CP&L

Carolina Power & Light Company

SERIAL: NLS-84-169

APR 13 1984

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
MISCELLANEOUS TECHNICAL SPECIFICATION REVISIONS

Dear Mr. Vassallo:

In your letter dated February 10, 1984, Carolina Power & Light Company (CP&L) was requested to provided additional information concerning our request for license amendment dated September 7, 1982. Attached are CP&L's responses to the questions raised by your Staff.

Should you have any further questions, please contact a member of our Licensing Staff.

Yours very truly,

A. B. Cutter - Vice President
Nuclear Engineering & Licensing

MAT/ccc (9839MAT)
Attachments

cc: Mr. D. O. Myers (NRC-BSEP)
Mr. J. P. O'Reilly (NRC-RII)
Mr. M. Grotenhuis (NRC)

A001

411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

ATTACHMENT 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
MISCELLANEOUS TECHNICAL SPECIFICATION REVISIONS

(9839MAT/ccc)

REQUEST FOR ADDITIONAL INFORMATION

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

Re: CP&L Request for License Amendment Dated September 7, 1982; Attachments 7 and 8

7.0 The proposed changes to the technical specifications given in attachment 7 deal with containment integrity and specifically with the relaxation of surveillance requirements for verifying the closure of equipment hatches and for verifying the closure of valves and flanges in high radiation areas.

7.1 You have requested the deletion of the requirement for verifying that all equipment hatches are closed and sealed at least once per 31 days. State the objective of this change. Demonstrate the means by which verification of sealing and closure will be verified and state the frequency of the verification.

7.2 You have proposed that certain valves and blind flanges in high radiation areas be verified to be closed during each COLD SHUTDOWN greater than 48 hours (but not more often than once per 92 days). The current technical specifications require such verification at least once per 31 days. Please state the objective of this change and give the safety considerations that provide a basis for relaxing this requirement. We have previously considered this relaxation but it has not been granted. Show that there is a particular need for this change at the Brunswick facilities.

8.0 In attachment 8, the proposed change to the technical specifications deals with the requirements for closure of the main steam isolation valves. The current specifications require the operability of interlocks that cause closure of these valves upon occurrence of a low condenser vacuum when reactor steam pressure is greater than 500 psig. The modified specification would require closure of the isolation valves upon occurrence of a low condenser vacuum at any reactor pressure but would permit bypassing this requirement when all turbine stop valves are closed. Bypassing the requirement for closure of the main steam isolation valves could allow the inadvertent pressurization of the turbine condenser via the turbine bypass valves and the consequential release of radioactive materials to the turbine building. The safety considerations of this inadvertent pressurization have not been addressed. Furthermore the purpose of this change and its consequences are not clear.

8.1 State the objective of this change.

8.2 State the intended purpose of this bypass and discuss the procedures that would be established to control its use.

8.3 Consider the inadvertent use of this bypass including its consequences and the means for avoiding inadvertent bypassing.

8.4 Please provide clear diagrams of all isolation logic to be bypassed and show how reactor operation would be affected.

RESPONSE TO ITEM 7.1

The requirement for verifying that all equipment hatches are closed and sealed at least once per 31 days is maintained by Technical Specification (TS) 4.6.1.1.a, which deals with Primary Containment Integrity surveillance requirements. CP&L believes that the statement "all penetrations" includes the equipment hatches. Therefore, reiteration of this requirement is not necessary.

RESPONSE TO ITEM 7.2

The proposed change, allowing certain valves and blind flanges in high radiation areas to be verified closed during each COLD SHUTDOWN of greater than 48 hours, was made with ALARA considerations in mind. Requiring this surveillance to be performed once every 31 days unnecessarily exposes personnel to high radiation fields. Administrative controls are already in place which ensure that proper alignment is maintained. Valves and flanges in four high radiation areas are affected by the proposed change. These areas include: 1) the TIP Room; 2) the RWCU Penetration Room; 3) the MSIV Pit; and 4) the Drywell Head Area.

