



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

DmB

MAY 17 1985

Docket No. 50-454

Mr. Allen Samelson
Assistant Attorney General
Office of the Attorney General
500 South Second Street
Springfield, IL 62706

Mr. John McCaffrey, Chief
Public Utilities Division
Office of the Attorney General
160 North LaSalle Street
Chicago, IL 60601

Gentlemen:

In your letter dated April 15, 1985, you expressed a desire to receive direct and prompt notice of any public meetings or proceedings that may arise from the two events that occurred on or about April 10, 1985, at the Byron facility. Additionally, you requested to be provided copies of any records or other documentation generated by or submitted to the U. S. Nuclear Regulatory Commission regarding the particular events.

The first event involved the rupture of the OA Boric Acid Evaporator Rupture Disk, which resulted in personnel contamination of five individuals and evacuation of approximately 350 personnel from the Auxiliary Building, Level 346'. Region III conducted a preliminary review of the event and did not consider the event to be radiologically significant. This conclusion was based upon the low levels of radiation exposure, levels of personnel contamination and the particular isotopes involved. Additionally, all personnel and clothing were readily decontaminated and released, no one received internal contamination, and the level of off-site release was very low. Therefore, Region III did not and does not intend to conduct any public meetings or proceedings regarding this matter. However, Region III will document its review of the event in a future inspection report. Attachment 1 is a licensee document which has been provided to the NRC regarding the event. Additionally, when Region III issues the inspection report which documents the results of the NRC review, it will be forwarded to your office.

The second event involved a reactor trip after a group of four control rods dropped into the reactor. This same group of four rods had dropped into the reactor on a previous occasion on March 29, 1985. Region III has reviewed the cause of this event and determined that it had minor safety significance. Although it is undesirable to have rods drop into the reactor, this is not an unsafe condition when all safety systems function normally, as they did in

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PDR ADOCK 05000454
S PDR

IEOI

A. Samelson
J. McCaffrey

2

MAY 17 1985

this case, shutting down the reactor. Interim measures have been taken by the licensee to provide further assurance that such events will not occur or will be minimized. The licensee is pursuing a permanent modification to the affected system, with the system designer (Westinghouse), and will make any necessary modifications before the affected portion of the system is returned to operation. In view of the significance of this event, Region III does not intend to conduct any public meetings or proceedings regarding this matter. However, Region III will document its review of the event in a future inspection report. Attachment 2 is the NRC Preliminary Notification of Event or Occurrence issued by Region III regarding the event. Attachment 3 is the licensee's documentation which has been provided to the NRC regarding the event. When Region III issues the inspection report which documents the results of the NRC review, the report will be forwarded to your office.

If we can be of further assistance, please let us know.

Sincerely,
"Original Signed by C.E. Norelius"
James G. Keppler
Regional Administrator

Enclosures:

1. Initial Deviation Report
2. PNO-III-85-33
3. Reactor Trip Root Cause Determination

cc w/enclosures:

D. L. Farrar, Director
of Nuclear Licensing
V. I. Schlosser, Project Manager
Gunner Sorensen, Site Project
Superintendent
R. E. Querio, Station
Superintendent
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
Resident Inspector, RIII
Braidwood
Phyllis Dunton, Attorney
General's Office, Environmental
Control Division
D. W. Cassel, Jr., Esq.
Diane Chavez, DAARE/SAFE
W. Paton, ELD
L. Olshan, NRR LPM
H. S. Taylor, Quality Assurance
Division

RIII

RIII

RIII

RIII

RIII

RIII

Forney/rf
5/15/85

Warnick

Norelius
5/16/85

Serson
5/18

Davis

Keppler

RIII
Keppler
5/18/85



Commonwealth Edison

INITIAL

DEVIATION REPORT

ATTACHMENT 1

C.R. NO. 600-1-85-103
STATION / YEAR / NO.

PART 1 TITLE OF DEVIATION

OCCURRED

4-10-851345

Rupture Disk on OA Boiling Acid Evaporator

ITEM AFFILIATE

AB

PLANT STATUS AT TIME OF EVENT

MODE 1 POWER (%) 29 (210 MW)

AFR REQUEST NO.

TESTING NO.

☒ YES☐ NO

DESCRIPTION OF EVENT

At 1307 the Unit 1 operator vented the VCT to the GW Vent Header. The venting caused a pressure spike in the header which backed up through temporary attention MPS-0-093 causing the evaporator rupture disk to blow. When the disk blew the contents of the evaporator flashed to steam and vented to the Aux Building floor drains on 346. This activated radiation alarms at approximately 1345. The Aux Building vent fans were started and the area evacuated. No detectable radiation was released. The temporary attention was in place to let the evaporator vent path bypassing a suspect check valve, QAB037. When it was released the rupture disk had blown the evaporator was isolated and the vent header to the temporary attention shutdown.

PERMANENT ALL OR SIGNIFICANT EVENT PER NEED OF RECTIFY ACTION

☒ YES☐ NOCONTROL TO BE RESTORED AND
NAME OF ATTENDING☐ 1 HOUR☒ 4 HOUR

Mark Graham

4/10/85

ACTION TO BE TAKEN AND COMMENTS

A new rupture disk will be installed.
Mod 164 will be updated to eliminate the isolation vlv and terminate at vlv 06W9288. Tech Staff and the Unit 1 Operating Engineer will generate further corrective measures prior to evap operation.

