November 12, 1992

Docket Nos. 50-254
and 50-265

Mr. Thomas J. Kovach
Nuclear Licensing Manager
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B. Clayton

Dear Mr. Kovach:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. M83273 AND M83274)

The Commission has issued the enclosed Amendment No. 140 to Facility Operating License No. DPR-29 and Amendment No. 135 to Facility Operating License No. DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2, respectively. The amendments are in response to your application dated April 20, 1992.

The amendments delete from the Technical Specifications the isolation function and surveillance requirements for the Control Room Ventilation System chlorine and sulfur dioxide analyzers.

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

Sincerely,

Original signed by:

Leonard N. Olshan, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 140 to DPR-29
2. Amendment No. 135 to DPR-30
3. Safety Evaluation

cc w/enclosures:
See next page

OFC	LA:PDIII-2	PM:PDIII-2	D:PDIII-2	OGC
NAME	CMOORE	LOLSHAN:jar	~~RBARRETT~~ J.Dyer	EBachmann
DATE	10/9/92	10/9/92	11/12/92	11/16/92

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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. 140
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 April 20, 1992, 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-29 is hereby amended to read as follows:

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B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 140, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

James E. Dyer, Director
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 12, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 140

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
3.2/4.2-3	3.2/4.2-3
3.2/4.2-10	3.2/4.2-10
3.2/4.2-11	3.2/4.2-11
3.2/4.2-28	3.2/4.2-28

E. Postaccident Instrumentation

The limiting conditions for operation for the instrumentation which is read out in the control room, required for postaccident monitoring are given in Table 3.2-4.

E. Postaccident Instrumentation

Postaccident instrumentation shall be functionally tested and calibrated as indicated in Table 4.2-2.

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 Specification 3.2.H. and 3.2.F.2.

2. The toxic gas detection instrumentation shall consist of an ammonia analyzer with a trip setpoint set at $\leq$ 50 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 system shall be demonstrated once every refueling outage.

Below 30% power, the worst-case withdrawal of a single control rod without rod block action will not violate the fuel cladding integrity safety limit. Thus the RBM rod block function is not required below this power level.

The IRM block function provides local as well as gross core protection. The scaling arrangement is such that the trip setting is less than a factor of 10 above the indicated level. Analysis of the worst-case accident results in rod block action before MCPR approaches the MCPR fuel cladding integrity safety limit.

A downscale indication on an APRM is an indication the instrument has failed or is not sensitive enough. In either case the instrument will not respond to changes in control rod motion, and the control rod motion is thus prevented. The downscale trips are set at 3/125 of full scale.

The SRM rod block with $\leq$ 100 CPS and the detector not full inserted assures that the SRM's are not withdrawn from the core prior to commencing rod withdrawal for startup. The scram discharge volume high water level block provide annunciation for operator action. The alarm setpoint has been selected to provide adequate time to allow determination of the cause of level increase and corrective action prior to automatic scram initiation.

For effective emergency core cooling for small pipe breaks the HPCI system must function since reactor pressure does not decrease rapidly enough to allow either core spray or LPCI to operate in time. The automatic pressure relief function is provided as a backup to the HPCI in the event the HPCI does not operate. The arrangement of the tripping contacts is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the specification are adequate to assure the above criteria are met (reference UFSAR Section 7.3.1.4). The specification preserves the effectiveness of the system during periods of maintenance, testing or calibration and also minimizes the risk of inadvertent operation, i.e., only one instrument channel out of service.