Shield plugs prevent access to the MSIV Pit and the Drywell Head Area. Procedures currently exist which require valve and flange position verification prior to installation of the shield plugs for the Drywell Head Area. Administrative controls are in place which require the shield plugs for the MSIV Pit to be in place when the plant is in OPERATIONAL CONDITIONS 1, 2, and 3. Valve and flange positions are verified during system lineup. Access is limited by the shield plugs, thereby ensuring correct valve alignments. Therefore, redundant verification of valve alignments every 31 days is not necessary.

The TIP Room contains the test connections between the MSIVs, the feedwater check valves, and the steamline drain valves all of which are locked in the closed position. Administrative controls ensure that the TIP room remains locked. In addition, the valve position is verified prior to startup. These measures provide adequate assurance that the valves are positioned correctly yielding the 31 day surveillance requirement unnecessary.

Administrative controls ensure that the RWCU Penetration Room remains locked at all times with a work permit containing a detailed job description required for entry. Valves requiring surveillance in this area are the LLRT test connections, the O-Ring test connections, and body drain valves. Alignment of these valves is verified during each system lineup. These measures, taken together, ensure correct valve alignment, thus the 31 days surveillance requirement is not necessary.

RESPONSE TO ITEM 8.1

The objective of this change is to provide the plant with greater flexibility in allowing different plant conditions during reactor heatup. The change simply removes an administrative limit on maximum reactor pressure allowed during heatup without availability of main condenser vacuum provided the turbine stop valves are closed. This limit is not required for the BWR/4 product line (see GE SIL No. 107, dated October 31, 1974 - Attachment 2).

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RESPONSE TO ITEM 8.2

The purpose of the vacuum bypass switch is to allow reactor heatup prior to obtaining condenser vacuum. Operating the bypass switch will override the low vacuum MSIV (Group 1) isolation signal only when the turbine stop valves are closed and the reactor mode switch is not in the RUN position. In all other conditions, operating the bypass switch will have no effect. The pressure limit on operating the bypass switch has been demonstrated as not required. Once this limit has been removed from the TS and operating manual, no additional procedures will need to be established to control its use because existing control logic will prevent inadvertent use when the condenser is vulnerable to accidental pressurization.

RESPONSE TO ITEM 8.3

Inadvertent use of the low vacuum bypass switches is prevented by interlocking with Reactor Protection System indications of plant mode and turbine stop valve positions. Accidental pressurization of the condenser via the turbine bypass cannot occur because the turbine control logic will lock the bypass valves shut on low condenser vacuum signal sensed and actuated at the same setpoint as the TS instrument B21-PT-N056 (Condenser Vacuum - Low Pressure Transmitter). Operator action or decision does not enter into the condenser protection scheme. The operator only decides whether to pressurize beyond the MSIVs to the turbine stop valves. In either situation the condenser is protected from accidental pressurization and the resulting release of radioactive materials by automatic action of the reactor and turbine control functions. The main steam lines from the MSIVs to the turbine stop valves are protected from overpressurization by the safety relief valves. Relief valve settings are maintained below the design pressure rating of these steam lines.

RESPONSE TO ITEM 8.4

See Attachment 3.

(9839MAT/ccc)

ATTACHMENT 2

GE SIL NO. 107
DATED OCTOBER 31, 1974

(9839MAT/ccc)

BWR SERVICES information letter

October 31, 1974
File Tab "A"

SIL No. 107
Category 3

INCREASING FLEXIBILITY OF REACTOR STARTUPS

Most current BWR technical specifications require a reactor scram if vessel pressure exceeds 600 psi with the reactor mode switch in startup and the Main Steam Isolation Valves (MSIVs) closed. This current scram logic is the result of experience gained during the startup of an earlier GE/BWR in 1966 when, at that time, operators found it was difficult to control reactor power above approximately 600 psi without pressure control.

DISCUSSION

There has recently been considerable interest shown in the capability to heat up a reactor in a "bottled-up" condition to rated pressure. The advantages of this capability are:

1. To be able to heat the reactor vessel and internals without running the feed pumps.

2. To be able to heat the reactor vessel in parallel with maintenance work being performed on the main turbine and condenser.

