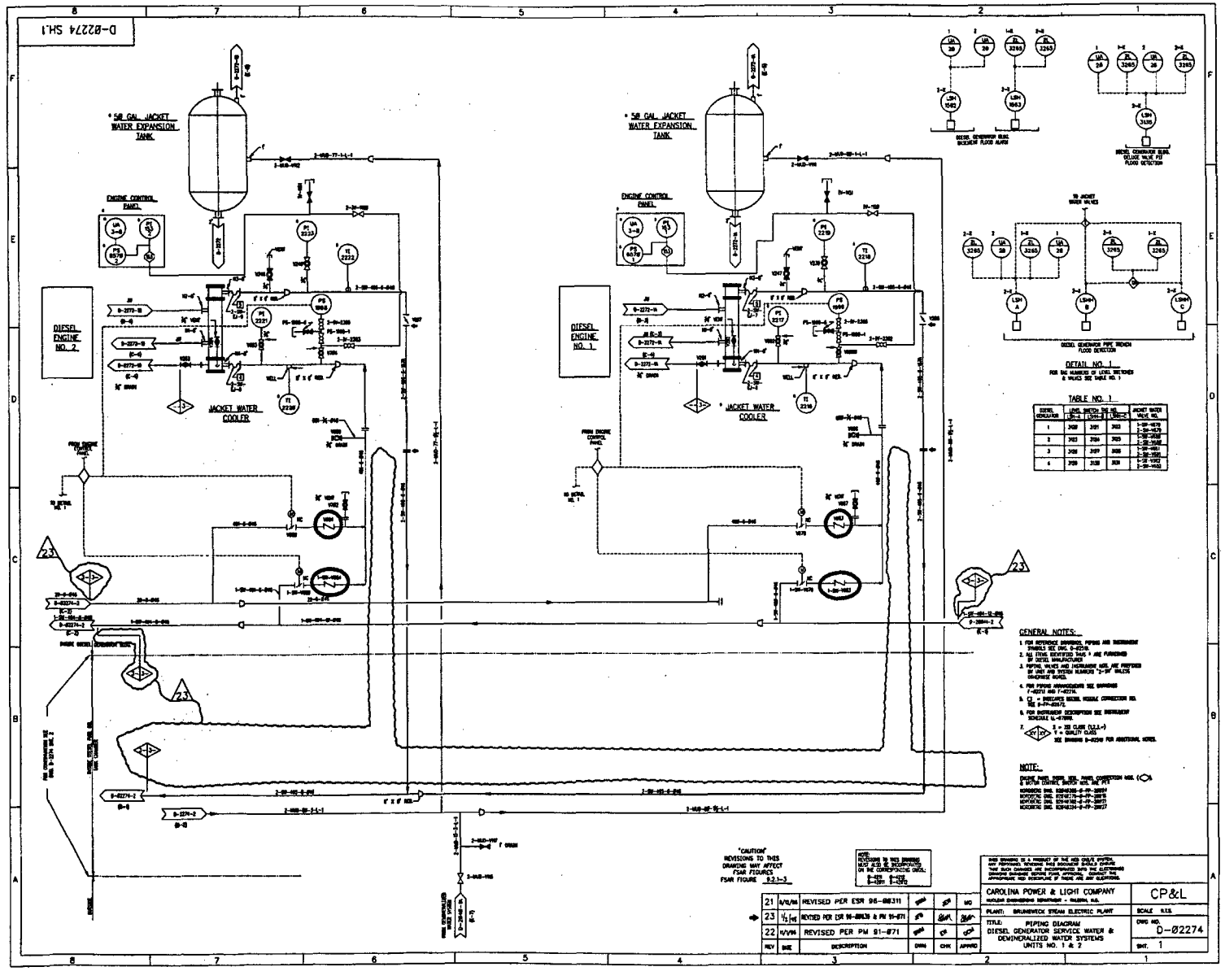
8. References

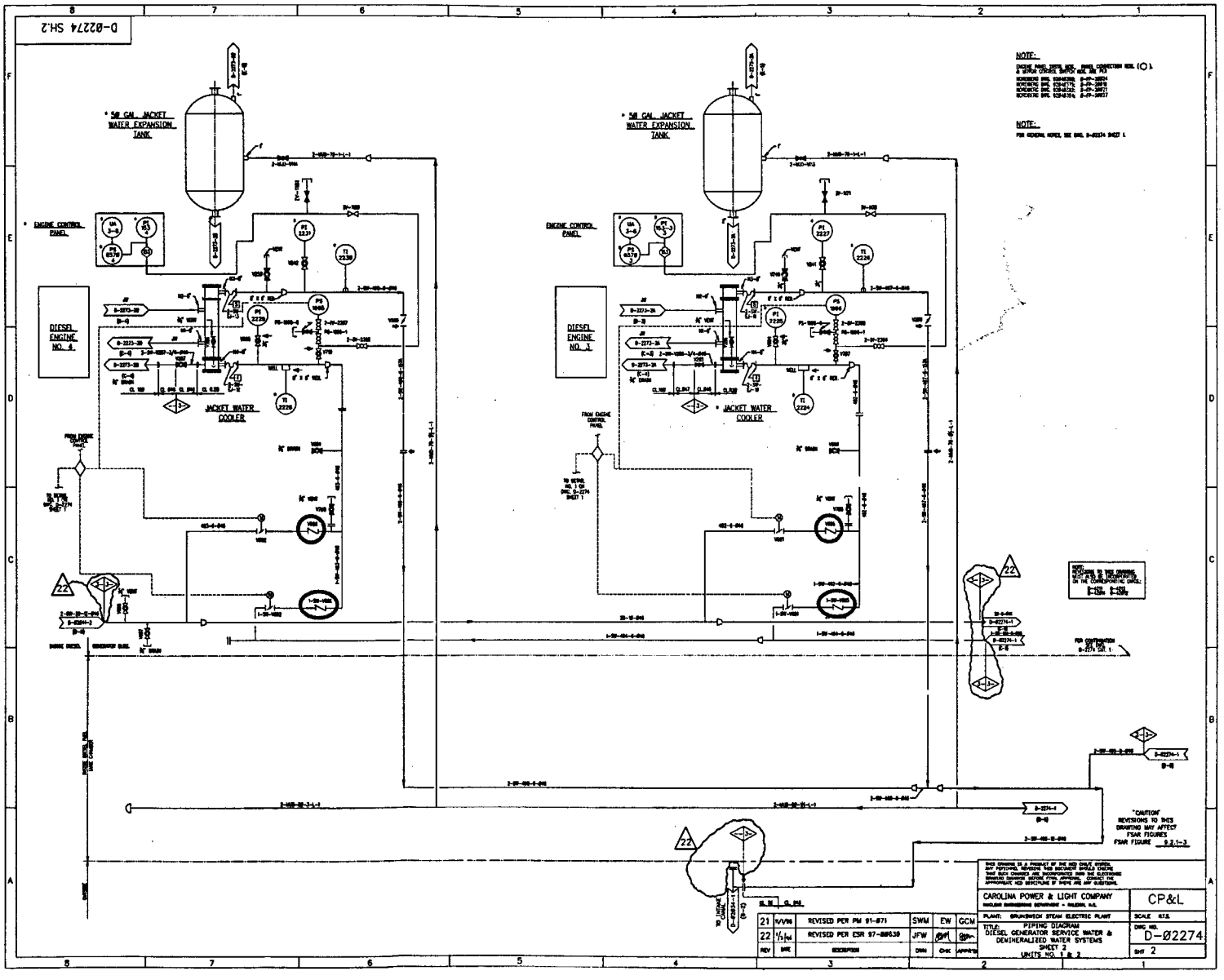
1. NRC Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs," dated April 3, 1989.

2. NRC NUREG-1482, Revision 0, "Guidelines for Inservice Testing at Nuclear Power Plants."

3. Plant Drawing D-02274, "Piping Diagram Diesel Generator Service Water & Demineralized Water Systems Units No. 1 & 2," Sheets 1 and 2.

Plant Drawing D-02274, Sheets 1 and 2


D-02274 SH.1
* 58 GAL JACKET WATER EXPANSION TANK
ENGINE CONTROL PANEL
DIESEL ENGINE NO. 2
JACKET WATER COOLER
* 58 GAL JACKET WATER EXPANSION TANK
ENGINE CONTROL PANEL
DIESEL ENGINE NO. 1
* JACKET WATER COOLER
DETAIL NO. 1
TABLE NO. 1
GENERAL NOTES:
NOTE:
"CAUTION" REVISIONS TO THIS DRAWING MAY AFFECT FSAR FIGURES FSAR FIGURE 9.2.1-3
21 6/10/96 REVISED PER ESR 96-00311
23 1/5/98 REVISED PER ESR 96-00839 & PM 91-871
