DR Central Files

UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

June 19, 1972

Commonwealth Edison Company
ATTN: Mr. Byron Lee, Jr.
Assistant to the President
P. O. Box 767
Chicago, Illinois 60690

Docket No. 50-237
Docket No. 50-249

Gentlemen:

This refers to the inspection conducted by Messrs. Dance, Maura, and Fisher of this office on May 8 - 12, and May 15 - 17, 1972, of operations at Dresden Units 2 and 3 authorized by AEC Operating Licenses No. DPR-19 and No. DPR-25, and to discussions of our findings held by Mr. Dance with Messrs. Worden and Morris of your staff at the conclusion of the inspection.

Areas examined during this inspection included Units 2/3 radioactive waste system performance, ultrasonic inspection results of two Unit 2 main steam safety valve spools, Unit 2 planned test program, your evaluation of Units 2/3 main steam line flow restrictor design and fabrication, inspection results and operating history of the four safety valves removed from Unit 2, Unit 2 criticality predictions, Units 2/3 inspection and surveillance requirements for the standby liquid control systems, adjustments made to Units 2/3 MFA relays, surveillance testing results of the 25, 125, and 250 volt Unit 2 battery banks, Units 2/3 instrument air compressor systems, preliminary results of the Unit 2 integrated leak rate test, results of Unit 2 local leak rate tests, station personnel exposure records for 1971 and first quarter of 1972, calibration of Units 2/3 process monitors, and your evaluation of the failures of Units 2/3 vane type flow switches. Within these areas the inspection consisted of selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspectors.

In addition to the above matters, the inspector examined the corrective actions described in your letter of May 26, 1972, which was in reply to our letter of May 9, 1972. We also noted that you have completed the activities associated with the Units 2/3 drywell instrument air compressors as identified in our letter of August 30, 1971; initiated weekly testing of the Units 2/3 torus to drywell vacuum breakers

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identified in our letter of January 20, 1972; and replaced the Unit 3 safety valve as discussed in our letter of May 8, 1972. We have no further questions on these items at this time.

Certain of your activities appeared to be in noncompliance with AEC requirements for Unit 3. No items of noncompliance were identified for Unit 2. The item and references to the pertinent requirements are listed in the enclosure to this letter. Please provide us, in writing, within twenty days, with your comments concerning the above item, any steps which have been or will be taken to correct it, any steps that have been or will be taken to prevent recurrence, and the date all corrective action or preventive measures were or will be completed. During our inspection on May 17, 1972, it was noted that the corrective actions described in your letter of April 5, 1972, regarding the above item, were not being implemented on that date.

It is our understanding from discussions with your site management that the following actions are currently in progress or will be pursued:

1. A report on monitor performance will be submitted to the Directorate of Licensing if the Units 2/3 liquid radwaste monitor alarm set point cannot be maintained to give assurance that discharges are kept at or below allowable limits at all times.

2. Calibration of the Units 2/3 service water and closed cooling water monitors will be pursued to confirm a sensitivity of 3×10^{-6} uCi/cc as described in the Safety Analysis Report. This is to include a program for establishing the high voltage and discriminator settings of the monitors.

3. Efforts will be undertaken to improve the performance of the liquid radioactive waste system. This would include greater utilization of the waste concentrator in order to reduce radioactive releases.

4. A program has been initiated to correct the deterioration of the Units 2/3 pressure suppression system isolation valves.

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Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely yours,

Boyce H. Grier
Regional Director

Enclosure:
Description of Item of Noncompliance

cc: W. Worden
Plant Superintendent

bcc: J. G. Keppler, RO
R. H. Engelken, RO
H. D. Thornburg, RO
P. A. Morris, RO
A. Giambusso, L
RO Files
DR Central Files
PDR
NSIC
DTIE

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ENCLOSURE

Commonwealth Edison Company
Dresden Unit 3
Docket No. 50-249

Certain activities under your license appear to be in noncompliance with AEC license requirements as listed below:

Section 3.7.C.1 of the facility Technical Specifications states that secondary containment integrity shall be maintained during all modes of plant operation.

Contrary to the above, secondary containment integrity was not maintained on March 27, 1972, during Unit 3 operation when both railroad interlock doors were open.