☒ REPORTABLE EVENT☐ 10 CFR 100.2.1☐ 10 CFR 2.1☐ SPECIAL REPORT REQUIRED

NOTIFICATION

REGION 100

DATE

TIME

NSC

DATE

TIME

☐ CECO CORPORATE NOTIFICATION MADE
IF ABOVE NOTIFICATION IS PER 10 CFR 2.1

TELECOPY

D. P. Gralle

CECO CORPORATE OFFICER

4-12-85

DATE

1630

TIME

PRELIMINARY REPORT
COMPLETED AND REVIEWED

J. J. Fuller

OPERATING ENGINEER

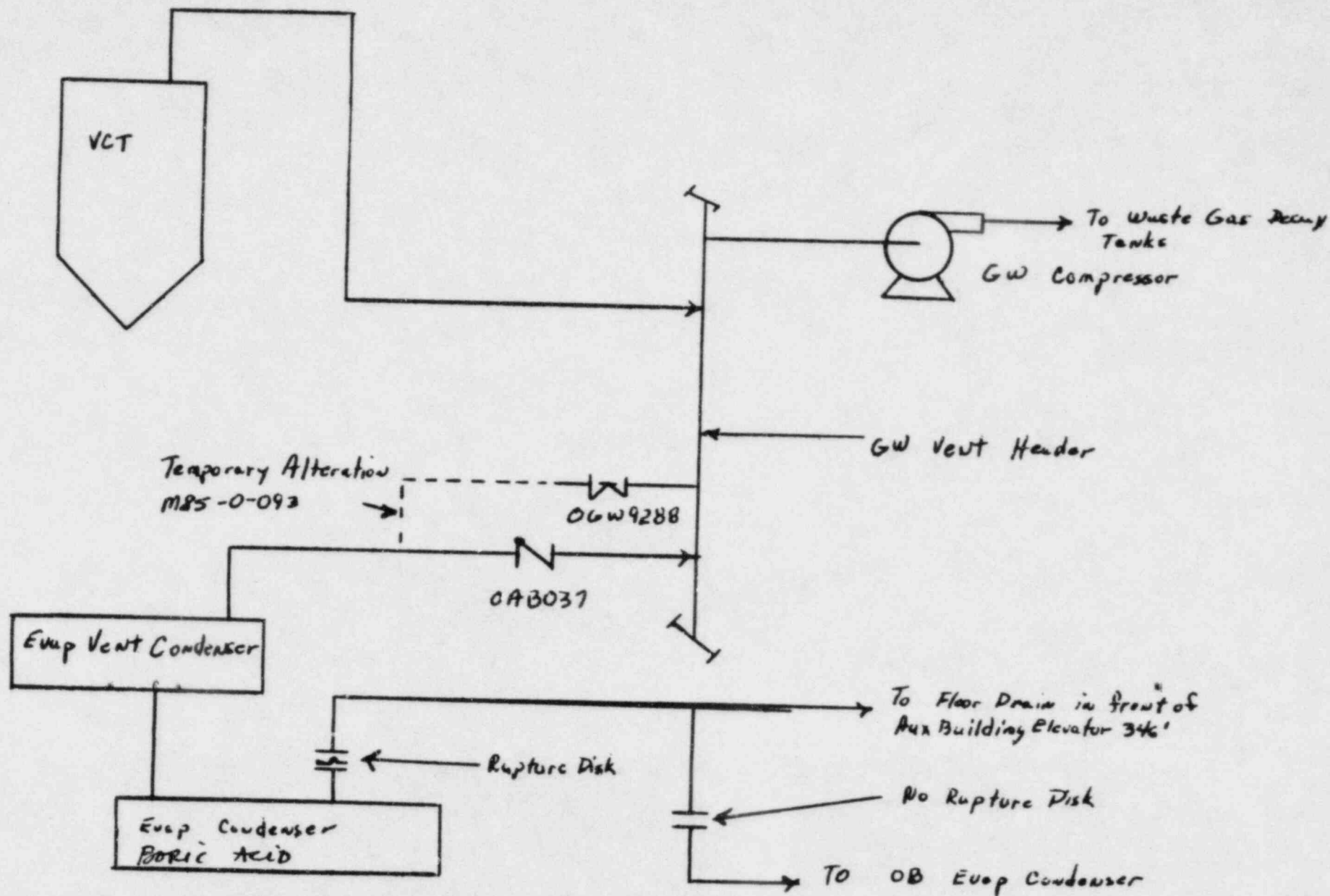
4-12-85

DATE

INVESTIGATION REPORT & RESOLUTION
ACCEPTED BY STATION REVIEWRESOLUTION APPROVED AND
AUTHORIZED FOR DISTRIBUTION

STATION SUPERINTENDENT

DATE





Commonwealth Edison

RELATED

DEVIATION REPORT

DVR NO. 6 - 1 - 85 - 111
STA UNIT YEAR NO.Related DVRPART 1 TITLE OF DEVIATION Release of Radioactivity from Station in Conflict with FSAR and ODCM OCCURRED 4-14-85 1400
DATE TIME

SYSTEM AFFECTED

VA

PLANT STATUS AT TIME OF EVENT

MODE 1 POWER (%) 21

NA

WORK REQUEST NO. *

TEST

☐ YES ☒ NO

DESCRIPTION OF EVENT

that
The Operating Dept observed "two" hatches on the Vent Stacks were removed located about 20 feet above the Turbine Bldg roof. Air was blowing out these openings, apparently acting as the release point for some of the gaseous effluent from the Station. The FSAR and ODCM refer to Byron gaseous releases as "qualifying for mixed-mode" releases due to vent stacks being 1 foot higher than containment. This qualification appears invalid under observed conditions. Greg Frantz from Operating initiated action to have the openings closed.

POTENTIALLY SIGNIFICANT EVENT PER NSD DIRECTIVE A-07

☐ YES☐ NO

10CFR50.72 NRC RED PHONE NOTIFICATION MADE

☐ 1 HOUR☐ 4 HOUR

TIME

☒ NO

K. Weaver

RESPONSIBLE SUPERVISOR

4/15/85

DATE

PART 2 OPERATING ENGINEER'S COMMENTS

Rad chem to determine if rad releases are w/in spec.



NON-REPORTABLE EVENT



30 DAY REPORTABLE/10CFR.....



5 DAY REPORT PER 10CFR21



ANNUAL/SPECIAL REPORT REQUIRED

A.I.R. #

L.E.R. #

NOTIFICATION

REGION III

DATE

TIME

NSD

DATE

TIME



CECO CORPORATE NOTIFICATION MADE IF ABOVE NOTIFICATION IS PER 10CFR21

TELECOPY

CECO CORPORATE OFFICER

DATE

TIME

PRELIMINARY REPORT COMPLETED AND REVIEWED

D. Brumley

OPERATING ENGINEER

4/15/85

DATE

INVESTIGATION REPORT & RESOLUTION ACCEPTED BY STATION REVIEW

RESOLUTION APPROVED AND AUTHORIZED FOR DISTRIBUTION

STATION SUPERINTENDENT

DATE

NOV 03 1984

PROVIDED AT SRI REQUEST

B. O. S. R.

TEMPORARY ALTERATION LOG SHEET (Ref. BAP 300-5)

Log Sheet No. 1985-0-093

R Equip/Funct. Affected: Routing of AB Sump to GW Header
 I E Reason for Alteration: Provide route path to header without interference of chat cable at B03;
 N Q to test line without affecting GW compressor operation
 S U Tag/Jumper # Location Description (Wire #, Terminal Board #, Line #, etc.)
 T E 182 426, L25 Route pressure sensing line for cable OCMPS19260A to line
 A S 183 426, L25 OCW29AA3/4 against wall to supply PT and PC with header pressure
 L T 183 426, L25 Connect a line on hose between line OAD44C1 and line OCMPS19260A3/4
 L O
 A R Drawings(s)
 T Safety Related? Yes X No Requested by: Mark Hudson Date 4-3-85
 I

O S Engineering Review Complete (Pg. 2): Yes (Intl.)
 N E Safety Eval. Complete (Pg. 2): Yes (Intl.)
 OSR Required: Yes X No SCRE Yes X No Date 4-4-85

O S On Site Review completed: OSR # N/A
 N E Alteration Approved: Yes No TSS Date 4-4-85

SE Installation Authorized by Shift Engineer Mark Hudson Date 4/4/85

SCRE Additional Admin. Controls/Surveillances: None
 Complete: Yes X No Date 4-4-85

INSTALL'G Alt. Installed & Tag(s) Affixed: 4-5-85, M-M
 DEPT. Verified: Mark Hudson 4/5/85, M-M
 Name Date Dept.

