Jersey Central Power & Light Company

MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N.J. 07960 • 539-6111

July 31, 1973

Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Giambusso:

Subject: Oyster Creek Station
Docket No. 50-219
Reactor Coolant System Leakage

The purpose of this letter is to report a violation of the Technical Specifications, Paragraph 3.3.D., "Reactor Coolant System Leakage". Operation of the reactor at power continued when it was not recognized that an increasing absorption pool level, combined with the rate of leakage into the drywell sump, originated from the same source and thereby resulted in an "unexplained" leak rate in excess of 5.0 gpm. This event is considered to be an abnormal occurrence as defined in the Technical Specifications, Paragraph 1.15.B. Notification of this event as required by the Technical Specifications, Paragraph 6.6.2.a., was made to AEC Region I, Directorate of Regulatory Operations on Monday, July 23, 1973.

As indicated in Figure 1, attached, an increasing rate of leakage into the drywell sump began to occur on July 1, 1973 and continued through July 19, 1973, reaching a peak of approximately 3.92 gpm when averaged over 24 hours. As shown in Figure 2, attached, a plot of absorption pool (torus) water level developed on July 23, 1973 over the same period indicated the level to be increasing starting about July 11, 1973. It is now estimated that the unexplained leak rate increased to >5.0 gpm at some time during July 17, 1973 and continued to be above the 5.0 gpm limit until the plant was shut down and depressurized on July 21, 1973.

The source of this leakage was found to be a feedwater check valve hinge pin seal plug, which due to its position and the manner in which the water was spraying out, resulted in leakage to both the drywell floor and the torus. Valve data is as follows:

Manufacturer:	Anchor Valve Company
Type:	18" - 600# Swing Check Valve
Material:	Cast Carbon Steel - Stallite Trim BW Ends

Docket 50-219

5940

COPY SENT REGION 1

In order to repair this seal, the erosion of the seating surface on the valve body was machined out and the plug adapted to fit using a procedure developed by MPR Associates and concurred in by the valve manufacturer and the PORC. In addition, a calculation was performed which verified that after machining, the valve wall thickness was still satisfactory. A successful leak test was conducted on July 24, 1973 and the plant returned to service.

The allowable leakage rates of coolant from the reactor system are based in part on predicted and experimentally observed behavior of cracks in pipes. As noted in the basis of the Technical Specifications, "...evidence suggests that the leakage somewhat greater than the limit specified or unidentified leakage, the probability is small that imperfections or cracks associated with such leakage would grow rapidly." The Technical Specifications limit referred to in the above is 5.0 gpm; whereas, in this instance, the maximum leak rate approach is 6.75 gpm.

Since the source of leakage in this case was a gasketed seal, no undo safety significance need be associated with this event. The possibility of the drywell sump under unusual circumstances not identifying the total unidentified drywell leakage must be recognized.

To prevent a reoccurrence of this type event, Procedure 515.3, "Small Piping Leaks in Drywell" will be revised to recognize that in cases where the torus water level is increasing and the leakage source cannot be identified, this inleakage will be added to the drywell unidentified leakage.

Enclosed are forty (40) copies of this report.

