June 10, 1986

Docket Nos. 50-254/265

Mr. Dennis L. Farrar
Director of Nuclear Licensing
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Farrar:

SUBJECT: TECHNICAL SPECIFICATIONS RELATED TO TMI ACTION ITEMS COVERED BY GENERIC LETTER 83-36 (TAC Nos. 57015, 57016, 55733 and 55734)

Re: Quad Cities Nuclear Power Station, Units 1 and 2

The Commission has issued the enclosed Amendment Nos. 94 and 90 to Facility Operating License Nos. DPR-29 and DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2. The amendments are in response to your application dated September 26, 1984, which was in response to our Generic Letter (GL) 83-36.

The amendments add limiting conditions for operation and surveillance requirements to the Technical Specifications (TS) for certain plant modifications required by TMI Action Plan items covered by GL 83-36. The TS are approved for (1) Post Accident Sampling (II.B.3), (2) Sampling and Analysis of Plant Effluents (II.F.1.2), (3) Containment High-Range Radiation Monitor (II.F.1.3), (4) Containment Pressure Monitor (II.F.1.4), (5) Containment Water Level Monitor (II.F.1.5), and (6) Containment Hydrogen Monitor Monitor (II.F.1.6).

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notices.

Sincerely,

/S/

John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Enclosures:
1. Amendment No. 94 to License No. DPR-29
2. Amendment No. 90 to License No. DPR-30
3. Safety Evaluation

DBL:PD#1	DBL:PD#1	OELD	DBL:PD#1
for CJamerson	RBevan		JZwolinski
6/2/86	6/2/86	6/5/86	6/10/86

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

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. 94
License No. DPR-29

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

   A. The application for amendment by Commonwealth Edison Company (the licensee) dated September 26, 1984, 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 the addition of License Condition 3.L., and by changes to the Technical Specifications as indicated in the attachment to this license amendment. Paragraph 2.C.(2) of Facility Operating License No. DPR-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 94 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

New License Condition 3.L. is added to read as follows:

3.L. Post-Accident Sampling

A program will be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant chimney effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

1. Training of personnel,
2. Procedures for sampling and analysis, and
3. Provisions for maintenance of sampling and analysis equipment.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 10, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 94

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	INSERT
ii	ii
3.2/4.2-3	3.2/4.2-3
3.2/4.2-4	3.2/4.2-4
3.2/4.2-5	3.2/4.2-5
3.2/4.2-8	3.2/4.2-8
3.2/4.2-15	3.2/4.2-15
3.2/4.2-15a	3.2/4.2-15a
	3.2/4.2-15aa
3.2/4.2-15b	3.2/4.2-15b
3.2/4.2-15c	3.2/4.2-15c
3.2/4.2-15d	3.2/4.2-15d
3.2/4.2-17	3.2/4.2-17
3.2/4.2-18	3.2/4.2-18
	3.2/4.2-18a
3.2/4.2-19	3.2/4.2-19
3.8/4.8-20	3.2/4.2-20
	3.8/4.8-14a
	3.8/4.8-14b
	3.8/4.8-19

TABLE OF CONTENTS (Cont'd)

		Page
3.5/4.5	CORE CONTAINMENT COOLING SYSTEMS	3.5/4.5-1
	A. Core Spray Subsystems and the LPCI Mode of the RHR System	3.5/4.5-1
	B. Containment Cooling Mode of the RHR System	3.5/4.5-3
	C. HPCI Subsystem	3.5/4.5-4
	D. Automatic Pressure Relief Subsystems	3.5/4.5-5
	E. Reactor Core Isolation Cooling System	3.5/4.5-6
	F. Minimum Core and Containment Cooling System Availability	3.5/4.5-6
	G. Maintenance of Filled Discharge Pipe	3.5/4.5-7
	H. Condensate Pump Room Flood Protection	3.5/4.5-8
	I. Average Planar Linear Heat Generation Rate (APLHGR)	3.5/4.5-9
	J. Local LHGR	3.5/4.5-9
	K. Minimum Critical Power Ratio (MCPR)	3.5/4.5-10
3.5	Limiting Conditions for Operation Bases	3.5/4.5-11
4.5	Surveillance Requirements Bases	3.5/4.5-16
3.6/4.6	PRIMARY SYSTEM BOUNDARY	3.6/4.6-1
	A. Thermal Limitations	3.6/4.6-1
	B. Pressurization Temperature	3.6/4.6-1
	C. Coolant Chemistry	3.6/4.6-2
	D. Coolant Leakage	3.6/4.6-3
	E. Safety and Relief Valves	3.6/4.6-4
	F. Structural Integrity	3.6/4.6-4
	G. Jet Pumps	3.6/4.6-5
	H. Recirculation Pump Flow Mismatch	3.6/4.6-5
	I. Shock Suppressors (Snubbers)	3.6/4.6-5a
3.6	Limiting Conditions for Operation Bases	3.6/4.6-8
3.7/4.7	CONTAINMENT SYSTEMS	3.7/4.7-1
	A. Primary Containment	3.7/4.7-1
	B. Standby Gas Treatment System	3.7/4.7-7
	C. Secondary Containment	3.7/4.7-8
	D. Primary Containment Isolation Valves	3.7/4.7-9
3.7	Limiting Conditions for Operation Bases	3.7/4.7-11
4.7	Surveillance Requirements Bases	3.7/4.7-15
3.8/4.8	RADIOACTIVE EFFLUENTS	3.8/4.8-1
	A. Gaseous Effluents	3.8/4.8-1
	B. Liquid Effluents	3.8/4.8-6a
	C. Mechanical Vacuum Pump	3.8/4.8-9
	D. Environmental Monitoring Program	3.8/4.8-10
	E. Solid Radioactive Waste	3.8/4.8-13
	F. Miscellaneous Radioactive Materials Sources	3.8/4.8-14
	H. Control Room Emergency Filtration System	3.8/4.8-14a
3.8/4.8A	Limiting Conditions for Operation and Surveillance Req. Bases	3.8/4.8-15

F. Control Room Ventilation System Isolation

1. The control room ventilation systems are isolated from outside air on a signal of high drywell pressure, low water level, high main steamline flow, high toxic gas concentration, high radiation in either of the reactor building ventilation exhaust ducts, or manually. Limiting conditions for operation shall be as indicated in Table 3.2-1 and Specifications 3.2.H. and 3.2.F.2.

2. The toxic gas detection instrumentation shall consist of a chlorine, ammonia, and sulphur dioxide analyzer with each trip setpoint set at:

   a. Chlorine concentration $\leq$ 5 ppm.
   b. Ammonia concentration $\leq$ 50 ppm.
   c. Sulphur dioxide concentration $\leq$ 3 ppm.

   The provisions of Specification 3.0.A. are not applicable.

F. Control Room Ventilation System Isolation

1. Surveillance for instrumentation which initiates isolation of control room ventilation shall be as specified in Table 4.2-1.

2. Manual isolation of the control room ventilation systems shall be demonstrated once every refueling outage.

G. Radioactive Liquid Effluent Instrumentation

The effluent monitoring instrumentation shown in Table 3.2-5 shall be operable with alarm setpoints set to ensure that the limits of Specification 3.8.B. are not exceeded. The alarm setpoints shall be determined in accordance with the ODCM.

1. With a radioactive liquid effluent monitoring instrument alarm/trip setpoint less conservative than required, without delay suspend the release of radioactive liquid effluents monitored by the affected instrument, or declare the instrument inoperable, or change the setpoint so it is acceptably conservative.

