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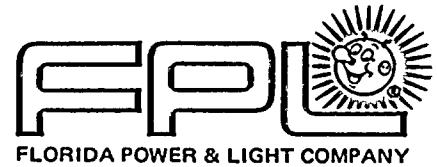
ACCESSION NBR: 8107280510. DOC. DATE: 81/07/23. NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light ~~05000250~~
 50-251 Turkey Point Plant, Unit 4, Florida Power and Light Co. 05000251
 AUTH. NAME: UHRIG, R.E. AUTHOR AFFILIATION: Florida Power & Light Co.
 RECIP. NAME: VARGA, S.A. RECIPIENT AFFILIATION: Operating Reactors Branch 1

SUBJECT: Forwards response to NRC 810608 request for addl. info re:
 auxiliary feedwater automatic initiation & flow indication.
 Preliminary diagrams provided.

DISTRIBUTION CODE: A001S COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 9
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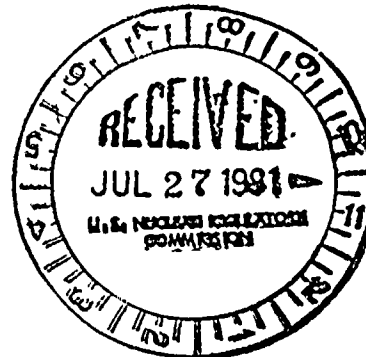
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	RAD ASMT BR	1 1	<u>REG FILE</u> 01	1 1
EXTERNAL:	ACRS 09	16 16	LPDR 03	1 1
	NSIC 05	1 1	NTIS	1 1



July 23, 1981
L-81-311

Office of Nuclear Reactor Regulation
Attention: Mr. S. A. Varga, Chief
Operating Reactors Branch #1
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Dear Mr. Varga:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Auxiliary Feedwater Automatic
Initiation and Flow Indication

Florida Power & Light has reviewed the NRC letter dated June 8, 1981 concerning the Turkey Point Auxiliary Feedwater System. Our response is attached.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Robert E. Uhrig".

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/PLP/ras

cc: Mr. J. P. O'Reilly, Region II
Harold F. Reis, Esquire

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REQUEST FOR ADDITIONAL INFORMATION

TURKEY POINT UNITS 3 & 4 AUXILIARY FEEDWATER (AFW)

"AUTOMATIC INITIATION AND FLOW INDICATION"

Question 1

By FP&L letter dated January 14, 1980 (L-80-22; Attachment 1, Page 3), it was stated that:

"In order to provide fully automatic flow initiation, one of the two alternatives listed below will be taken:

- 1) The system will be modified so that the auxiliary feedwater control valves will be automatically opened to a predetermined position after a short time delay sufficient to enable the turbine driven auxiliary feed pump to attain full speed, or
- 2) The normal lineup of the system will be changed so that the auxiliary feedwater control valves will be normally open a preset predetermined amount so that feed flow to the steam generators will be initiated with no operator action whenever the auxiliary feedwater pumps are started."

Which of these alternatives has been selected? Provide the new logic and electric schematic diagrams for these valves. If alternative 2 is selected, describe the periodic surveillance planned to provide the operator positive assurance that these valves are in their proper positions.

Response 1

Alternative 1, with slight modifications, has been selected. For a description of the system, see Enclosure 3 of FPL letter L-81-36, dated February 3, 1981, to Mr. Darrell Eisenhut. Preliminary, new logic and electrical schematic diagrams are attached to this letter, as follows:

5177-109-J305-16, Preliminary Block Diagram
AFW Flow Control
5177-109-J305-17, Preliminary Block Diagram
AFW Flow Control
5177-109-E-05 Sheets 1 and 2, Elementary
Diagram AFW Flow Control and Indication

Final diagrams will be sent when available.

QUESTION 2

Are there any operating bypasses associated with the automatic initiation logic/circuitry during start-up or operation of the reactor? If so, how are these bypasses removed (automatically, procedurally, etc.)?

RESPONSE 2

No operating bypasses are provided. For more information, see Enclosure 2 of FPL letter L-81-36, dated February 3, 1981.

