



**Progress Energy**

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

MAY 26 2005

SERIAL: BSEP 05-0063

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  
Relief Request VRR-15, Emergency Diesel Generator Service Water  
Check Valves

Ladies and Gentlemen:

In accordance with 10 CFR 50.55a(a)(3)(i), Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), hereby requests 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 the 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." The details of the 10 CFR 50.55a request are provided in Enclosure 1.

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

AO-17

Document Control Desk  
BSEP 05-0063 / Page 2

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  
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U. S. Nuclear Regulatory Commission  
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U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**  
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Chair - North Carolina Utilities Commission  
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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

Code Class: Class 3  
Category: C  
System: Service Water  
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

### 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. (PEC), 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.

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 valves will be disassembled and inspected on a nominal 24-month frequency, not to exceed 6 years for the group of 4 valves. 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 approximate

time period for the work associated with the check valve inspection is 4 to 5 hours and is worked in parallel with a 72 hour emergency diesel generator work window. 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. 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**

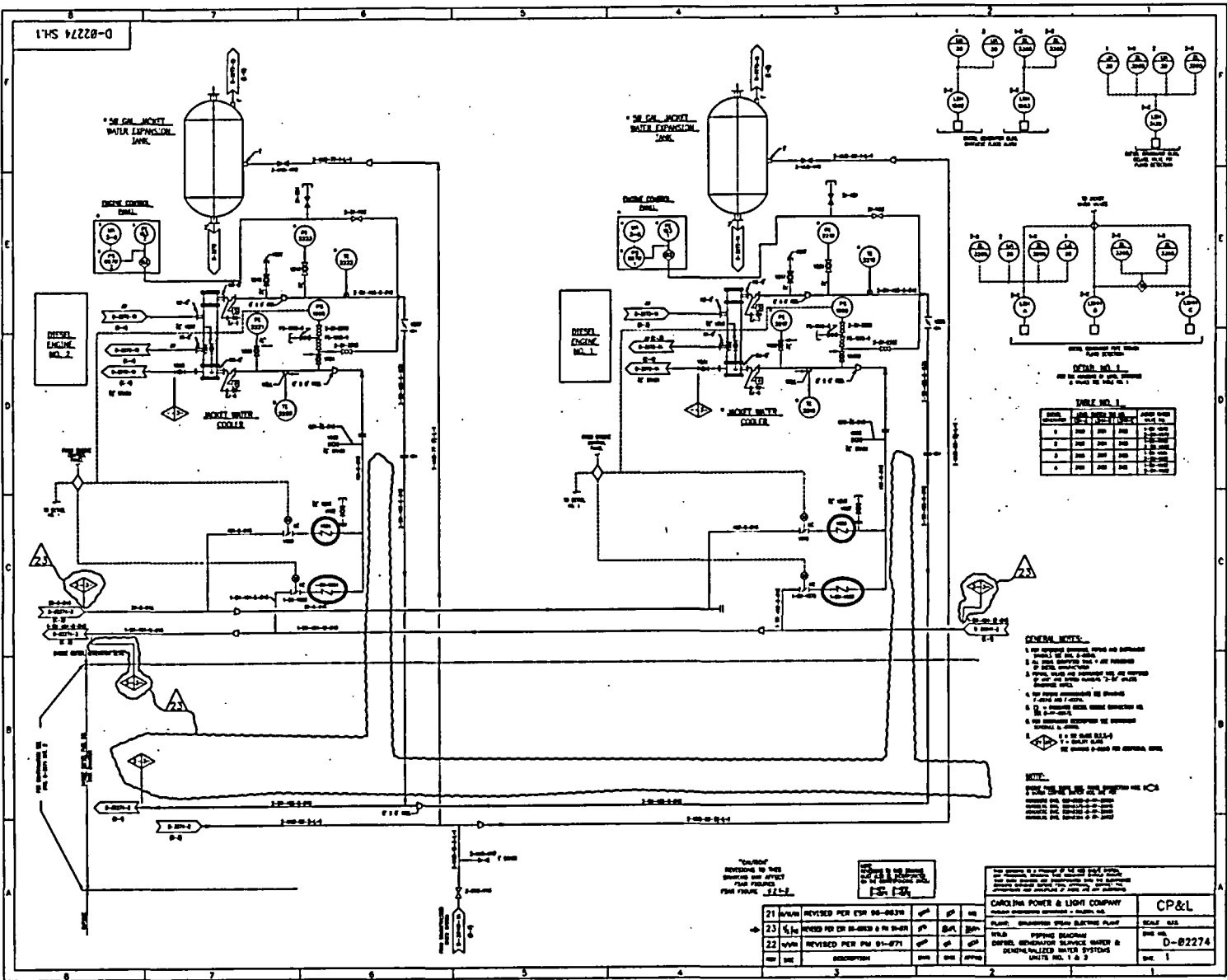
This proposed alternative is similar, but not identical, to a check valve relief request submitted by the Kewaunee Nuclear Power Plant in a letter dated February 16, 2004 (i.e., ADAMS Accession Number ML040550405), as supplemented by letter dated May 6, 2004 (i.e., ADAMS Accession Number ML041400247) 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.