Item 1 should be of particular interest to those GE/BWRs with turbine-driven feed pumps, and Item 2 provides a higher degree of flexibility in operation and maintenance.

In response to this interest, a special test was written and performed as part of the startup program at a current GE/BWR 4 design. The purpose of this test was to detect any marginal stability parameters which may exist in a more current model BWR at rated pressure with the MSIV closed.

The documented test results indicate that sequential heating of the reactor vessel, main steam lines, and main turbine are within the capability of the plant tested. That is, the test results indicate that the condition experienced at the older GE/BWR was not encountered at the startup of the current design plant.

"Bottled-up" operation is a mode that can provide additional flexibility. This mode of operation should be considered as an addition to (but not as a replacement for) the more conventional pressure and steamflow heat-up with the MSIVs open as well as closed. MSIV closure scram logic is therefore only necessary when the reactor is in the RUN mode.

RECOMMENDED ACTION

Due to specific differences between various design generations (BWR/1, BWR/2, BWR/3 and BWR/4), we are listing two distinct categories of action.

For BWR/1, 2 and 3 Plants

Any utility with a plant in this group who wishes to further explore the possibility of "bottled-up" startups should contact its normal General Electric service representative for a quotation concerning engineering analysis and testing.

For BWR/4 Plants

We recommend for any utility with a plant in this group the removal of that portion of the reactor protection system logic which presently requires a scram if the reactor pressure exceeds a set point (commonly 600 psig, when the reactor mode switch is in "startup" and the MSIVs are closed. The test performed at the current design plant (a BWR/4) has proven that this logic is no longer required on this product line. It should be noted that if this recommendation is implemented, a tech spec change is required.

We would request that if this change is incorporated, General Electric be notified so that the design specs and transient data sheets can be updated. GE will be pleased to provide engineering assistance for implementing this change and modifying plant tech specs. Your normal GE service representative should be contacted for a quotation.

Prepared by: L. F. Karan

Approved by: D. G. Bridenbaugh, Manager
Performance Evaluation and
Improvement

Issued by: V. G. Grayhek, Manager
Performance Analysis and
Service Communications