Two radiation monitors are provided on the refueling floor which initiate isolation of the reactor building and operation of the standby gas treatment systems. The trip logic is one out of two. Trip settings of $\leq$ 100 mR/hr for the monitors on the refueling floor are based upon initiating normal ventilation isolation and standby gas treatment system operation 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 steamline 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. Ammonia, chlorine and sulphur dioxide detection capability was added to the plant in response to the referenced study. In a report generated by Sargent and Lundy in April 1991 justification was provided to delete the chlorine and sulphur dioxide detectors from the plant. 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 4.2-1 (Cont'd)

Instrument Channel	Instrument Functional Test [2]	Calibration[2]	Instrument Check [2]
RCIC Isolation			
1. Steamline high flow	Once/3 months[9]	Once/3 months[9]	None
2. Turbine area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	Once/3 months	Once/3 months	None
HPCI Isolation			
1. Steamline high flow	[1] [9][10]	[9][10]	None
2. Steamline area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	[1] [10]	[10]	None
Reactor Building Ventilation System Isolation and Standby Gas 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 analyzer (ammonia)	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 which 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.

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. 135
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 April 20, 1992, 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-30 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 135 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Byron L Siegel for

James E. Dyer, Director
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 12, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 135

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
3.2/4.2-3	3.2/4.2-3
3.2/4.2-8	3.2/4.2-8
3.2/4.2-17	3.2/4.2-17

F. Control Room Ventilation System Isolation	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 Specification 3.2.H. and 3.2.F.2.	1. Surveillance for instrumentation which initiates isolation of control room ventilation shall be as specified in Table 4.2-1.
2. The toxic gas detection instrumentation shall consist of an ammonia analyzer with a trip setpoint set at $\leq$50 ppm. The provisions of Specification 3.0.A. are not applicable.	2. Manual isolation of the control room ventilation system shall demonstrated once every refueling outage.
G. Radioactive Liquid Effluent Instrumentation	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.	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.
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.	

of the tripping contacts is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the specification are adequate to assure the above criteria are met (reference UFSAR Section 7.3.1.4). The specification preserves the effectiveness of the system during periods of maintenance, testing or calibration and also minimizes the risk of inadvertent operation, i.e., only one instrument channel out of service.

Two radiation monitors are provided on the refueling floor which initiate isolation of the reactor building and operation of the standby gas treatment systems. The trip logic is one out of two. Trip settings of $\leq$ 100 mR/hr for the monitors on the refueling floor are based upon initiating normal ventilation isolation and standby gas treatment system operation 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 steamline 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. Ammonia, chlorine and sulphur dioxide detection capability was added to the plant in response to the referenced study. In a report generated by Sargent and Lundy in April 1991, justification was provided to delete the chlorine and sulphur dioxide detectors from the plant. 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 4.2-1 (Cont'd)

Instrument Channel	Instrument Functional Test [2]	Calibration [2]	Instrument Check [2]
HPCI Isolation			
1. Steamline high flow	(1) (9) (10)	(9) (10)	None
2. Steamline area high temperature	Refueling outage	Refueling outage	None
3. Low reactor pressure	(1) (10)	(10)	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 (ammonia)	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 which 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 systems.

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 $3 \leq t \leq 9$ seconds shall be performed during each refueling outage.

10. Trip units are functionally tested monthly. A calibration of the trip unit is to be performed concurrent with the functional testing. Transmitters are calibrated once per operating cycle.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE NO. DPR-29

AND AMENDMENT NO. 135 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 AND 50-265

1.0 INTRODUCTION

By correspondence dated April 20, 1992, the Commonwealth Edison Company (CECo, the licensee) submitted a request to implement two changes to the Quad Cities Station, Units 1 and 2, Technical Specifications (TS). The first change involves a request to correct a typographical error ("streamline" to "steamline") in TS 3.2.F.1 and in the appropriate Bases Section. (Unit 2 only). The correction is an administrative request only, and does not involve any significant hazards considerations per 10 CFR 50.92.

The second change request involves deleting the isolation function requirements of the chlorine and sulfur dioxide analyzers from TS 3.2.F.2, and the corresponding chlorine and sulfur dioxide analyzer surveillance requirements from TS Table 4.2.1. This change request includes implementing any appropriate changes to the TS Bases Section.