SE Removal Authorized by Shift Engineer: _____ Date _____

REMOVAL Temporary Alt. & Tag(s) Removed: _____
 Name Date Dept.

DEPT. Verified: _____
 Name Date

SCRE Tag/Jumpers Returned & Tracking Log completed: _____ Date _____

SE Reviewed by Shift Engineer _____ Date _____

(0353P)

NOV 03 1984

BAP 300-1
Revision 5B. O. S. R.
ENGINEERING REVIEW CHECKLIST② *
No

Radiological

Consideration

- | | <u>Y</u> | <u>N</u> |
|--|--------------------------|-------------------------------------|
| 1. Could the alteration affect the <u>seismic capability</u> of a seismic class I component? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Could the alteration possibly alter the <u>environmental qualification</u> of any component required post-accident? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Will the alteration be made to <u>safety actuation</u> systems within the <u>Protection</u> portion of the <u>channel</u> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Could the alteration affect <u>fire</u> doors, <u>fire related</u> <u>assy's</u> , deluge/foam systems, CO ₂ /Halon system, fire pumps or hose stations? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Could the alteration affect <u>more than one train</u> of components? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Will the alteration <u>reduce</u> the <u>performance characteristic</u> of any <u>safety-related</u> component? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Could the alteration <u>increase</u> the <u>electrical loading</u> of a safety-related electrical system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Will the alteration involve the <u>pressure-retaining features</u> of any code class 1, 2, or 3 components? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Will the alteration increase the <u>potential for equipment damage</u> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If any are marked YES, a written engineering review is required.

B. SAFETY EVALUATION CHECKLIST

Does the Temporary System Change increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety? YES ☐ NO ☒Does the Temporary System Change create the possibility for an accident or malfunction of a different type than any evaluated previously in the SAR? YES ☐ NO ☒Does the Temporary System Change reduce the margin of safety as defined in the basis for any Technical Specifications? YES ☐ NO ☒Basis for Determination Portion of system is not safety related. There is no effect on Technique or FSAR analysis.

If any are marked YES, NRC approval is required.

Comments _____

R. Blumery.
4-11-85

Mark Graham.

Just for the record. - We will not run "A" AB evap until a proper check valve is installed. As I see it 3 things have to be completed.

1. Order and install a new rupture disc for "A" Evap (P.D.) (In progress)
2. Update Mod 164 to eliminate the isolation valve and terminate at valve OGW 9288

(a change from the original mod)

3. a) Set up a system where no one will be in "B" AB evap room when operating "A" AB evap (Signs?)
- b - Verify drain system of "B" evap. If it goes to Unit 2 - plug drains?
- c - Procedure change. "A" AB evap.

R. Blumery

CC - Joyce
Tuelon
SE / Daily Orders
Vantreigh
Akron / Ant Farm
Ash / Foreman

#2 RADATION RELEASE

COLUMN 1: Byron Unit 1

COLUMN 2: Telecon from Resident Inspector

COLUMN 3: At 1307 CST 04/10/85 licensee started venting the Volume Control Tank to the Waste Gas System. Due to a temporary alteration installed around a vent line check valve, the OA Boric Acid Evaporator was over pressurized causing a rupture disk to burst. The contents of the evaporator flashed to steam and vented to a floor drain in the auxiliary building. At 1345 area radiation alarms were activated. Auxiliary building vent fans were started and the area evacuated. No detectible radiation activity was released off-site. Following decontamination workers were whole body counted. Whole body counts showed that no ingestion of radioactive material had occurred.

COLUMN 4: Resident Inspectors followup per MC 2515.

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the staff on this date. K P
file

Facility: Commonwealth Edison Co.
Byron Nuclear Plant, Unit 1
Byron, IL 61010

Docket No: 50-454

Licensee Emergency Classification:
____ Notification of an Unusual Event
____ Alert
____ Site Area Emergency
____ General Emergency
XX Not Applicable EG

Subject: MEDIA INTEREST IN REACTOR SHUTDOWN AND UNRELATED CONTAMINATION INCIDENT

At 1:35 p.m. on April 10, 1985, the reactor tripped after a group of four control rods dropped into the reactor. The plant had been performing testing at 30 per cent power. All safety systems functioned normally.

The same group of four rods had dropped into the reactor in a previous incident on March 29, 1985. That incident was attributed to a fuse problem. The licensee is investigating the cause of the most recent occurrence, and the Resident Inspectors are monitoring the investigation.

Shortly after the reactor shutdown, a contamination incident occurred in the Unit 1 auxiliary building. Five workers received low levels of clothing and skin contamination, and about 300 workers were evacuated from the building.

The contamination occurred when a rupture disk on an evaporator leaked due to a temporary piping modification which allowed excessive pressure on the rupture disk. Contaminated water and steam entered the auxiliary building. The affected workers received contamination on their shoes, clothing, and skin. They were successfully decontaminated, by showering, and a subsequent whole body count showed no evidence of any internal deposition of radioactive material.

The Resident Inspectors and Region III radiation specialists are following the licensee's activities. The licensee notified local news media of the two events, and there was extensive news media interest in the Rockford and Chicago areas. Region III (Chicago) has responded to inquiries.

The State of Illinois will be notified.

Region III was notified of the control rod problem by the Headquarters Duty Officer at 2:25 p.m. on April 10, 1985. The contamination problem was not reportable, but Region III learned of it from a member of the public at 4:30 p.m., April 10, 1985. This information is current as of 2:30 p.m., April 11, 1985.