QUESTION 3

Indicate the frequency of tests for channel checks, functional tests and calibration of the:

- a. Low low steam generator level instrumentation channels
- b. loss of voltage on 4160 V buses instrumentation channels

RESPONSE 3

As indicated in Turkey Point Technical Specification 4.1, Table 4.1.1, the frequency of these tests is as follows:

<u>Channel Description</u>	<u>Check</u>	<u>Calibrate</u>	<u>Test</u>
4 KV Voltage & Frequency (Reactor Protection Circuits only)	NA	Each Refueling (frequency only)	Each Refueling
Steam Generator Level	Each shift (See note)	Each Refueling	Monthly (See note)

NOTE: These tests are not applicable during cold or refueling shutdowns. The specified tests however, shall be performed within one surveillance period prior to start up.

Question 4

Describe the steam generator level instrumentation at the Turkey Point Plant. This description should include:

- a. Type and number of level channels per steam generator including the range of each channel.
- b. The specific source (vital bus) from which each of these channels is powered.
- c. Capability for testing and calibration, including the interval between tests.
- d. The specific indication available in the control room for each channel (indicator, recorder, etc.)

Response 4

- (a) The steam generator level instrumentation for Turkey Point Units 3 & 4 is comprised of three safety related protective channels designated I, II and III. Each steam generator has three level transmitters representing three protective channels.

Protective channels are narrow range type and are primarily used to initiate reactor trip, turbine trip, feedwater pump trip and automatic initiation of the AFW system. The logic is such that the coincidence of two out of three low-low level signals (15% level) in any steam generator will generate reactor trip and auto initiation of the AFW system.

A high-high signal in any steam generator will generate a turbine trip and a feedwater pumps trip. All the components of the protective channels are Class 1E powered from the Vital Instrumentation power system (Inverter/Battery). Each protective channel is independent and separate from the others. Cables of the same parameter run in separate raceway systems.

Channel III of each steam generator protective channel is also used for control of the main feedwater valves thru an isolation device. An alternate non-safety related channel will be provided with a selector switch. This new level channel is also used for control of the feedwater valves as an alternate to Channel III of each steam generator.

Transmitter ranges are as follows:

<u>S.G.</u>	<u>Tag. No.</u>	<u>Channel</u>	<u>Transmitter Range</u>
1	LT-474	I	30.13" - 138.22"W
1	LT-475	II	30.13" - 138.22"W
1	LT-476	III	30.13" - 138.22"W
2	LT-484	I	30.13" - 138.22"W
2	LT-485	II	30.13" - 138.22"W
2	LT-486	III	30.13" - 138.22"W
3	LT-494	I	30.13" - 138.22"W

<u>S.G.</u>	<u>Tag. No.</u>	<u>Channel</u>	<u>Transmitter Range</u>
3	LT-495	II	30.13" - 138.22" W
3	LT-496	III	30.13" - 138.22" W
1	LT-478	Non-Safety Related (NSR)	0 - 143" W
2	LT-488	NSR	0 - 143" W
3	LT-498	NSR	0 - 143" W

In addition, to the three protective channels, each steam generator is equipped with a wide range, non-safety related channel for indication and recording, as follows:

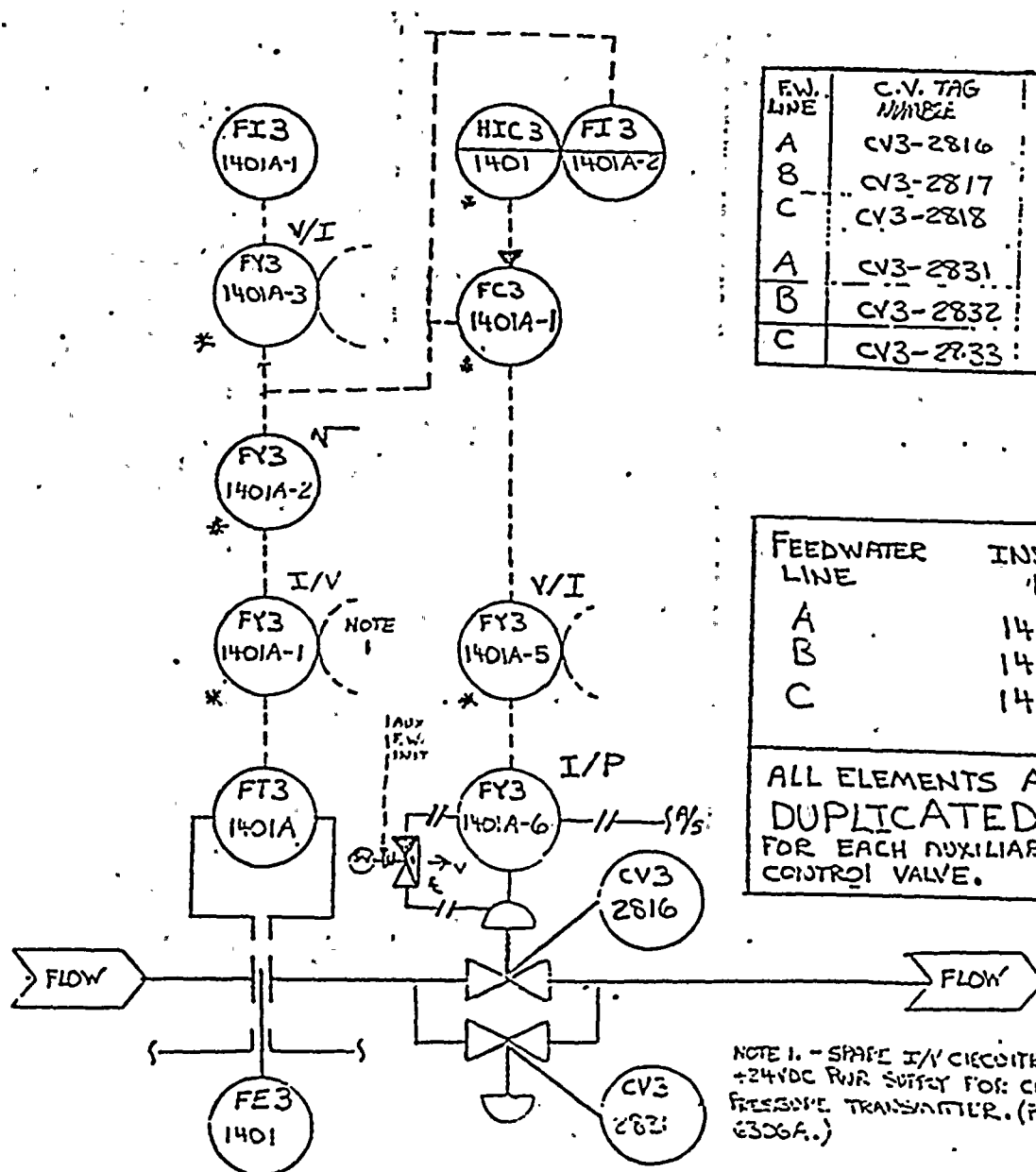
<u>S.G.</u>	<u>Tag. No.</u>	<u>Channel</u>	<u>Transmitter Range</u>
1	LT-477	NSR	0 - 513" W.
2	LT-487	NSR	0 - 513" W.
3	LT-497	NSR	0 - 513" W.

- (b) Each protective channel is powered from the 120 VAC, Class IE, uninterruptible power supply of the same channel. The power supply is comprised of an inverter and a safety related battery. The Non-safety channel is powered from a normal 120 VAC non-class 1E service.
- (c) Safety related instrumentation is tested every month under the periodic surveillance testing program. Calibration of the complete instrument loop is done during scheduled refueling outages or when a malfunction or other problem occurs in the loop. Each scheduled outage occurs at time intervals of twelve to eighteen months.
- (d) For narrow range safety related instrumentation, three separate level indicators per steam generator are provided on the vertical Panel "A" in the control room. Each steam generator has a common three pen recorder. A three position selector switch is provided in the console for recording the steam generator level of the selected protective channel. This recorder is also used to monitor steam and feedwater flow. For wide range, non-safety related instrumentation, two local indicators per steam generator are provided at the AFW pump station and a three pen recorder is provided on the vertical panel in the control room.

From the same wide range channel, low and high level alarms are provided for each steam generator at the main annunciator.