The licensee's basis for requesting the proposed TS change is that the chlorine and sulfur dioxide monitors (analyzers) have resulted in eight spurious isolations of their control room ventilation dampers during the period October 1986 - February 1992. The Immediate Notification paragraphs of 10 CFR 50.72 and the Licensee Event Report (LER) paragraphs of 10 CFR 50.73 require that "any event or condition that results in an automatic or manual isolation of an Engineered Safety Feature (ESF)" be reported within 4 hours by Emergency Notification System (ENS) and within 30 days by LER. The licensee contends that removal of the chlorine and sulfur dioxide analyzer requirements would prevent spurious actuations of the control room ventilation system, a plant safety system, and would reduce the number of ENS and LER notifications to the NRC.

The licensee requests that the requirements for the chlorine and sulfur dioxide analyzers should, therefore, be allowed to be removed from the Quad

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Cities, Units 1 and 2, TS. In lieu of having TS for chlorine and sulfur dioxide analyzers, the licensee instead proposes to:

1. Make agreements with the local emergency preparedness agencies to inform CECo of any threatening chemical spill or accident.

2. Perform a triennial survey of chlorine and sulfur dioxide shipping and storage patterns to verify that no significant changes have occurred which would affect the analysis for control room habitability.

2.0 EVALUATION

Regulatory Guide (RG) 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," states that, in regard to control room habitability, "for each chemical considered, the values of importance are the human detection threshold," and the "toxicity limit" which is defined as "the maximum concentration that can be tolerated for two minutes without physical incapacitation of an average human." Regulatory Guide 1.78 recommends that licensee's have procedures and training which cover the use of protective breathing masks in the event of an onsite or offsite toxic release which could render the control room uninhabitable. Accordingly, control room personnel should be capable of putting on respiratory equipment within two minutes of achieving the toxicity limit of the noxious gas. This assumes that a constant concentration profile at the toxic limit level is maintained during the two minutes needed for the donning the respiratory equipment. Regulatory Guide 1.78 also states, however, that shipments of hazardous chemicals do not need to be included in control room habitability studies if the route of transportation is not within five miles of the control room, or if the frequency of shipments is less than ten per year for truck traffic, less than 30 per year for rail traffic, and less than 50 per year for barge traffic.

The licensee has contracted an outside engineering firm to perform a study of chlorine and sulfur dioxide hazards created by the Soo and the Chicago and Northwest Railroads. The Soo Railroad and the Chicago and Northwest Railroad are the only two means of transportation which ship chlorine and sulfur dioxide within 5 miles of the plant and in quantities in excess of those specified in RG 1.78. No quantities of chlorine or sulfur dioxide are stored within the plant boundaries and no quantities of chlorine or sulfur dioxide have been documented as being shipped by barge or by truck within a five mile radius of the plant. The Soo Railroad curves around the plant from the SSW to the NE, with its nearest proximity being approximately 1.75 miles west of the plant. The Chicago and Northwestern Railroad is five miles north of the plant at its nearest point.

According to the contractor's evaluation, the Quad Cities control room would exceed chlorine or sulfur dioxide toxicity limits within two minutes of detection in the event of an offsite release of chlorine or sulfur dioxide within five mile radius of the plant. This conclusion has been confirmed by Extran and Control Room Habitability computer codes (developed by the NRC for

estimating toxic gas concentrations achieved in the control room during onsite or offsite chemical releases). The acceptability of the licensee's TS amendment request, therefore, depends on the probabilistic approach set in Standard Review Plan (SRP) 2.2.3, "Evaluation of Potential Accidents."

According to SRP 2.2.3, offsite hazards which have the potential for causing onsite design basis events should have a low probability of occurrence. This is acceptable if the probability of occurrence of a design basis event resulting from an offsite accident, and resulting in a release of radioactive exposure in excess of the requirements of 10 CFR 100, does not exceed the NRC probability objective of 1 x E-7 per year. Since it is not always feasible to perform accurate calculations of accident/event probabilities, a probability on the order of 1 x E-6 may be acceptable if, when combined with qualitative arguments, the realistic probability of occurrence can be shown to be lower.