BSEP 05-0063  
Enclosure 2

Plant Drawing D-02274, Sheets 1 and 2



D-02274 SH-1

\* SEE FOR EXPANSION TANK WATER EXPANSION TANK

\* SEE FOR EXPANSION TANK WATER EXPANSION TANK

DIESEL ENGINE CONTROL PANEL

DIESEL ENGINE CONTROL PANEL

DIESEL ENGINE NO. 1

DIESEL ENGINE NO. 2

DIESEL ENGINE WATER COOLER

DIESEL ENGINE WATER COOLER

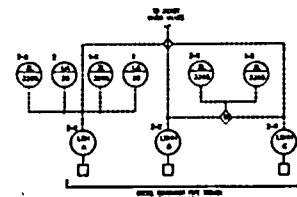
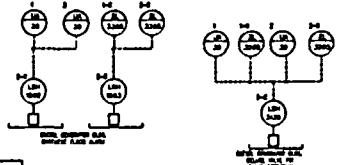


TABLE NO. 1

ITEM	DESCRIPTION	DATE	BY	CHKD BY
1	REVISED PER P.M. 01-0771	1/1/51	J.M.	J.M.
2	REVISED PER P.M. 01-0771	1/1/51	J.M.	J.M.
3	REVISED PER P.M. 01-0771	1/1/51	J.M.	J.M.
4	REVISED PER P.M. 01-0771	1/1/51	J.M.	J.M.
5	REVISED PER P.M. 01-0771	1/1/51	J.M.	J.M.

- GENERAL NOTES:**
1. SEE GENERAL NOTES SHEET NO. 02274-1 FOR DETAILS OF THIS SYSTEM.
  2. SEE GENERAL NOTES SHEET NO. 02274-2 FOR DETAILS OF THIS SYSTEM.
  3. SEE GENERAL NOTES SHEET NO. 02274-3 FOR DETAILS OF THIS SYSTEM.
  4. SEE GENERAL NOTES SHEET NO. 02274-4 FOR DETAILS OF THIS SYSTEM.
  5. SEE GENERAL NOTES SHEET NO. 02274-5 FOR DETAILS OF THIS SYSTEM.
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  8. SEE GENERAL NOTES SHEET NO. 02274-8 FOR DETAILS OF THIS SYSTEM.
  9. SEE GENERAL NOTES SHEET NO. 02274-9 FOR DETAILS OF THIS SYSTEM.
  10. SEE GENERAL NOTES SHEET NO. 02274-10 FOR DETAILS OF THIS SYSTEM.

**NOTE:**  
 THIS SYSTEM IS A PART OF THE DIESEL ENGINE WATER EXPANSION TANK SYSTEM.  
 SEE GENERAL NOTES SHEET NO. 02274-1 FOR DETAILS OF THIS SYSTEM.  
 SEE GENERAL NOTES SHEET NO. 02274-2 FOR DETAILS OF THIS SYSTEM.  
 SEE GENERAL NOTES SHEET NO. 02274-3 FOR DETAILS OF THIS SYSTEM.  
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 SEE GENERAL NOTES SHEET NO. 02274-9 FOR DETAILS OF THIS SYSTEM.  
 SEE GENERAL NOTES SHEET NO. 02274-10 FOR DETAILS OF THIS SYSTEM.