22 11/96 REVISED PER PM 91-871
CAROLINA POWER & LIGHT COMPANY
PLANT: BRUNSWICK STEAM ELECTRIC PLANT
TITLE: PIPING DIAGRAM DIESEL GENERATOR SERVICE WATER & DEMINERALIZED WATER SYSTEMS UNITS NO. 1 & 2
CP&L
SCALE N.T.S.
DWG NO. D-02274
SHT. 1


D-02274 SH.2
* 58 GAL. JACKET WATER EXPANSION TANK
ENGINE CONTROL PANEL
DIESEL ENGINE NO. 4
JACKET WATER COOLER
* 58 GAL. JACKET WATER EXPANSION TANK
ENGINE CONTROL PANEL
DIESEL ENGINE NO. 3
* JACKET WATER COOLER
NOTE:
NOTE:
"CAUTION" REVISIONS TO THIS DRAWING MAY AFFECT FSAR FIGURES FSAR FIGURE 9.2.1-3
CAROLINA POWER & LIGHT COMPANY
CP&L
PLANT: BRUNSWICK STEAM ELECTRIC PLANT
SCALE: NTS
TITLE: PIPING DIAGRAM DIESEL GENERATOR SERVICE WATER & DEMINERALIZED WATER SYSTEMS SHEET 2 UNITS NO. 1 & 2
DWG NO. D-02274
SHT 2
21 11/1/96 REVISED PER PM 91-871 SWM EW GCM
22 1/31/98 REVISED PER ESR 97-00639 JFW
REV DATE DESCRIPTION DWN CHK APPRVD