The contractor performed a probabilistic analysis to determine the probability of an offsite chlorine or sulfur dioxide release accident rendering uninhabitable conditions in the control room (accidents/yr). The contractor's analysis is based upon a statistic that an offsite tank of chlorine or sulfur dioxide, of sufficient quantity to cause a minimum of $5,000 in cumulative damages, would have a probability of 1.98 x E-8 of causing an accident (accidents/car/mile, as cited by a local state agency). The analysis accounts for local meteorological and transportation factors. This resulted in a calculated aggregate probability of 6.29 x E-7 (accidents/year) that a chlorine release accident, created either by the Soo Railroad or the Chicago and Northwestern Railroad, would cause the control room to be uninhabitable. The aggregate probability of a sulfur dioxide accident rendering the control room uninhabitable was similarly calculated to be 1.28 x E-6 (accidents/year).

Since the aggregate probabilities were above the NRC's acceptance criteria of 1 x E-7, the contractor provided the following qualitative arguments to provide assurance that the aggregate probabilities are below an order of E-6 (accidents/year):

- The contractor cited the U.S. Department of Transportation, Federal Railroad Administration statistic that a railroad tank car of sufficient mass to cause a minimum $5,000 in cumulative damages has a 1.98 x E-8 probability of having an accidental release. A 90 ton railroad car has the capability of causing at least $5,000 in cumulative damages. Since the mass of the car is greater than that which would cause a $5,000 cumulative damage, the probability of an offsite accident from a chlorine or sulfur dioxide tank car on the Soo or Chicago and Northwestern Railroads would be lower than 1.98 x E-8.

- The contractor's analysis was based on summer conditions. Since chlorine and sulfur dioxide shipments occur year round, and since diffusion factors during the spring, fall, and winter months are normally lower than those during the summer, the probability of an

offsite toxic release reaching the control room would be lower than that cited by the contractor.

- The contractor's study considered all wind stability classes which could render the control room uninhabitable. The worst case wind speed was determined to be approximately 2.2 meters per second. The wind speeds which can render the control room uninhabitable, however, occur only a small portion of the time. Therefore, the probability of the control room becoming uninhabitable would be lower than that cited by the contractor.

These qualitative arguments seem to be based on reasonable assumptions. The contractor's analysis, therefore, provides a reasonable assurance that the probability of rendering the control room uninhabitable, as created by an offsite chlorine or sulfur dioxide release, would be lower than the value of 1 x E-6, as cited in SRP 2.2.3. The low probability excludes offsite chlorine and sulfur dioxide accidents from being classified as design basis events and, therefore, provides a basis that removal of the chlorine and sulfur dioxide detectors would not present a significant hazards consideration as defined in 10 CFR 50.92.

Supplemental information provided by the licensee indicates that the licensee currently has procedures and training implemented which instruct licensed and non-licensed operators in the operation of respiratory equipment. Based on the licensee's evaluation and commitments presented in its amendment submittal, the staff finds acceptable the removal of the chlorine and sulfur dioxide requirements from the Quad Cities, Unit 1 and 2, TS as described in the amendment submittal. The administrative change request (i.e., correct "streamline" to "steamline") for the Quad Cities 2 TS is also approved.

By letter dated November 6, 1992, the licensee proposed three minor changes to the Bases: (1) the May 1988 date for the Sargent and Lundy report should be April 1991, (2) the clause "and the chlorine and sulphur dioxide detectors were deleted from the plant" should be "to delete the chlorine and sulphur dioxide detectors from the plant," and (3) the reference to SAR Section 6.2.6.3 should be UFSAR Section 7.3.1.4. These three changes are also approved.

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 (57 FR 37562). 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.

Principal Contributor: J. Medoff

Date: November 12, 1992