

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fort St. Vrain, Unit No. 1	DOCKET NUMBER (2) 0 5 0 0 0 2 6 7 1	PAGE 13 OF 0 8
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TITLE (4)  
Hydraulic Power System Surveillance Not Completed Within Specified Time

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
03	14	86	86	016	0004	04	13	86	N/A		0 5 0 0 0 0
											0 5 0 0 0 0

OPERATING MODE (9) **N**

POWER LEVEL (10) **0.05**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11):

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract Below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Jim Eggebrotten, Superintendent, Technical Services Eng.	TELEPHONE NUMBER AREA CODE: 3 0 3 7 18 5   - 1 2 1 2 3
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC. TURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC. TURER	REPORTABLE TO NRRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

SR 5.3.5-Q ("Hydraulic Power System Functional Test") was not adequately completed within the specified time interval. This surveillance verifies operability of the hydraulic power system alarms, which function to monitor system operability and alert operator personnel upon a malfunction of the system.

A retest of Sections 5.5, 5.6, and 5.7 of SR 5.3.5-Q was required following the initial performance of the surveillance. This retest, however, was not performed until March 14, 1986, twelve days after the late date of March 2, 1986.

The late surveillance was the result of personnel errors. The personnel involved did not realize the need for completing the required retest before March 2, 1986, in order to consider the required quarterly surveillance interval satisfied. Involved personnel will receive training on Technical Specification surveillance requirements, which will specifically address the types of problems involved in this instance.

This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B).

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

BACKGROUND:

The hydraulic power system supplies high pressure hydraulic fluid to the actuators of high pressure, fast operating, control and block valves in the secondary coolant system. Two identical hydraulic power units supply and store the hydraulic fluid for valve actuation. Each unit supplies power for operating valves in one reactor secondary coolant loop. The two units are not interconnected and are independently located.

Each hydraulic power system is designed with three hydraulic fluid pumps, two hydraulic accumulators for each group of hydraulically operated valves, and a bank of nitrogen gas pressurizing bottles for each hydraulic accumulator (see Figure 1). The hydraulic system normally operates with two hydraulic fluid pumps and both hydraulic accumulators (including the gas bottles) for each group of valves in service. The combination of two pumps and one accumulator per group of valves provides for full stroke operation of all valves in the associated group. Thus, the third hydraulic pump and one accumulator in each group are considered redundant. Technical Specification LCD 4.3.7 (Hydraulic Power System, Limiting Conditions for Operation) requires at least two hydraulic fluid pumps, one hydraulic valve accumulator servicing each group of valves, and the associated headers to be operable in each of the two hydraulic power systems, to facilitate operation of the associated secondary coolant loops during reactor power operation.

Technical Specification SR 5.3.5-Q functionally tests the pressure indicators and low pressure alarms on the gas pressurizing lines and hydraulic oil supply lines (see Figure 2) on a quarterly basis. This assures the actuation of these alarms upon a malfunction of the hydraulic power system which may compromise the capability for operating the associated valves.

EVENT DESCRIPTION:

The "Hydraulic Power System Functional Test" (SR 5.3.5-Q) was issued to the Results Department with a scheduled date of February 8, 1986, and a late date of March 2, 1986. The surveillance was originally initiated by Results personnel on February 18, 1986, at which time the surveillance was completed through Section 5.4. Thus, the Loop I and Loop II header instruments, as well as the Loop I gas accumulator pressure transmitters and alarms, were successfully tested. However, Sections 5.5 (Loop I oil header pressure transmitters and alarms), 5.6 (Loop II gas accumulator pressure transmitters and alarms), and 5.7 (Loop II oil header pressure transmitters and alarms) of SR 5.3.5-Q were not completed due to the status of the hydraulic power system alarms in the Control Room. Several of the alarms to be tested were already in an alarm state. Although Operators cleared the alarms by adjusting system pressures, the alarms did not stay cleared long enough for Results personnel to perform Sections 5.5, 5.6, and 5.7 of the surveillance.

