REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8208130195 DOC.DATE: 82/08/06 NOTARIZED: NO DOCKET #
FACIL:50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Powe 05000220
AUTH.NAME AUTHOR AFFILIATION
LEMPGES,T.E. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Confirms previous verbal communication w/NRC re replacement of all 28-inch recirculation sys piping.Methodology being developed.Revised occupational dose estimate will be submited w/next quarterly repair program status rept.

DISTRIBUTION CODE: A001S COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 11
TITLE: General Distribution for after Issuance of Operating License

NOTES:

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	ORB #2 BC	01	7	7				
INTERNAL:	ELD/HDS3		1	0	NRR/DHFS DEPY08		1	1
	NRR/DL DIR		1	1	NRR/DL/ORAB		1	0
	NRR/DSI/RAB		1	1	REG FILE	04	1	1
	RGN1		1	1				
EXTERNAL:	ACRS	09	10	10	LPDR	03	1	1
	NRC PDR	02	1	1	NSIC	05	1	1
	NTIS		1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 28 ENCL 26

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

August 6, 1982

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Dear Mr. Eisenhut:

On May 11, 1982, Niagara Mohawk provided information on the replacement of the recirculation safe ends at Nine Mile Point Unit 1. That letter was in response to your letter of April 21, 1982. The purpose of this letter is to confirm previous verbal communications with members of your staff that we plan to replace all the 28-inch recirculation system piping. The basis for Niagara Mohawk's decision to replace the recirculation piping is provided herein.

Chronology and Conclusions

On March 23, 1982, through wall cracks were detected in two of the ten recirculation safe ends. On March 26, 1982, ultrasonic examinations were performed on these two safe ends and one other. The results of those examinations confirmed crack indications. Based upon that information, Niagara Mohawk decided to replace all ten safe ends.

In mid-April, 1982, two boat samples were obtained from one of the safe ends in the vicinity of the through wall cracks. One each of these samples was sent to General Electric and Battelle Laboratories for evaluation. The results of those evaluations in mid-May confirmed the presence of intergranular stress corrosion cracking.

Prior to receiving the results of the evaluations from Battelle and General Electric, other phenomena were evaluated by Niagara Mohawk as potential mechanisms for crack initiation. These evaluations were used on a qualitative basis to determine high stress areas of the recirculation piping system under various operating scenarios (i.e. locked pump snubbers, etc.). Based on these evaluations, it was decided to examine by ultrasonic methods the pump discharge casting to riser elbow weld. Using normal ultrasonic methods, it was determined that two of the five welds had code reportable indications. When increased ultrasonic transducer gain was used, the remaining three welds exhibited indications.

A001

The two pump discharge casting to riser elbow welds with normal ultrasonic indications were later examined by dye penetrant methods on the inside diameter. The results of those examinations indicated the presence of cracks.

In early May, 1982, a replication process (i.e., obtaining a negative of the crack with a piece of #11340 celluose acetate tape) was implemented. The results of General Electric and Niagara Mohawk's review indicated the presence of intergranular stress corrosion cracking. A boat sample of that same region (taken on June 13, 1982) was evaluated by Sylvester Associates and confirmed the presence of intergranular stress corrosion cracking.

Based upon the confirmation of cracking at the safe ends and the pump discharge casting to riser elbow welds, it was decided to ultrasonically inspect all of the remaining welds, where the radiation fields permitted. The results of those examinations indicated cracking in a large number of welds. In most cases, these indications could only be obtained when using the increased gain ultrasonic technique procedure.

Attached Figures 1 through 5 outline the location of all welds in the recirculation loops. Table 1 summarizes the examinations and results of the examinations.

Based on the results of our examinations and investigations, it was decided to replace the 28-inch recirculation piping. Preliminarily, it appears that it will be advantageous to replace branch piping also. However, all of the technical issues have not yet been resolved. Therefore, no final decision has been made to replace this branch piping.

Replacement Program

All replacement material will be 316 NG or equivalent, with a carbon content of less than 0.02 percent. This material is of the grade which does not require augmented in service inspection per NUREG 0313, Revision 1. The replacement safe ends were manufactured in 1979 to the 1977 ASME Boiler and Pressure Vessel Code Section III (addenda through summer 1977). The remainder of the piping was ordered and is being manufactured to the 1980 code through winter 1980 Addenda.

