



Commonwealth Edison

One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

February 7, 1986

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
Proposed Technical Specification for
Facility Operating License NPF-11 and NPF-18
Chlorine Detection System
NRC Docket Nos. 50-373 and 50-374

References (a): Technical Specification 3/4.3.7, Monitoring
Instrumentation.

(b): UFSAR Section 2 Site Characteristics.

(c): UFSAR Section 7.3.4.3.12, Outdoor Air Intake
Chlorine Protection Portion of Control Room
and Auxiliary Electric Room HVAC System.

Dear Mr. Denton:

Pursuant to 10 CFR 50.90, Commonwealth Edison proposes to amend Appendix A, Technical Specification, to Facility Operating License NPF-11 and NPF-18. This document change is being submitted for your staff's review and approval. This change removes all references to the chlorine detector monitoring instrument system. We believe this system is not required at LaSalle as no hazard from chlorine gas is present.

The licensing of LaSalle County Station required that a survey be made of local industry and shipping routes to determine what hazardous chemicals could be in the immediate vicinity. This survey in 1975 indicated that ammonia and possibly chlorine were transported by bulk on the Illinois River near the vicinity of LaSalle Station. The data obtained during the survey was not conclusive enough to determine that bulk amounts of chlorine were not shipped or stored in the area within five miles around LaSalle Station. Therefore, in order to expedite the Licensing process, chlorine detectors were provided in the control room HVAC System air intake ducts. Apparently, no detailed analysis was made at that time to assess the potential hazard posed by chlorine shipments on the Illinois River to the LaSalle control room.

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Based on the information contained in the FSAR and updated by recent statistics provided in an annual report by U.S. Coast Guard on Illinois River traffic in 1984, LaSalle Station assembled an analysis of the chlorine hazard to the control room. This analysis, which concluded there is no significant hazard to the control room from a chlorine barge accident on the Illinois River is included as Attachment A. This Attachment provides both background and discussion of potential chlorine hazards. The background and discussion as well as the proposed change to the Technical Specification have received both On-Site and Off-Site safety review and approval. The proposed Technical Specification change is enclosed as Attachment B.

In addition to the review performed by the LaSalle Station, Sargent & Lundy completed a survey in February of 1986 of chlorine shipments in the vicinity of the station. The initial purpose of this survey was to determine if chlorine is still being transported in barges on the Illinois River or being used or stored within 5 miles of the station. Sargent & Lundy was to determine the frequency of transportation, the amounts transported, the mode of transportation, and the location of the bulk storage. To perform this survey, they contacted the Chlorine Institute of New York, the U.S. Coast Guard in Washington, D.C., the U.S. Army Corp of Engineers, local manufacturers and two transportation terminals in the vicinity of the LaSalle site. Based on the data obtained from this survey, it was the conclusion of Sargent & Lundy that chlorine is not and has not been shipped in bulk quantities by highway, railroad, or river near the LaSalle County Station. The results of this survey is included as Attachment D.

Regulatory Guide 1.78 "Assumption for Evaluating the Habitability of a Nuclear Power Plant Control Room during a Postulated Hazardous Chemical Release" establishes chlorine as a hazardous chemical and requires a habitability analysis in case there is an accidental chlorine release from stationary or mobile sources near the plant. Position 1 of that Reg. Guide states that chlorine stored or situated at distances greater than five miles from the control room would not need to be considered in evaluating the habitability of the control room. Therefore based on the results of the recent 1986 survey, indicating that chlorine is not and has not been shipped in bulk quantities by highway, railroad, or river near LaSalle Station we therefore conclude that chlorine detectors are not required for the LaSalle County Station.

Commonwealth Edison is notifying the State of Illinois of our request for this amendment by transmitting a copy of this letter and its attachments to the designated State Official.

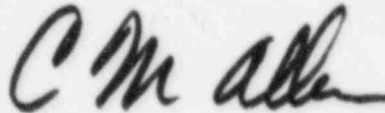
February 7, 1986

In accordance with the requirements of 10 CFR 50.170, a fee remittance in the amount of \$150.00 is enclosed.

