

LICENSEE EVENT REPORT

CONTROL BLOCK:

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 ①

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 | C | 0 | F | S | V | 1 | 2 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 4 | 1 | 1 | 2 | 0 | 4 | | | 5
7 8 9 14 15 25 26 30 57 CAT 58

LICENSEE CODE LICENSE NUMBER LICENSE TYPE

CON'T

0 1 | L | 6 | 0 | 5 | 0 | 0 | 0 | 2 | 6 | 7 | 7 | 0 | 8 | 2 | 1 | 7 | 9 | 8 | 0 | 8 | 2 | 0 | 7 | 9 | 9
7 8 60 61 68 69 74 75 80

REPORT SOURCE DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

On six occasions during the period August 21, 1979, through September 1, 1979, total primary coolant oxidants (sum of water, carbon monoxide, and carbon dioxide) exceeded 10 ppm with average core outlet temperature greater than 1,200°F. This constitutes operation under a degraded mode permitted by LCO 4.2.10 and is reportable per Technical Specification AC 7.5.2(b)2. No effect on public health or safety.

SYSTEM CODE C B 11		CAUSE CODE X 12		CAUSE SUBCODE Z 13		COMPONENT CODE Z Z Z Z Z Z 14		COMP. SUBCODE Z 15		VALVE SUBCODE Z 16	
EVENT YEAR 7 9 21 22		SEQUENTIAL REPORT NO. 0 3 0 24 26		OCCURRENCE CODE 0 3 28 29		REPORT TYPE L 30		REVISION NO. 0 32			
ACTION TAKEN X 18		FUTURE ACTION Z 19		EFFECT ON PLANT B 20		SHUTDOWN METHOD Z 21		HOURS 0 0 0 0 22		ATTACHMENT SUBMITTED Y 23	
NPRD-4 FORM SUB. N 24		PRIME COMP. SUPPLIER Z 25		COMPONENT MANUFACTURER Z Z Z Z 26							

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Primary coolant impurity limits were exceeded during this period as a result of drying
1 1 out operations and an extended regeneration period on the off-line helium dryer. At
1 2 any time oxidants did not decrease in time to maintain LCO compliance, core outlet
1 3 temperatures were reduced.
1 4

8 9
FACILITY STATUS % POWER OTHER STATUS (30)
1 5 F (28) 0 4 0 (29) N/A 44
7 8 9 10 11 12 13
METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)
A (31) Review of Plant Records 80
45 46
ACTIVITY CONTENT
RELEASED OF RELEASE AMOUNT OF ACTIVITY (35)
1 6 Z (33) Z (34) N/A 44
7 8 9 10 11
LOCATION OF RELEASE (36)
N/A 80
45

PERSONNEL EXPOSURES					
NUMBER			TYPE	DESCRIPTION (39)	
1	0	0	(37) Z	(38)	N/A

PERSONNEL INJURIES		DESCRIPTION (41)	
NUMBER			
1	8	0	0
0	0	0	(40)
		N/A	

LOSS OF OR DAMAGE TO FACILITY (43)
TYPE DESCRIPTION
1 9 Z (42) N/A
7 8 9 10 1022 125 80

PUBLICITY ISSUED DESCRIPTION (45) 1022 123 NRC USE ONLY
2 0 N (44) N/A 68 69 80

NAME OF PREPARER

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REPORT DATE: September 20, 1979

REPORTABLE OCCURRENCE 79-30

OCCURRENCE DATE: August 21, 1979

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FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO
P. O. BOX 361
PLATTEVILLE, COLORADO 80651

REPORT NO. 50-267/79-30/03-L-0

Final

IDENTIFICATION OF
OCCURRENCE:

On six occasions between 0830 hours on August 21, 1979, and 1200 hours on September 1, 1979, the plant was operated under conditions where total primary coolant oxidants (the sum of water, carbon monoxide, and carbon dioxide) exceeded 10 parts per million with average core outlet temperature greater than 1,200°F.

This constitutes operation in a degraded mode permitted by LCO 4.2.10 and is reportable per Technical Specification AC 7.5.2(b)2.

EVENT
DESCRIPTION:

As the plant was being returned to power following recovery from the reactor scram of August 17, 1979, operation was maintained with average core outlet temperature less than 1,200°F until approximately 0830 hours on August 21, 1979. From that time until approximately 1200 hours on September 1, 1979, the plant was operated in a degraded mode permitted by LCO 4.2.10 on six occasions. These occurrences are indicated by the shaded areas of Figure 1, and are described below.