CONTACT:

W. Forney
W. Forney
FTS 388-5590

L. Greger
L. Greger
FTS 388-5644

R. Warnick
R. Warnick
FTS 388-5575

DISTRIBUTION:

H. St. 2:52
Chairman Palladino
Comm. Roberts
Comm. Asselstine
Comm. Bernthal
Comm. Zech
SECY
ACRS
CA
PDR

MNBB 4:29
EDO
PA
MPA
ELD

Phillips 4:39
NRR

Air Rights 4:42
SP

E/W 2:51
IE
OIA
AEOD

INPO 4:06
NSAC 3:58

Willste 3:07
NMSS
RES

MAIL:
ADM:DMB
DOT: Trans Only

Applicable Resident Site 4:36
Regions 13:14, II 3:11, IV 3:16, V 3:33 Licensee (Corporate Office) 4:37

RADIATION OCCURRENCE REPORT

Date: 4/10/85 Time: 1330 Type of Occurrence: 8, R.O.R. NO.: 85-008
(See Reverse)

PERSONNEL INVOLVED

NAME	SSN	FILM BADGE/TLD#	COMPANY
<u>N/A</u>	<u>—</u>	<u>—</u>	<u>—</u>

Location: _____

Auxiliary Building - 346 elevation

Description of Occurrence (Include all Significant Information): _____

A rupture of Evaporator Rupture Disk resulted in radioactive steam venting to 346 level of Auxiliary Building. This in turn resulted in an unplanned spread of contamination over a large area of the 346 elevation floors and drains.

A complete description of the incident is attached.

Reported By: Kit A Weaver

Action Taken at Time of Occurrence: _____

See attached description.

Estimate of Exposure Received:

External: MinimalInternal: Minimal

OCCURRENCE REPORTED TO:

TITLE	NAME	DATE/TIME
<u>Rad Chem Sup.</u>	<u>J. R. Van Laere *</u>	<u>4/12/85/1400</u>

References (RWP No., Survey Report, etc.): _____

* This ROR generated to document incident. J. R. Van Laere was notified of the actual incident as it occurred.

TYPES OF OCCURRENCES

External Dose Control

1. Improperly posted or controlled radiation area or high radiation area.
2. Discovery of working dose rates to a worker inside a controlled area that significantly exceed the expected dose rate.
3. Any personnel external dose equivalent in excess of the 10 CFR 20 limits.
4. Any in-plant personnel whole body dose equivalent that exceeds the dose authorized by Radiation-Chemistry or the administrative controls established in the Radiation Protection Standards.

Administrative Controls

10. Personnel in a controlled area without adequate or required timekeeping, monitoring, or dosimetry.
11. Personnel in a controlled area without required training.
12. Personnel in a controlled area without adequate protective equipment.
13. Personnel in a controlled area improperly using required protective equipment.
14. Personnel practice in a controlled area in violation of the Radiation Protection Standards, Radiation Protection Procedures, facility Technical Specifications, or other regulatory requirements.

Internal Dose and Surface Contamination Control

5. Skin or personal clothing contamination greater than 1 mR/hr above background as measured with an approved beta-gamma instrument.
6. Exposure of personnel to concentrations of airborne radioactive material resulting in an internal deposition in excess of regulatory requirements.
7. Any case of positive nasal surveys in excess of 10,000 dpm.
8. Spread of significant contamination in the immediate work area beyond that which was planned or might normally be expected.
9. Spread of significant contamination outside of a controlled area.

Noncategorized

15. It is believed that a violation of regulatory requirements pertaining to the protection of individuals against radiation has occurred.
16. A significant action or situation inconsistent with the ALARA philosophy is observed.
17. Other (specify).

Radiation-Chemistry Follow-Up:

Date: 4-15-85

Signed: J. R. Lane

Incident has been reviewed with Rad-Chem Dept personnel (4-11-85 + 4-15-85). No corrective action required other than Deviation Report, see attached.

No significant internal or external radiation exposure were received during this incident.

*Additional Follow-Up Recommended: _____ (yes) X (no)

*Additional Follow-Up: _____ Date: _____ Signed: _____



Commonwealth Edison

DEVIATION REPORT

DVR NO.

6001; 85-103
STATION UNIT; YEAR NO.

PART 1

TITLE OF DEVIATION

OCCURRED

Blown Rupture Disk on OA Boiling Acid Evaporator

4-10-85

135

DATE

TIME

SYSTEM AFFECTED

PLANT STATUS AT TIME OF EVENT

AB

MODE 1, POWER (%) 210 MW

WORK REQUEST NO.

TESTING

☒ YES☐ NO

DESCRIPTION OF EVENT

At 1307 the Unit 1 operator vented the VCT to the GW Vent Header. The venting caused a pressure spike in the header which backed up through temporary attraction MP5-0-093 causing the evaporator rupture disk to blow. When the disk blew the contents of the evaporator flashed to steam and vented to the Aux Building floor drains on 346. This activated radiation alarms at approximately 1345. The Aux Building event fans were started and the ^{local} area evacuated. ^{KW. 4115185} The ~~detectable~~ radiation was ~~substantially~~ reduced. The temporary attraction was in place to tie the evaporator vent path bypassing a suspect check valve, OAD037. When it was released the rupture disk had blown the evaporator was isolated and the vent header to the temporary attraction shutdown.

POTENTIAL SIGNIFICANT EVENT PER NSD DIRECTIVE 4-07

☒ YES☐ NOCORRECTIVE ACTION REQUIRED
NOTIFICATION MADE☐ 1 HOUR☐ 4 HOURTIME ☒ NOMark Graham
RESPONSIBLE SUPERVISOR4/10/85
DATE

PART 2 OPERATING ENGINEER'S COMMENTS

A new rupture disk will be installed. Mod 16A will be updated to eliminate the isolation vlv and terminate at vlv 06W9288. Tech Staff and the Unit 1 Operating Engineer will generate further corrective measures prior to evap operation.

☒ SIGNIFICANT EVENT☐ SIGNIFICANT EVENT PER 10CFR21☐ SIGNIFICANT REPORT PER 10CFR21☐ ANNUAL SPECIAL REPORT REQUIRED

NOTIFICATION

REGION 001

DATE

TIME

NSD

DATE

TIME

☐ CECO CORPORATE NOTIFICATION MADE
IF ABOVE NOTIFICATION IS PER 10CFR21

TELECOPY

D. P. Gralle

CECO CORPORATE OFFICER

4-12-85

DATE

1630

TIME

PRELIMINARY REPORT
COMPLETED AND REVIEWEDJ. J. Fulmer
OPERATING ENGINEER4-12-85
DATEINVESTIGATION REPORT & RESOLUTION
ACCEPTED BY STATION REVIEWRESOLUTION APPROVED AND
AUTHORIZED FOR DISTRIBUTION

STATION SUPERINTENDENT

DATE

OA Boric Acid Recycle Evaporator

Rupture Disk Failure

During a test of the Boric Acid Evaporator vent line at Byron Station a potentially significant event occurred. A temporary alteration was installed on the Gaseous Waste (GW) vent header to bypass a check valve in the vent line from the evaporator to the header (see attached drawing). A modification had been written, MG-0-85-0164, to replace the check valve with one having a very low opening pressure. Operating felt an additional test was needed to verify the check valve was the only obstruction to gas flow from the evaporator. The plant was operating in Mode 1 at 29% power. No equipment related to the operation of the evaporator was out of service at the time.