Please direct any questions you may have regarding this matter to this office.

Three (3) signed originals and thirty-seven (37) copies of this transmittal and its attachments are provided for your use.

Very truly yours,



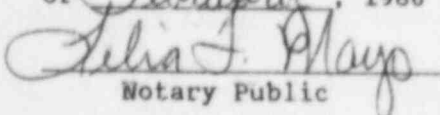
C. M. Allen
Nuclear Licensing Administrator

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Attachments (A): Background and Discussion
(B): Technical Specification Change to NPF-11 and NPF-18
(C): Evaluation of Significant Hazards Consideration
(D): Survey of Chlorine Shipment in the Vicinity of LaSalle County Station

cc: Region III Inspector - LSCS
Dr. A. Bournia - NRR
M. C. Parker - State of Ill.

SUBSCRIBED AND SWORN to
before me this 7th day
of February, 1986



Notary Public

ATTACHMENT A

TECHNICAL SPECIFICATION CHANGE REQUEST LASALLE COUNTY/ STATION UNITS 1 AND 2

SUBJECT: Chlorine Release Control Room Protection

- REFERENCES
- (a): Regulatory Guide 1.78, Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room during a Postulated Hazardous Chemical Release
 - (b): Regulatory Guide 1.95, Protection of Nuclear Power Plant Operators against an Accidental Chlorine Release
 - (c): Standard Review Plan 6.4, Control Room Habitability
 - (d): Standard Review Plan 2.2
 - (e): UFSAR Figure 2.5, Cities within 10 miles of the site
 - (f): UFSAR Section 2.2.2.4, Waterways
 - (g): UFSAR Section 2.2.3 and Table 2.2-3
 - (h): SER Section 2.2, Nearby Industrial, Transportation and Military Facilities
 - (i): UFSAR Figure 2.3-15
 - (j): UFSAR Section 2.3.2.2.1 and Figure 3.3-2
 - (k): 10 CFR 50.72 and 10 CFR 50.73
 - (l): UFSAR Section 7.3.4.3.12
 - (m): Van Nostrand's Scientific Encyclopedia, Fifth Edition
 - (n): Lock Statistics, Annual Report, Illinois River, 1984

BACKGROUND: The hazard to the control room habitability posed by the transport of toxic chemicals, depends upon frequency, distance and quantity of chemicals transported with respect to the control room (per the definitions and guidelines provided in reference (a)). In addition, the prevailing wind direction affects the likelihood that an accidental release will reach the control room ventilation air intakes. There are no onsite sources of chlorine gas, except 1% chlorine gas cylinders (150 psig) used to calibrate the present chlorine detectors.

Regulatory Position 1 of reference (a) concludes that chemicals stored or situated at distances greater than 5 miles from the control room need not be considered in evaluating the habitability of the nuclear power plant control room during a postulated hazardous chemical release.

As described and shown in references (g) and (h), the closest industries are located in either Marseilles, Illinois, or Seneca, Illinois, both of which are located more than 5 miles from the control room. The stored chemicals at these industries were therefore not included in the evaluation of the control room habitability. Also reference (g) describes the modes of transportation of the chemicals manufactured, stored or used by these industries. The three modes of transportation are railroads, highways and the Illinois River. The railroads and highways used in transporting these chemicals are more than 5 miles from the control room and were therefore excluded from the control room habitability evaluation.

Anhydrous ammonia is the only chemical which is transported to these industries by barges on the Illinois River (Reference (g)). Chlorine could potentially be transported but not unloaded on the Illinois River within the five mile radius of the site as there are not industries in this area which produce or use significant amounts of chlorine. Regulatory Position 2 of reference (a) requires consideration of these shipments with regards to control room habitability.