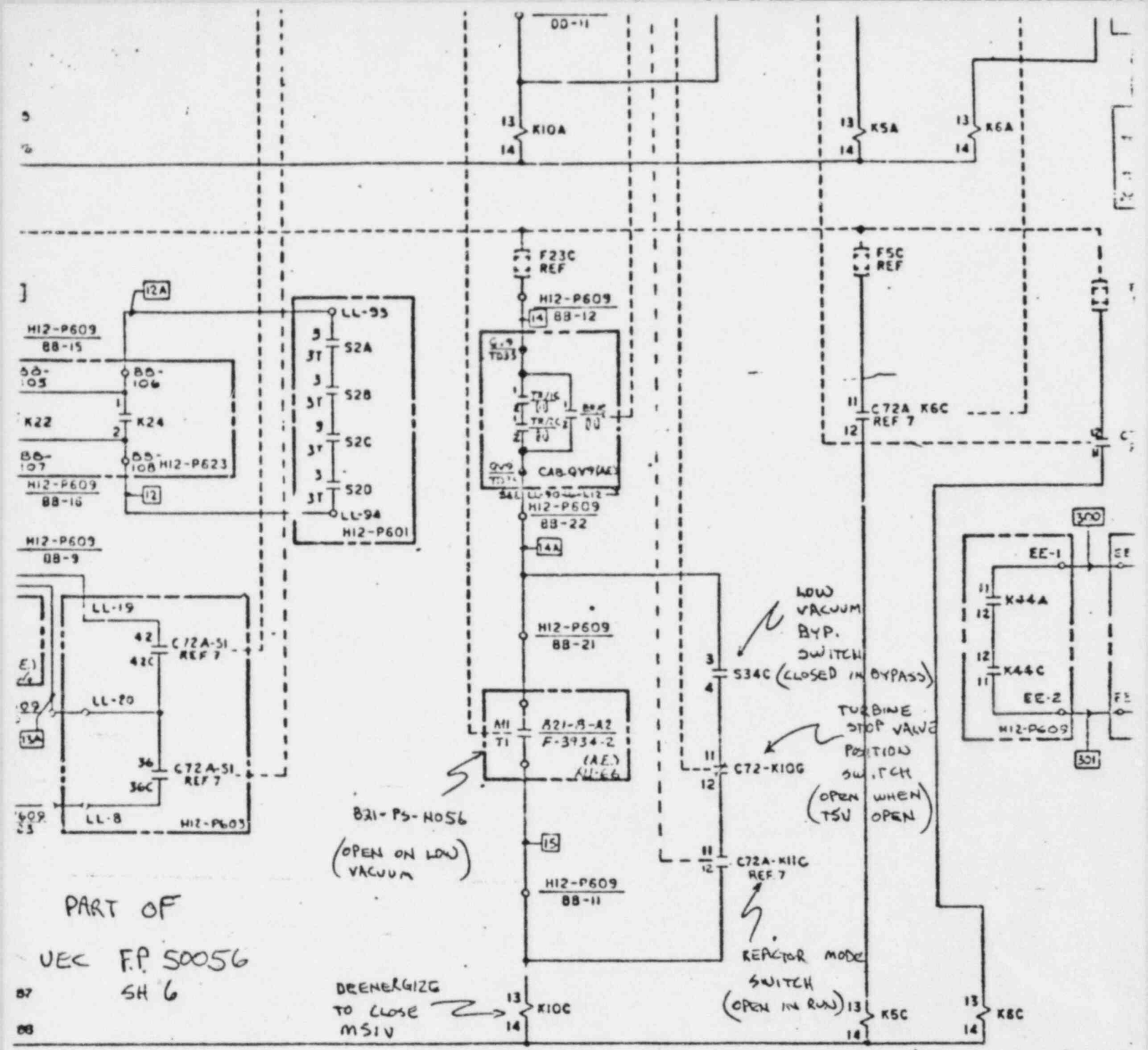
Product Reference:

A71

ATTACHMENT 3

ISOLATION LOGIC DIAGRAMS

(9839MAT/ccc)