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UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

TELEPHONE
(312) 858-2660

June 28, 1972

J. G. Keppler, Chief, Reactor Testing and Operations Branch
Directorate of Regulatory Operations, Headquarters

COMMONWEALTH EDISON COMPANY (DRESDEN 2 AND 3)
DOCKET NOS. 50-237 AND 50-249

The attached report of an unannounced inspection of the subject facilities on May 8-12, and May 15-17, 1972, is forwarded for information.

One item of noncompliance involving the failure to maintain secondary containment of Unit 3 was communicated to the licensee.

The major inspection effort was directed toward the review of the Dresden 2/3 radwaste system as requested in L. Kornblith's communication to the Regional Directors dated December 16, 1971. While the system is being operated within technical specifications, there still appears room for a reduction in the quantities of waste released. The capacity of the system as well as the non-equilibrium operation in the past have contributed to the taxing of the system. A separate report will be issued on the inspection results.

The calibration of liquid waste detectors requires resolution. The facility technical specifications do not impose requirements on service water or closed cooling system detectors; however, we have a commitment from the licensee to perform a proper calibration of the detector. This matter is also highlighted along with a reference to your memorandum of September 17, 1971, in our Dresden 1 Report No. 050-10/72-02.

Our review of electromatic relief valve operating setting indicates drifting of set points. A standard procedure is available and used according to the licensee. CE is investigating the matter.

Followup was made on the following Headquarters memoranda during the inspection:

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Monticello - Differential Pressure Switch Failure, from Carlson dated January 12, 1972

NSP - Reactivity Anomolies, from Keppler dated March 31, 1972

General Electric HFA Relays, from Keppler dated April 6, 1972

Oyster Creek - Loss of Secondary Containment Integrity, from Keppler dated May 12, 1972

Gaston Fiorelli

Gaston Fiorelli, Chief
Reactor Operations Branch

Attachment:
RO Rpt Nos. 050-237/72-02 and
050-249/72-03 by
H. C. Dance, F. A. Maura and
W. Fisher

cc: R. B. Minogue, RS (3)
R. S. Boyd, L (2)
R. C. DeYoung, L (2)
D. J. Skovholt, L (3)
H. R. Denton, L (2)
P. A. Morris, RO
R. H. Engelken, RO
H. D. Thornburg, RO
RO Files
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U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

RO Inspection Report No. 050-237/72-02
RO Inspection Report No. 050-249/72-03

Subject: Commonwealth Edison Company
Dresden Units 2 and 3
Morris, Illinois

License Nos. DPR-19
DPR-25
Priority: N/A
Category: C

Type of Licensee: BWR, 809 Mwe

Type of Inspection: Routine, Unannounced

Dates of Inspection: May 8-12 and 15-17, 1972

Dates of Previous Inspection: Unit 2 - March 20-23 and 30, 1972
Unit 3 - May 4-5, 1972

Principal Inspector: H. C. Dance H C Dance 6/28/72 (Date)

Accompanying Inspectors: F. A. Maura B Fiorelli for 6/28/72 (Date)

W. Fisher W. L. Fisher 6/28/72 (Date)

Other Accompanying Personnel: None

Reviewed By: G. Fiorelli, Chief B Fiorelli 6/28/72 (Date)
Reactor Operations Branch

Proprietary Information: None

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SECTION I

Enforcement Action

Units 2/3 secondary containment integrity was not maintained on March 27, 1972, as required by facility Technical Specifications. (Paragraph 8)

Licensee Action on Previously Identified Enforcement Matters

The licensee responded satisfactorily to the Unit 2 item of noncompliance identified in our letter of May 9, 1972. (Paragraph 9)

Unresolved Items

Calibration of the service water and closed cooling water process monitors have not been correlated to effluent activity concentrations. (Paragraph 16)

Unusual Occurrences

A. Electrical power to redundant subsystems of Unit 2/3 standby gas treatment system and Unit 2 core spray and LPCI pumps was accidentally tripped during maintenance of Unit 2 electrical breaker. (Paragraph 10)

B. During Unit 2 logic testing a loose terminal was found such that normally open LPCI injection valve would not have automatically closed if called upon. (Paragraph 11)

C. Failure of the Unit 2 HPCI and shutdown cooling vane type flow switches have occurred. (Paragraph 12)

D. Abnormal leakage of Unit 2 primary isolation valves in the reactor feedwater and drywell purge systems have been corrected. (Paragraph 13)