The actual replacement will be accomplished in accordance with IWA4000 and IWB4000 of ASME Boiler and Pressure Vessel Code, Section XI, 1977 addition (addenda through summer 1978). All welding will be in accordance with Section IX, 1978). The fit up requirements will be in accordance with ANSI B31.1-1977 (with addenda through winter 79) code for pressure piping.

Since the configuration of the system will be the same as the original design, Niagara Mohawk does not intend to redo the existing stress analysis. The seismic design criteria are as specified in Section III of the Final Safety Analysis Report.

Nondestructive examination requirements for field welds which are applicable to this replacement are as follows:

Radiographic and Dye Penetrant

Section III of ASME Boiler and Pressure Vessel
1977 Summer 1978 addenda

Ultrasonic

Section XI 1977 Summer 1978 addenda

The replacement methodology is in the process of being developed. Preliminarly, the method of replacement is to dismantle all of the piping in all five loops. The loop furthest from the equipment hatch would be rebuilt, from the pump up. The uppermost elbows would be used for the final closure and fit up, on both inlet and outlet sides of the loop. Rebuilding of the loops would continue until the final loop (closest to the equipment hatch) is completed.

A revised occupational dose estimate for the expanded scope of work will be included with the next quarterly repair program status as required by paragraphs 2.D.(6), c and d of our operating license.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

T. E. Lempges
Vice President Nuclear Generation

GJG/kmb

TABLE 1

Weld No.	Ultrasonic Examination (UT)	Dye Penetrant Examination (PT)	Results[1]
No. 11 Recirc. Loop			
P32-FW-1-W	Not Inspected		
P32-SW-1-W	Not Inspected		
P32-SW-2-W	X	-	UT Indications (Increased Gain)
P32-FW-2-W	X	-	UT Indications (Increased Gain)
P32-FW-3-W	X	-	UT Indications (Increased Gain)
P32-SW-3-W	X	-	UT Indications (Increased Gain)
P32-FW-4-W	X	-	UT Indications (Increased Gain)
P32-FW-26-W	X	-	UT Indications (Increased Gain)
P32-SW-17-W	Not Inspected		
P32-FW-25-W	Not Inspected		
P32-SW-16-W	Not Inspected		
P32-SW-15-W	Not Inspected		
P32-FW-23-W	Not Inspected		
P32-FW-22-W	Not Inspected		
No. 12 Recirc. Loop			
P32-FW-5-W	Not Inspected		
P32-SW-4-W	Not Inspected		
P32-FW-6-W	X	-	UT Indications (Increased Gain)
P32-FW-7-W	X	-	UT Indications (Increased Gain)
P32-SW-5-W	X	-	UT Indications (Increased Gain)
P32-FW-8-W	X	-	UT Indications (Increased Gain)
P32-FW-31-W	X	-	UT Indications (Increased Gain)
P32-SW-20-W	Not Inspected		
P32-FW-30-W	Not Inspected		
P32-FW-29-W	Not Inspected		
P32-SW-19-W	Not Inspected		
P32-SW-18-W	Not Inspected		
P32-FW-28-W	Not Inspected		
P32-FW-27-W	X	-	Code UT Indications Plus Leaks

(1) Where increased gain is indicated, the normal code ultrasonic examination showed at least one recordable defect indication. However, using an increased gain, intermittent indications were observed along the circumference of the inside diameter.

TABLE 1
(Continued)

Weld No.	Ultrasonic Examination (UT)	Dye Penetrant Examination (PT)	Results[1]
No. 13 Recirc. Loop			
P32-FW-9-W	Not Inspected		
P32-SW-6-W	Not Inspected		
P32-SW-7-W	X	-	UT Indications (Increased Gain)
P32-FW-10-W	X	-	UT Indications (Increased Gain)
P32-FW-11-W	X	-	UT Indications (Increased Gain)
P32-SW-8-W	X	-	UT Indications (Increased Gain)
P32-FW-12-W	X	-	UT Indications (Increased Gain)
P32-FW-36-W	X	X	UT Indications (Increased Gain) PT Indications
P32-FW-35-W	Not Inspected		
P32-FW-34-W	Not Inspected		
P32-SW-22-W	Not Inspected		
P32-SW-21-W	Not Inspected		
P32-FW-33-W	Not Inspected		
P32-FW-32-W	X	-	Code UT Indications
No. 14 Recirc. Loop			
P32-FW-13-W	Not Inspected		
P32-SW-9-W	Not Inspected		
P32-SW-10-W	X	-	UT Indications (Increased Gain)
P32-FW-14-W	X	-	UT Indications (Increased Gain)
P32-FW-15-W	X	-	UT Indications (Increased Gain)
P32-FW-11-W	X	-	UT Indications (Increased Gain)
P32-FW-16-W	X	-	UT Indications (Increased Gain)
P32-FW-41-W	X	-	UT Indications (Increased Gain)
P32-SW-26-W	Not Inspected		
P32-FW-40-W	Not Inspected		
P32-FW-39-W	Not Inspected		
P32-SW-25-W	Not Inspected		
P32-SW-24-W	Not Inspected		
P32-FW-38-W	Not Inspected		
P32-FW-37-W	Not Inspected		