What Happened

The Unit 1 Operator vented the Volume Control Tank to the vent header causing a pressure spike. The radwaste operator was not notified prior to this action. The evaporator was running in recycle and venting to the header through the temporary alteration at the time. The pressure spike pushed through the temporary alteration and overpressurized the evaporator causing the rupture disk to release. Approximately 80 gallons of the evaporator's radioactive contents flashed to steam. Part of the steam discharged to the OB evaporator room where the evaporator is partially disassembled for flushing. Since the Auxiliary Building

ventilation system was not fully operating at the time, the steam left the evaporator room to the general atmosphere of the 346' elevation. The majority of the steam vented through discharge piping to a floor drain in front of the Auxiliary Building elevator. Condensing steam overflowed the drain and sprayed the area. Further quantities of steam were released to the Auxiliary Building atmosphere at this location. The Control Room was notified and additional Auxiliary Building ventilation fans activated. The evaporator was shutdown and isolated to prevent further releases.

What Was The Root Cause

The principal cause of the event was that the Unit 1 Operator failed to notify the radiowaste operator prior to venting the Volume Control Tank. If this had taken place the evaporator could have been isolated from the vent header for the duration of the venting and the evaporator protected.

How Did It Affect Plant and/or Public Safety

Two Rad-Chem Technicians responded to a report of steam leaks on the 346' elevation of the Auxiliary Building. On arrival they observed steam emanating from floor drains and water on the floor. A Technician measured approximately 5000 counts per minute near the water. The Technicians reported back to their

former that the 346' elevation was contaminated. The particulate and gas channels of the Auxiliary Building Exhaust OB Process Monitor alarmed indicating a potential airborne radioactivity condition within the Auxiliary Building. Further access to the Auxiliary Building was prevented by Rad-Chem and Security personnel until area surveys could be taken and analyzed. A barrier was set up on the 346' elevation to prevent further access to the contaminated areas on that level. The levels of radiation detected were not high compared to procedural limits and a general evacuation of the Auxiliary Building was not deemed necessary.

Area smear and dose rate surveys were performed and evaluated and no limits were exceeded other than for surface contamination levels on the 346' elevation of the Auxiliary Building. Air samples ^{analyzed/evaluated} taken 3 hours after the steam leak report indicated no airborne condition existed and routine access to the Auxiliary Building was resumed thereafter. No detectable contamination remained on the 346' elevation where the contamination was initially measured 4.5 hours after the steam leak due to the short lived nature of the isotopes involved. ~~No detectable radioactivity was released from the Station during the incident. Activity released within the plant itself was either filtered out from the effluent stream or decayed away before reaching the Station release point.~~ No releases occurred from the Station above Technical Specification limits. During the course of the incident 5 individuals were contaminated

K2W
4/15/

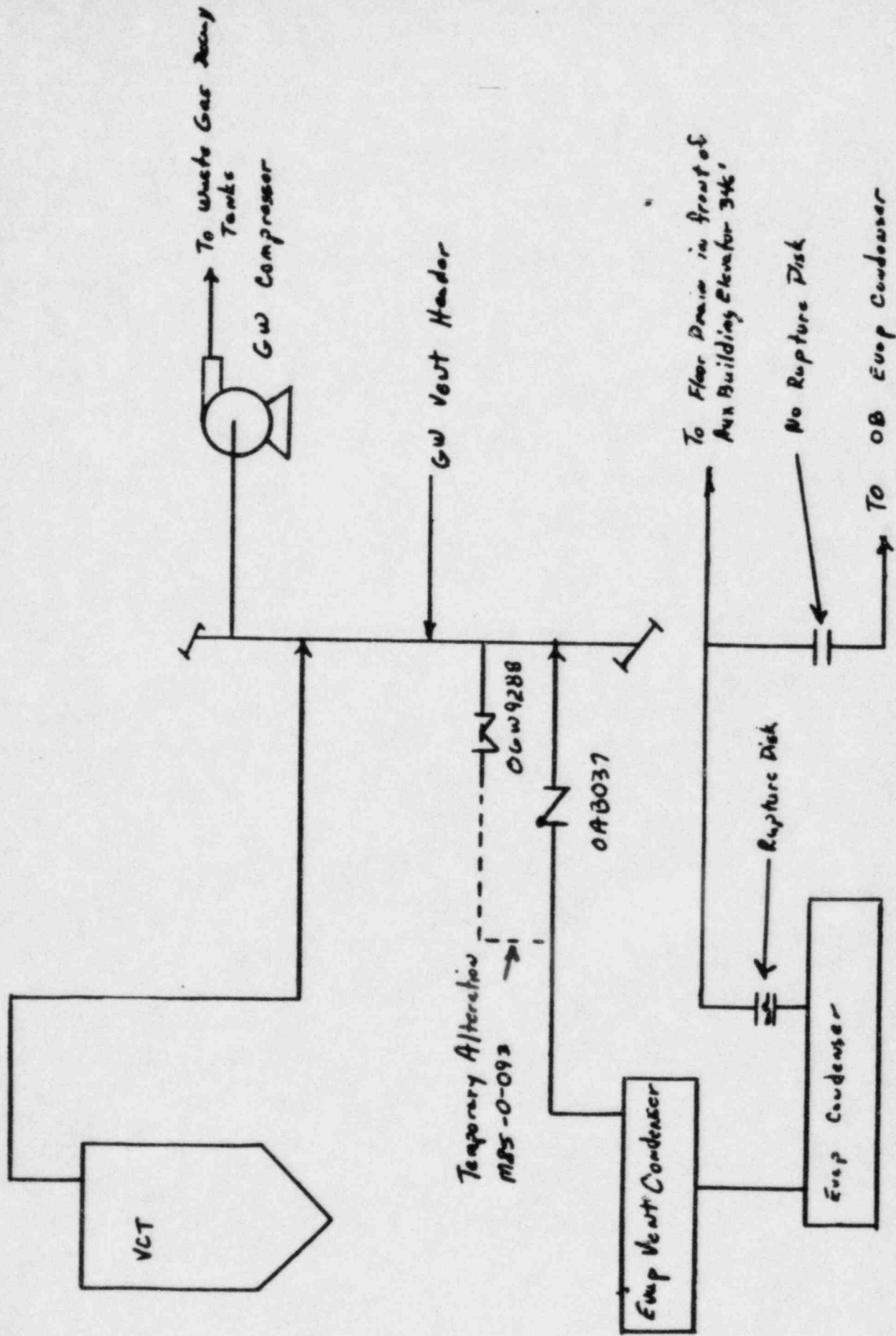
(all on the 346' elevation of the Auxiliary Building): the person who reported the steam leak, the two Technicians, and two workers who walked through the area before the area could be secured. Contamination levels ranged from about 5000 to 13500 disintegrations per minute. No contamination remained after washing or showering with mild soap. All five individuals were monitored for internal contamination and none was detected.