G. Radioactive Liquid Effluent Instrumentation

Each radioactive liquid effluent monitoring instrument shown in Table 4.2-3 shall be demonstrated operable by performance of the given source check, instrument check, calibration, and functional test operations at the frequencies shown in Table 4.2-3.

2. With one or more radioactive liquid effluent monitoring instruments inoperable, take the action shown in Table 3.2-5. Exert best efforts to return the instrument to operable status within 30 days and, if unsuccessful, explain in the next Semi-Annual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner. This is in lieu of an LER.

3. In the event a limiting condition for operation and associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specifications, provide a 30-day written report to the NRC, and no changes are required in the operational condition of the plant, and this does not prevent the plant from entry into an operational mode.

H. Radioactive Gaseous Effluent Instrumentation

The effluent monitoring instrumentation shown in Table 3.2-6 shall be operable with alarm/trip setpoints set to ensure that the limits of Specification 3.8.A. are not exceeded. The alarm/trip setpoints shall be determined in accordance with the ODCM.

1. With a radioactive gaseous effluent monitoring instrument alarm/trip setpoint less conservative than required, without delay suspend the release of radioactive gaseous effluents monitored by the affected instrument, or declare the instrument inoperable, or change the setpoint so it is acceptably conservative.

H. Radioactive Gaseous Effluent Instrumentation

Each radioactive gaseous radiation monitoring instrument in Table 4.2-4 shall be demonstrated operable by performance of the given source check, instrument check, calibration, and functional test operations at the frequency shown in Table 4.2-4.

2. With one or more radioactive gaseous effluent monitoring instruments inoperable, take the action shown in Table 3.2-6. Exert best efforts to return the instrument to operable status within 30 days and, if unsuccessful, explain in the next Semi-Annual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner. This is in lieu of an LER.

3. In the event a limiting condition for operation and associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specifications, provide a 30-day written report to the NRC and no changes are required in the operational condition of the plant, and this does not prevent the plant from entry into an operational mode.

so that none of the activity released during the refueling accident leaves the reactor building via the normal ventilation stack but that all the activity is processed by the standby gas treatment system.

The instrumentation which is provided to monitor the postaccident condition is listed in Table 3.2-4. The instrumentation listed and the limiting conditions for operation on these systems ensure adequate monitoring of the containment following a loss-of-coolant accident. Information from this instrumentation will provide the operator with a detailed knowledge of the conditions resulting from the accident; based on this information he can make logical decisions regarding postaccident recovery.

The specifications allow for postaccident instrumentation to be out of service for a period of 7 days. This period is based on the fact that several diverse instruments are available for guiding the operator should an accident occur, on the low probability of an instrument being out of service and an accident occurring in the 7-day period, and on engineering judgment.

The normal supply of air for the control room ventilation system Trains "A" and "B" is outside the service building. In the event of an accident, this source of air may be required to be shut down to prevent high doses of radiation in the control room. Rather than provide this isolation function on a radiation monitor installed in the intake air duct, signals which indicate an accident, i.e., high drywell pressure, low water level, main streamline high flow, or high radiation in the reactor building ventilation duct, will cause isolation of the intake air to the control room. The above trip signals result in immediate isolation of the control room ventilation system and thus minimize any radiation dose. Manual isolation capability is also provided. Isolation from high toxic chemical concentration has been added as a result of the "Control Room Habitability Study" submitted to the NRC in December 1981 in response to NUREG-0737 Item III D.3.4. As explained in Section 3 of this study, ammonia, chlorine, and sulphur dioxide detection capability has been provided. The setpoints chosen for the control room ventilation isolation are based on early detection in the outside air supply at the odor threshold, so that the toxic chemical will not achieve toxicity limit concentrations in the Control Room.

The radioactive liquid and gaseous effluent instrumentation is provided to monitor the release of radioactive materials in liquid and gaseous effluents during releases. The alarm setpoints for the instruments are provided to ensure that the alarms will occur prior to exceeding the limits of 10 CFR 20.

TABLE 3.2-4
POSTACCIDENT MONITORING INSTRUMENTATION REQUIREMENTS (2)

Minimum Number of Operable Channels(1)(3)	Parameter	Instrument Readout Location Unit 1	Number Provided	Range
1	Reactor pressure	901-5	1 2	0-1500 psig 0-1200 psig
1	Reactor water level	901-3	2	-243 inches +57 inches
1	Torus water temperature	901-21	2	0-200°F
1	Torus air temperature	901-21	2	0-600°F
2(6)	Torus water level indicator	901-3	1	-5 inches -- +5 inches (narrow range)
	Torus water level indicator	901-3	2	0-30 feet (wide range)
	Torus water level sight glass		1	18 inch range (narrow range)
1	Torus pressure	901-3	1	-5 inches Hg to 5 psig
2	Drywell pressure	901-3	1	-5 inches Hg to 5 psig 0 to 75 psig
			2	0 to 250 psig
2	Drywell temperature	901-21	6	0-600°F
2	Neutron monitoring	901-5	4	0.1-10^8 CPS
2(4)	Torus to drywell differential pressure		2	0-3 psid
1(8)	Drywell Hydrogen concentration	901-55,56	2	0-4%
2(7)	Drywell radiation monitor	901-55,56	2	1 to 10^8 R/hr
2/valve(5)	Main steam RV position, acoustic monitor	901-21	1 per valve	NA
	Main steam RV position, temperature monitor	901-21	1 per valve	0-600°F
2/valve(5)	Main steam SV position, acoustic monitor	901-21	1 per valve	NA
	Main steam SV position, temperature monitor	901-21	1 per valve	0-600°F

Notes

1. Instrument channels required during power operation to monitor postaccident conditions.

2. Provisions are made for local sampling and monitoring of drywell atmosphere.

3. In the event any of the instrumentation becomes inoperable for more than 7 days during reactor operation, initiate an orderly shutdown and be in the cold shutdown condition within 24 hours. See notes 4, 5, 6, 7, and 8 for exceptions to this requirement.

4. From and after the date that one of these parameters is reduced to one indication, continued operation is not permissible beyond thirty days unless such instrumentation is sooner made operable. In the event that all indication of these parameters is disabled and such indication cannot be restored in six (6) hours, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition in twenty-four (24) hours.

5. If the number of position indicators is reduced to one indication on one or more valves, continued operation is permissible; however, if the reactor is in a cold shutdown condition for longer than 72 hours, it may not be started up until all position indication is restored. In the event that all position indication is lost on one or more valves and such indication cannot be restored in 30 days, an orderly shutdown shall be initiated, and the reactor shall be depressurized to less than 90 psig in 24 hours.

6. From and after the date that this parameter is reduced to either one narrow-range indication or one wide-range indication, continued reactor operation is not permissible beyond 30 days unless such instrument is sooner made operable. In the event that either all narrow-range indication or all wide-range indication is disabled, continued reactor operation is not permissible beyond 7 days unless such instruments are sooner made operable. In the event that all indication for this parameter is disabled, and such indication cannot be restored in 6 hours, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition in 24 hours.

7. With less than the minimum number of operable channels, initiate the pre-planned alternate method of monitoring this parameter within 72 hours, and:

   a. either restore the inoperable channel(s) to operable status within 7 days of the event, or

   b. prepare and submit a special report to the NRC within 30 days following the event, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

8. From and after the date that one of the drywell hydrogen monitors becomes inoperable, continued reactor operation is permissible.

   a. If both drywell hydrogen monitors are inoperable, continued reactor operation is permissible for up to 30 days provided that during this time the HRSS hydrogen monitoring capability for the drywell is operable.

   b. If all drywell hydrogen monitoring capability is lost, continued reactor operation is permissible for up to 7 days.

