

| | | | | | | | |
|---|-----------|------------------------|----------------------|--|----------------|-----|-------|
| FROM: Metropolitan Edison Company Reading, Pennsylvania 19603 R. C. Arnold | | DATE OF DOC 6-26-74 | DATE REC'D 7-3-74 | LTR X | TWX | RPT | OTHER |
| TO: Mr. O'Reilly | | ORIG 1 signed | CC | OTHER | SENT AEC PDR | X | |
| | | | | | SENT LOCAL PDR | X | |
| CLASS UNCLASS XXXX | PROP INFO | INPUT | NO CYG REC'D 1 | DOCKET NO: 50-289 | | | |
| DESCRIPTION: Ltr reporting Enviro Abnormal Occurrence # E.I. 50-289/74-7, on 6-19-74, regarding excessive free chlorine concentration at the plant river discharge..... | | | | ENCLOSURES: ACKNOWLEDGED <i>Do Not Remove</i> | | | |
| PLANT NAME: Three Mile Island Unit # 1 | | | | | | | |

FOR ACTION/INFORMATION 7-5-74 AB

- | | | | |
|------------------------|---------------------------|----------------------------|-----------------------------|
| BUTLER(L) W/ Copies | SCHWENCER(L) W/ Copies | ZIEMANN(L) W/ Copies | REGAN(E) W/2 Copies |
| CLARK(L) W/ Copies | STOLZ(L) W/ Copies | DICKER(E) W/ Copies | W/ Copies |
| PARR(L) W/ Copies | WASSERMAN(L) W/ Copies | YOUNGBLOOD(E) W/ Copies | G. LEAR W/1 Copies(Info) |
| KNIEL(L) W/ Copies | PURPLE(L) W/ Copies | YOUNGBLOOD(E) W/ Copies | W/ Copies |

POOR ORIGINAL

INTERNAL DISTRIBUTION

- | | | | | |
|--|---|---|---|--|
| <u>REG FILE</u> AEC PDR OGC, ROOM P-506A MUNTZING/STAFF CASE GIAMBUSSO BOYD MOORE (L)(EWR) DEYOUNG(L)(PWR) SKOVHOLT (L) COLLER(L) P. COLLINS DENISE REG OPR FILE & REGION(3) MORRIS STEELE | <u>TECH REVIEW</u> HENDRIE SCHROEDER MACCARY KNIGHT PAWLICKI SHAO STELLO HOUSTON NOVAK ROSS IPPOLITO TEDESCO LONG LAINAS BENAROYA VOLLMER | <u>DENTON</u> GRIMES GAMMILL KASTNER BALLARD SPANGLER <u>ENVIRO</u> MULLER DICKER KNIGHTON YOUNGBLOOD REGAN PROJECT LDR ST. MARY(2) HARLESS | <u>LIC ASST</u> DIGGS (L) GEARIN (L) GOULBOURNE (L) KREUTZER (E) LEE (L) MAIGRET (L) REED (E) SERVICE (L) SHEPPARD (L) SLATER (E) SMITH (L) TEETS (L) WILLIAMS (E) WILSON (L) | <u>A/T IND</u> BRAITMAN SALTZMAN B. HURT <u>PLANS</u> MCDONALD CHAPMAN DUBE w/input E. COUPE D. THOMPSON (2) KLECKER EISENHUT 1459 194 7910240752 |
|--|---|---|---|--|

EXTERNAL DISTRIBUTION

- | | | |
|-----------------------------------|---------------------------------|------------------------|
| 1 - LOCAL PDR Harrisburg, Pa. | (1) (XXX) NATIONAL LAB'S ANL | 1-PDR-SAN/LA/RY |
| 1 - TIC (ABERNATHY) | 1-ASLBP(E/W Bldg, Rm 529) | 1-LIBRARIAN |
| 1 - NSIC(BUCHANAN) | 1-W. PENNINGTON, Rm E-201 GT | BROOKHAVEN NAT. LAB |
| 1 - ASLB | 1-CONSULTANT'S | 1-AGHED(Ruth Gussman) |
| 1 - P. R. DAVIS (AEROJET NUCLEAR) | NEWMARK/BLUME/AGBARIAN | RM-B-127, GT. |
| 16 - CYS ACRS HOLDING | 1-GERALD ULRIKSON...ORNL | 1-RD..MULLER..F-309 GT |
| | 1-B & M SWINEBROAD, Rm E-201 GT | |

Regulatory

File Copy



METROPOLITAN EDISON COMPANY

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

June 26, 1974
GQL 0110

Mr. J. P. O'Reilly, Director
Regulatory Operations Region 1
U. S. Atomic Energy Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. O'Reilly:

Operating License DPR-50
Docket #50-289

In accordance with the Environmental Technical Specifications for Three Mile Island Nuclear Station, Unit 1, we are reporting the following Environmental Incident:

- (1) Reporting Number: E.I. 50-289/74-7
- (2a) Report Date: June 26, 1974
- (2b) Occurrence Date: June 19, 1974
- (3) Facility: Three Mile Island Nuclear Generating Station, Unit 1
- (4) Identification of Incident: 1459 195

Excessive Free Chlorine Concentration at the Plant River Discharge which is a violation of Environmental Technical Specifications, paragraph 2.2.1a, and constitutes exceeding a limiting condition for operation.