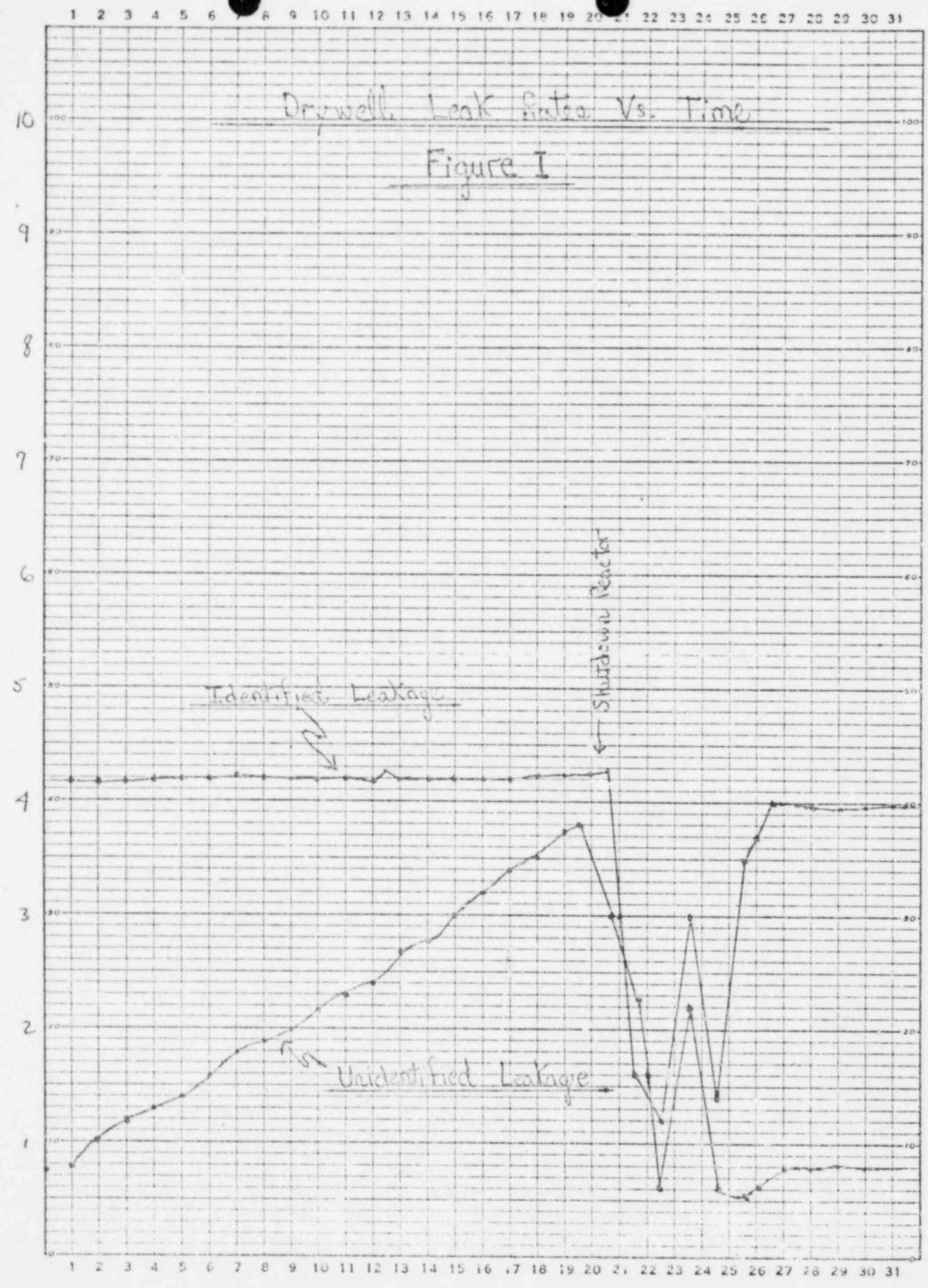
Very truly yours,

Donald A. Ross

Donald A. Ross
Manager, Nuclear Generating Stations

DAR:cs
Enclosures

cc: Mr. J. P. O'Reilly, Director
Directorate of Regulatory Operations, Region I


Drywell Leak Rates Vs. Time
Figure I
Leak Rates (gpm)
Identified Leakage
Shutdown Reactor
Unidentified Leakage
MONTH OF July 1973
Time (days)

R. Foor
7-31-73


Torus Level Vs. Time
Figure II
① Removed ~ 1000 gal. from torus
② Removed additional ~ 1000 gal. from torus.
③ Recalibrated torus level indicator indicating ~ .7 in. too high.
④ Removed ~ 3500 gal. from torus.
Level (inches)
20
15
10
0
-10
-15
-20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
July
Time (days)
R. Fee - 7-31-73

To: James P. O'Reilly
Directorate of Regulatory Operations
Region I
970 Broad Street
Newark, New Jersey 07102

From: Jersey Central Power & Light Company
Oyster Creek Nuclear Generating Station Docket # 50-219
Forked River, New Jersey 08731

Subject: Abnormal Occurrence Report 73-14.

The following is a preliminary report being submitted in compliance with the Technical Specifications paragraph 6.6.2.