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TEXT (if more space is required, use additional NRC Form 306A's) (17)

The fact that the alarms would not stay cleared does not necessarily mean that the system was inoperable, since a single inoperable accumulator will actuate any given alarm (e.g., low hydraulic oil/gas differential pressure alarm, low gas bottle pressure alarm, etc.). Operators can utilize handswitches and pressure indicators in the Control Room (see Figure 3) to determine the cause of the alarm, and verify that at least one accumulator servicing each group of valves is operable.

On March 1, 1986, the Test Conductor indicated that a retest of Sections 5.5, 5.6, and 5.7 was required, and completed Section 6.0 (Test Conductor's Report) of the surveillance. The test was then approved by the Department Supervisor and the Shift Supervisor. However, the required retest of Sections 5.5, 5.6, and 5.7 was not performed until March 14, 1986. This retest demonstrated the operability of several pressure indicators and low pressure alarms in the hydraulic power system. Hence, SR 5.3.5-Q was not adequately completed until March 14, 1986 and, since the late date was March 2, 1986, the surveillance was not completed within the required surveillance interval. This is considered to be a condition prohibited by the plants Technical Specifications and is reportable per the requirements of 10CFR50.73(a)(2)(i)(B).

CAUSE DESCRIPTION:

The root cause of this event was personnel error. Both the Department Supervisor and the Shift Supervisor approved the test results, without realizing the need to perform the retest of Sections 5.5, 5.6, and 5.7 before the late date of March 2, 1986.

ANALYSIS OF EVENT:

Actuation of a hydraulic power system alarm is indicative of a malfunction of the system, which may or may not constitute system inoperability. When an alarm is actuated, Operators can utilize handswitches and independent pressure indicators in the Control Room to determine which accumulator is causing the alarm (see Figure 3). In this manner, Operators can verify system operability as well as compliance with LCO 4.3.7 whenever an alarm is actuated. Thus, SR 5.3.5-Q does not directly verify operability of the hydraulic power system, but only verifies operability of the alarms that are actuated upon a malfunction of the system.

The Reactor Side Equipment Operator checks hydraulic power system pressures every two hours, per Reactor Equipment Operator Log #1, to ensure that a maximum system oil pressure of 3200 psig and a minimum gas pressure of 2800 psig is maintained. However, the log does not specify an acceptable oil-to-gas differential pressure across each individual accumulator. Therefore, Reactor Equipment Operator Log #1 does not provide verification of system operability independent of the Control Room alarm system.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Following this event, the hydraulic power system handswitches and independent pressure indicators (Figure 3) were used to verify system operability and compliance with LCO 4.3.7. All Loop I accumulators were found to be operable, with an oil-to-gas differential pressure greater than 75 psig, and all Loop I hydraulic power system alarms were clear. Loop II accumulators 1A and 3A were inoperable, and the "Loop II Hydraulic Oil/Gas Differential Pressure Low" alarm was accordingly actuated, since the oil-to-gas differential pressure across these accumulators was less than 75 psig. However, the remaining Loop II accumulators, including the redundant accumulators servicing the Group I and Group III valves, were operable. Therefore, both hydraulic power systems met the operability requirements of LCO 4.3.7.

CORRECTIVE ACTION:

The required retest of Sections 5.5, 5.6, and 5.7 was successfully completed on March 14, 1986, verifying that all alarm functions were operable.

The Department Supervisor and Shift Supervisor involved in this event will receive training on Technical Specification surveillance interval requirements. This training will include proper completion of surveillance tests, as well as the responsibilities of the Department Supervisor and Shift Supervisor in ensuring the adequacy of surveillance tests, in order to verify system operability and Technical Specification compliance. The types of problems encountered in this particular instance will be specifically addressed, to prevent this situation from recurring.

An enhancement to the computerized surveillance test scheduling program will be developed and implemented to assist supervisors in fulfilling their responsibilities with respect to completing required surveillance tests within specified intervals.