1. Reactor power was gradually being increased following recovery from the reactor scram of August 17, 1979. At approximately 0830 hours on August 21, 1979, it was determined that as much moisture as possible had been removed from the core at existing plant conditions, and reactor power and core outlet temperature were increased to facilitate moisture cleanup.

At the point where average core outlet temperature first exceeded 1,200°F, the total of primary coolant oxidants was approximately 17.4 parts per million. (Reference point ①, Figure 1.) As reactor power and temperature were increased, total primary coolant oxidants increased initially and then began to decrease as increased temperatures allowed the moisture to outgas from the graphite in the core.

At approximately 2100 hours on August 23, 1979, (reference Figure 1, point ②) sufficient decrease in primary coolant oxidants had occurred that the plant was no longer operating in a degraded mode of LCO 4.2.10.

EVENT
DESCRIPTION (continued):

2. Primary coolant oxidant levels again reached the 10 parts per million value with average core outlet temperature greater than 1,200°F on August 24, 1979. At approximately 1200 hours, operations personnel observed that primary coolant moisture levels were increasing rapidly, and it was decided to lower reactor power while attempting to determine the cause of the moisture ingress. The duration of this occurrence is the area under the curve of Figure 1 referenced by point (3). At approximately 1415 hours, core outlet temperature had been reduced below 1,200°F.
3. Following the reactor power decrease, primary coolant oxidant levels reached a peak value of 43.3 parts per million with core outlet temperature less than 1,200°F, at 1600 hours on August 24, 1979, and decreased rapidly after that.

As a result of a gradual power increase beginning at approximately 0600 hours on August 26, 1979, and the resultant increase in temperature, oxidant levels began to increase. At approximately 1000 hours on August 26, 1979, the plant was again operating in a degraded mode allowed by LCO 4.2.10 (reference Figure 1, point (4)). Because primary coolant oxidants continued to rise, core outlet temperature was again reduced to less than 1,200°F. By 1600 hours, the plant was again operating within LCO 4.2.10 limits (reference point (5), Figure 1).
4. Core outlet temperature was maintained at less than 1,200°F to facilitate primary coolant moisture removal until approximately 0300 hours on August 31, 1979. At that time, primary coolant oxidants were on a decreasing trend following an earlier helium dryer bypass which resulted in moisture ingress to the core. The one-half hour time period at core outlet temperature greater than 1,200°F was a result of increasing power to 43% per approved fluctuation testing. (Reference point (6), Figure 1.) Reactor power and core outlet temperature were controlled in accordance with fluctuation testing for the remainder of the day.
5. Two more instances of LCO 4.2.10 degraded mode operation occurred on September 1, 1979. As a result of fluctuation testing and accompanying changes in average core outlet temperature (see Figure 1, area referenced by points (7) and (8)), fluctuation testing was suspended at 1130 hours on September 1, 1979, core average outlet temperature was decreased to less than 1,200°F, and no further operation under degraded mode of LCO 4.2.10 occurred.

CAUSE
DESCRIPTION:

Plant operation in a degraded mode of LCO 4.2.10 is attributed to the following causes. (These items are numbered to correspond to the items of the Event Description.)

1. Oxidant levels associated with this event are attributable to outgassing as a result of moisture removal following recovery from the reactor scram of August 17, 1979.
2. The sudden increase in primary coolant moisture on August 24, 1979, appears to be the result of a longer than normal regeneration cycle on the off-line helium dryer, which allowed the on-line dryer to remain in service long enough to become saturated.
3. The six hour time period of degraded mode operation referenced in item 3 is attributable to outgassing as a result of water reacting with the graphite in the core as temperature increased.
4. and 5. The degraded mode operation referenced in items 4 and 5 of the Event Description occurred as a result of increases in power level called out by approved temperature fluctuation testing.

CORRECTIVE
ACTION:

Corrective actions to the degraded mode operations outlined in this occurrence are as follows:

1. For the operation referenced in item 1, sufficient outgassing occurred at the increased temperatures and total primary coolant oxidants eventually decreased to less than 10 parts per million; thus, no specific corrective action was necessary.
2. As a result of the moisture ingress on August 24, 1979, referenced in item 2, reactor power was decreased, and no further degraded mode operation occurred after 1415 hours. After the helium dryer towers swapped, primary coolant oxidants began a decreasing trend.
3. For the occurrence of August 27, 1979, reactor power and core outlet temperature were reduced in order to remain within limits of LCO 4.2.10, and total primary coolant oxidants began a decreasing trend shortly afterwards.
4. and 5. The remaining periods of degraded mode operation all occurred as a result of power increases per approved fluctuation testing. Following termination of testing on September 1, 1979, no further operation occurred under a degraded mode of LCO 4.2.10.