Status of Previously Reported Unresolved Items: None reported

Persons Contacted

Commonwealth Edison Company (CE)

W. Worden, Plant Superintendent
F. Morris, Assistant Superintendent
G. Wagner, Operating Engineer
T. Watts, Operating Engineer
G. Diederich, Supervising Engineer, Technical Staff
D. Adam, Radiation Chemist

R. Janecek, Engineer Technical Staff
R. Pavlick, Supervisor, Radiation
J. Marshall, Radiochemist
J. Bower, Nuclear Engineer, Technical Staff
R. Coley, Radiochemist
N. Jackiw, Quality Assurance Engineer
E. Bussean, Quality Assurance Staff
F. Berte, Station Engineer
C. Weber, Instrument Engineer
F. Krouse, Reactor Operator
A. Zapotochy, Foreman - Instruments
J. Williams, Foreman - Instruments
T. Suchocki, Engineer, Technical Staff
R. Goodin, Engineer, Technical Staff
O. Dodd, Maintenance Engineer
R. Dyer, Maintenance Foreman
R. Miller, Quality Control Engineer
J. Almer, Foreman, Radioactive Waste System
H. Hentschell, Engineer, Technical Staff
R. Allen, Engineer, Technical Staff
V. Chaney, Foreman, Radiation Protection
R. Canalas, Chemist

General Electric Company (GE)

W. Heaton, Engineer, Radioactive Waste Systems

Management Interview

At the conclusion of the inspection the inspectors discussed the following matters with Messrs. Worden, Morris, Diederich, Jackiw, Pavlick, and Berte.

A. The radioactive liquid waste system was found to be operating within technical specification release limits. However, additional improvement in operating performance appears possible and would be warranted based on an intent to further reduce discharges of liquid radioactive waste. (Paragraph 17)

1. During 1971, 1.4×10^7 gallons containing 23 curies or approximately 60% of the total radwaste volume (released + recycled) was released. This included 3.2 curies and 4.9×10^6 gallons of waste from the waste sample tanks which is normally expected to be recycled.

2. During the last two months the waste concentrator processed approximately 8,700 gal/day, which is only 25% of design capacity.

3. Solids were visually detected by the inspector in a sample from the "A" Floor Drain Sample Tank downstream of the floor drain filter on May 10, 1972.

4. Appearance of large volumes of radioactive water in the floor drain system about May 1 and continuing through the dates of the inspection created a processing backlog.

Mr. Worden stated much attention is being given to the radwaste system by both CE and GE to improve performance. Installation of facilities for the maximum recycle is expected to be completed by the end of 1973. The licensee was informed that analysis of the shared liquid and gaseous waste samples obtained by the inspector during the inspection would be provided when available.

B. The radioactive waste liquid monitor background has been reduced by the installation of a stainless steel discharge spool piece at the monitor and periodic flushing. The licensee stated the alarm point would be reset as low as possible to give alarm protection of $> 10^{-7}$ uCi/cc in the discharge canal. The licensee plans to report the monitor performance to Licensing since it appears that there would be times when the monitor might not be capable of alarming prior to a radioactivity of 10^{-7} uCi/cc in the discharge canal. (Paragraph 15)

C. The licensee was informed that the service water and reactor closed cooling water process monitors have not been correlated to effluent activity concentrations. The licensee plan to investigate methods to accomplish this calibration and to confirm the designed sensitivity of 3×10^{-6} uCi/cc. (Paragraph 16)

D. The licensee was informed that the differences in establishing the plateau and discriminator settings in the Unit 2 and 3 service water monitors should be justified. Mr. Pavlick stated that radiation protection and instrument personnel would accomplish these reviews and have information on these items by the next inspection. (Paragraph 16)

E. The inspector noted the decrease in relief valve set points may have applicability to the safety valve activation problem. The licensee stated the conditon had been identified and would be pursued. (Paragraph 14)

F. Mr. Worden was informed that breach of secondary containment was considered an item of noncompliance. The inspector stated the corrective action of locking the railroad air lock doors, as

mentioned in the Worden to Morris letter of April 5, 1972, was not implemented on May 17 when it was noted that the doors were not locked or attended. The licensee stated that additional instructions would be given to cover the above observed deficiency. (Paragraph 8)

G. Mr. Worden stated that the corporate Quality Assurance Manual was expected to be completed by June of 1972. Station personnel are actively preparing and upgrading station procedures to implement the manual and are near completion. Some of the station implementation may extend beyond the June date since the corporate manual is still being finalized. The inspectors acknowledged this position and stated the total QA package would be reviewed during subsequent inspections.