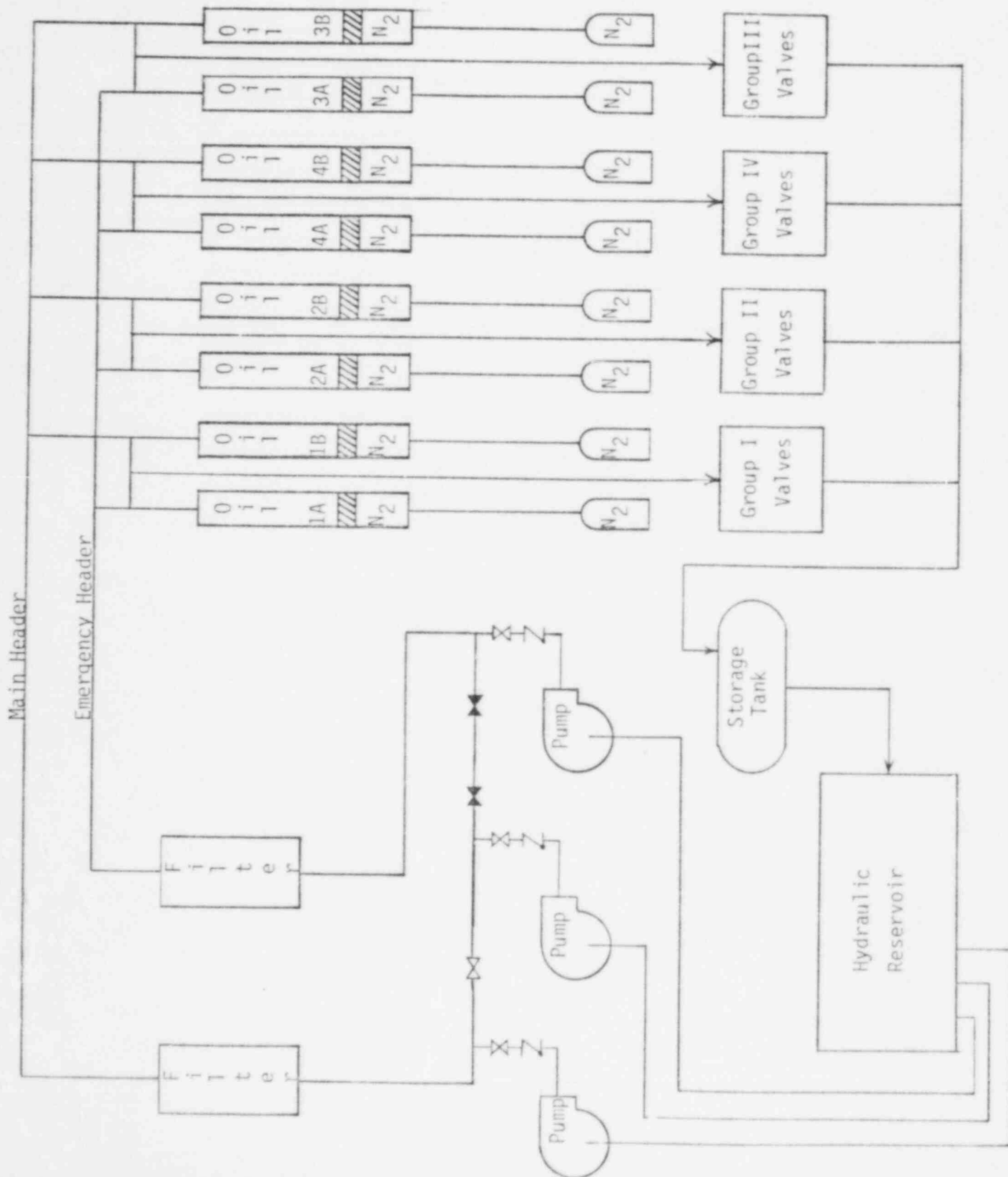
Since Reactor Equipment Log #1 does not provide verification of complete system operability independent of the Control Room alarm system, an evaluation will be made to determine if a daily check of system operability should be implemented.

