

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 6, 1994

Doc. No. 50-237, 50-249
and 50-254, 50-265

NRC FILE CENTER COPY

Mr. D. L. Farrar, Manager
Nuclear Regulatory Services
Commonwealth Edison Company
Executive Towers West III, Suite 500
1400 OPUS Place
Downers Grove, Illinois 60515

Dear Mr. Farrar:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. M89068, M89069, M89070 AND M89073)

The Commission has issued the enclosed Amendment No. 128 to Facility Operating License No. DPR-19 for Dresden, Unit 2, Amendment No. 122 to Facility Operating License No. DPR-25 for Dresden, Unit 3, Amendment No. 148 to Facility Operating License No. DPR-29 for Quad Cities, Unit 1, and Amendment No. 144 to Facility Operating License No. DPR-30 for Quad Cities, Unit 2. The amendments are in response to your application dated March 11, 1994.

The proposed amendments revise Technical Specification 3/4.7.D, "Primary Containment Isolation Valves" by adding check valves installed in the instrumentation line to the Limiting Condition for Operation (LCFO) statement of the Technical Specifications. The valves have been installed as part of the modifications required to meet NRC Bulletin 93-03, "Resolution of Issues Related to Reactor Vessel Water Level Instrumentation in BWRs," dated May 28, 1993 (Bulletin).

Based on our review contained in the enclosed safety evaluation, the staff finds that the modifications meet the intent of the Bulletin and the proposed schedule of implementation is acceptable. This completes the staff actions under TAC Nos. M86889 and M86890 for Dresden and M86909 and M86910 for Quad Cities.

Also, by letter dated October 29, 1993, as supplemented December 22, 1993, and January 14, 1994, the licensee submitted an application for the review and approval of unreviewed safety questions resulting from the 10 CFR 50.59 evaluation of reactor vessel level instrumentation system (RVLIS) modification to meet the requirements of the Bulletin. The modifications at that time would have been such that inadvertent closure or blockage of the instrument root valve would have caused major plant transients. The staff raised several concerns with the licensee's proposed modification. To comply with the installation modification schedule and the Quad Cities, Unit 2, restart schedule, the NRC issued an amendment under emergency circumstances for Quad Cities, Unit 2, only. By letter dated March 31, 1994, the licensee withdrew the October 29, 1993, application for Dresden, Units 2 and 3, and Quad Cities,

9407120043 940706
PDR ADDCK 05000237
P PDR

DF01/1

Mr. D. L. Farrar

-2-

Unit 1. Therefore, we consider work under TAC Nos. M88114 and M88115 for Dresden, Units 2 and 3, and M88112 for Quad Cities, Unit 1, to be complete.

The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original Signed By:

John F. Stang, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 128 to DPR-19
2. Amendment No. 122 to DPR-25
3. Amendment No. 148 to DPR-29
4. Amendment No. 144 to DPR-30
5. Safety Evaluation

cc w/enclosures:
See next page

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YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

*See previous concurrence.

Mr. D. L. Farrar

-2-

Unit 1. Therefore, we consider work under TAC Nos. M88114 and M88115 for Dresden. Units 2 and 3, and M88112 for Quad Cities, Unit 1, to be complete.

The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original Signed By:

John F. Stang, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 128 to DPR-19
2. Amendment No. 122 to DPR-25
3. Amendment No. 148 to DPR-29
4. Amendment No. 144 to DPR-30
5. Safety Evaluation

cc with enclosures:
See next page

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LA:PDIII-2	PM:PDIII-2	PM:PDIII-2	D:PDIII-2	OGC	BC:SRXB*	BC:SCSB*
CHAWES	JST/NG	CPATEL/CP	RCAPRA RW	ENOLLER	TCOLLINS	RBARRETT
1/ /94	6/30/94	6/30/94	7/5/94	7/5/94	05/28/94	06/08/94
YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

*See previous concurrence.

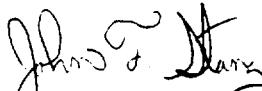
Mr. D. L. Farrar

-2-

Unit 1. Therefore, we consider work under TAC Nos. M88114 and M88115 for Dresden, Units 2 and 3, and M88112 for Quad Cities, Unit 1, to be complete.