Table 3.2-5

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

Minimum No. of Operable Channels	Total No. of Channels	Parameter	Action (1)
1	1	Service Water Effluent Gross Activity Monitor	A
1	1	Liquid Radwaste Effluent Flow Rate Monitor	C
1	1	Liquid Radwaste Effluent Gross Activity Monitor	B

Notes:

Action A: With less than the minimum number of operable channels, releases via this pathway may continue, provided that at least once per 12 hours grab samples are collected and analyzed for beta or gamma activity at an LLD of less than or equal to 10^{-7} uCi/ml.

Action B: With less than the minimum number of operable channels, effluent releases via this pathway may continue, provided that prior to initiating a release, at least 2 independent samples are analyzed in accordance with Specification 4.8.8.1., and at least 2 members of the facility staff independently verify the release calculation and discharge valving. Otherwise, suspend release of radioactive effluents via this pathway.

Action C: With less than the minimum number of operable channels, releases via this pathway may continue, provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be utilized to estimate flow.

Table 3.2-6

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Minimum No. of Operable Channels (1)	Total No. of Channels	Parameter	Action(2)
1	2	SJAE Radiation Monitors	D
1	2	Main Chimney Noble Gas Activity Monitor	A
1	1	Main Chimney Iodine Sampler	C
1	1	Main Chimney Particulate Sampler	C
1	1	Reactor Bldg. Vent Sampler Flow Rate Monitor	B
1	1	Reactor Bldg. Vent Iodine Sampler	C
1	1	Reactor Bldg. Vent Particulate Sampler	C
1	1	Main Chimney Sampler Flow Rate Monitor	B
1	1	Main Chimney Flow Rate Monitor	B
1	2	Reactor Bldg. Vent Noble Gas Monitor	E
1	1	Main Chimney High Range Noble Gas Monitor	F

Notes

(1) For SJAE monitors, applicable during SJAE operation. For other instrumentation, applicable at all times.

(2) Action A: With the number of operable channels less than the minimum requirement, effluent releases via this pathway may continue, provided grab samples are taken at least once per 8 hour shift and these samples are analyzed within 24 hours.

Action B: With the number of operable channels less than the minimum required, effluent releases via this pathway may continue provided that the flow rate is estimated at least once per 4 hours.

Action C: With less than the minimum channels operable, effluent releases via this pathway may continue provided samples are continuously collected with auxiliary sampling equipment, as required in Table 4.8-1.

Action D: With less than the minimum channels operable, gases from the main condenser off gas system may be released to the environment for up to 72 hours provided at least one chimney monitor is operable; otherwise, be in hot stand-by in 12 hours.

Action E: With less than the minimum channels operable, immediately suspend release of radioactive effluents via this pathway.

Action F: With less than the minimum channels operable, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and:

(1) either restore the inoperable channel(s) to operable status within 7 days of the event, or

(2) prepare and submit a Special Report to the Commission within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to operable status.

TABLE 4.2-1 (cont'd)

Instrument Channel	Instrument Functional Test(2)	Calibration(2)	Instrument Check(2)
HPCI Isolation			
1. Steamline high flow	(1) (9)	Once/3 months	None
2. Steamline area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	(1)	Once/3 months	None
Reactor Building Ventilation System Isolation and Standby Treatment System Initiation			
1. Refueling floor radiation monitors	(1)	Once/3 months	Once/day
Steam Jet Air Ejector Off-Gas Isolation			
1. Off-gas radiation monitors	(1) (4)	Refueling outage	Once/day
Control Room Ventilation System Isolation			
1. Reactor low water level	(1)	Once/3 months	Once/day
2. Drywell high pressure	(1)	Once/3 months	None
3. Main steamline high flow	(1)	Once/3 months	Once/day
4. Toxic gas analyzers (chlorine, ammonia, sulphur dioxide)	Once/month	Once/18 months	Once/day

Notes:

1. Initially once per month until exposure hours (M as defined on Figure 4.1-1) are 2.0×10^5; thereafter, according to Figure 4.1-1 with an interval not less than 1 month nor more than 3 months. The compilation of instrument failure rate data may include data obtained from other boiling water reactors for whch the same design instrument operates in an environment similar to that of Quad Cities Units 1 and 2.
2. Functional tests, calibrations, and instrument checks are not required when these instruments are not required to be operable or tripped.
3. This instrumentation is excepted from the functional test definition. The function test shall consist of injecting a simulated electric signal into the measurement channel.
4. This instrument channel is excepted from the functional test definitions and shall be calibrated using simulated electrical signals once every 3 months.
5. Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibrations shall be performed during each startup or during controlled shutdowns with a required frequency not to exceed once per week.
6. The positioning mechanism shall be calibrated every refueling outage.
7. Logic system functional tests are performed as specified in the applicable section for these sytems.
8. Functional tests shall include verification of operation of the degraded voltage 5 minute timer and 7 second inherent timer.
9. Verification of the time delay setting of $3 \leq \tau \leq 10$ seconds shall be performed during each refueling outage.

TABLE 4.2-2
POSTACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Minimum Number of Operable Channels*	Parameter	Instrument Readout Location Unit 1	Calibration	Instrument Check
1	Reactor pressure	901-5	Once every 3 months	Once per day
1	Reactor water level	901-3	Once every 3 months	Once per day
1	Torus water temperature	901-21	Once every 3 months	Once per day
1	Torus air temperature	901-21	Once every 3 months	Once per day
	Torus water level indicator (narrow range)	901-3	Once every 3 months	Once per day
2	Torus water level indicator (wide range)	901-3	Once every 18 months	Once per 31 days
	Torus water level sight glass		N/A	None
1	Torus pressure	901-3	Once every 3 months	Once per day
2	Drywell pressure	901-3	Once every 3 months	Once per day
2	Drywell temperature	901-21	Once every 3 months	Once per day
2	Neutron monitoring	901-5	Once every 3 months	Once per day
2	Torus to drywell differential pressure		Once every 6 months	None
1	Drywell Hydrogen concentration	901-55,56	Once every 3 months	Once per 31 days
2	Drywell radiation monitor	901-55,56	Once every*** 18 months	Once per 31 days
	Main steam RV position, acoustic monitor	901-21	**	Once per 31 days
2/valve	Main steam RV position, temperature monitor	901-21	Once every 18 months	Once per 31 days

Minimum Number of Operable Channels*	Parameter	Instrument Readout Location Unit 1	Calibration	Instrument Check
	Main steam SV position, acoustic monitor	901-21	**	Once per 31 days
2/valve	Main steam SV position, temperature monitor	901-21	Once every 18 months	Once per 31 days

*Instrument channels required during power operation to monitor postaccident conditions.

**Functional tests will be conducted before startup at the end of each refueling outage or after maintenance is performed on a particular safety or relief valve.

***Calibration shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr; and a one-point calibration check of the detector below 10 R/hr with an installed or portable gamma source.

QUAD CITIES
DPR-29

TABLE 4.2-3
RADIOACTIVE LIQUID EFFLUENT MONITORING
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instrument	Instrument Check (1)	Calibration (1)(3)	Functional Test (1)(2)	Source Check (1)
Liquid Radwaste Effluent Gross Activity Monitor	D	R	Q (7)	(6)
Service Water Effluent Gross Activity Monitor	D	R	Q (7)	R
Liquid Radwaste Effluent Flow Rate Monitor	(4)	R	NA	NA

Notes:

(1) D = once per 24 hours
M = once per 31 days
Q = once per 92 days
R = once per 18 months
S = once per 6 months

(2) The Instrument Functional Test shall also demonstrate that control room alarm annunciation occurs, if any of the following conditions exist, where applicable.

a. Instrument indicates levels above the alarm setpoint.
b. Circuit failure.
c. Instrument indicates a downscale failure
d. Instrument controls not set in OPERATE mode.