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PRELIMINARY



FW. LINE	C.V. TAG NUMBER	S.V. TAG NUMBER
A	CV3-2816	SV3-2914
B	CV3-2817	SV3-2916
C	CV3-2818	SV3-2918
A	CV3-2831	SV3-2915
B	CV3-2832	SV3-2917
C	CV3-2833	SV3-2919


FEEDWATER LINE	INSTRUMENT LOOP
A	1401 A
B	1457 A
C	1458 A

ALL ELEMENTS ARE
DUPLICATED
FOR EACH AUXILIARY FEEDWATER
CONTROL VALVE.

NOTE 1. - SPARE I/V CIRCUITRY IS USED FOR
+24VDC PWR SUPPLY FOR CONTINUOUS
PRESSURE TRANSMITTER. (FOWILL: FT3-
6306A.)

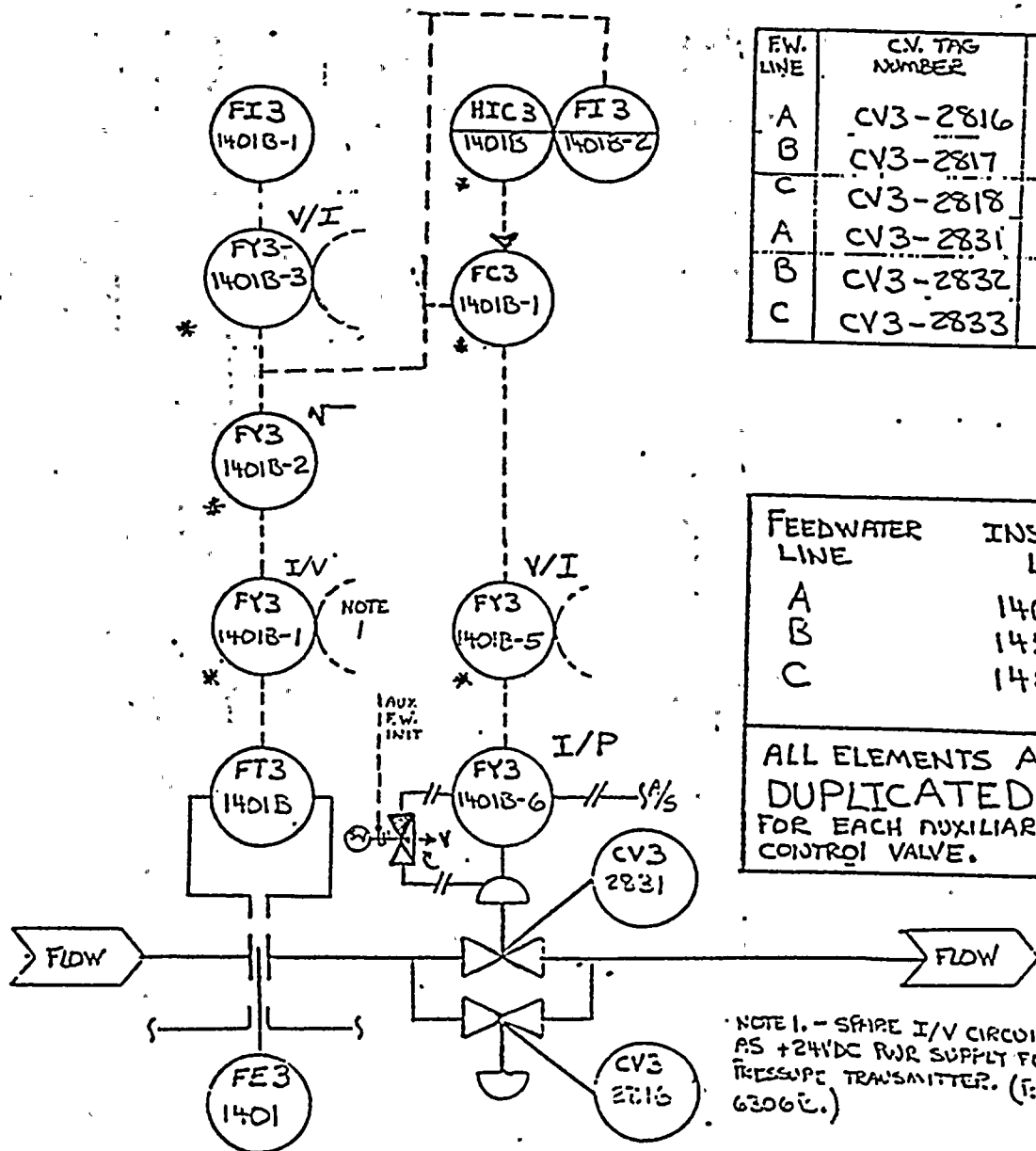
UNIT 3 PREFIX "3-" IS REPLACED BY "4-" FOR UNIT 4