The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,



John F. Stang, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 128 to DPR-19
2. Amendment No. 122 to DPR-25
3. Amendment No. 148 to DPR-29
4. Amendment No. 144 to DPR-30
5. Safety Evaluation

cc w/enclosures:
See next page

Mr. D. L. Farrar
Commonwealth Edison Company

Dresden Nuclear Power Station
Unit Nos. 2 and 3

cc:

Michael I. Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60690

Mr. G. Spedl
Plant Manager
Dresden Nuclear Power Station
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Morris, Illinois 60450-9765

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
Dresden Station
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Morris, Illinois 60450-9766

Chairman
Board of Supervisors of
Grundy County
Grundy County Courthouse
Morris, Illinois 60450

Regional Administrator
U. S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Mr. D. L. Farrar
Commonwealth Edison Company

Quad Cities Nuclear Power Station
Unit Nos. 1 and 2

cc:

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Vice President
Iowa-Illinois Gas and
Electric Company
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Davenport, Iowa 52808

Michael I. Miller, Esquire
Sidley and Austin
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Chicago, Illinois 60690

Mr. Guy Campbell
Station Manager
Quad Cities Nuclear Power Station
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Cordova, Illinois 61242

Quad Cities Resident Inspectors Office
U. S. Nuclear Regulatory Commission
22712 206th Avenue North
Cordova, Illinois 61242

Chairman
Rock Island County Board
of Supervisors
1504 3rd Avenue
Rock Island County Office Bldg.
Rock Island, Illinois 61201

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Regional Administrator
U. S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20585-1001

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-237

DRESDEN NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 128
License No. DPR-19

- The Nuclear Regulatory Commission (the Commission) has found that:
- A. The application for amendment by the Commonwealth Edison Company (the licensee) dated March 11, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act and the rules and regulations of the Commission;

there is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-19 is hereby amended to read as follows:

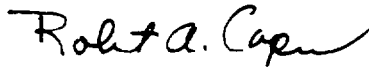
9407120060 940706
PDR ADOCK 05000237
P PDR

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 128, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance; to be implemented when the modifications are complete and prior to restart from any cold shutdown after June 30, 1994, or restart from the 14th refuel outage which ever is first.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, Director
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment 1
Changes to the Technical
Specifications

Effective Date: July 6, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 128

FACILITY OPERATING LICENSE NO. DPR-19

DOCKET NO. 50-237

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE

3/4.7-27

3/4.7-28

3/4.7-29

INSERT

3/4.7-27

3/4.7-28

3/4.7-29

3.7 LIMITING CONDITION FOR
OPERATION (Cont'd.)

- d. The fuel cask or irradiated fuel is not being moved in the reactor building.

- 2. If Specification 3.7.C.1 cannot be met, restore Secondary Containment Integrity within 4 hours or be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours and establish the conditions listed in Specification 3.7.C.1.a through d.

D. Primary Containment
Isolation Valves

- 1. During reactor power generating conditions, all primary containment isolation valves, all instrument line excess flow check valves, and all reference leg backfill check valves shall be operable except as specified in 3.7.D.2.

4.7 SURVEILLANCE REQUIREMENTS
(Cont'd.)

D. Primary Containment
Isolation Valves

- 1. The primary containment isolation valves surveillance shall be performed as follows:
 - a. At least once per operating cycle the operable primary containment isolation valves that are power operated and automatically initiated shall be tested for simulated automatic initiation and closure times.

3.7 LIMITING CONDITION FOR
OPERATION
(Cont'd)

2. In the event any primary containment isolation valve or any reference leg backfill check valve becomes inoperable, reactor power operation may continue provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolation condition.

4.7 SURVEILLANCE REQUIREMENTS
(Cont'd.)

- b. At least once per operating cycle the instrument line flow check valves shall be tested for proper operation.
- c. At least once per quarter:
- (1) All normally open power operated isolation valves (except for the main steam line power-operated isolation valves) shall be fully closed and reopened.
 - (2) With the reactor power less than 50% of rated, trip main steam isolation valves (one at a time) and verify closure time.
- d. At least twice per week the main steamline power-operated isolation valves shall be exercised by partial closure and subsequent reopening.
2. Whenever a primary containment isolation valve or any reference leg backfill check valve is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

3.7 LIMITING CONDITION FOR
OPERATION (Cont'd.)

3. If Specification 3.7.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours except for the Recirculation Loop Sample valves and the Drywell Air Sampling System valves which can be reopened after isolation for sampling.
4. The temperature of the main steamline air pilot valves shall be less than 170°F except as specified in 3.7.D.5 below.
5. From and after the date that the temperature of any main steamline air pilot valve is found to be greater than 170°F, reactor operation is permissible only during the succeeding seven days unless the temperature of such valve is sooner reduced to less than 170°F, provided the main steamline isolation valves are operable.