Has It Happened Before

This was the first incident of rupture disk failure since receiving a license. One rupture disk failed during early testing over a year ago due to incorrect operating/testing procedures.

What Was Done To Correct The Condition and how are we going To Prevent Recurrence

Immediate corrective action was taken by placing the temporary alteration isolation valve out of service. Orders were issued that the evaporator not be operated until the check valve modification was complete and the rupture disk replaced. Long term action is to modify the rupture disk discharge line so that it no longer discharges to an open floor drain, MB-0-85-0164.



SUPPLEMENTAL INFO SUPPLIED TO SRI

During the AB Evaporator event of 4-10-85, the Aux. Bldg. Exhaust OB process radiation monitor (gas channel) went into high radiation alarm at 1314 and remained in high alarm until 1332. The alert alarm cleared at 1338, and detector readings decreased below alarm setpoints.

During this period of time, the Unit-1 and Unit-2 Aux. Bldg. Vent Stack Monitors (1RE-PRO28B and 2RE-PRO28B) were checked for noticeable increases; no increasing activity readings were noted. At 1359 an Aux. Bldg. Exhaust and Supply Fan was turned on to provide a flowpath for the radioactive gas on the 346' elevation of the Aux. Bldg. At this time, no significant increases attributable to the radioactive gas from the 346' elevation were noted on the gas channels of either the Unit-1 or Unit-2 Auxiliary Bldg. Vent Stack Monitors. It was initially thought that all radioactivity was filtered and diluted to a point that ~~small~~ resulted in no detectable activity at the Aux. Bldg. Vent Stack monitors. After the event, a further review of data from the gas channels of the Aux. Bldg. Vent Stack monitors showed that a slight increase had taken place on both 1RE-PRO28B (U-1 ventstack gas channel) and 2RE-PRO28B (U-2 vent stack gas channel) between the times of 1350 and 1410. No alarms were received on either vent stack monitor during the event.

To place the gas channel readings (1(2)RE-PR028B) in perspective, normal background readings of the detectors must be considered.

Using the daily average readings from 4-9-85:

$$U-1 \text{ normal BKG} = 2.95E-6 \text{ uli/cc.}$$

$$U-2 \text{ normal BKG} = 5.45E-6 \text{ uli/cc.}$$

Using Stack flowrates, one can calculate the uli/sec value using BKG values and using the peak value during the AB evaporator event and determine the net release rate.

MAX STATION RELEASE RATE

U-1 VENT STACK

$$\text{NORMAL BKG : } 2.95E-6 \text{ uli/cc}$$

$$\text{PEAK READING : } 4.81E-6 \text{ uli/cc}$$

$$\text{FLOW : } 2.30E5 \text{ CFM}$$

$$2.95E-6 \text{ uli/cc} \times \frac{1 \text{ cc}}{3.53E-5 \text{ ft}^3} \times \frac{1 \text{ min}}{60 \text{ sec}} \times 2.3E5 \frac{\text{ft}^3}{\text{min}} = 3.20E2 \text{ uli/sec}$$

$$4.81E-6 \text{ uli/cc} \times \frac{1 \text{ cc}}{3.53E-5 \text{ ft}^3} \times \frac{1 \text{ min}}{60 \text{ sec}} \times 2.3E5 \frac{\text{ft}^3}{\text{min}} = 5.22E2 \text{ uli/sec}$$

$$\text{Net Release Rate} = 2.02E2 \text{ uli/sec}$$

$$2.02E2 \text{ uli/sec} \times 20 \text{ min (duration of alarm)} \times \frac{60 \text{ sec}}{\text{min}} = 2.424E5 \text{ uli released}$$

U-2 VENT STACK

$$\text{Normal BKG : } 5.45E-6 \text{ uli/cc}$$

$$\text{PEAK READING : } 5.84E-6 \text{ uli/cc}$$

$$\text{FLOW : } 1.50E4 \text{ CFM}$$

$$5.45E-6 \text{ uli/cc} \times \frac{1 \text{ cc}}{3.53E-5 \text{ ft}^3} \times \frac{1 \text{ min}}{60 \text{ sec}} \times 1.5E4 \frac{\text{ft}^3}{\text{min}} = 38.6 \text{ uli/sec}$$

$$5.84E-6 \text{ uli/cc} \times \frac{1 \text{ cc}}{3.53E-5 \text{ ft}^3} \times \frac{1 \text{ min}}{60 \text{ sec}} \times 1.5E4 \frac{\text{ft}^3}{\text{min}} = 41.4 \text{ uli/sec}$$

$$\text{Net Release Rate} = 2.8 \text{ uli/sec}$$

$$2.8 \text{ uli/sec} \times 20 \text{ min} \times \frac{60 \text{ sec}}{\text{min}} = 3.36E3 \text{ uli released}$$

The setpoints for 1(2)RE-PR028B (Aux. Bldg. Vent Stack Effluent Low Gas Channels) are established as follows:

A limiting noble gas release rate of $1E7$ uli/sec was calculated based on the Tech Spec 10CFR20 limits for noble gases (500 mrem/yr whole body; 3000 mrem/yr skin) (Instantaneous release rate limit).

The total flowrate under normal conditions is $1.64E8$ cc/sec for both stacks; this gives a limiting concentration of $6.10E-2$ uli/cc.

$\approx 51.2\%$ of the total flow goes out U-1 $\rightarrow 2.98E-2$ uli/cc
 $\approx 48.8\%$ of the total flow goes out U-2 $\rightarrow 5.12E-2$ uli/cc

The H16H alarm setpoints are set at 10% of the actual instantaneous Tech. Spec. release limit.

As shown on the previous page release rates did not nearly approach any Tech Spec release limits.

(Also, as a note, the approximate release rate corresponding to an unusual event is $4.0E6$ uli/sec; this value was also not reached.)