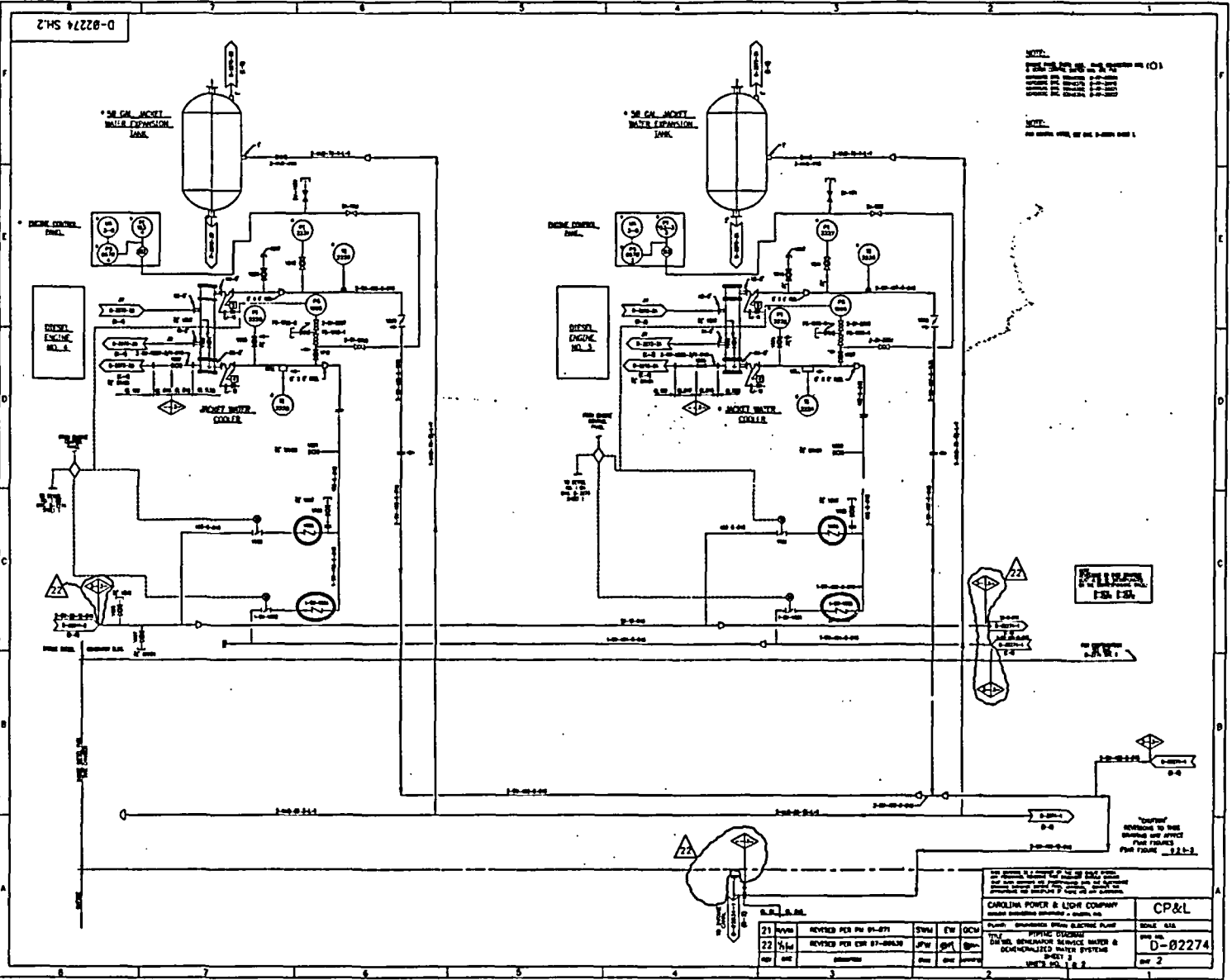
"CHECK" REVISIONS BY THIS DIVISION AND APPROVE FOR THE PROJECT.

DATE: 1-1-51

CAROLINA POWER & LIGHT COMPANY		CP&L
21	REVISED PER P.M. 01-0771	DATE: 1-1-51
22	REVISED PER P.M. 01-0771	DATE: 1-1-51
23	REVISED PER P.M. 01-0771	DATE: 1-1-51

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21	1/1/51	REVISED PER P.M. 01-0771	J.M.	J.M.
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23	1/1/51	REVISED PER P.M. 01-0771	J.M.	J.M.

D-82274 SH.2



NOTES:  
 1. SEE SHEET D-82274 SH.1 FOR PIPING TO (O) 101  
 2. SEE SHEET D-82274 SH.3 FOR PIPING TO (O) 102  
 3. SEE SHEET D-82274 SH.4 FOR PIPING TO (O) 103  
 4. SEE SHEET D-82274 SH.5 FOR PIPING TO (O) 104  
 5. SEE SHEET D-82274 SH.6 FOR PIPING TO (O) 105  
 6. SEE SHEET D-82274 SH.7 FOR PIPING TO (O) 106  
 7. SEE SHEET D-82274 SH.8 FOR PIPING TO (O) 107  
 8. SEE SHEET D-82274 SH.9 FOR PIPING TO (O) 108  
 9. SEE SHEET D-82274 SH.10 FOR PIPING TO (O) 109  
 10. SEE SHEET D-82274 SH.11 FOR PIPING TO (O) 110  
 11. SEE SHEET D-82274 SH.12 FOR PIPING TO (O) 111  
 12. SEE SHEET D-82274 SH.13 FOR PIPING TO (O) 112  
 13. SEE SHEET D-82274 SH.14 FOR PIPING TO (O) 113  
 14. SEE SHEET D-82274 SH.15 FOR PIPING TO (O) 114  
 15. SEE SHEET D-82274 SH.16 FOR PIPING TO (O) 115  
 16. SEE SHEET D-82274 SH.17 FOR PIPING TO (O) 116  
 17. SEE SHEET D-82274 SH.18 FOR PIPING TO (O) 117  
 18. SEE SHEET D-82274 SH.19 FOR PIPING TO (O) 118  
 19. SEE SHEET D-82274 SH.20 FOR PIPING TO (O) 119  
 20. SEE SHEET D-82274 SH.21 FOR PIPING TO (O) 120

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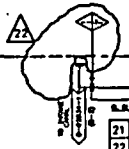
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CAROLINA POWER & LIGHT COMPANY ENGINEERING DEPARTMENT 100 SOUTH PLANTERSVILLE ROAD PLANTERSVILLE, S. C. 29169		CP&L SCALE: 3/4" = 1'-0" SHEET NO. D-82274 SHEET 2 OF 2		
21	REVISED PER DW 84-071	SWM	EW	OCM
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