4.7 SURVEILLANCE REQUIREMENTS
(Cont'd.)

3. The temperature of the main steamline air pilot valves shall be recorded daily.
4. When it is determined that the temperature of any main steamline air pilot valve is greater than 170°F, the main steamline isolation valves shall be demonstrated to be operable immediately and daily thereafter. The demonstration of operability shall be according to Specification 4.7.D.1.d.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555-0001

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-249

DRESDEN NUCLEAR POWER STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 122
License No. DPR-25

The Nuclear Regulatory Commission (the Commission) has found that:

- A. The application for amendment by the Commonwealth Edison Company (the licensee) dated March 11, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act and the rules and regulations of the Commission;

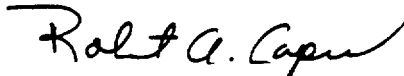
There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B. of Facility Operating License No. DPR-25 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 122, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

- 3 This license amendment is effective as of the date of its issuance; to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, Director
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Change in the Technical
Specifications

Date of issuance: July 6, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 122

FACILITY OPERATING LICENSE NO. DPR-25

DOCKET NO. 50-249

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE

3/4.7-27

3/4.7-28

INSERT

3/4.7-27

3/4.7-28

3.7 LIMITING CONDITION FOR
OPERATION (Cont'd.)

- d. The fuel cask or irradiated fuel is not being moved in the reactor building.

- 2. If Specification 3.7.C.1 cannot be met, restore Secondary Containment Integrity within 4 hours or be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours and establish the conditions listed in Specification 3.7.C.1.a through d.

D. Primary Containment Isolation Valves

- 1. During reactor power operating conditions, all primary containment isolation valves, all instrument line excess flow check valves, and all reference leg backfill check valves shall be operable except as specified in 3.7.D.2.

4.7 SURVEILLANCE REQUIREMENTS
(Cont'd.)

D. Primary Containment Isolation Valves

- 1. The primary containment isolation valves surveillance shall be performed as follows:
 - a. At least once per operating cycle the operable primary containment isolation valves that are power operated and automatically initiated shall be tested for simulated automatic initiation and closure times.
 - b. At least once per operating cycle the instrument line flow check valves shall be tested for proper operation.

3.7 LIMITING CONDITION FOR
OPERATION
(Cont'd)

2. In the event any primary containment isolation valve or any reference leg backfill check valve becomes inoperable, reactor power operation may continue provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolation condition.

4.7 SURVEILLANCE REQUIREMENTS
(Cont'd.)

- c. At least once per quarter:
 - (1) All normally open power-operated isolation valves (except for the main steam line power-operated isolation valves) shall be fully closed and reopened.
 - (2) With the reactor power less than 50% of rated, trip main steam isolation valves (one at a time) and verify closure time.
- d. At least twice per week the main steamline power-operated isolation valves shall be exercised by partial closure and subsequent reopening.
2. Whenever a primary containment isolation valve or any reference leg backfill check valve is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DOCKET NO. 50-254

QUAD CITIES NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 148
License No. DPR-29

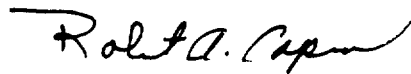
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Commonwealth Edison Company (the licensee) dated March 11, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-19 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 148, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance; to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, Director
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Original to the Technical
Specifications

Date of Issuance: July 6, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 148

FACILITY OPERATING LICENSE NO. DPR-29

DOCKET NO. 50-254

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE

3.7/4.7-18

3.7/4.7-19

INSERT

3.7/4.7-18

3.7/4.7-19

QUAD CITIES
DPR-29

- c. No activity is being performed which can reduce the shutdown margin below that specified in Specification 3.3.A.
 - d. The fuel cask or irradiated fuel is not being moved in the reactor building.
- 2. The doors of the core spray and RHR pump compartments shall be closed at all times except during passage in order to consider the core spray system and LPCI mode of the RHR system operable.
 - 3. If Specification 3.7.C.1 cannot be met, procedures shall be initiated to establish conditions listed in Specifications 3.7.C.1 a through d.

- c. Secondary containment capability to maintain an average 1/4 inch of water vacuum under calm wind ($2 < u < 5$ mph) conditions with a filter train flow rate of not more than 4000 cfm shall be demonstrated at each refueling outage prior to refueling.

- 2. Whenever the LPCI mode of the RHR and core spray subsystems are required to be operable, the doors of the core spray and RHR pump compartments shall be verified to be closed weekly.

D. Primary Containment Isolation Valves

- 1. During reactor power operating conditions, all isolation valves listed in Table 3.7-1, all instrument line flow check valves which contact the primary coolant system and all reference leg backfill check valves shall be operable except as specified in Specification 3.7.D.2.

D. Primary Containment Isolation Valves

- 1. The primary containment isolation valves surveillance shall be performed as follows:
 - a. At least once per operating cycle the operable isolation valves that are power operated and automatically initiated shall be tested for simulated automatic initiation and closure times.