April 10, 1985

ORE-PR022A (Aux. Bldg. Exhaust DB - particulate channel)
High Alarm Setpoint = $7.52\text{E-}09$
Alert Alarm Setpoint = $3.81\text{E-}09$

<u>Time</u>	<u>Detector Reading (uCi/cc)</u>	<u>Status</u>
1300	$1.85\text{E-}11$	Normal
1310	$1.85\text{E-}11$	Normal
1315	$9.89\text{E-}08$	High Rad
1320	$1.42\text{E-}07$	High Rad
1330	$1.54\text{E-}07$	High Rad
1340	$3.50\text{E-}08$	High Rad
1350	$4.04\text{E-}08$	High Rad
1359	Aux. Bldg. Exhaust and Supply Fan turned on.	
1400	$4.20\text{E-}08$	High Rad
1410	$3.42\text{E-}08$	High Rad
1420	$1.73\text{E-}08$	High Rad
1422 (return to norm)	$1.05\text{E-}10$	Normal
1430	$2.78\text{E-}10$	Normal

ORE-PR022B (Aux. Bldg. Exhaust DB - gas channel)
High Alarm Setpoint = $1.55\text{E-}05$
Alert Alarm Setpoint = $8.28\text{E-}06$

<u>Time</u>	<u>Detector Reading (uCi/cc)</u>	<u>Status</u>
1300	$2.47\text{E-}06$	Normal
1310	$2.49\text{E-}06$	Normal
1314	$1.70\text{E-}05$	High Rad
1320	$3.31\text{E-}05$	High Rad
1330	$1.87\text{E-}05$	High Rad
1340	$7.49\text{E-}06$	Normal
1350	$5.03\text{E-}06$	Normal
1400	$4.09\text{E-}06$	Normal
1410	$3.35\text{E-}06$	Normal
1420	$3.08\text{E-}06$	Normal
1430	$3.01\text{E-}06$	Normal
1440	$2.82\text{E-}06$	Normal
1450	$2.57\text{E-}06$	Normal

April 10, 1985

ORE-FR021A (Aux. Bldg. Exhaust OA - particulate channel)

High Alarm Setpoint = $7.62\text{E-}09$

Alert Alarm Setpoint = $3.81\text{E-}09$

<u>Time</u>	<u>Detector Reading (uCi/cc)</u>	<u>Status</u>
1320	$4.38\text{E-}11$	Normal
1330	$4.38\text{E-}11$	Normal
1340	$4.38\text{E-}11$	Normal
1350	$4.38\text{E-}11$	Normal
1400	$9.41\text{E-}11$	Normal
1405	$4.41\text{E-}09$	Alert
1410	$3.42\text{E-}09$	Normal
1420	$1.10\text{E-}09$	Normal
1430	$1.52\text{E-}09$	Normal
1440	$1.69\text{E-}09$	Normal
1450	$1.47\text{E-}09$	Normal
1500	$7.96\text{E-}10$	Normal
1510	$6.10\text{E-}10$	Normal

ORE-FR021B (Aux. Bldg. Exhaust OA - gas channel)

High Alarm Setpoint = $1.71\text{E-}05$

Alert Alarm Setpoint = $9.85\text{E-}06$

<u>Time</u>	<u>Detector Reading (uCi/cc)</u>	<u>Status</u>
1300	$3.80\text{E-}06$	Normal
1310	$3.70\text{E-}06$	Normal
1320	$3.90\text{E-}06$	Normal
1330	$3.90\text{E-}06$	Normal
1340	$3.90\text{E-}06$	Normal
1345	$4.20\text{E-}06$	Normal
1350	$6.40\text{E-}06$	Normal
1355	$4.80\text{E-}06$	Normal
1400	$4.30\text{E-}06$	Normal
1410	$4.00\text{E-}06$	Normal
1420	$3.80\text{E-}06$	Normal

April 10, 1985

ORE-PR013A (Gas Decay Tank Cubicle - particulate channel)

High Alarm Setpoint = $7.62\text{E-}09$

Alert Alarm Setpoint = $3.81\text{E-}09$

Time	Detector Reading ($\mu\text{Ci/cc}$)	Status
1310	$5.76\text{E-}12$	Normal
1320	$3.23\text{E-}15$	Normal
1330	$1.72\text{E-}09$	Normal
1340	$9.54\text{E-}09$	High Rad
1350	$1.14\text{E-}08$	High Rad
1400	$5.42\text{E-}09$	Alert
1410	$5.36\text{E-}09$	Alert
1420	$5.71\text{E-}09$	Alert
1430	$3.03\text{E-}09$	Normal
1440	$1.02\text{E-}09$	Normal
1450	$2.69\text{E-}10$	Normal
1500	$2.69\text{E-}10$	Normal

ORE-PR013B (Gas Decay Tank Cubicle - gas channel)

High Alarm Setpoint = $1.53\text{E-}05$

Alert Alarm Setpoint = $8.12\text{E-}06$

Time	Detector Reading ($\mu\text{Ci/cc}$)	Status
1300	$1.60\text{E-}06$	Normal
1310	$1.53\text{E-}06$	Normal
1320	$1.45\text{E-}06$	Normal
1330	$1.70\text{E-}06$	Normal
1335	$2.00\text{E-}06$	Normal
1340	$2.55\text{E-}06$	Normal
1350	$2.89\text{E-}06$	Normal
1400	$2.50\text{E-}06$	Normal
1410	$2.10\text{E-}06$	Normal
1420	$1.70\text{E-}06$	Normal
1430	$1.60\text{E-}06$	Normal

April 10, 1985

1RE-PR028B (Aux. Bldg. Vent Stack Effluent - gas)