3) Calibration shall include performance of a functional test.

4) Instrument Check to verify flow during periods of release.

5) Calibration shall include performance of a source check.

6) Source check shall consist of observing instrument response during a discharge.

7) Functional test may be performed by using trip check and test circuitry associated with the monitor chassis.

Table 4.2-4

RADIOACTIVE GASEOUS EFFLUENT MONITORING
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instrument	Mode(2)	Instrument Check(1)	Calibration(1)(4)	Functional Test(1)(3)	Source Check(1)
Main Chimney Noble Gas Activity Monitor	B	D	R	Q	M
Main Chimney Sampler Flow Rate Monitor	B	D	R	Q(6)	NA
Reactor Bldg. Vent Sampler Flow Rate Monitor	B	D	R	Q(6)	NA
Main Chimney Flow Rate Monitor	B	D	R	Q	NA
Reactor Bldg. Vent Activity Monitor	B	D	R	Q	Q
SJAE Activity Monitor	A	D	R	Q	R
Main Chimney Iodine and Particulate Sampler	B	D(5)	NA	NA	NA
Reactor Bldg. Vent Iodine and Particulate Sampler	B	D(5)	NA	NA	NA
Main Chimney High Range Noble Gas Monitor	B	D(5)	R	Q	M

Notes

(1) D = once per 24 hours
M = once per 31 days
Q = once per 92 days
R = once per 18 months

(2) A = during SJAE operation
B = at all times

(3) The Instrument Functional Test shall also demonstrate that control room alarm annunciation occurs, if any of the following conditions exist, where applicable:

a. Instrument indicates levels above the alarm setpoint
b. Circuit failure
c. Instrument indicates a downscale failure
d. Instrument controls not set in OPERATE mode

(4) Calibration shall include performance of a functional test.

(5) Instrument check to verify operability of the instrument; that the instrument is in-place and functioning properly.

(6) Functional test shall be performed on local switches providing low flow alarm.

H. Control Room Emergency Filtration System

1. The control room emergency filtration system, including at least one booster fan shall be operable at all times when secondary containment integrity is required, except as specified in Sections 3.8.H.1.a. and b.

   a. After the control room emergency filtration system is made or found to be inoperable for any reason, reactor operation and fuel handling are permissible only during the succeeding 14 days. Within 36 hours following the 14 days, the reactor shall be placed in a condition for which the control room emergency filtration system is not required in accordance with Specification 3.7.C.1.a. through d.

   b. Specification 3.8.H.1.a. above does not apply during performance or post-maintenance testing, or during removal of the charcoal test canister.

2. Periodic Performance Requirements

   a. The results of the in-place DOP tests at 2000 cfm (±10%) on HEPA filters shall show ≤ 1% DOP penetration.

   b. The results of in-place halogenated hydrocarbon tests at 2000 cfm (±10%) on the charcoal banks shall show ≤ 1% penetration.

   c. The results of laboratory carbon sample analysis shall show ≥ 90% methyl iodide removal efficiency when tested at 130°C and 95% R.H.

H. Control Room Emergency Filtration System

1. At least once per month, initiate 2000 cfm (±10%) flow through the control room emergency filtration system for at least 10 hours with the heaters operable.

2. Performance Requirement Tests

   a. At least once per operating cycle but not to exceed 18 months, or following painting, fire, or toxic chemical release in any ventilation zone communicating with the intake of the system while the system is operating that could contaminate the HEPA filters of charcoal absorbers, perform the following:

      1) In-place DOP test the HEPA filter banks to verify leaktight integrity.

      2. In-place test the charcoal absorber banks with halogenated hydrocarbon tracer to verify leaktight integrity.

3) Remove one carbon test canister from the charcoal absorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

b. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated:

1) Pressure drop across the combined filters

is less than 6 inches of water at 2000 cfm (±10%) flow rate.

2) Operability of inlet heater demonstrates heater ΔT of 15°F.

3. Postmaintenance Requirements

a. After any maintenance or heating that could affect the HEPA filter or HEPA filter mounting frame leak-tight integrity, the results of the in-place DOP tests at 2000 cfm (±10%) on HEPA filters shall show ≤ 1% DOP penetration.

b. After any maintenance or testing that could affect the charcoal absorber leaktight integrity, the results of in-place halogenated hydrocarbon tests at 2000 cfm (±10%) shall show ≤ 1% penetration.

3. Postmaintenance Testing

a. After any maintenance or testing that could affect the leaktight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters in accordance with Specification 3.8.H.2.a.

b. After any maintenance or testing that could affect the leaktight integrity of the charcoal absorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers in accordance with Specification 3.8.H.2.b.

3.8/4.8.C. MECHANICAL VACUUM PUMP

The purpose of isolating the mechanical vacuum line is to limit release of activity from the main condenser. During an accident, fission products would be transported from the reactor through the main steamline to the main condenser. The fission product radioactivity would be sensed by the main steamline radioactivity monitors which initiate isolation.

3.8/4.8.F. MISCELLANEOUS RADIOACTIVE MATERIALS SOURCES

The objective of this specification is to assure that leakage from byproduct, source and special nuclear material sources does not exceed allowable limits. The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39 (c) limits for plutonium.

3.8/4.8.E. SOLID RADIOACTIVE WASTE

The operability of the solid radioactive waste system ensures that the system will be available for use whenever solid radwastes require processing and packaging prior to being shipped off-site. This specification implements the requirements of 10 CFR 50.36a. and General Design Criteria 60 of Appendix A to 10 CFR Part 50.

3.8/4.8.H CONTROL ROOM AIR FILTRATION

The purpose of these specifications is to assure availability of the control room emergency air filtrations unit that has been installed in response to NUREG-0737 Item III D.3.4. Operation of this unit is described in the "Control Room Habitability Study" for Quad-Cities Station which was submitted to the NRC in December 1981.

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

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. 90
License No. DPR-30

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

   A. The application for amendment by Commonwealth Edison Company (the licensee) dated September 26, 1984, 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 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 the addition of License Condition 3.L., and by changes to the Technical Specifications as indicated in the attachment to this license amendment. Paragraph 2.C.(2) of Facility Operating License No. DPR-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 90, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

New License Condition 3.L. is added to read as follows:

3.L. Post-Accident Sampling

A program will be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant chimney effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

1. Training of personnel,
2. Procedures for sampling and analysis, and
3. Provisions for maintenance of sampling and analysis equipment.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 10, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 90

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	INSERT
ii	ii
3.2/4.2-3	3.2/4.2-3
3.2/4.2-4	3.2/4.2-4
3.2/4.2-5	3.2/4.2-5
3.2/4.2-8	3.2/4.2-8
3.2/4.2-15	3.2/4.2-15
3.2/4.2-15a	3.2/4.2-15a
	3.2/4.2-15aa
3.2/4.2-15b	3.2/4.2-15b
3.2/4.2-15c	3.2/4.2-15c
3.2/4.2-15d	3,2.4,2-15d
3.2/4.2-17	3.2/4.2-17
3.2/4.2-18	3.2/4.2-18
	3.2/4.2-18a
3.2/4.2-19	3.2/4.2-19
3.8/4.8-20	3.2/4.2-20
	3.8/4.8-14a
	3.8/4.8-14b
	3.8/4.8-19