QUAD CITIES
DPR-29

- b. At least once per operating cycle the instrument line flow check valves shall be tested for proper operation.
 - c. At least once per quarter:
 - 1) All normally open power operated isolation valves (except for the main steamline power-operated isolation valves) shall be fully closed and reopened.
 - 2) The main steamline isolation valves (one at a time) shall be verified for closure time.
2. In the event any isolation valve specified in Table 3.7-1 or any reference leg backfill check valve becomes inoperable, reactor power operation may continue provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolated condition.
3. If Specifications 3.7.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.
2. When an isolation valve listed in Table 3.7-1 or a reference leg backfill check valve is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555-0001

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DOCKET NO. 50-265

QUAD CITIES NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 144
License No. DPR-30

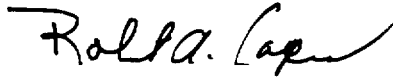
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Commonwealth Edison Company (the licensee) dated March 11, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B. of Facility Operating License No. DPR-25 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 144, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance; to be implemented prior to restart following the 13th refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, Director
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 6, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 144

FACILITY OPERATING LICENSE NO. DPR-30

DOCKET NO. 50-265

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE

3.7/4.7-9

3.7/4.7-10

INSERT

3.7/4.7-9

3.7/4.7-10

3.7/4.7-10a

QUAD CITIES
DPR-30

- b. The reactor water temperature is below 212°F and the reactor coolant systems are vented.
 - c. No activity is being performed which can reduce the shutdown margin below that specified in Specification 3.3.A.
 - d. The fuel cask or irradiated fuel is not being moved in the reactor building.
2. The doors of the core spray and RHR pump compartments shall be closed at all times except during passage in order to consider the core spray system and LPCI mode of the RHR system operable.
 3. If Specification 3.7.C.1 cannot be met, procedures shall be initiated to establish conditions listed in Specifications 3.7.C.1 a through d.

- b. Additional tests shall be performed during the first operating cycle under an adequate number of different environmental wind conditions to enable valid extrapolation of the test results.
- c. Secondary containment capability to maintain an average 1/4 inch of water vacuum under calm wind ($2 < u < 5$ mph) conditions with a filter train flow rate of not more than 4000 cfm shall be demonstrated at each refueling outage prior to refueling.

2. Whenever the LPCI mode of the RHR and core spray subsystems are required to be operable, the doors of the core spray and RHR pump compartments shall be verified to be closed weekly.

D. Primary Containment Isolation Valves

1. During reactor power operating conditions, all isolation valves listed in Table 3.7-1, all instrument line flow check valves which contact the primary coolant system and all reference leg backfill check valves shall be operable except as specified in Specification 3.7.D.2.

D. Primary Containment Isolation Valves

1. The primary containment isolation valves surveillance shall be performed as follows:
 - a. At least once per operating cycle the operable isolation valves that are power operated and automatically initiated shall be tested for simulated automatic initiation and closure times.

QUAD CITIES
DPR-30

- b. At least once per operating cycle the instrument line flow check valves shall be tested for proper operation.
 - c. At least once per quarter:
 - 1) All normally open power operated isolation valves (except for the main steamline power-operated isolation valves) shall be fully closed and reopened.
 - 2) The main steamline isolation valves (one at a time) shall be verified for closure time.
-
- 2. In the event any isolation valve specified in Table 3.7-1 or any reference leg backfill check valve becomes inoperable, reactor power operation may continue provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolated condition.
 - 3. If Specifications 3.7.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.
 - 4. The temperature of the main steamline air pilot valves shall be less than 170°F except as specified in Specifications 3.7.D.5 and 3.7.D.6 below.
-
- 2. When an isolation valve listed in Table 3.7-1 or a reference leg backfill check valve is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

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5. From and after the date that the temperature of any main steamline air pilot valve is found to be greater than 170°F, reactor operation is permissible only during the succeeding 7 days unless the temperature of such valve is sooner reduced to less than 170°F provided the main steamline isolation valves are operable.
6. If Specification 3.7.D.5 cannot be met, the main steamline isolation valve shall be considered inoperable and action taken in accordance with Specification 3.7.D.2.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 128 TO FACILITY OPERATING LICENSE NO. DPR-19
AMENDMENT NO. 122 TO FACILITY OPERATING LICENSE NO. DPR-25,
AMENDMENT NO. 148 TO FACILITY OPERATING LICENSE NO. DPR-29
AND AMENDMENT NO. 144 TO FACILITY OPERATING LICENSE NO. DPR-30

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-237, 50-249, 50-254 AND 50-265

1.0 INTRODUCTION

Commonwealth Edison Company (CECo, the licensee) proposed to modify the reactor vessel level instrumentation system (RVLIS) at Dresden and Quad Cities Stations in response to NRC Bulletin 93-03, "Resolution of Issues Related to Reactor Water Level Instrumentation in BWRs." The installation of these modifications will enhance plant safety by assuring that the degassing phenomenon described in Bulletin 93-03 will not be encountered. Dissolved gases in the RVLIS piping may produce uncertainties in the level instrumentation during reactor pressure vessel (RPV) depressurization, by providing degassed control rod drive (CRD) water to the RVLIS reference leg piping this modification will eliminate the uncertainties. The proposed design and modification ensures that a continuous column of water, free of non-condensable gases, is maintained in the RVLIS reference leg piping.