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TEXT IF more space is required, use additional NRC Form 366A s) (17)

FIGURE 1





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FACILITY NAME (1):

Fort St. Vrain, Unit No. 1

DOCKET NUMBER (2):

05100002167816-0116-01006 OF 18

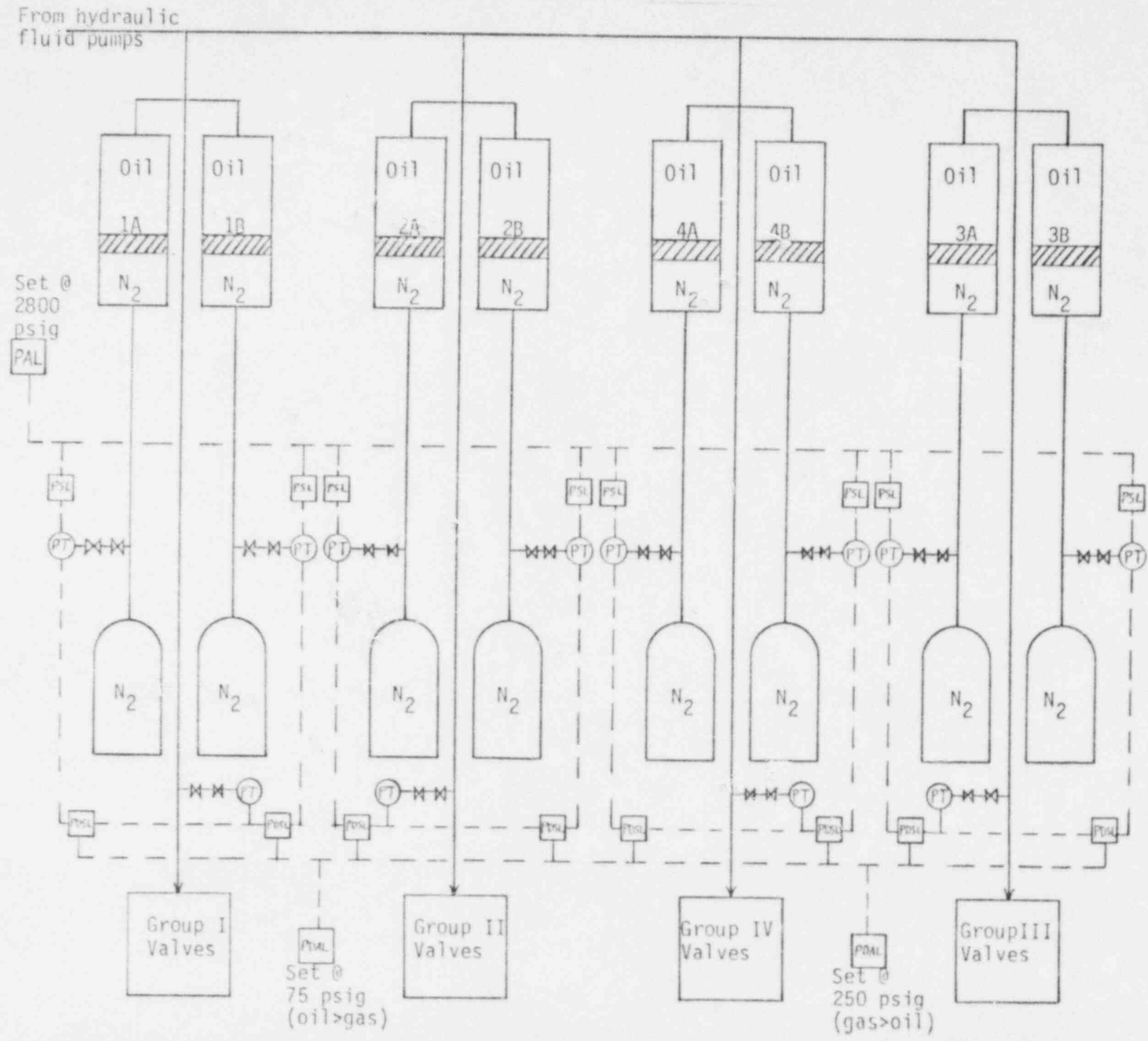
LER NUMBER (6):

YEAR SEQUENTIAL NUMBER REVISION NUMBER

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TEXT (If more space is required, use additional NRC Form 366A (7/17))