TABLE 1
(Continued)

Weld No.	Ultrasonic Examination (UT)	Dye Penetrant Examination (PT)	Results[1]
No. 15 Recirc. Loop			
P32-FW-17-W	Not Inspected		
P32-SW-12-W	X	X	UT Indications (Increased Gain) PT Verification After Removal
P32-SW-13-W	X	-	UT Indications (Increased Gain)
P32-FW-18-W	X	-	UT Indications (Increased Gain)
P32-FW-19-W	X	-	UT Indications (Increased Gain)
P32-FW-20-W	X	-	UT Indications (Increased Gain)
P32-SW-14-W	X	-	UT Indications (Increased Gain)
P32-FW-21-W	X	-	UT Indications (Increased Gain)
P32-FW-46-W	X	X	Code UT Indications PT Indications
P32-SW-30-W	Not Inspected		
P32-FW-45-W	Not Inspected		
P32-FW-44-W	Not Inspected		
P32-SW-29-W	Not Inspected		
P32-SW-28-W	Not Inspected		
P32-FW-43-W	Not Inspected		
P32-SW-27-W	Not Inspected		
P32-FW-42-W	Not Inspected		Through Wall Crack (Leakage)

FIGURE 1

RECIRCULATION LOOP NO. 11

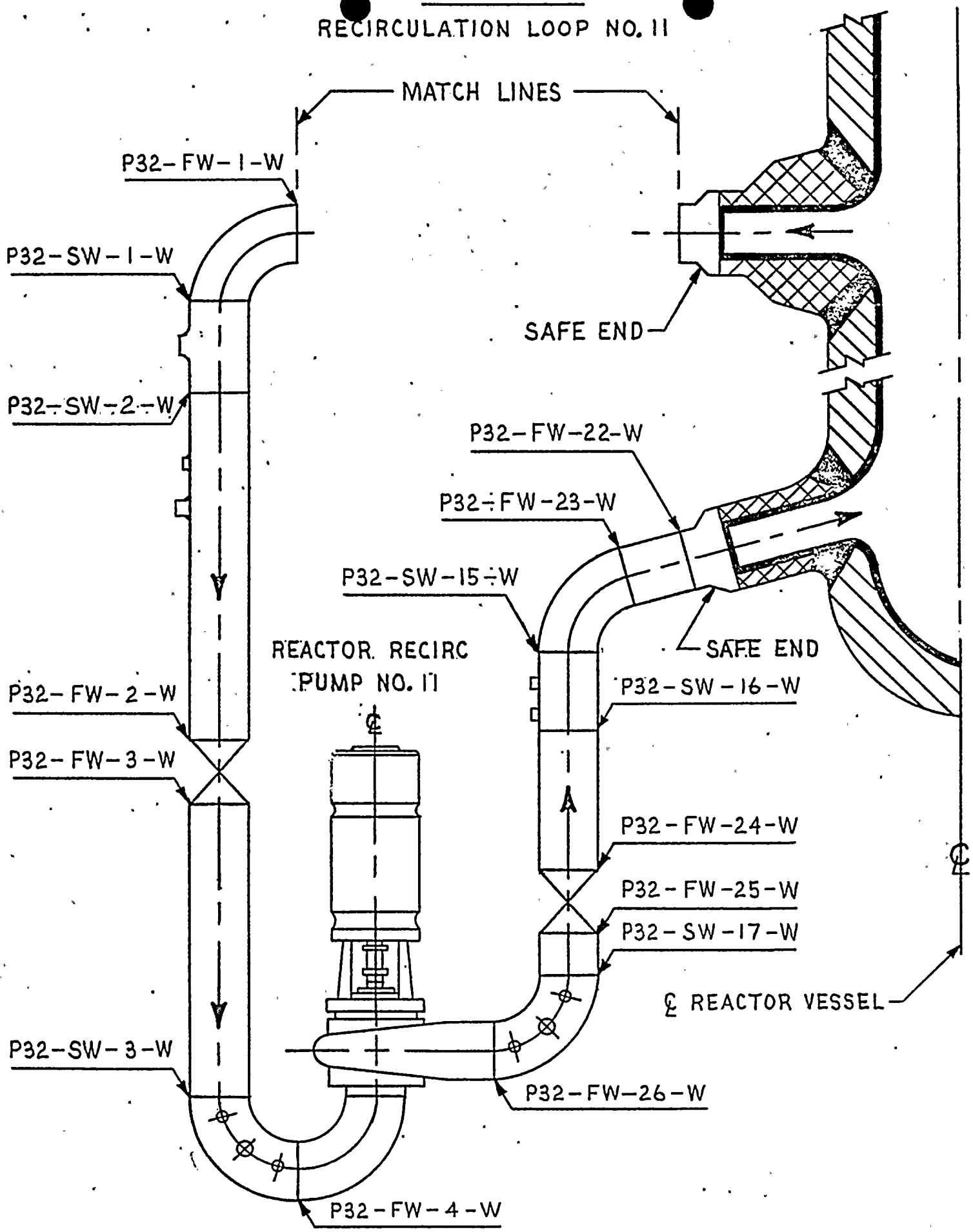

FIGURE 2

RECIRCULATION LOOP NO. 12

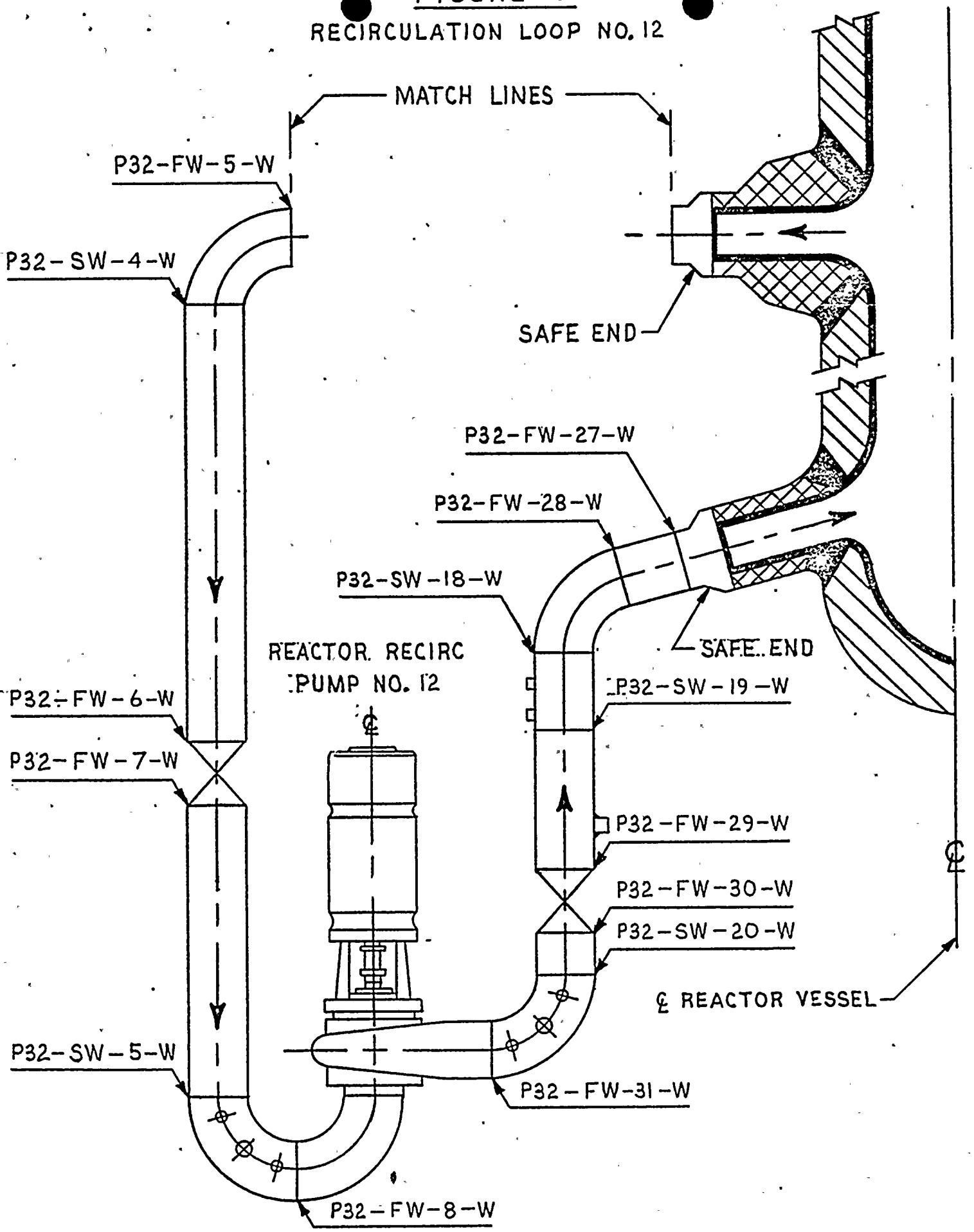

FIGURE 3

RECIRCULATION LOOP NO. 13

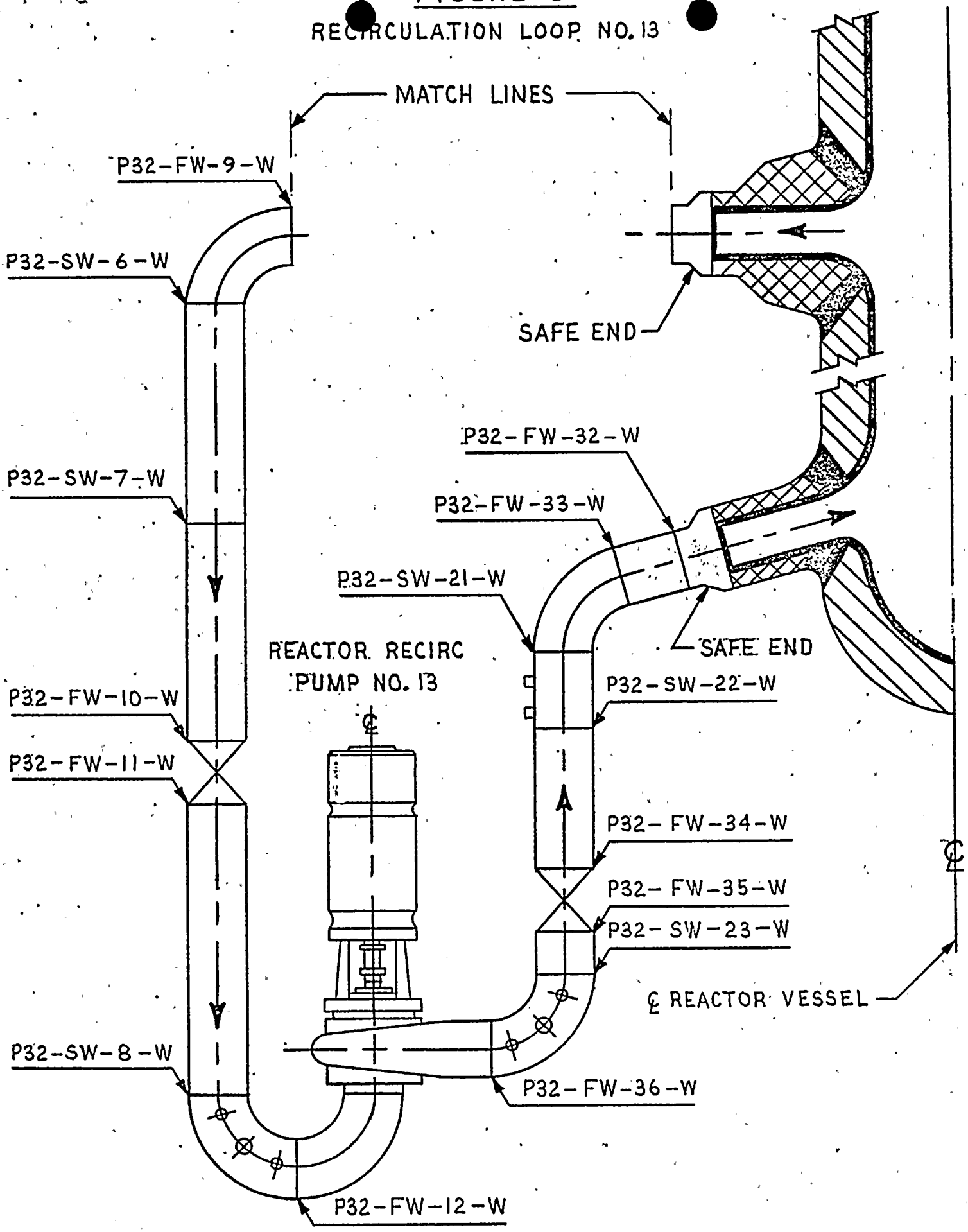

FIGURE 4

RECIRCULATION LOOP NO. 14

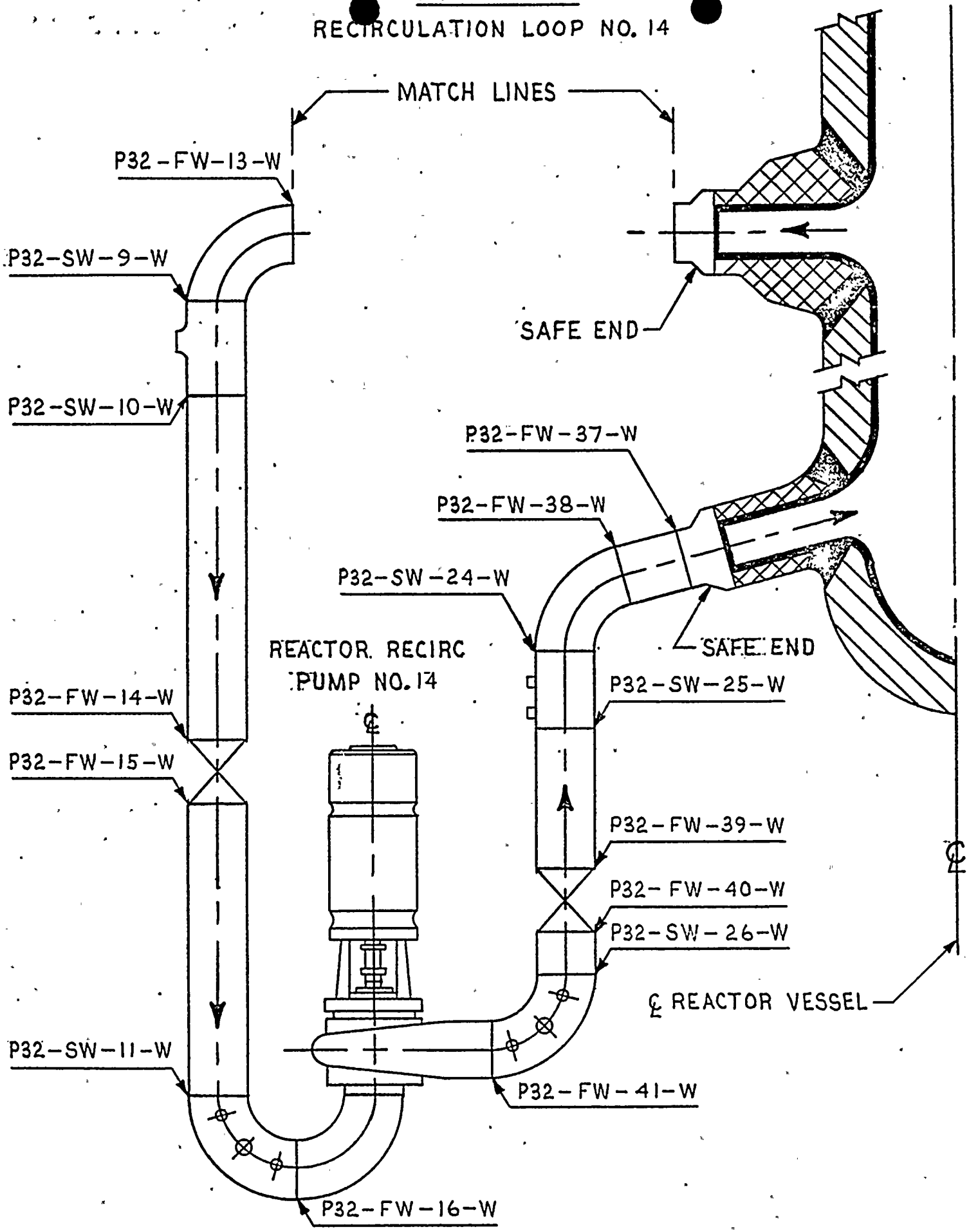

FIGURE 5

RECIRCULATION LOOP NO. 15