The piping design of the proposed modifications was chosen to physically eliminate the consequences of an inadvertent closure of the instrument rack reference leg root valve associated with the RVLIS configuration that provides the trip actuation function as described in Information Notice (IN) 93-89, "Potential Problems with BWR Level Instrumentation Backfill Modifications." Concerns over the valve location have been previously discussed with the licensee.

The configuration of the modifications connects the non-safety-related CRD system piping to each safety-related division of RPV instrumentation, post accident indication and the feedwater level control system (FWCS)

accident indication and the feedwater level control system (FWCS) instrumentation. The proposed modification includes the installation of redundant check valves to isolate the safety-related piping from non-safety-related piping, thereby limiting the loss of reactor coolant in the event of a postulated failure in the non-safety-related CRD system.

The backfill piping connects into the reference legs inboard of the primary containment isolation valves. This design categorizes these lines as part of the reactor coolant pressure boundary. Therefore, the check valves associated with the backfill instrument lines are considered primary containment isolation valves and meet the criteria for inclusion in Technical Specification (TS) Section 3.7.D.1 and 3.7.D.2 for Dresden and Quad Cities.

Technical Specification 3/4.7.D, "Primary Containment Isolation Valves," defines the limiting conditions for operation for primary containment isolation valves. Addition of the reference leg backfill check valves to Technical Specification 3.7.D.1 and 3.7.D.2 will ensure that the valves are maintained and monitored as primary containment isolation valves.

In addition, the NRC staff is evaluating the proposed modification to meet the intent of the Bulletin, and the licensee's proposed schedule for implementation.

2.0 EVALUATION

Modifications are being made to add a backfill system for the RVLIS reference legs at Dresden and Quad Cities Stations in response to the Bulletin.

The modifications will connect backfill piping to the RPV reference leg instrument lines. The purpose of the backfill piping is to provide a continuous flow of degassed CRD system water to the RVLIS reference leg piping. This will ensure that a continuous column of water, free of any non-condensable gases, is maintained in the reference leg piping. This modification will eliminate the occurrence of the "notching" effect in the RPV level instrumentation during RPV depressurization due to the presence of dissolved gases. The design of the backfill system injects water from the CRD system to the instrument reference legs between the containment penetration and the existing primary containment isolation valves (excess flow check valves). Figure 1 provides a simplified diagram of the backfill modification.

2.1 Basis of the Backfill Line Reference Leg Modifications

The connection location of the backfilled reference leg piping physically eliminates the consequences of an inadvertent RVLIS reference leg root valve manipulation error as described in Information Notice (IN) 93-89, "Potential Problems with BWR Level Instrumentation Backfill Modifications."

The backfill lines are connected in such a manner that they do not have an adverse effect on the capability of the connected instruments to perform their intended function. The backfill lines have no effect on the response time and

no significant impact on instrument accuracy. The design of the backfill system does not impact the redundancy, independence and testability requirements of the reactor protection system. The backfill lines are designed to the same level of quality as the existing instrument lines. The new check valves will not close inadvertently during normal operation, but will isolate when the backfill instrument line integrity is challenged during normal or accident conditions. The backfill line check valves will isolate if CRD system pressure falls below reactor pressure and will re-open under conditions that necessitate re-opening because the CRD water pressure is greater than reactor pressure.

One of the effects of the proposed addition of the backfill lines which inject inboard of the root valve is to extend the containment pressure boundary out to the safety-related backfill lines to the containment isolation devices separating the backfill lines from the non-safety-related CRD system. The licensee has proposed installing two check valves, in series, in each of these two subject backfill lines as the containment isolation devices required by GDC 55 of Appendix A to 10 CFR Part 50. GDC 55 prescribes four specific containment isolation valve arrangements for lines penetrating containment, but also allows for alternate containment isolation approaches. Since the licensee's present proposal does not conform with any of the valve arrangements prescribed in GDC 55, the licensee has proposed an alternative compliance as provided for in GDC 55.

The advantage of extending the containment pressure boundary out to the two subject check valves in the four reference legs which provide engineered safety feature (ESF) actuation signals is offset by eliminating the possibility of inadvertently isolating the instrument racks from the reactor pressure vessel by closing the manual root valve, thereby potentially subjecting these instruments to the CRD system pressure of 1300 psi, which could result in a severe transient at the Dresden and Quad Cities Stations.

For the reference leg backfill lines, the criteria for acceptable containment integrity is: 1) maintenance of the integrity and functional performance of the secondary containment system; 2) maintenance of the rate and extent of coolant loss within makeup capability; and 3) ensuring that the calculated offsite exposures from a single failure during normal operations are substantially below 10 CFR 100 limits.