Preliminary Approval:

J. T. Carroll, Jr. 7/24/73
J. T. Carroll, Jr. Date

cc: Mr. A. Giambusso

50-219

Date: 7/21/73
Time: 3:40 a.m.

Abnormal Occurrence

Report No. 73-14

SUBJECT: Violation of the Technical Specification, paragraph 3.3D, Reactor Coolant System Leakage. Operation of the reactor at power continued when it was not recognized that an increasing Absorption Pool Level combined with the rate of leakage into the Drywell Sump resulted in an "unexplained" leak rate in excess of 5 gpm.

This event is considered to be an abnormal occurrence as defined in the Technical Specifications, paragraph 1.15B. Notification of this event as required by the Technical Specifications, paragraph 6.6.2a, was made to AEC Region I, Directorate of Regulatory Operations by telephone on Monday, July 23, 1973, at 4:20 p.m., and by telecopier on Tuesday, July 24, 1973 at _____.

SITUATION:

As indicated in Figure I, attached, an increasing rate of leakage into the Drywell Sump began to occur on July 1, 1973 and continued through July 19, 1973, reaching a peak of approximately 3.92 gpm when averaged over 24 hours. As shown in Figure 2, attached, a plot of Absorption Pool (Torus) water level developed on July 23, 1973 over the sameperiod indicated the level to be increasing starting about July 11, 1973. It is now estimated that the unexplained leak rate increased to >5.0 gpm at some time during July 17, 1973 and continued to be above the 5.0 gpm limit until the plant was shutdown and depressurized on July 21, 1973.

CAUSE: The cause was found to be a feed water leak around one of the feed-water check valve hinge pin seal plugs, which due to its position and the manner in which the water was spraying, resulted in leakage to both the Drywell floor and the Torus. Valve data is as follows:

Manufacturer: Anchor Valve Company

Type: 18" - 600# Swing Check Valve P. S.

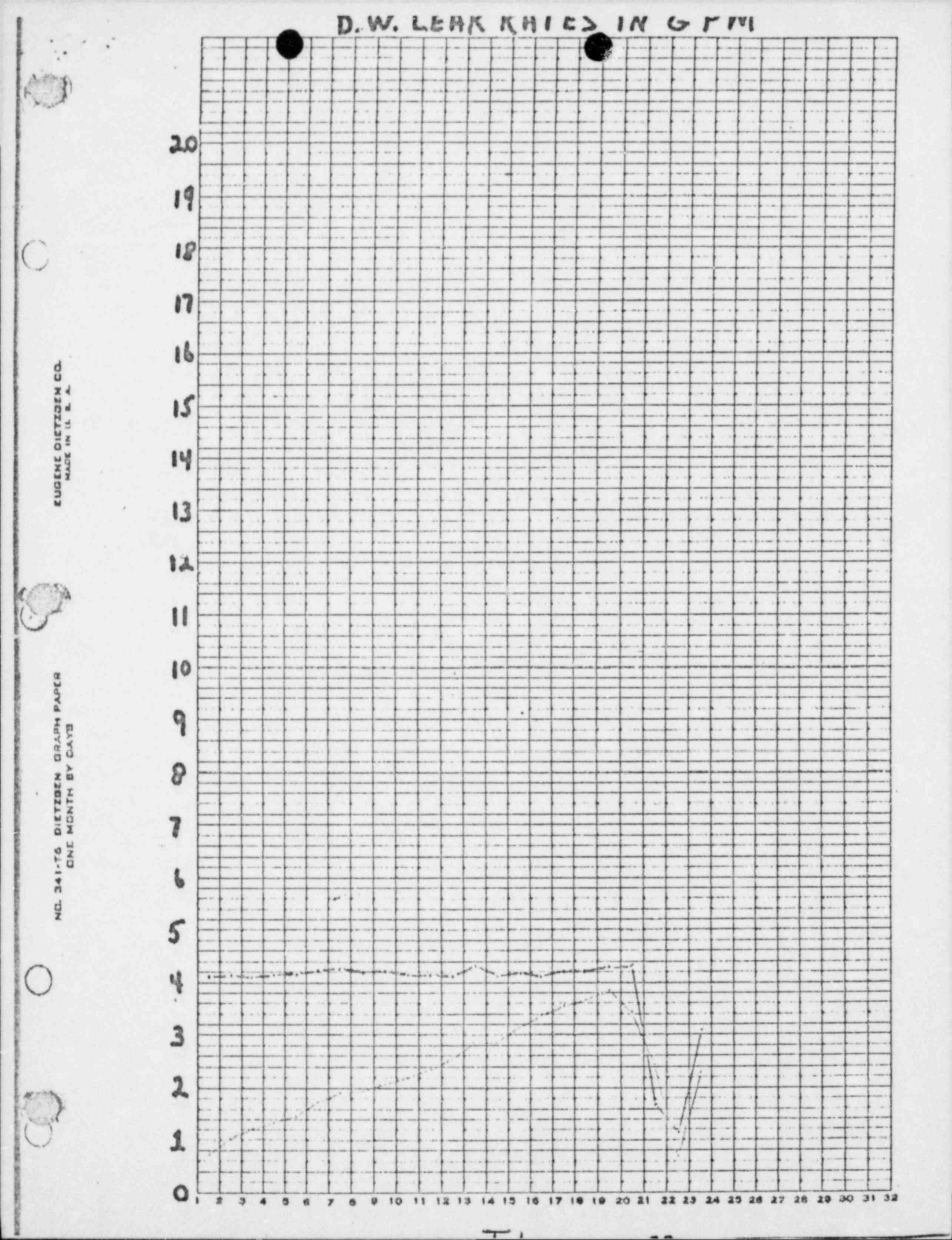
Material: Cast Carbon Steel - Stellite Trim BW ends