H. Review of the station 1971 incident file revealed that most of the reports were in an incomplete status awaiting completion of investigation, SRB approval, or typing. The licensee was informed the file will be reviewed at a future inspection. The licensee stated essentially all of the investigations of the earlier incidents had been completed but the system would be reviewed.

I. The licensee confirmed that the following items were in progress or under review:

1. Desirability of seal in contacts of the off-gas condenser isolation valves circuitry.

2. Investigation involving deterioration of four Unit 2 suppression system isolation valves. (Paragraph 13)

3. Determination of the cause of activation of safety valves at lower than normal set pressures.

4. Evaluation of excessive carryover experienced on the shell side of the isolation condensers.

5. The reactor building continuous air monitor alarm would be wired to annunciator in the control room within three months.

SECTION II

Additional Subjects Inspected, Not Identified in Section I, Where No Unresolved Items Were Found

1. General

Unit 2 resumed operation on May 10 following the refueling outage which began February 19, 1972. A program has been outlined to complete the Unit 2 test program and warranty run in 38 days. Testing of the feedwater system response is included at 25, 50, 75, and 100% power.

Unit 3 resumed operation on May 8 following the outage of the May 4 safety valve activation event. On May 17 the unit was operating at 90% power with an off-gas release rate of 5,600 uCi/sec.

2. Reactivity Controls and Core Physics

a. Unit 2 control rod criticality predictions vs. measured.

b. Confirmation of Unit 2/3 standby liquid control testing and surveillance requirements were met.

3. Primary System

a. Pipe wall thickness measurements on Unit 2 G & H safety valve risers.

b. Failure evaluation of Unit 2/3 main steam flow restrictors.

c. Service history and inspection of Unit 2/3 safety valve seat bushings.

d. Unit 2/3 main steam flow switches performance.

e. Replacement of Unit 3 safety valve which activated on May 4, 1972.

4. Radiation Protection and Radioactive Waste Systems

a. Station personnel exposure records for 1971.

b. Station practice emergency drills on March 28, 1972.

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c. Unit 2/3 off-gas release records, January 2 - April 25, 1972.

d. Observation of Unit 2/3 solid waste operation.

e. Unit 2/3 radwaste log, May 10 - May 11, 1972.

5. Electrical

a. Unit 2/3: HFA relay installation information.

b. Unit 2: 48,125, and 250 volt battery testing results.

6. Containment

a. Preliminary results of Unit 2 integrated leak rate tests.

b. Reactor building isolation circuit design.

c. Weekly test results of torus to drywell vacuum breaker was completed.

7. Miscellaneous

a. Unit 2 planned test program.

b. Review and control of five Unit 2 modifications.

c. Inspection of Unit 2/3 instrument air piping for installation of prefilters and flexible connectors.

d. Unit 2/3 shift staffing.

Details of Subjects Discussed in Section I

8. Secondary Containment

Unit 2/3 secondary containment integrity was not in effect for approximately two hours on March 27, 1972, when the reactor building air lock railroad doors were inadvertently left open. The event was reported to DRL by the licensee in a letter dated April 5, 1972. The corrective action was to maintain the doors locked. The doors were not locked or attended during an inspection on May 17, 1972. The inner doors were closed and latched at the time and the outer doors were closed but not latched. The licensee subsequently determined that the shift engineer had

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authorized electricians to move equipment through the air lock. The licensee agreed that additional instructions would be provided to cover the above noted deficiency.

9. Mode Switch

The licensee has issued an operating order to remove the key and thereby lock the mode switch whenever the switch position is in refuel for core alterations. This position was subsequently stated in the licensee's letter to B. H. Grier, dated May 26, 1972, which was in response to an item of noncompliance. On May 4, following Unit 3 shutdown, the mode switch was noted to be in shutdown with the key removed.