The instrument line break accident, as described in Updated Final Safety Analysis Report (UFSAR) Section 15.6.2, limits reactor coolant leakage below 10 CFR 100 limits for line breaks inside or outside the containment. The addition of the reference leg backfill lines does not change the description or consequences of the instrument line break scenario. Outside of containment, isolation is provided by two new simple check valves located as close as practical to the containment (within 15 feet). The same provisions are made for visual inspection of the backfill piping as for the original instrument lines up to and including the new containment isolation check valves. The new check valves will be leak tested by use of procedural methods

which are adequate to accurately verify leakage below the chosen criteria. This leak testing method will account for measurement accuracy effects at the low flow rates needed to preserve reference leg inventory.

The new check valves themselves provide greater leak tightness than other valves used on similarly sized lines. They have low opening pressure and a soft seat which will not cause pressure spikes in the downstream instruments. The isolation capability of the backfill line check valves will be periodically verified by testing to leak rate criteria that is significantly more restrictive than the 10 CFR 50, Appendix J, minimum leak rate testing requirements. In addition, inclusion of all the new check valves into TS Section 3.7/4.7.D requires that these valves be subject to Type C testing in accordance with 10 CFR 50, Appendix J.

The proposed plant modifications for the reference leg backfill check valves do not increase the radiological consequences of any previously evaluated accident. The radiological impact from a reference leg backfill instrument line break is bounded by Dresden and Quad Cities' Instrument Line Break analysis (UFSAR Section 15.6.2). Therefore, the offsite exposures from a line break associated with the backfill lines during normal operations are substantially below 10 CFR 100 limits.

2.2 Compliance to General Design Criterion (GDC) 55

The new piping connects into the reference instrument line legs on each unit inboard of the existing containment isolation valves. These new lines are part of the reactor coolant pressure boundary. Therefore, the intent of GDC 55 is applicable to these reference leg backfill lines.

GDC 55 requires each line that is part of the reactor coolant pressure boundary and penetrates primary reactor containment be provided with containment isolation valves meeting specific criteria. GDC 55 allows deviation from these specific criteria, if it can be demonstrated that the containment isolation provisions for a specific class of lines are acceptable on some other defined basis.

The licensee's defined basis, as required by GDC 55, for the acceptability of the two subject check valves separating the safety-related portion of the backfill lines from the non-safety-related CRD system is based on the following:

- 1) The backfill piping is not a part of a protection system.
- 2) The safety-related portion of the backfill piping is designed to the same quality requirements of the current instrument lines. The piping and supports on the containment side, including the check valves, are safety-related and seismically qualified.
- 3) The reference leg backfill line check valves for all four (4) reference legs are located as close as practical to the containment penetration.

In all cases, the check valves will be located within 15 feet of the containment penetration.

- 4) The same provisions are made for visual inspection of the backfill piping as for the original instrument lines up to and including the containment isolation check valves. These valves are being added to the inservice test (IST) and local leak-rate test (LLRT) programs.
- 5) The backfill line connection made to the reference legs is such that the response time of the connected instrumentation is not affected.
- 6) The backfill lines will not close accidentally during normal reactor operation because CRD drive water flow will keep the check valves open. The CRD drive water flow is checked daily on operator rounds.
- 7) The backfill line will be isolated by the use of simple check valves if CRD system pressure is lost during normal reactor operation or under accident conditions.
- 8) The backfill lines will re-open under conditions that necessitate re-opening because the CRD water pressure is greater than reactor pressure. If a CRD pump is not operating, the backfill check valves will remain closed and cannot be re-opened until a CRD pump is operating with adequate water pressure to re-establish backfill flow.
- 9) The isolation capability of the check valves will be periodically verified by testing to leak rate criteria that exceeds the 10 CFR 50, Appendix J, minimum requirements.
- 10) The offsite exposure due to a line break in the backfill system is below 10 CFR 100 limits. The leakage from the reactor pressure vessel assuming a single failure of a check valve in addition to the line break is substantially less than the instrument line break evaluated in UFSAR Section 15.6.2.

Based upon the previous discussion, the proposed modifications do not adversely affect the function that the reference leg performs, and maintain containment leakage within established limits for Dresden Station and Quad Cities Station. The function of the RVLIS is not impaired because the backfill piping is designed to the same quality as the existing instrument lines and does not have a significant impact on existing instrument accuracy. The design of the backfill system satisfies the redundancy, independence and testability requirements of the reactor protection system. The containment integrity is maintained because the radiological impact from a reference leg backfill instrument line break is bounded by Dresden and Quad Cities' Instrument Line Break analysis (UFSAR, Section 15.6.2). The design of the check valves provides greater leak tightness than other valves used on similarly sized lines. The isolation capability of the backfill check lines will be periodically verified to stringent requirements that ensure the integrity of the lines are maintained. The radiological impact of the

proposed modification is insignificant as existing line break analyses bound the consequences of a loss of backfill line integrity. Based on the above, the staff finds the design of the proposed modifications meets the intent of GDC 55 and also meets Bulletin 93-03, and are, therefore, acceptable.