No further corrective action is anticipated or required.

POOR ORIGINAL

REPORTABLE OCCURRENCE 79-30

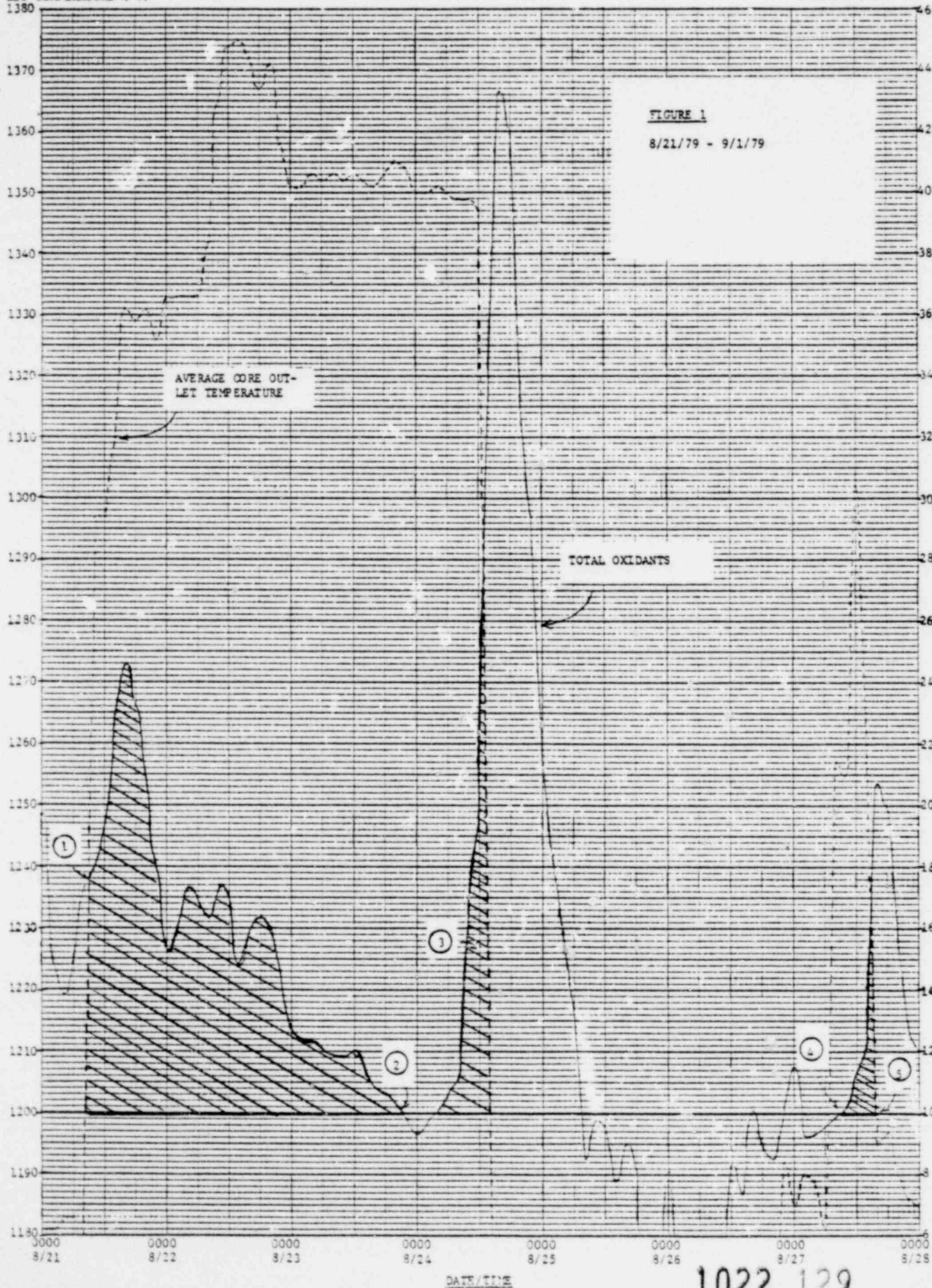
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AVERAGE CORE OUTLET TEMPERATURE AND TOTAL PRIMARY COOLANT OXIDANTS

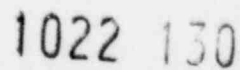
AVERAGE CORE OUT-
LET TEMPERATURE (°F)
1380

TOTAL PRIMARY COOLANT
OXIDANTS (PPM)
4.6



AVERAGE CORE OUTLET TEMPERATURE AND TOTAL PRIMARY COOLANT OXIDANTS

TOTAL PRIMARY COOLANT
OXIDANTS (PPM)



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