*: SUPPLIED BY J305 VENDOR

1	10-29-70	ISSUED FOR PURCHASE	KK	OK	-	1/2	9/15		
0	6-20-70	ISSUED FOR BID	CS	AP	-	1/2	11/1		
No.	DATE	REVISIONS	BY	CHK	DESIGN SUPV	ENG'R.	PROJ ENGR	APPR.	
SCALE NONE			DESIGNED —		DRAWN —		CHIEF ENG'R —		
GAITHERSBURG POWER DIVISION		FLORIDA POWER & LIGHT COMPANY TURKEY POINT PLANT				JOB NO. 5177-109			
		PRELIMINARY BLOCK DIAGRAM AUXILIARY FEEDWATER FLOW CONTROL				DRAWING NO.		REV.	
						5177-109-J305-16		1	
						SHEET 1 OF 1			
						UNIT <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input checked="" type="checkbox"/> 7 <input checked="" type="checkbox"/> 8 <input checked="" type="checkbox"/> 9 <input checked="" type="checkbox"/> 10			

3X x 11 "A" SIZE

PRELIMINARY




FW. LINE	C.V. TAG NUMBER	S.V. TAG NUMBER
A	CV3-2816	SV3-2914
B	CV3-2817	SV3-2916
C	CV3-2818	SV3-2918
A	CV3-2831	SV3-2915
B	CV3-2832	SV3-2917
C	CV3-2833	SV3-2919

FEEDWATER LINE	INSTRUMENT LOOP
A	1401B
B	1457B
C	1458B

ALL ELEMENTS ARE DUPLICATED FOR EACH AUXILIARY FEEDWATER CONTROL VALVE.

UNIT 3 PREFIX "3-" IS REPLACED BY "4-" FOR UNIT 4

*: SUPPLIED BY J305 VENDOR

CONT'D FROM												
1	10-24-61	ISSUED FOR PURCHASE				KK	U.P.	—	JK	END		
0	6-20-62	ISSUED FOR BIDS				CE	A.P.	—	JK	AKH		
No.	DATE	REVISIONS				BY	CHK	DESIGN SUPV	ENG'R.	PROJ ENGR	APPR.	
SCALE NONE		DESIGNED —		DRAWN —		CHIEF ENG'R —						
GAITHERSBURG POWER DIVISION		FLORIDA POWER & LIGHT COMPANY TURKEY POINT PLANT					JOB NO. 5177-109					
							DRAWING NO.				REV.	
		PRELIMINARY BLOCK DIAGRAM AUXILIARY FEEDWATER FLOW CONTROL					5177-109-J305-17 1					
							SHEET 1		OF 1			
							UNIT		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	4

8 1/2 x 11 "A" SIZE

PRELIMINARY

NOTES

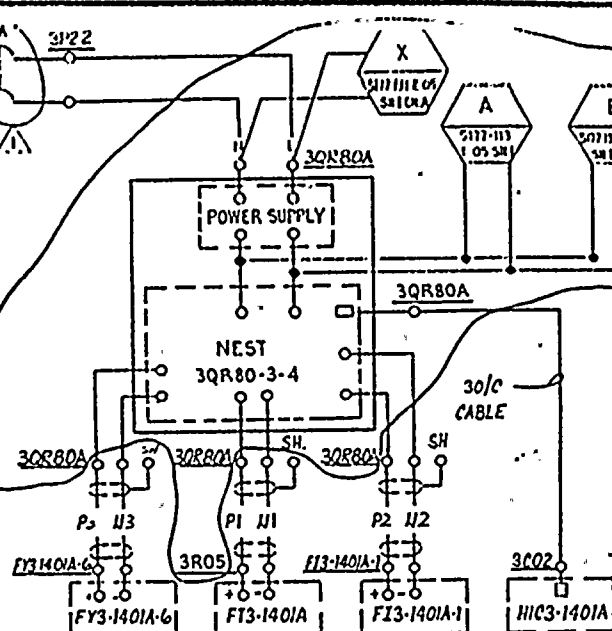
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2/C # 16AWG
2. THIS DRAWING IS NUCLEAR SAFETY
RELATED.