REMEDIAL ACTION:

The erosion of the seating surface on the valve body was machined out, minimum wall thickness checked to be satisfactory, and the plug adapted to fit. A successful leak test was conducted at operating pressure on _____ and the plant returned to service.

SAFETY SIGNIFICANCE:

The allowable leakage rates of coolant from the reactor system are based in part on predicted and experimentally observed behavior of cracks in pipes. As noted in the bases of the Technical Specifications, "... evidence suggests that for leakage somewhat greater than the limit specified for unidentified leakage, the probability is small that imperfections or cracks associated with such leakage would grow rapidly." The Technical Specification limit referred to in the above is 5.0 gpm; whereas, in this instance, the maximum leak rate approach 6.75 gpm of which ≈ 1.0 gpm might be considered "normal." Thus, the leakage around the hinge pin plug was on the order of 5.5-6.0 gpm and consequently no undo significance need be attached to this event.


D.W. LEAK RATES IN GPM
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
EUGENE DIETZGEN CO.
MADE IN U. S. A.
NO. 341-T6 DIETZGEN GRAPH PAPER
ONE MONTH BY DAYS

DATE VS TORUS LEVEL

JULY

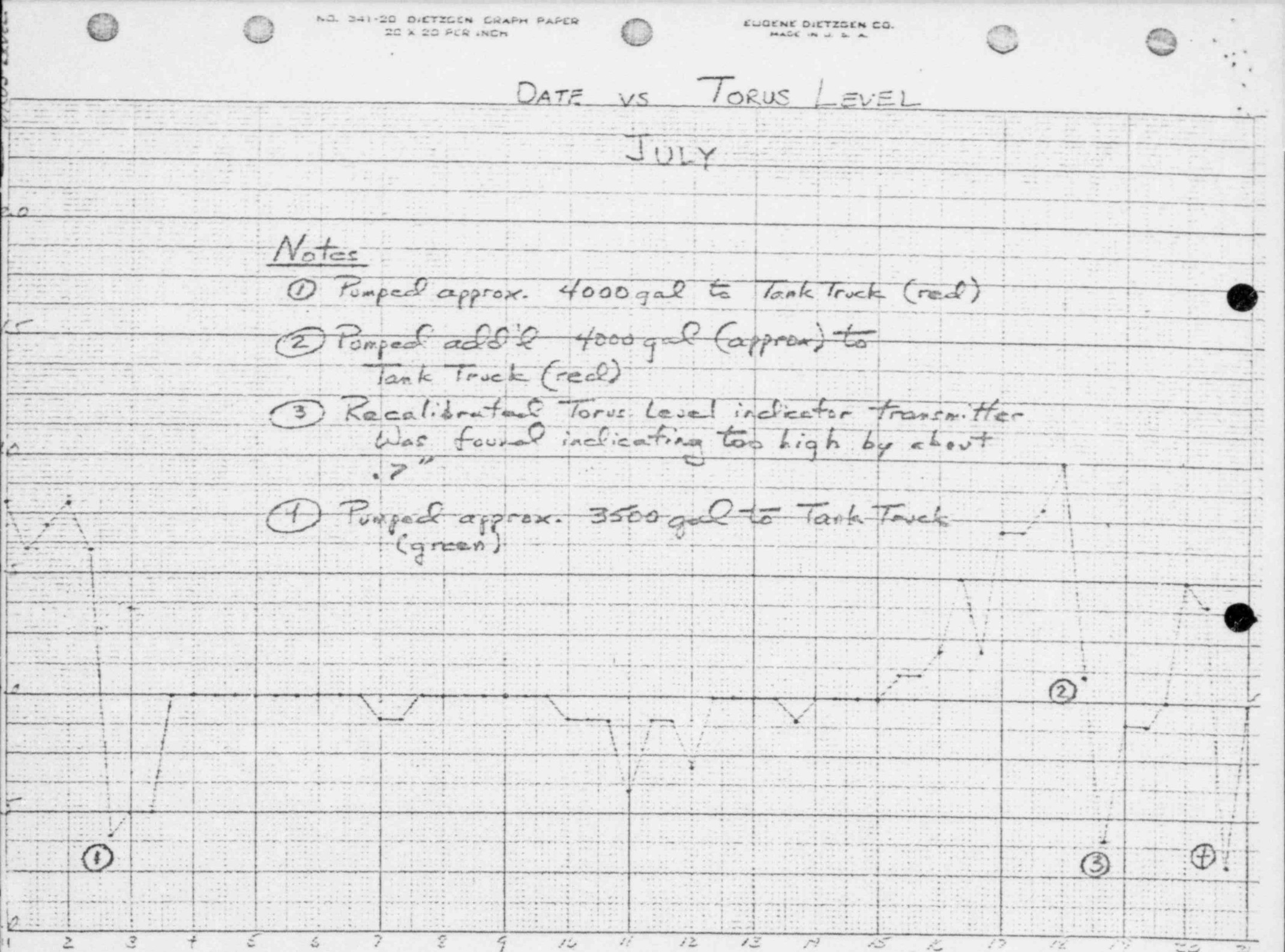
Notes