TABLE OF CONTENTS (Cont'd)

	Page
3.5/4.5 CORE CONTAINMENT COOLING SYSTEMS	3.5/4.5-1
A. Core Spray Subsystems and the LPCI Mode of the RHR System	3.5/4.5-1
B. Containment Cooling Mode of the RHR System	3.5/4.5-3
C. HPCI Subsystem	3.5/4.5-4
D. Automatic Pressure Relief Subsystems	3.5/4.5-5
E. Reactor Core Isolation Cooling System	3.5/4.5-6
F. Minimum Core and Containment Cooling System Availability	3.5/4.5-6
G. Maintenance of Filled Discharge Pipe	3.5/4.5-7
H. Condensate Pump Room Flood Protection	3.5/4.5-8
I. Average Planar Linear Heat Generation Rate (APLHGR)	3.5/4.5-9
J. Local LHGR	3.5/4.5-9
K. Minimum Critical Power Ratio (MCPR)	3.5/4.5-10
3.5 Limiting Conditions for Operation Bases	3.5/4.5-11
4.5 Surveillance Requirements Bases	3.5/4.5-16
3.6/4.6 PRIMARY SYSTEM BOUNDARY	3.6/4.6-1
A. Thermal Limitations	3.6/4.6-1
B. Pressurization Temperature	3.6/4.6-1
C. Coolant Chemistry	3.6/4.6-2
D. Coolant Leakage	3.6/4.6-3
E. Safety and Relief Valves	3.6/4.6-4
F. Structural Integrity	3.6/4.6-4
G. Jet Pumps	3.6/4.6-5
H. Recirculation Pump Flow Mismatch	3.6/4.6-5
I. Shock Suppressors (Snubbers)	3.6/4.6-5a
3.6 Limiting Conditions for Operation Bases	3.6/4.6-8
3.7/4.7 CONTAINMENT SYSTEMS	3.7/4.7-1
A. Primary Containment	3.7/4.7-1
B. Standby Gas Treatment System	3.7/4.7-7
C. Secondary Containment	3.7/4.7-8
D. Primary Containment Isolation Valves	3.7/4.7-9
3.7 Limiting Conditions for Operation Bases	3.7/4.7-11
4.7 Surveillance Requirements Bases	3.7/4.7-15
3.8/4.8 RADIOACTIVE EFFLUENTS	3.8/4.8-1
A. Gaseous Effluents	3.8/4.8-1
B. Liquid Effluents	3.8/4.8-6a
C. Mechanical Vacuum Pump	3.8/4.8-9
D. Environmental Monitoring Program	3.8/4.8-10
E. Solid Radioactive Waste	3.8/4.8-13
F. Miscellaneous Radioactive Materials Sources	3.8/4.8-14
H. Control Room Emergency Filtration System	3.8/4.8-14a
3.8/4.8A Limiting Conditions for Operation and Surveillance Req. Bases	3.8/4.8-15

F. Control Room Ventilation System Isolation

1. The control room ventilation systems are isolated from outside air on a signal of high drywell pressure, low water level, high main steamline flow, high toxic gas concentration, high radiation in either of the reactor building ventilation exhaust ducts, or manually. Limiting conditions for operation shall be as indicated in Table 3.2-1 and Specifications 3.2.H. and 3.2.E.2.

2. The toxic gas detection instrumentation shall consist of a chlorine, ammonia, and sulphur dioxide analyzer with each trip setpoint set at:

   a. Chlorine concentration $\leq$ 5 ppm.
   b. Ammonia concentration $\leq$ 50 ppm.
   c. Sulphur dioxide concentration $\leq$ 3 ppm.

   The provisions of Specification 3.0.A. are not applicable.

F. Control Room Ventilation System Isolation

1. Surveillance for instrumentation which initiates isolation of control room ventilation shall be as specified in Table 4.2-1.

2. Manual isolation of the control room ventilation systems shall be demonstrated once every refueling outage.

G. Radioactive Liquid Effluent Instrumentation

The effluent monitoring instrumentation shown in Table 3.2-5 shall be operable with alarm setpoints set to ensure that the limits of Specification 3.8.B. are not exceeded. The alarm setpoints shall be determined in accordance with the ODCM.

1. With a radioactive liquid effluent monitoring instrument alarm/trip setpoint less conservative than required, without delay suspend the release of radioactive liquid effluents monitored by the affected instrument, or declare the instrument inoperable, or change the setpoint so it is acceptably conservative.

G. Radioactive Liquid Effluent Instrumentation

Each radioactive liquid effluent monitoring instrument shown in Table 4.2-3 shall be demonstrated operable by performance of the given source check, instrument check, calibration, and functional test operations at the frequencies shown in Table 4.2-3.

2. With one or more radioactive liquid effluent monitoring instruments inoperable, take the action shown in Table 3.2-5. Exert best efforts to return the instrument to operable status within 30 days and, if unsuccessful, explain in the next Semi-Annual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner. This is in lieu of an LER.

3. In the event a limiting condition for operation and associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specifications, provide a 30-day written report to the NRC, and no changes are required in the operational condition of the plant, and this does not prevent the plant from entry into an operational mode.

H. Radioactive Gaseous Effluent Instrumentation

The effluent monitoring instrumentation shown in Table 3.2-6 shall be operable with alarm/trip setpoints set to ensure that the limits of Specification 3.8.A. are not exceeded. The alarm/trip setpoints shall be determined in accordance with the ODCM.

1. With a radioactive gaseous effluent monitoring instrument alarm/trip setpoint less conservative than required, without delay suspend the release of radioactive gaseous effluents monitored by the affected instrument, or declare the instrument inoperable, or change the setpoint so it is acceptably conservative.

H. Radioactive Gaseous Effluent Instrumentation

Each radioactive gaseous radiation monitoring instrument in Table 4.2-4 shall be demonstrated operable by performance of the given source check, instrument check, calibration, and functional test operations at the frequency shown in Table 4.2-4.

2. With one or more radioactive gaseous effluent monitoring instruments inoperable, take the action shown in Table 3.2-6. Exert best efforts to return the instrument to operable status within 30 days and, if unsuccessful, explain in the next Semi-Annual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner. This is in lieu of an LER.

3. In the event a limiting condition for operation and associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specifications, provide a 30-day written report to the NRC and no changes are required in the operational condition of the plant, and this does not prevent the plant from entry into an operational mode.

so that none of the activity released during the refueling accident leaves the reactor building via the normal ventilation stack but that all the activity is processed by the standby gas treatment system.

The instrumentation which is provided to monitor the postaccident condition is listed in Table 3.2-4. The instrumentation listed and the limiting conditions for operation on these systems ensure adequate monitoring of the containment following a loss-of-coolant accident. Information from this instrumentation will provide the operator with a detailed knowledge of the conditions resulting from the accident; based on this information he can make logical decisions regarding postaccident recovery.

The specifications allow for postaccident instrumentation to be out of service for a period of 7 days. This period is based on the fact that several diverse instruments are available for guiding the operator should an accident occur, on the low probability of an instrument being out of service and an accident occurring in the 7-day period, and on engineering judgment.