10. Loss of 480 Volt Bus 28

On March 29, 1972, during maintenance overhaul of the electrical breaker on the transformer side of Unit 2 electrical Bus 28 contacts in the breaker cubicle were activated which simulated trip logic to a second breaker temporarily supplying power to Bus 28. Loss of Bus 28 resulted and rendered the following subsystems inoperable: "A" standby gas treatment, 2A standby liquid control pumps, and the 2A core spray systems. Unit 2 was in refuel with all rods in and no fuel movements in progress and Unit 3 was operating. The licensee stated "B" standby gas treatment subsystem was started immediately to verify operability. The inspector did not note any caution signs installed on the outside of the breaker cubicles as a result of this occurrence. Procedural changes and caution signs within the transformer 28 and 29 high side breakers were completed to prevent recurrence according to the licensee.

11. LPCI Logic

During Unit 2 surveillance testing on April 7, 1972, of the low pressure coolant inspection logic, one of the redundant normally open LPCI injection valves, 21A, was found inoperable to close automatically if called upon. The valve was found to be operable remotely from the control room. The difficulty was traced to a loose terminal which had the fastening screw missing. The circuitry had operated normally during the April 1971 refueling outage. The licensee stated similar terminal strips were checked to assure that other anchoring screws were intact. The logic testing performed each refueling outage had been successfully completed on May 11, 1971. The event was reported to DRL on April 25, 1972.

12. PEECO Flow Switches

During unit shutdown, inspection of the PEECO vane type flow switches in the HPCI cooling water piping and shutdown cooling system, determined that the flow vanes had failed. Efforts to recover the failed switches were partially successful and inspection of similar switches in other systems were performed as shown below. All switches of this type are planned to be replaced with a different type switch. Reports of the failures, including a safety analysis, were submitted to DRL on April 14 and May 12, 1972. Present status is shown below:

System EP	No. of Switches	Unit 2	Unit 3
HPCI (2379)	1	Paddle and 2 - 1/2" x 3/16" screws missing; paddle consists of three 0.025" stainless laminations bound with 2 straps of 3/8" x 0.0125" which are spot welded	Intact - peened over screws
Shutdown Cooling (1046 A, B, C)	3	All failed where paddle enters switch body. Paddles are stainless cylindrical in shape. All parts recovered except one 9 3/8" long x 3/4" diameter segment.	Not in system Removed during preoperational testing.
Recirculation 262-5A, B 262-6A, B 262-9A, B	6	All intact; peened screws	Have not inspected. Does not consider safety related.
Cleanup 1291-45A, B 1291-47	3	All intact; peened screws	To inspect when time permits
Standby Liquid 1151	1	Intact; peened screws	Not inspected

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13. Primary Containment Penetration Leakage - Unit 2

During the local leak rate testing of primary containment penetrations during the February 19 - May 10, 1972, refueling outage, the personnel air lock, four pressure suppression system air operator isolation valves and two feedwater check valves failed to meet the Technical Specification permissible leakage requirement of 29 scfh for a single penetration.

Results of leak rate testing of specific penetrations is shown below:

Valve	Function	Leakage (scfh) 4/71	4/72	5/72	Comments
1601-20B	AO 20" reactor bldg to torus vacuum breaker	0.1	17,000	8.0	Replaced rubber seats
1601-21,22,56	AO 18" drywell purge	16.2	Not able to pressurize	14.9	Replaced rubber seats - 21, 22 Relpaced Valve - 56
220-58B	18" feedwater inboard check	7 (160 scfh prior to cleaning & marking)	5,000	6.8	Required reseating of seat ring
220-62B	18" feedwater outboard check		5,000	3.6	Required machining of seat ring and disc
	Personnel air lock	0 (82 scfh prior to replacing packing on outer door upper hand wheel)	134	0	Replaced packing and packing gland on outer door upper hand wheel stem seal

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The feedwater check valves required machining and/or reseating of the disc ring. Valve 58B is noted to have required maintenance on two consecutive tests as had the personnel air lock outer door handwheel stem seal. The latter is believed by the licensee due to the excessive use of the door during the refueling outages.

Inspection of the rubber seat material removed from two pressure suppression valves indicated a fracture mechanism has cracked the seat into pieces ranging in sizes as small as one square inch. The seat material, bonded to the valve body at the manufacturers, was reported to be easily removed by hand from the valve body. Initial evaluation by the licensee indicates failure to be a combination of usage, time-temperature deterioration, and poor bonding.