FIGURE 2



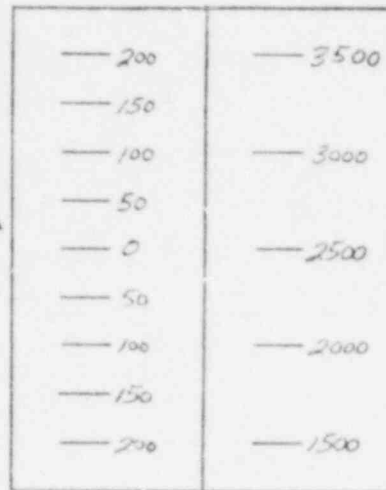
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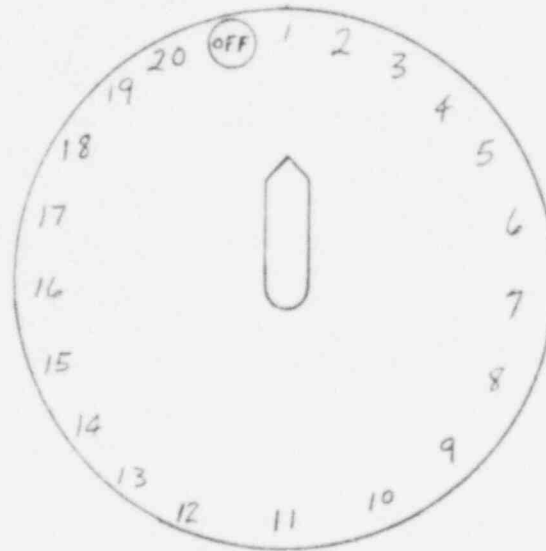
TEXT (If more space is required, use additional NRC Form 366A's) (17)

FIGURE 3

Differential pressure indicator (used for handswitch positions 13-20)



Pressure indicator (used for handswitch positions 1-12)



System 91 Pressures	
1 Group I oil pressure	11 Accumulator 3A pressure
2 Accumulator 1A pressure	12 Accumulator 3B pressure
3 Accumulator 1B pressure	13 Accumulator 1A ΔP
4 Group II oil pressure	14 Accumulator 1B ΔP
5 Accumulator 2A pressure	15 Accumulator 2A ΔP
6 Accumulator 2B pressure	16 Accumulator 2B ΔP
7 Group IV oil pressure	17 Accumulator 4A ΔP
8 Accumulator 4A pressure	18 Accumulator 4B ΔP
9 Accumulator 4B pressure	19 Accumulator 3A ΔP
10 Group III oil pressure	20 Accumulator 3B ΔP

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Jeff S. Castor  
 Jeff S. Castor  
 Technical Services Senior Technician

Jim Eggebroten  
 Jim Eggebroten  
 Superintendent, Technical Services Eng.

Licensing Review By: Duane L. Lye

Jim Gramling for  
 Jim Gramling  
 Nuclear Licensing-Operations Supervisor

C. H. Fuller  
 C. H. Fuller  
 Station Manager

J. W. Gahn  
 J. W. Gahn  
 Manager, Nuclear Production





# Public Service

16805 WCR 19 1/2, Platteville, Colorado 80651

Public Service  
Company of Colorado

April 13, 1986  
Fort St. Vrain  
Unit No. 1  
P-86281

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Docket No. 50-267

SUBJECT: Licensee Event Report  
86-016, Final Report

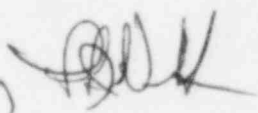
REFERENCE: Facility Operating  
License No. DPR-34

Gentlemen:

Enclosed please find a copy of Licensee Event Report No. 50-267/86-016, Final, submitted per the requirements of 10 CFR 50.73(a)(2)(i)(B).

If you have any questions, please contact Mr. M. H. Holmes at (303) 480-6960.

Sincerely,

J.W. Gahm by 

J. W. Gahm  
Manager, Nuclear Production

Enclosure

cc: Regional Administrator, Region IV  
Attn.: Mr. J. E. Gagliardo, Chief  
Reactor Projects Branch

cc: Director of Nuclear Reactor Regulation  
Attn.: Mr. H. N. Berkow, Director  
Standardization and Special  
Projects Directorate

cc: Director, MIPC

JWG/djm

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