The normal supply of air for the control room ventilation system Trains "A" and "B" is outside the service building. In the event of an accident, this source of air may be required to be shut down to prevent high doses of radiation in the control room. Rather than provide this isolation function on a radiation monitor installed in the intake air duct, signals which indicate an accident, i.e., high drywell pressure, low water level, main streamline high flow, or high radiation in the reactor building ventilation duct, will cause isolation of the intake air to the control room. The above trip signals result in immediate isolation of the control room ventilation system and thus minimize any radiation dose. Manual isolation capability is also provided. Isolation from high toxic chemical concentration has been added as a result of the "Control Room Habitability Study" submitted to the NRC in December 1981 in response to NUREG-0737 Item III D.3.4. As explained in Section 3 of this study, ammonia, chlorine, and sulphur dioxide detection capability has been provided. The setpoints chosen for the control room ventilation isolation are based on early detection in the outside air supply at the odor threshold, so that the toxic chemical will not achieve toxicity limit concentrations in the Control Room.

The radioactive liquid and gaseous effluent instrumentation is provided to monitor the release of radioactive materials in liquid and gaseous effluents during releases. The alarm setpoints for the instruments are provided to ensure that the alarms will occur prior to exceeding the limits of 10 CFR 20.

TABLE 3.2-4
POSTACCIDENT MONITORING INSTRUMENTATION REQUIREMENTS (2)

Minimum Number of Operable Channels(1)(3)	Parameter	Instrument Readout Location Unit 1	Number Provided	Range
1	Reactor pressure	901-5	1 2	0-1500 psig 0-1200 psig
1	Reactor water level	901-3	2	-243 inches +57 inches
1	Torus water temperature	901-21	2	0-200°F
1	Torus air temperature	901-21	2	0-600°F
2(6)	Torus water level indicator	901-3	1	-5 inches -- +5 inches (narrow range)
	Torus water level indicator	901-3	2	0-30 feet (wide range)
	Torus water level sight glass		1	18 inch range (narrow range)
1	Torus pressure	901-3	1	-5 inches Hg to 5 psig
2	Drywell pressure	901-3	1	-5 inches Hg to 5 psig 0 to 75 psig
			2	0 to 250 psig
2	Drywell temperature	901-21	6	0-600°F
2	Neutron monitoring	901-5	4	0.1-10^8 CPS
2(4)	Torus to drywell differential pressure		2	0-3 psid
1(8)	Drywell Hydrogen concentration	901-55,56	2	0-4%
2(7)	Drywell radiation monitor	901-55,56	2	1 to 10^8 R/hr
2/valve(5)	Main steam RV position, acoustic monitor	901-21	1 per valve	NA
	Main steam RV position, temperature monitor	901-21	1 per valve	0-600°F
2/valve(5)	Main steam SV position, acoustic monitor	901-21	1 per valve	NA
	Main steam SV position, temperature monitor	901-21	1 per valve	0-600°F

Notes

1. Instrument channels required during power operation to monitor postaccident conditions.

2. Provisions are made for local sampling and monitoring of drywell atmosphere.

3. In the event any of the instrumentation becomes inoperable for more than 7 days during reactor operation, initiate an orderly shutdown and be in the cold shutdown condition within 24 hours. See notes 4, 5, 6, 7, and 8 for exceptions to this requirement.

4. From and after the date that one of these parameters is reduced to one indication, continued operation is not permissible beyond thirty days unless such instrumentation is sooner made operable. In the event that all indication of these parameters is disabled and such indication cannot be restored in six (6) hours, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition in twenty-four (24) hours.

5. If the number of position indicators is reduced to one indication on one or more valves, continued operation is permissible; however, if the reactor is in a cold shutdown condition for longer than 72 hours, it may not be started up until all position indication is restored. In the event that all position indication is lost on one or more valves and such indication cannot be restored in 30 days, an orderly shutdown shall be initiated, and the reactor shall be depressurized to less than 90 psig in 24 hours.

6. From and after the date that this parameter is reduced to either one narrow-range indication or one wide-range indication, continued reactor operation is not permissible beyond 30 days unless such instrument is sooner made operable. In the event that either all narrow-range indication or all wide-range indication is disabled, continued reactor operation is not permissible beyond 7 days unless such instruments are sooner made operable. In the event that all indication for this parameter is disabled, and such indication cannot be restored in 6 hours, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition in 24 hours.

7. With less than the minimum number of operable channels, initiate the pre-planned alternate method of monitoring this parameter within 72 hours, and:

   a. either restore the inoperable channel(s) to operable status within 7 days of the event, or

   b. prepare and submit a special report to the NRC within 30 days following the event, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

8. From and after the date that one of the drywell hydrogen monitors becomes inoperable, continued reactor operation is permissible.

   a. If both drywell hydrogen monitors are inoperable, continued reactor operation is permissible for up to 30 days provided that during this time the HRSS hydrogen monitoring capability for the drywell is operable.

   b. If all drywell hydrogen monitoring capability is lost, continued reactor operation is permissible for up to 7 days.

Table 3.2-5

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

Minimum No. of Operable Channels	Total No. of Channels	Parameter	Action (1)
1	1	Service Water Effluent Gross Activity Monitor	A
1	1	Liquid Radwaste Effluent Flow Rate Monitor	C
1	1	Liquid Radwaste Effluent Gross Activity Monitor	B

Notes:

Action A: With less than the minimum number of operable channels, releases via this pathway may continue, provided that at least once per 12 hours grab samples are collected and analyzed for beta or gamma activity at an LLD of less than or equal to 10^{-7} uCi/ml.

Action B: With less than the minimum number of operable channels, effluent releases via this pathway may continue, provided that prior to initiating a release, at least 2 independent samples are analyzed in accordance with Specification 4.8.B.1., and at least 2 members of the facility staff independently verify the release calculation and discharge valving. Otherwise, suspend release of radioactive effluents via this pathway.

Action C: With less than the minimum number of operable channels, releases via this pathway may continue, provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be utilized to estimate flow.

Table 3.2-6

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Minimum No. of Operable Channels (1)	Total No. of Channels	Parameter	Action(2)
1	2	SJAE Radiation Monitors	D
1	2	Main Chimney Noble Gas Activity Monitor	A
1	1	Main Chimney Iodine Sampler	C
1	1	Main Chimney Particulate Sampler	C
1	1	Reactor Bldg. Vent Sampler Flow Rate Monitor	B
1	1	Reactor Bldg. Vent Iodine Sampler	C
1	1	Reactor Bldg. Vent Particulate Sampler	C
1	1	Main Chimney Sampler Flow Rate Monitor	B
1	1	Main Chimney Flow Rate Monitor	B
1	2	Reactor Bldg. Vent Noble Gas Monitor	E
1	1	Main Chimney High Range Noble Gas Monitor	F

Notes

(1) For SJAE monitors, applicable during SJAE operation. For other instrumentation, applicable at all times.

(2) Action A: With the number of operable channels less than the minimum requirement, effluent releases via this pathway may continue, provided grab samples are taken at least once per 8 hour shift and these samples are analyzed within 24 hours.

Action B: With the number of operable channels less than the minimum required, effluent releases via this pathway may continue provided that the flow rate is estimated at least once per 4 hours.

Action C: With less than the minimum channels operable, effluent releases via this pathway may continue provided samples are continuously collected with auxiliary sampling equipment, as required in Table 4.8-1.

Action D: With less than the minimum channels operable, gases from the main condenser off gas system may be released to the environment for up to 72 hours provided at least one chimney monitor is operable; otherwise, be in hot stand-by in 12 hours.

Action E: With less than the minimum channels operable, immediately suspend release of radioactive effluents via this pathway.

Action F: With less than the minimum channels operable, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and:

(1) either restore the inoperable channel(s) to operable status within 7 days of the event, or

(2) prepare and submit a Special Report to the Commission within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to operable status.