FPL • Pwr Plt Engr

PCM # 80.55

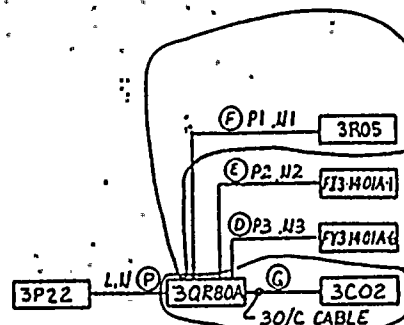
Approved For Implementation

Date _____



AUX. F.W. LINE A INSTRUMENT LOOP 1401A

SCHEME NO. 3AFWAI



BLOCK DIAGRAM

UNIT	EQUIPMENT	SCHEDULE NO.	BRKR NO.			LOCATION	CV	CHAU	NEST		
1	AUX FW LINE A INSTRUMENT LOOP 1401A	3AFW1A	3P2201	3QR80A	3C02	3R05 FT3-1401A-1	3P22	FT3-1401A-6	2816	A	3QR80-3-4
1	AUX FW LINE B INSTRUMENT LOOP 1457A	3AFW2A	3P2201	3QR80A	3C02	3R05 FT3-1457A-1	3P22	FT3-1457A-6	2817	A	3QR80-3-5
1	AUX FW LINE C INSTRUMENT LOOP 1458A	3AFW3A	3P2201	3QR80A	3C02	3R05 FT3-1458A-1	3P22	FT3-1458A-6	2818	A	3QR80-3-6
1	AUX FW LINE C INSTRUMENT LOOP 1401A	3AFW1A	3P2201	3QR80B	1C02	4R05 FT4-1401A-1	4P22	FT4-1401A-6	2816	A	3QR80-4-4
1	AUX FW LINE B INSTRUMENT LOOP 1457A	3AFW2A	4P2201	3QR80B	1C02	4R05 FT4-1457A-1	4P22	FT4-1457A-6	2817	A	3QR80-4-5
1	AUX FW LINE C INSTRUMENT LOOP 1458A	3AFW3A	4P2201	3QR80B	1C02	4R05 FT4-1458A-1	4P22	FT4-1458A-6	2818	A	3QR80-4-6