The revised LER and immediate notification rules (reference (k)) require reporting of "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF)..." (50.73(A)(2)(iv) and 50.72(B)(2)(ii)). The actuation logic for the chlorine detection system is one out of two once (reference (l)). Thus if either of the two chlorine detectors trip, the recirculation mode of the control room (CR) and auxiliary electric equipment room (AEER) ventilation system is actuated. This actuation of an ESF system is reportable within 4 hours by telephone and within 30 days in writing (LER) as required by reference (k).

At the present time the chlorine detectors are a high maintenance item which require significant manhours to surveil and repair. For example:

1. A preventative maintenance surveillance is performed weekly which requires approximately 1 manhour.

2. A monthly Technical Specification Functional/Test is performed which require approximately 8 manhours.
3. An 18 Month Technical Specification Calibration is performed which requires approximately 48 manhours.
4. Repairs, as necessary.

Replacement or upgrade of the detection system has been investigated. The present detectors qualified life will be exceeded in a few years and therefore the entire system would need to be replaced in the future. This replacement is expected to cost in excess of \$750,000 with annual expenses of \$12,000 in addition to manpower requirements similar to those specified above.

DISCUSSION:

The Illinois River is located approximately 4.5 miles north of the control room. The description of the waterway and traffic is described in reference (f). Reference (n) provides a report of the types and amount of barge traffic for 1984. This shows that the frequency of chlorine traffic on the Illinois River within the five mile radius is small and that it is less than the "50 per year" definition of frequent provided in reference (a). A description of the topographic profile of the area from 0 to 5 miles from the LSCS station is shown in reference (i). This figure shows that the Illinois River is located within a 5 mile radius zone in the North (N), North North East (NNE) and North East (NE) directions only at approximately 4.5 miles. The waterway within the five mile radius does not contain any locks or any industries which use chlorine, thereby limiting the potential for accidental release.

The figure also shows that the Illinois River is located in a valley which is greater than 3 miles from the site and over 200 feet lower in elevation an grade level at the station. The LSCS site in addition is located on a generally flat plane with the control room ventilation inlets located an additional 130 feet above grade. Reference (j) describes the prevailing local winds which indicates that unfavorable winds (N, NE or NNE) occur less than 15% of the time . Therefore any release would likely be carried away from the LSCS site.

Chlorine gas is much heavier than air (approximately 2.5 times at standard conditions (reference (m))). It therefore tends to settle in low places. Chlorine gas is a respiratory irritant and is readily detectable by odor. It has no systemic effects and protection from the effects of chlorine gas can be obtained by the use of fresh air masks which are readily available to the control room operators.

Any chlorine gas which may, by whatever mechanism, traverse the terrain from the river to the site would be dispersed by the local winds and would not collect in the area due to the site topography

In summary:

1. The frequency of chlorine shipments on the Illinois River is very low,
2. The chance of mishaps within the five mile plant radius is small. (Very limited portion a river within the 5 mile radius and no activities with accident potential),
3. The unfavorable wind probability is low or
4. The distance from the source of any potential chlorine release (Illinois River) is sufficient to disperse any release,
5. The location of the plant and the control room ventilation inlet is favorable with respect to the settling effect of chlorine in air, and
6. Chlorine is readily detectable in air and appropriate compensatory measures are provided to the control room operators.

In addition due to the distance involved, even if the several unfavorable conditions occur, the buildup in the concentration of chlorine in the control room should not occur at a rate which would incapacitate the operators before they were able to don breathing apparatus. The challenges to the safety system which occurs do to this system is unwarranted in light of the above discussion. A net improvement upon safety is expected with regards to this change to the LaSalle County Station design from the reduction in challenges to the control room and auxiliary control room ventilation systems which are considered engineered safety features.

Therefore LSCS does meet the intent NRC positions with regard protection from chlorine sources; the risk to the public from the effects upon the operators of LSCS due to chlorine transportation on the Illinois River is negligible. The chlorine detection system will be removed from the ventilation system upon approval of this proposal. Attachment B provides revisions to Technical Specifications 3.3.7.8, 4.3.7.8, and 4.7.2.d.2 and associated bases. The removal of references to the chlorine detectors in the UFSAR will be completed at the next update to the UFSAR.