TABLE 4.2-1 (cont'd)

Instrument Channel	Instrument Functional Test(2)	Calibration(2)	Instrument Check(2)
HPCI Isolation			
1. Steamline high flow	(1) (9)	Once/3 months	None
2. Steamline area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	(1)	Once/3 months	None
Reactor Building Ventilation System Isolation and Standby Treatment System Initiation			
1. Refueling floor radiation monitors	(1)	Once/3 months	Once/day
Steam Jet Air Ejector Off-Gas Isolation			
1. Off-gas radiation monitors	(1) (4)	Refueling outage	Once/day
Control Room Ventilation System Isolation			
1. Reactor low water level	(1)	Once/3 months	Once/day
2. Drywell high pressure	(1)	Once/3 months	None
3. Main steamline high flow	(1)	Once/3 months	Once/day
4. Toxic gas analyzers (chlorine, ammonia, sulphur dioxide)	Once/month	Once/18 months	Once/day

Notes:

1. Initially once per month until exposure hours (M as defined on Figure 4.1-1) are 2.0 X 10^5; thereafter, according to Figure 4.1-1 with an interval not less than 1 month nor more than 3 months. The compilation of instrument failure rate data may include data obtained from other boiling water reactors for whch the same design instrument operates in an environment similar to that of Quad Cities Units 1 and 2.
2. Functional tests, calibrations, and instrument checks are not required when these instruments are not required to be operable or tripped.
3. This instrumentation is excepted from the functional test definition. The function test shall consist of injecting a simulated electric signal into the measurement channel.
4. This instrument channel is excepted from the functional test definitions and shall be calibrated using simulated electrical signals once every 3 months.
5. Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibrations shall be performed during each startup or during controlled shutdowns with a required frequency not to exceed once per week.
6. The positioning mechanism shall be calibrated every refueling outage.
7. Logic system functional tests are performed as specified in the applicable section for these sytems.
8. Functional tests shall include verification of operation of the degraded voltage 5 minute timer and 7 second inherent timer.
9. Verification of the time delay setting of $3 \leq \tau \leq 10$ seconds shall be performed during each refueling outage.

QUAD-CITIES
DPR- 30

TABLE 4.2-2
POSTACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Minimum Number of Operable Channels*	Parameter	Instrument Readout Location Unit 1	Calibration	Instrument Check
1	Reactor pressure	901-5	Once every 3 months	Once per day
1	Reactor water level	901-3	Once every 3 months	Once per day
1	Torus water temperature	901-21	Once every 3 months	Once per day
1	Torus air temperature	901-21	Once every 3 months	Once per day
2	Torus water level indicator (narrow range)	901-3	Once every 3 months	Once per day
2	Torus water level indicator (wide range)	901-3	Once every 18 months	Once per 31 days
2	Torus water level sight glass		N/A	None
1	Torus pressure	901-3	Once every 3 months	Once per day
2	Drywell pressure	901-3	Once every 3 months	Once per day
2	Drywell temperature	901-21	Once every 3 months	Once per day
2	Neutron monitoring	901-5	Once every 3 months	Once per day
2	Torus to drywell differential pressure		Once every 6 months	None
1	Drywell Hydrogen concentration	901-55,56	Once every 3 months	Once per 31 days
2	Drywell radiation monitor	901-55,56	Once every*** 18 months	Once per 31 days
	Main steam RV position, acoustic monitor	901-21	**	Once per 31 days
2/valve	Main steam RV position, temperature monitor	901-21	Once every 18 months	Once per 31 days

Amendment no. 90

Minimum Number of Operable Channels*	Parameter	Instrument Readout Location Unit 1	Calibration	Instrument Check
	Main steam SV position, acoustic monitor	901-21	**	Once per 31 days
2/valve	Main steam SV position, temperature monitor	901-21	Once every 18 months	Once per 31 days

*Instrument channels required during power operation to monitor postaccident conditions.

**Functional tests will be conducted before startup at the end of each refueling outage or after maintenance is performed on a particular safety or relief valve.

***Calibration shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr; and a one-point calibration check of the detector below 10 R/hr with an installed or portable gamma source.

QUAD CITIES
DPR-30

TABLE 4.2-3
RADIOACTIVE LIQUID EFFLUENT MONITORING
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instrument	Instrument Check (1)	Calibration (1)(3)	Functional Test (1)(2)	Source Check (1)
Liquid Radwaste Effluent Gross Activity Monitor	D	R	Q (7)	(6)
Service Water Effluent Gross Activity Monitor	D	R	Q (7)	R
Liquid Radwaste Effluent Flow Rate Monitor	(4)	R	NA	NA

Notes:

(1) D = once per 24 hours
M = once per 31 days
Q = once per 92 days
R = once per 18 months
S = once per 6 months

(2) The Instrument Functional Test shall also demonstrate that control room alarm annunciation occurs, if any of the following conditions exist, where applicable.

a. Instrument indicates levels above the alarm setpoint.
b. Circuit failure.
c. Instrument indicates a downscale failure
d. Instrument controls not set in OPERATE mode.

3) Calibration shall include performance of a functional test.

4) Instrument Check to verify flow during periods of release.

5) Caliabration shall include performance of a source check.

6) Source check shall consist of observing instrument response during a discharge.

7) Functional test may be performed by using trip check and test circuitry associated with the monitor chassis.

Table 4.2-4

RADIOACTIVE GASEOUS EFFLUENT MONITORING
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instrument	Mode(2)	Instrument Check(1)	Calibration(1)(4)	Functional Test(1)(3)	Source Check(1)
Main Chimney Noble Gas Activity Monitor	B	D	R	Q	M
Main Chimney Sampler Flow Rate Monitor	B	D	R	Q(6)	NA
Reactor Bldg. Vent Sampler Flow Rate Monitor	B	D	R	Q(6)	NA
Main Chimney Flow Rate Monitor	B	D	R	Q	NA
Reactor Bldg. Vent Activity Monitor	B	D	R	Q	Q
SJAE Activity Monitor	A	D	R	Q	R
Main Chimney Iodine and Particulate Sampler	B	D(5)	NA	NA	NA
Reactor Bldg. Vent Iodine and Particulate Sampler	B	D(5)	NA	NA	NA
Main Chimney High Range Noble Gas Monitor	B	D(5)	R	Q	M

Notes

(1) D = once per 24 hours
M = once per 31 days
Q = once per 92 days
R = once per 18 months

(2) A = during SJAE operation
B = at all times

(3) The Instrument Functional Test shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist, where applicable:

a. Instrument indicates levels above the alarm setpoint
b. Circuit failure
c. Instrument indicates a downscale failure
d. Instrument controls not set in OPERATE mode

(4) Calibration shall include performance of a functional test.

(5) Instrument check to verify operability of the instrument; that the instrument is in-place and functioning properly.

(6) Functional test shall be performed on local switches providing low flow alarm.

H. Control Room Emergency Filtration System

1. The control room emergency filtration system, including at least one booster fan shall be operable at all times when secondary containment integrity is required, except as specified in Sections 3.8.H.1.a. and b.

   a. After the control room emergency filtration system is made or found to be inoperable for any reason, reactor operation and fuel handling are permissible only during the succeeding 14 days. Within 36 hours following the 14 days, the reactor shall be placed in a condition for which the control room emergency filtration system is not required in accordance with Specification 3.7.C.1.a. through d.

   b. Specification 3.8.H.1.a. above does not apply during performance or post-maintenance testing, or during removal of the charcoal test canister.