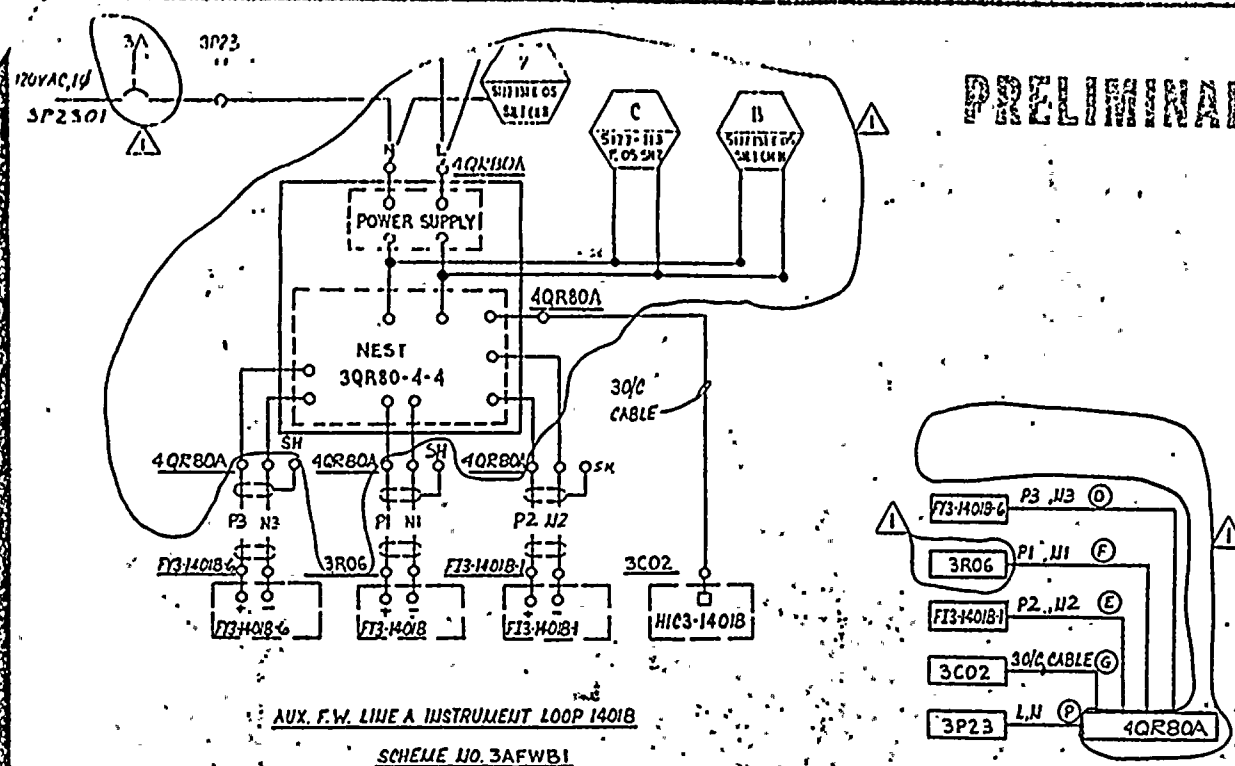
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ELEMENTARY DIAGRAM			
AUX FEEDWATER FLOW CONTROL AND INDICATION			
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BY KSG	PROJECT NO.		
DATE 4/16/85	5177-109-E-Q5 SH.I		
FILE NUMBER:			

PRELIMINARY

NOTES:

1. ALL SHIELDED CIRCUITS ARE 2C #16 AWG
2. THIS DRAWING IS NUCLEAR SAFETY RELATED



UNIT	EQUIPMENT	SCHEME NO.	BRKR NO.	LOCATION	CV	CHAU	NEST
3	AUX. F.W. LINE A INSTRUMENT LOOP 1401B	3AFWB1	3P2301	4QR80A 3C02 3R06 FI3-1401B-1 FI3-1401B-6	2831	B	4QR80-3-4
3	AUX. F.W. LINE B INSTRUMENT LOOP 1401B	3AFWB2	3P2301	4QR80A 3C02 3R06 FI3-1401B-1 FI3-1401B-6	2832	B	4QR80-3-5
3	AUX. F.W. LINE C INSTRUMENT LOOP 1401B	3AFWB3	3P2301	4QR80A 3C02 3R06 FI3-1401B-1 FI3-1401B-6	2833	B	4QR80-3-6
4	AUX. F.W. LINE A INSTRUMENT LOOP 1401B	4AFWB1	4P2301	4QR80B 4C02 4R06 FI4-1401B-1 FI4-1401B-6	2831	B	4QR80-4-4
4	AUX. F.W. LINE B INSTRUMENT LOOP 1401B	4AFWB2	4P2301	4QR80B 4C02 4R06 FI4-1401B-1 FI4-1401B-6	2832	B	4QR80-4-5
4	AUX. F.W. LINE C INSTRUMENT LOOP 1401B	4AFWB3	4P2301	4QR80B 4C02 4R06 FI4-1401B-1 FI4-1401B-6	2833	B	4QR80-4-6

PC/M 80-55/56

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BECHTEL GAITHERSBURG, MARYLAND			
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ELEMENTARY DIAGRAM AUX FEEDWATER FLOW CONTROL AND INDICATION			
DATE	BY	DATE	BY
6/16/80	ASG	6/16/80	ASG
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