LOW CONDENSER VACUUM

1. CLOSE DRYWELL VENT ISOL. VALVE
2. INITIATE TIP WITHDRAWAL
3. CLOSE RADWASTE ISOL VALVES
4. CLOSE RHR ISOL VALVES

DRYWELL HIGH PRESS

CAROLINA POWER & LIGHT CO./DEPT
BRUNSWICK STEAM ELECTRIC PLANT

GE DRAWING REVISED TO INCORPORATE UE&C WIRE NUMBERS

CAROLINA #1 AS BUILT DATED 2-17-78

P.P. DWG NO. 9527-5056

1. ALL INTERFACE WIRES TO BE PREFIXED WITH "1" UNLESS SHOWN AS SHOWN.
2. CABLED ON P-9431(U*2) UNLESS NOTED

DRAWING TRANSFERRED TO THE CUSTODY OF C&S BY UC 32060

T-1246
F.P. 9527-5056

CAGPERECK NC69124 PDDR KBI-KM 4-21-78

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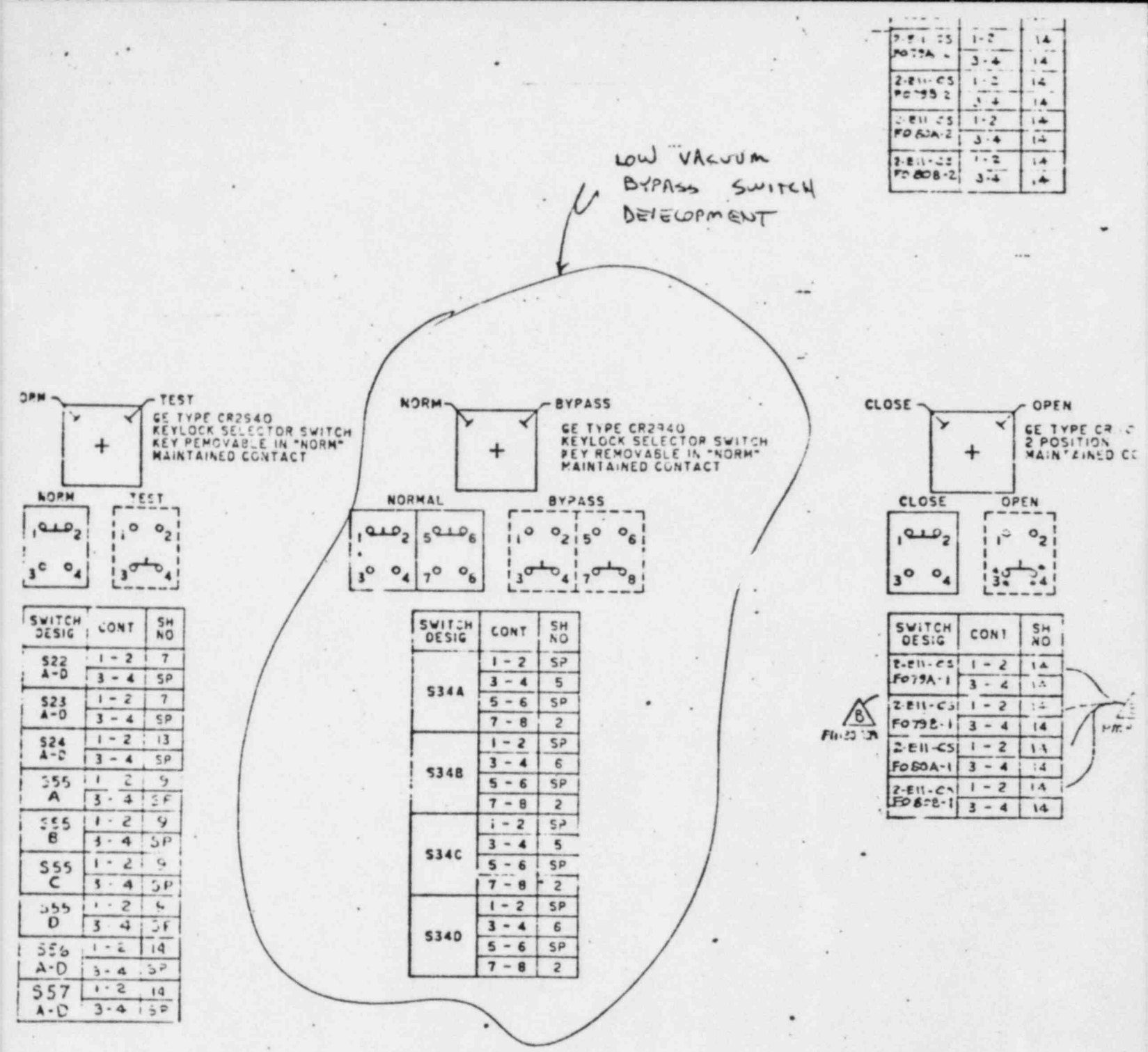

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	3 - 4	SP
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	3 - 4	SP
S24 A-D	1 - 2	13
	3 - 4	SP
S55 A	1 - 2	9
	3 - 4	SP
S55 B	1 - 2	9
	3 - 4	SP
S55 C	1 - 2	9
	3 - 4	SP
S55 D	1 - 2	9
	3 - 4	SP
S56 A-D	1 - 2	14
	3 - 4	SP
S57 A-D	1 - 2	14
	3 - 4	SP

SWITCH DESIG	CONT	SH NO
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	3 - 4	5
	5 - 6	SP
	7 - 8	2
S34B	1 - 2	SP
	3 - 4	6
	5 - 6	SP
	7 - 8	2
S34C	1 - 2	SP
	3 - 4	5
	5 - 6	SP
	7 - 8	2
S34D	1 - 2	SP
	3 - 4	6
	5 - 6	SP
	7 - 8	2