2. Periodic Performance Requirements

   a. The results of the in-place DOP tests at 2000 cfm (±10%) on HEPA filters shall show ≤ 1% DOP penetration.

   b. The results of in-place halogenated hydrocarbon tests at 2000 cfm (±10%) on the charcoal banks shall show ≤ 1% penetration.

   c. The results of laboratory carbon sample analysis shall show ≥ 90% methyl iodide removal efficiency when tested at 130°C and 95% R.H.

H. Control Room Emergency Filtration System

1. At least once per month, initiate 2000 cfm (±10%) flow through the control room emergency filtration system for at least 10 hours with the heaters operable.

2. Performance Requirement Tests

   a. At least once per operating cycle but not to exceed 18 months, or following painting, fire, or toxic chemical release in any ventilation zone communicating with the intake of the system while the system is operating that could contaminate the HEPA filters of charcoal absorbers, perform the following:

      1) In-place DOP test the HEPA filter banks to verify leaktight integrity.

      2. In-place test the charcoal absorber banks with halogenated hydrocarbon tracer to verify leaktight integrity.

3) Remove one carbon test canister from the charcoal absorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.

b. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated:

1) Pressure drop across the combined filters

is less than 6 inches of water at 2000 cfm (±10%) flow rate.

2) Operability of inlet heater demonstrates heater ΔT of 15°F.

3. Postmaintenance Requirements

a. After any maintenance or heating that could affect the HEPA filter or HEPA filter mounting frame leak-tight integrity, the results of the in-place DOP tests at 2000 cfm (±10%) on HEPA filters shall show ≤ 1% DOP penetration.

b. After any maintenance or testing that could affect the charcoal absorber leaktight integrity, the results of in-place halogenated hydrocarbon tests at 2000 cfm (±10%) shall show ≤ 1% penetration.

3. Postmaintenance Testing

a. After any maintenance or testing that could affect the leaktight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters in accordance with Specification 3.8.H.2.a.

b. After any maintenance or testing that could affect the leaktight integrity of the charcoal absorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers in accordance with Specification 3.8.H.2.b.

3.8/4.8.C. MECHANICAL VACUUM PUMP

The purpose of isolating the mechanical vacuum line is to limit release of activity from the main condenser. During an accident, fission products would be transported from the reactor through the main steamline to the main condenser. The fission product radioactivity would be sensed by the main steamline radioactivity monitors which initiate isolation.

3.8/4.8.F. MISCELLANEOUS RADIOACTIVE MATERIALS SOURCES

The objective of this specification is to assure that leakage from byproduct, source and special nuclear material sources does not exceed allowable limits. The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39 (c) limits for plutonium.

3.8/4.8.E. SOLID RADIOACTIVE WASTE

The operability of the solid radioactive waste system ensures that the system will be available for use whenever solid radwastes require processing and packaging prior to being shipped off-site. This specification implements the requirements of 10 CFR 50.36a. and General Design Criteria 60 of Appendix A to 10 CFR Part 50.

3.8/4.8.H CONTROL ROOM AIR FILTRATION

The purpose of these specifications is to assure availability of the control room emergency air filtrations unit that has been installed in response to NUREG-0737 Item III D.3.4. Operation of this unit is described in the "Control Room Habitability Study" for Quad-Cities Station which was submitted to the NRC in December 1981.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 94 TO FACILITY OPERATING LICENSE NO. DPR-29

AND AMENDMENT NO. 90 TO FACILITY OPERATING LICENSE NO. DPR-30

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-254/265

1.0 INTRODUCTION AND BACKGROUND

In November 1980, the staff issued NUREG-0737, "Clarification of TMI Action Plan Requirements," which included all TMI Action Plan items approved by the Commission for implementation at nuclear power reactors. NUREG-0737 identifies those items for which Technical Specifications are required. A number of items which require Technical Specifications (TSs) were scheduled for implementation after December 31, 1981. The staff provided guidance on the scope of Technical Specifications for all of these items in Generic Letter 83-36. Generic Letter 83-36 was issued to all Boiling Water Reactor (BWR) licensees on November 1, 1983. In this Generic Letter, the staff requested licensees to:

1. review their facility's Technical Specifications to determine if they were consistent with the guidance provided in the Generic Letter, and

2. submit an application for a license amendment where deviations or absence of Technical Specifications were found.

By letter dated September 26, 1984, Commonwealth Edison Company (the licensee) responded to Generic Letter 83-36 by submitting Technical Specification change request for Quad Cities Units 1 and 2. This evaluation covers the following TMI Action Plan items:

1. Post-Accident Sampling System (II.B.3)
2. Sampling and Analysis of Plants Effluents (II.F.1.2)
3. Containment High-Range Radiation Monitor (II.F.1.3)
4. Containment Pressure Monitor (II.F.1.4)
5. Containment Water Level Monitor (II.F.1.5)
6. Containment Hydrogen Monitor (II.F.1.6)

2.0 EVALUATION

1. Post-Accident Sampling (II.B.3)

Generic Letter 83-36 provided that an administrative program be established, implemented and maintained to ensure that the licensee has the capability to obtain and analyze reactor coolant and containment atmosphere samples under accident conditions. The Post-Accident Sampling System is not required to be operable at all times. Administrative procedures are in place for returning inoperable instruments to operable status as soon as practicable.

The licensee has provided a proposed revision to the TSs which is consistent with the guidelines provided in our Generic Letter 83-36. We conclude that the licensee has an acceptable TS for the Post-Accident Sampling System.

2. Sampling and Analysis of Plant Effluents (II.F.1.2)

The guidance provided by Generic Letter 83-36 requested that an administrative program should be established, implemented and maintained to ensure the capability to collect and analyze or measure representative samples of radioactive iodines and particulates in plant gaseous effluents during and following an accident. The licensee has proposed TSs that are consistent with our guidance. We conclude that the TSs for sampling and analysis of plant effluents are acceptable.

3. Drywell High-Range Radiation Monitor (II.F.1.3)

The licensee has installed two drywell radiation monitors in both Quad Cities Units that are consistent with the guidance of TMI Action Plan Item II.F.1.3. Generic Letter 83-36 provided guidance for limiting conditions for operation and surveillance requirements for these monitors. The licensee proposed TSs that are consistent with the guidance provided in our Generic Letter 83-36. Therefore, we conclude that the proposed TSs for Item II.F.1.3 are acceptable.

4. Drywell Pressure Monitor (II.F.1.4)

Both Quad Cities Units have been provided with two wide range channels for monitoring drywell pressure following an accident. The licensee has proposed TSs that are consistent with the guidelines contained in Generic Letter 83-36. Therefore, we concluded that the proposed TSs for drywell pressure monitors are acceptable.

5. Torus Water Level Monitor (II.F.1.5)

The torus water level monitors at both Quad Cities Units provide the capability required by TMI Action Plan Item II.F.1.5. The TSs for both units contain limiting conditions for operation and surveillance requirements that are consistent with the guidance contained in Generic Letter 83-36. Therefore, we conclude that the proposed TSs for torus water level monitors are acceptable.

6. Drywell Hydrogen Monitor (II.F.1.6)

The licensee installed drywell hydrogen monitors that provide the capability required by TMI Action Plan Item II.F.1.6. The proposed Technical Specifications contain appropriate limiting conditions for operation and surveillance requirements for these monitors. We conclude that the proposed TSs are acceptable as they meet the intent of the guidance contained in Generic Letter 83-36.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to 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 changes to the surveillance requirements. The staff has determined that the amendment involves 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets 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 nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: C. Patel

Dated: June 10, 1986