① Pumped approx. 4000 gal to Tank Truck (red)

② Pumped add'l 4000 gal (approx) to Tank Truck (red)

③ Recalibrated Torus level indicator transmitter Was found indicating too high by about .7"

④ Pumped approx. 3500 gal to Tank Truck (green)



D.A. REEVES, JR. 7-23-73

Form AEC-318 (Rev. May 11, 1971) AECM 0240 | Note and return | For signature | For information

TO (Name and unit)	INITIALS	REMARKS
H. D. Thornburg, Chief, FS&EB	DATE	Licensee: Jers[redacted] Central Power & Light Company Docket No.: 50-219 Abnormal Occurrence: 73-14
TO (Name and unit) RO:HQ (5) DR Central Files (1) Regulatory Standards (3) Dir. of Licensing (13)	INITIALS DATE	REMARKS The attached report from the subject licensee is forwarded in accordance with RO Manual Chapter 1020.
TO (Name and unit) RO Files ✓ Central Mail & Files	INITIALS DATE	REMARKS The action taken by the licensee is considered appropriate. Followup will be performed during the next inspection as appropriate. Copies of
FROM (Name and unit) R. T. Carlson, Chief Facility Operations Branch		REMARKS the report have been forwarded to the PDR, Local PDR, NSIC, DTIE and State representatives. The licensee will submit a 10 day written report to Licensing.
PHONE NO.	DATE 8/6/63	

USE OTHER SIDE FOR ADDITIONAL REMARKS

GPO : 1971 O - 443-