2.3 Reference Leg Integrity with CRD System Flow

The non-safety-related CRD system piping will be connected to each of the safety-related divisions of RPV and FWCS instrumentation. The connection of the non-safety-related backfill piping to the safety-related vessel instrumentation line requires the establishment of an isolation boundary. The isolation boundary will ensure that the vessel reference leg piping remains filled in the event of challenges to the piping integrity or depressurization of the CRD system piping. This boundary is provided by two (2) safety-related check valves in series. The backfill check valves will eliminate the potential for reference leg leakage if CRD piping integrity is lost. These check valves are designed for use in an instrument application and have soft seats which provide for very tight backseating and low leakage rates. The check valves allow flow to the vessel instrumentation reference leg piping and prevent flow out of the reference leg piping.

Leakage criteria has been established to provide assurance that vessel level instrumentation integrity is adequately maintained in the event of CRD system depressurization. The basis for the check valve leakage is provided below:

The licensee has calculated the critical seat leakage rate for the RVLIS backfill instrument check valves to be 30 ml/hr. To establish a comfortable margin of safety, the licensee has established a maximum test leakage rate of 3.0 ml/hr for the RVLIS backfill check valves. This provides significant leak rate margin for assurance that instrument accuracy will be maintained.

Leakage criteria was established to provide assurance that vessel level instrumentation integrity is adequately maintained in the event of CRD system depressurization. The basis for the check valve leakage is the maximum leakage which ensures that the loss of water inventory from the reference leg piping over an acceptable time period is limited to that corresponding to a 6" level change. This ensures that adequate vessel level indication is provided to the operator for assessing plant operating conditions.

The level change criteria (six inches) is based upon the total instrument calibration tolerance from sensor to control room indicator. The time criteria (ten hours) is based upon the detection of a level gauge discrepancy by the control room operator within 8 hours, and implementation of corrective actions (isolation of the potentially leaking backfill system) within an additional 2 hours.

Based upon the inputs described above, licensee determined the volume of water in the condensate pot and reference leg that, if lost, would provide a 6" level discrepancy. This value was then divided by 10 hours. This yielded a

critical seat leakage rate for the RVLIS backfill instrument check valves of 30 ml/hr. However, in order to establish a margin of safety, the licensee has established a maximum test leakage rate of 3.0 ml/hr, which is a factor of 10 less than the critical seat leakage. The RVLIS backfill instrument check valves will be periodically tested as part of the IST program.

The Dresden Station and Quad Cities Station IST programs are committed to the 1986 Edition of ASME Section XI. Per this edition of ASME Section XI, the leakage rate for check valves will be "owner supplied", or as calculated using the following formula, $2 \times 30 \times D$ (ml/hr), where D is the check valve nominal valve size. Given the nominal valve size of 3/8", the calculated leakage (22.5 ml/hr) is consistent with the critical seat leakage calculation (30 ml/hr) described above. The maximum test leakage rate of 3.0 ml/hr provides margin to both values. Based on a review of the predicted flow rates calculated in the licensee's conservative analysis, the staff agrees with the licensee's conclusion, that a single failure consisting of a potential line break in the non-safety-related CRD system would result in a leakage rate far below that previously found acceptable for the present RVLIS design configuration. Therefore, the staff finds that the proposed addition of the subject backfill lines and their associated check valves will not increase potential primary containment leakage or discharge under faulted conditions and, therefore, is in compliance with 10 CFR 100 as discussed above.

In summary, the staff finds that the proposed addition of the two subject backfill lines and their associated check valves have a defined basis which ensures that the intent of GDC 55 is met and, therefore, is in compliance with its requirements. We also find that the licensee's proposal is in compliance with Appendix J to 10 CFR 50, and 10 CFR 100, as discussed above.

2.4 Basis for Changes to the Technical Specifications

The backfilled reference legs and associated piping connect into the RPV and FWCS instrumentation lines ahead of the existing primary containment isolation valves. Such a configuration requires the establishment of an isolation boundary by the requirements of GDC 55. Therefore, the check valves associated with the active trip backfill instrument lines are considered primary containment isolation valves and meet the criteria for inclusion into TS 3/4.7.D "Primary Containment Isolation Valves".

Based on the above evaluation, the staff finds the design of valves is adequate as containment isolation valves. Adding the valves to the TS assures the valves will be operable and are maintained and monitored as primary containment isolation valves. Therefore, the staff finds the proposed change acceptable.

2.5 Compliance with NRC Bulletin 93-03

The staff has reviewed the licensee's modifications to meet the Bulletin and finds the hardware modifications meet the intent of the Bulletin. Region III will inspect the backfill system including such aspects as the applicable

quality assurance program in accordance with a forthcoming Temporary Instruction (TI) module, after implementation of the hardware modifications.