SWITCH DESIG	CONT	SH NO
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SWITCH DESIG	CONT	SH NO
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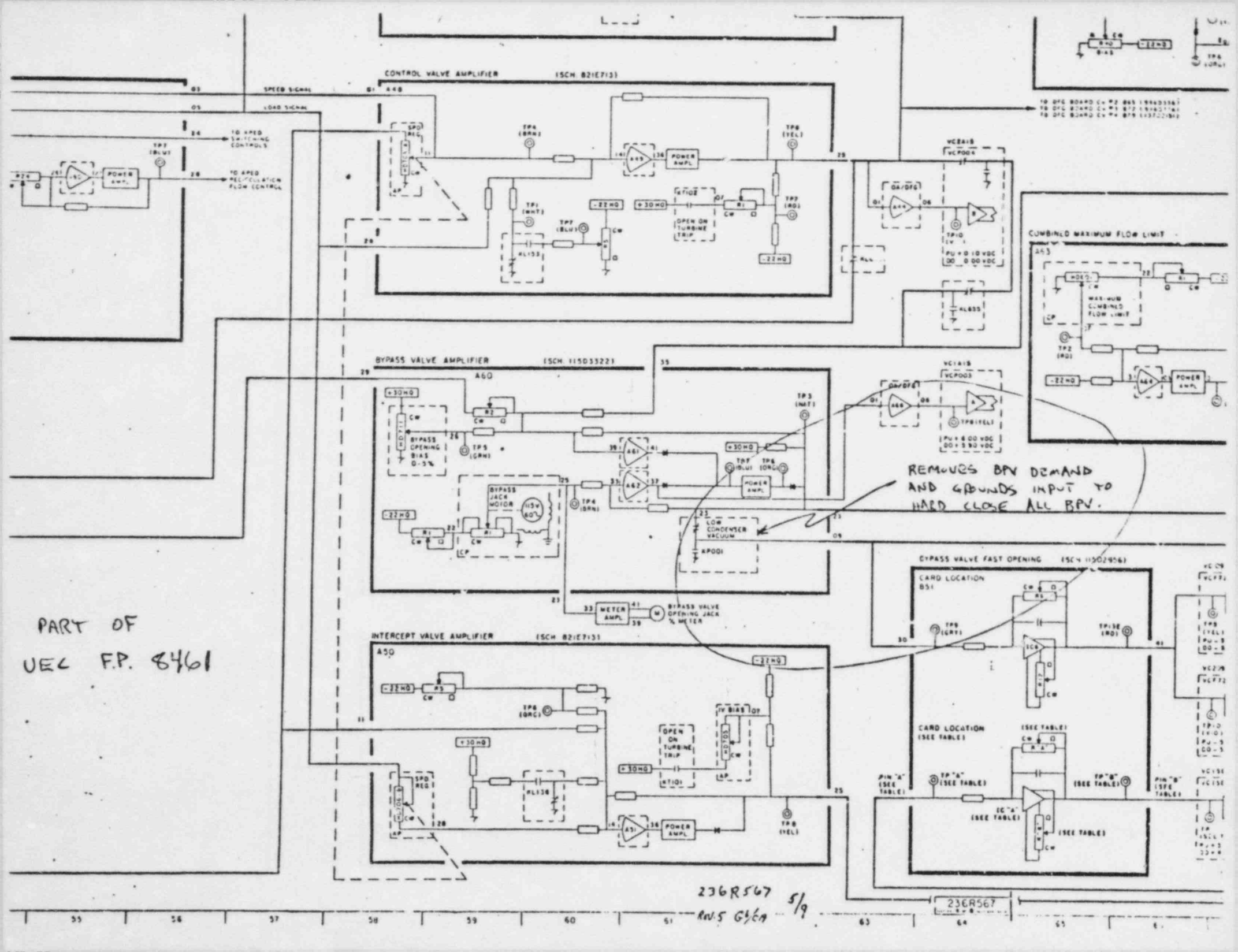

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