The pressure suppression valves are air operated butterfly valves which are exposed to the containment atmosphere. Normal drywell containment temperature is approximately 135°F. Dresden 2 drywell temperature reached a peak of 320°F following the June 5, 1970, safety valve actuation event. Dresden 3 drywell temperatures reached 295° and 185°F during the December 8, 1971, and May 4, 1971, safety valve actuation events.

On the basis of the above test results and inspection of the valves, the licensee initiated the following action on the pressure suppression valves.

a. On Unit 2 replaced valve 1601-56 with a similar type and returned three valves, 1601-20B, 1601-21 and 1601-22, to the manufacturer for replacement of the rubber seat with a higher temperature rated material of 250°F continuous and 300°F for ten hours. Specification of the original Buna - N rubber seat material was reported to be 190°F.

b. Increased the testing of the butterfly valves associated with the drywell from once per cycle to every three months on both Units 2 and 3. Tests of Dresden 3 drywell purge valves on April 20, 1972, indicated all were within the allowable leakage of 29 scfh.

c. Requested the Architectural Engineer to review all primary containment rubber seated valves to determine adequacy of seat material.

d. Evaluate with the manufacturer means to upgrade the suppression chamber valves. A replacement program will be adopted.

e. Submitted a special report of the valve problem to Directorate of Licensing in accordance with license requirements. (Worden to Morris, letter dated May 18, 1972)

Preliminary data of the Unit 2 integrated leak rate test conducted on April 27, 1972, indicated a leakage rate of 0.3 wt %/day compared to an allowable 1.2 wt %/day.

Region III will follow the findings of the above program.

14. Electromatic Relief Valves

Downward drift of the pressure set point of the electromatic relief valves has been noted. The "A" electromatic relief valves automatically relieved about 15 psi low according to other pressure recording instruments on the May 4, 1972, Unit 3 safety valve activation event. Normal calibration frequency on these instruments has been once per refueling outage as required by Technical Specifications Section 4.6.E. The licensee plans to investigate the case of the drift. A general test procedure and specific data sheets are provided for this setting.

Unit 2 - Data in PSIG

Date:	3/23/70	5/19/72		4/29/72		Summary	
Valve	As left	As found	As left	As found	As left	Δ P=As left-as found	
A	1135	1108	1132	1120	1133	27	12
B	1142	1120	1139	1136	1137	22	3
C	1138	1108	1140	1132	1137	30	8
D	1144	1132	1144	1134	1142	8	10
E	1141	1113	1145	1132	1142	28	13

Unit 3

Date:	6/28/71		5/5/72		Summary	
Valve	As found	As left	As found	As left	Δ P=As left-as found	
A	1095	1133	1108	1132	38*	25
B	1122	1138	1128	1138	16*	10
C	1138	1138	1139	1138	0*	-1
D	1132	1143	1119	1142	11*	24
E	1132	1143	1125	1145	11*	18

* indicates estimate

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15. Unit 2/3 Radwaste Discharge Monitor

A new stainless spool piece with lead shielding has been installed in the radwaste monitor installation. Since April 3, 1972, the licensee has been collecting data regarding the performance of the new installation. The licensee does not always flush the line after every discharge, but whenever this is done he has been successful in reducing the background to an average of 200 cps (highest so far was 300 cps). The highest count rate experienced during discharge, following a flushing operation, was 600 cps.

From the data obtained the monitor appears to have a sensitivity of 3×10^{-6} uCi/ml/cps as noted in the FSAR. Assuming a dilution factor of 10^4 at the discharge canal, 333 cps (net) at the monitor could indicate a concentration of 1×10^{-7} (discharge limit) at the discharge canal. The alarm setting of 15,000 cps is equal to 4.5×10^{-6} uCi/ml at the discharge canal. The licensee will attempt to reduce the alarm set point by a factor of ten.

Because of the background, the discharge monitor does not always meet the intent described in the FSAR. The licensee plans to report the findings and experience of the monitor to Licensing.