- (5) Conditions Prior to Occurrence: Reactor critical, power escalation test at 7% of rated power in progress with major plant parameters as follows:

Power: Core: 7%
Elec: 0%

RC Flow: 144 X 10⁶ lbs/hr



6072

RC Pressure: 2155 psig
RC Temperature: 556°F
PRZR Level: 147 in.
PRZR Temp.: 647°F

- (6) Description of Incident: During a periodic evolution conducted to chlorinate the systems cooled by the mechanical draft cooling tower, the plant river discharge samples taken 30 and 50 minutes after commencement of the evolution indicated a free chlorine concentration of .115 and .125 ppm. Because the sample pump lost suction pressure, the 10-minute sample was not taken.

In that chlorine addition had been terminated about 15 minutes after commencement of the evolution, it was determined that there were no additional actions which could be taken to get the reading within the specification limit.

- (7) Designation of Apparent Cause of Incident:

- a. Personnel: Operation of the adjustment knob on the chlorinator panel which controls the chlorine feed rate is confusing in that a clockwise turn of the knob decreases the feed rate and a counterclockwise turn increases it. This is contrary to most people's experience with such regulating devices, and in the present case it is known that some of the chlorinator operators were unfamiliar with this equipment peculiarity. Consequently, the chlorine feed rate may have been set higher than was intended.
- b. Procedure: As an additional, possibly contributing factor, it should be recognized that there are no guidelines to aid in determining how the chlorine feed rate should be varied as a function of existing conditions. Some of the conditions which can affect the amount of free chlorine consumed as it passes through the systems include:
1. River cooling water transit time from the river cooling water pump discharge to the cooling tower discharge, which is in turn a function of the number of systems and pumps in use, and
 2. Various river water conditions such as temperature, pH, and organic composition. It is also possible that there is a random variation in the concentration of chlorine in the river water. Considering that in the present incident the values for chlorine in the discharge water are only slightly above the limiting value of .10 ppm, even a low concentration of chlorine in the pre-chlorinated water could be significant.

c. Material: The amperometric titration method used to measure chlorine in the grab samples is rather insensitive. In this method, the chlorine concentration is determined directly from the amount of titrant added. With the equipment that is available, it is not possible to add a small enough drop of titrant to improve the instrument sensitivity beyond about $\pm .03$ ppm. Also, because this analytical method relies on the visual detection of a slight needle fluctuation, it is likely that the actual value will be exceeded by this amount in most cases. In the present instance, this could explain how a value within specifications could appear to exceed the specification limit.

(8) Analysis of Incident: It is believed that the level of free chlorine in the discharge water was not high enough and did not exist for a long enough period of time to have caused any environmental damage or to have endangered the health and safety of the public. This belief is based on the following significant points of information:

- a. Chlorine addition was secured about 15 minutes before collection of the 30-minute sample.
- b. Total chlorine in the 30- and 50-minute grab samples was measured as .115 and .125 ppm, respectively. All of these values are well below the .20 ppm limit given in the Technical Specifications.

(9) Corrective Action: Immediate corrective action involving termination of chlorine addition was not possible because chlorine addition had already been terminated by the time it was realized the limiting value for free chlorine would be exceeded, and no other immediate actions were taken.

The Station Superintendent was notified of the incident. He in turn informed the Vice President-Generation and, to provide for an additional precautionary measure, it was then decided to decrease the chlorination feed rate to less than 150 lbs/day prior to the next chlorination period.

To ensure that those who use the chlorinator are familiar with the operation of the chlorine feed rate adjustment knob, a notice describing its proper use will be posted in a conspicuous place on the chlorinator unit.

Further, it has been decided to initiate sampling of the river intake water and the cooling water discharge prior to the commencement of the 0900 chlorination cycle, which is the chlorination cycle during which all of the incidents involving free chlorine have occurred. It is believed that these additional samples will provide information on whether or not a detectable level of chlorine exists in the river water prior to chlorination.

June 26, 1974

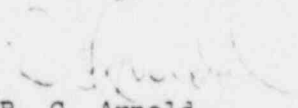
Additional long-term corrective actions relating to this same problem were stated in EI 50-289/74-2 seven-day letter dated June 5, 1974, and EI 50-289/74-3 seven-day letter dated June 12, 1974, and will consist of:

- a. reviewing a consultant's contract bid proposal submitted to Met-Ed to evaluate
 1. if and how chlorine addition rates should be established as a function of existing conditions, and
 2. the reliability of the chlorine monitoring apparatus, and
- b. utilizing the yet-to-be-established 90-day period referenced in the Environmental Technical Specifications, paragraph 2.2.1.b, to further evaluate (9)a.1. and (9)a.2. above.

(10) Failure Data:

- a. Previous Failures: Although actual malfunctioning of the instrument used to measure chlorine in the grab samples is not believed to be the cause of this incident, this possibility has been previously noted in EI 50-289/74-2 seven-day letter dated June 5, 1974; EI 50-289/74-3 seven-day letter dated June 12, 1974; EI 50-289/74-4 seven-day letter dated June 13, 1974; and EI 50-289/74-5 seven-day letter dated June 20, 1974.
- b. Equipment Identification: It will not be possible to ascertain if the monitoring apparatus failed until the additional technical analyses mentioned in (9)a. and (9)b. above are completed; however, on the basis of the information currently available, failure of the equipment is considered to be unlikely.

Sincerely,


R. C. Arnold
Vice President-Generation

RCA:JFV:sh

cc: Director
Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

1459 198

File 20.1.1
7.7.3.11.1