High Alarm Setpoint = $2.98\text{E-}03$

Alert Alarm Setpoint = $2.98\text{E-}04$

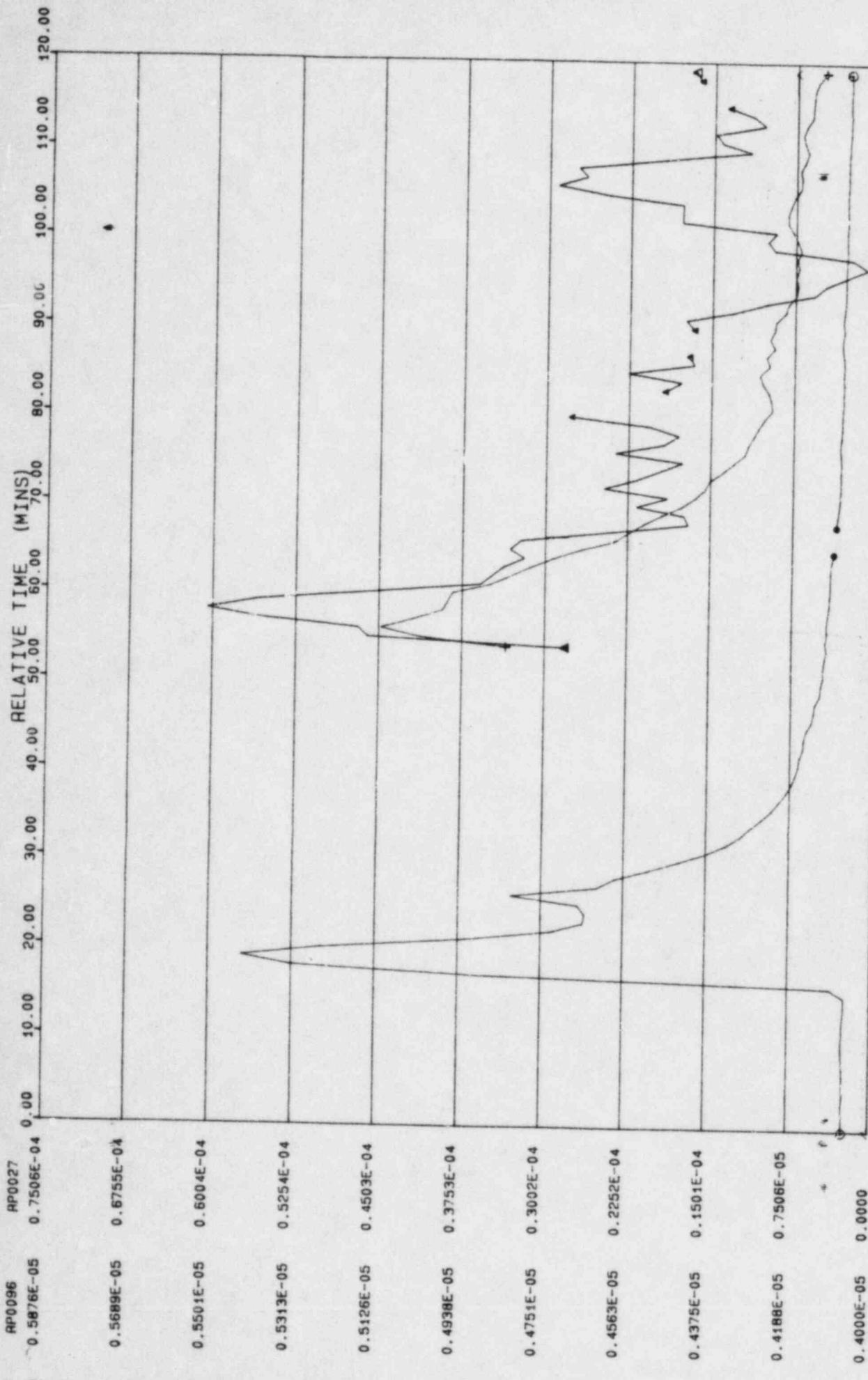
Time	Detector Reading (uCi/cc)	Status
1300	$3.09\text{E-}06$	Normal
1310	$3.13\text{E-}06$	Normal
1320	$3.20\text{E-}06$	Normal
1330	$3.50\text{E-}06$	Normal
1340	$3.66\text{E-}06$	Normal
1350	$4.59\text{E-}06$	Normal
1400	$4.81\text{E-}06$	Normal
1410	$4.50\text{E-}06$	Normal
1420	$4.42\text{E-}06$	Normal
1430	$4.20\text{E-}06$	Normal
1440	$4.35\text{E-}06$	Normal
1450	$4.32\text{E-}06$	Normal

2RE-PR028B (Aux. Bldg. Vent Stack Effluent - gas)

High Alarm Setpoint = $3.12\text{E-}03$

Alert Alarm Setpoint = $3.12\text{E-}04$

Time	Detector Reading (uCi/cc)	Status
1320	$5.16\text{E-}06$	Normal
1330	$5.00\text{E-}06$	Normal
1340	$5.21\text{E-}06$	Normal
1350	$5.84\text{E-}06$	Normal
1400	$5.36\text{E-}06$	Normal
1410	$5.55\text{E-}06$	Normal
1420	$5.60\text{E-}06$	Normal
1430	$5.44\text{E-}06$	Normal
1440	$5.33\text{E-}06$	Normal
1450	$5.47\text{E-}06$	Normal
1500	$5.41\text{E-}06$	Normal



BYRON UNIT 1

POINT ID	DESCRIPTION	UNITS	SYMBOL
RP0027	AUX BLDG EXH CB - GAS	UCI/ML	⊙
RP0096	AUX BLDG 1 VENT STACK GAS LO	UCI/ML	Δ
RP0099	AUX BLDG 1 VENT WRM GAS LO	UCI/ML	+
RP0020	AUX BLDG 1 WRM GAS LO	UCI/ML	×

START TIME 10APR85 13:00:00

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the staff on this date.

Facility: Commonwealth Edison Co.
Byron Nuclear Plant, Unit 1
Byron, IL 61010

Docket No: 50-454

Licensee Emergency Classification:
☐ Notification of an Unusual Event
☐ Alert
☐ Site Area Emergency
☐ General Emergency
☒ Not Applicable

Subject: MEDIA INTEREST IN REACTOR SHUTDOWN AND UNRELATED CONTAMINATION INCIDENT

At 1:35 p.m. on April 10, 1985, the reactor tripped after a group of four control rods dropped into the reactor. The plant had been performing testing at 30 per cent power. All safety systems functioned normally.

The same group of four rods had dropped into the reactor in a previous incident on March 29, 1985. That incident was attributed to a fuse problem. The licensee is investigating the cause of the most recent occurrence, and the Resident Inspectors are monitoring the investigation.

Shortly after the reactor shutdown, a contamination incident occurred in the Unit 1 auxiliary building. Five workers received low levels of clothing and skin contamination, and about 300 workers were evacuated from the building.

The contamination occurred when a rupture disk on an evaporator leaked due to a temporary piping modification which allowed excessive pressure on the rupture disk. Contaminated water and steam entered the auxiliary building. The affected workers received contamination on their shoes, clothing, and skin. They were successfully decontaminated, by showering, and a subsequent whole body count showed no evidence of any internal deposition of radioactive material.

The Resident Inspectors and Region III radiation specialists are following the licensee's activities. The licensee notified local news media of the two events, and there was extensive news media interest in the Rockford and Chicago areas. Region III (Chicago) has responded to inquiries.

The State of Illinois will be notified.

Region III was notified of the control rod problem by the Headquarters Duty Officer at 2:25 p.m. on April 10, 1985. The contamination problem was not reportable, but Region III learned of it from a member of the public at 4:30 p.m., April 10, 1985. This information is current as of 2:30 p.m., April 11, 1985.

CONTACT: *W. Forney* *L. Greger* *R. Warnick*
 FTS 388-5590 FTS 388-5644 FTS 388-5575

DISTRIBUTION:

H. St. 2:52
 Chairman Palladino
 Comm. Roberts
 Comm. Asselstine
 Comm. Bernthal
 Comm. Zech
 SECY
 ACRS
 CA
 PDR

MNBB 4:29
 EDO
 PA
 MPA
 ELD

Phil'ips 4:39
 NRR

Air Rights 4:42
 SP

E/W 2:51
 IE
 OIA
 AEOD

INPO 4:06
 NSAC 3:58

Willste 3:07
 NMSS
 RES

MAIL:
 ADM:DMB
 DOT: Trans Only

Applicable Resident Site 4:36
 Regions 13:14, 11:31, 14:31, 15:33 Licensee (Corporate Office) 4:37