16. Service Water Monitor

The service water monitor has recently been shielded with 2" of lead in order to reduce the background caused primarily by the "steam warming line" leading to the HPCI turbine. Count rates observed in the control room were 100 counts/sec and 150 counts per sec, respectively, for Units 2 and 3. The service water monitor was found not to be calibrated to an effluent activity concentration. The monitor sensitivity of 3×10^{-6} uCi/cc identified in the Safety Analysis Report has not been demonstrated. In December 1969, the Unit 2 service water monitor discriminator was set to reduce the count rate from a cesium 137 source by one half. In November 1970, the Unit 3 discriminator was set to reduce the count rate from a barium 133 source by one half. Thus, the Unit 2 service water monitor is biased at about 0.6 Mev, while the Unit 3 monitor is biased at about 0.3 Mev. Prior to setting the discriminators, a high voltage plateau was obtained for the purpose of determining the proper operating voltage. The plateaus have not been rechecked since that time, nor are there any provisions or plans for doing so. Every three months, a pulse generator is used to ensure that the ratemeter is responding properly.

Closed Cooling Water Monitor - The closed cooling water monitor, located at the inlet to the closed cooling water heat exchanger, is similar to the service water monitor in both construction and maintenance. No requirements are imposed on these two detectors by the Technical Specifications. The licensee stated the following actions would be taken:

a. Investigate means to calibrate the monitors to an effluent activity concentration.

b. Determine the basis for the discriminator setting and establish criteria for instrument recalibration.

17. Radioactive Waste

Review of station records indicated that liquid wastes were being released in accordance with the Technical Specifications. Summary of the disposition of liquid radwaste during 1971, and the comparison of predicted vs. actual releases is shown in the attached Table. During the period Unit 2 was shut down for a 3 months refueling outage and Unit 3 initiated power testing and operation in July of 1971. The activity released is shown to be 155% of that predicted with a reactor water activity of 0.1 uCi/cc which compares favorably with Units 2/3. Table 1 also indicates 3.2 curies were released from the waste sample tanks, a system that is not normally expected to be discharged. The maximum recycle equipment, with a capability of recycling 60% of releases, is expected to be installed by the end of 1973 according to the licensee.

From the records reviewed and discussion with the licensee the radwaste system is operating near its capacity. Any upset in the system such as the following occurrences further taxes the system.

Large volumes of radioactive wastes appeared in the floor drain system, normally a low radioactive system, about May 2 and continued through the dates of the inspection. According to the licensee the waste resulted from the overflow of the reactor building equipment drain tank and a spill of approximately 200 cubic feet of resin in the radwaste basement. Much of the above waste was processed through the waste concentrator, which will not be available to the floor drain system during regeneration of resins.

Records maintained on the waste concentrator during the period March 11 - May 9, 1972, indicated that 8,700 gallons per day were processed which is only 25% of the design rate. The spare concentrator was reportedly being reworked because of plugged level instrument lines which permitted the concentrator to be boiled dry, although this was not the cause of the low utilization factor.

On May 11 a sample obtained from "A floor drain sample tank was determined visually by the inspector to contain a large amount of solids. Water passes through the floor drain filter prior to entering the sample tank. Chemical analysis indicated the water to have a turbidity of 164 APHA units and a conductivity of 540 umhos. The licensee stated no turbidity limit existed on effluent wastes. The licensee stated that the filter performance would be reviewed.

Attachment:
Table 1

1081.21

Dresden 2/3

Comparison of Predicted and Actual Effluents - 1971*

	Activity Released			Volume Released		
	Predicted Ci	Actual Ci	Percent of Predicted	Predicted Gallons	Actual Gallons	Percent of Predicted
Waste Sample Tanks	0	3.2	00	0	4.9×10^6**	00
Floor Drain Sample Tanks	15	20	130	1.5×10^7	9.1×10^6	60
Decontamination Solution Tank	0	0.032	00	0	1.2×10^4	00
Total	15	23.2	155	1.5×10^7	1.4×10^7	93

*Predicted values obtained from "normal activity" (reactor water activity concentration of 0.1 uCi/cc) and "normal daily" (steady state operation) values from GEK-9560, Operation and Maintenance Instructions (Dresden 2/3 Radioactive Waste System).

A gross reactor water concentration, two hours after sampling, of 0.04 to 0.36 uCi/cc (average of 0.8 uCi/cc) was present on Unit 2 during February of 1971 prior to refueling. Unit 2 peak activity during December of 1971 was 0.14 uCi/cc.

**Volume reclaimed to condensate storage tank was 8.4×10^6 gallons.

TABLE 1

1081.22