Schedule

Quad Cities Unit 1:

CECo will fully install the backfill modification during the 13th refuel outage (Q1R13 March 1994).

Quad Cities Unit 2:

Interim modifications to meet the Bulletin are adequate and acceptable. Final modifications, spring 1995 (Q2R13).

Dresden Unit 2:

CECo will fully install the backfill modification during the 14th refuel outage D2R14 planned for March 1995 or during the first Cold Shutdown after June 30, 1994.

Dresden Unit 3:

CECo will fully install the backfill modification during 13th refuel outage (D3R13 March 1994).

The staff has reviewed the above proposed modification schedule and finds it acceptable.

2.6 Conclusion

Based on the above evaluation, the staff finds the proposed changes to the TS are acceptable. In addition, the staff finds the modifications and the schedule to meet the Bulletin are also acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a

proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (59 FR 17593). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

enclosure:

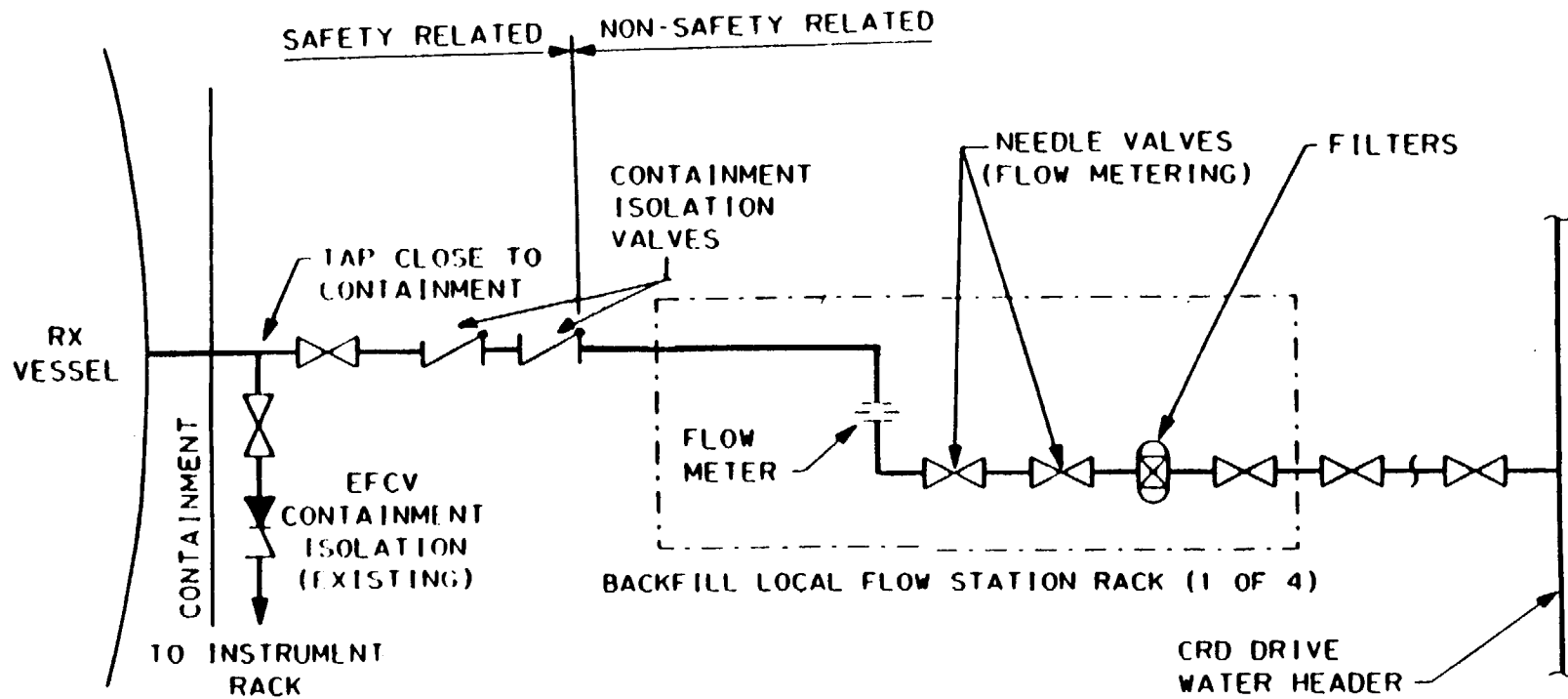
Backfill Modification

Principal Contributor: John F. Stang, NRR

Date: July 6, 1994

FIGURE 1

DRESDEN STATION UNITS 2 & 3
QUAD CITIES STATION UNITS 1 & 2
BACKFILL MODIFICATION



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