



J. D. Woodard  
Executive Vice President

Southern Nuclear Operating Company  
*the southern electric system*

October 20, 1994

Docket Nos. 50-348  
50-364

10 CFR 50.90

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Joseph M. Farley Nuclear Plant  
Deletion of Chlorine Detection System

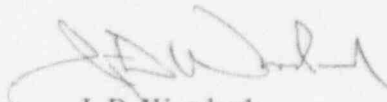
Gentlemen:

The Joseph M. Farley Nuclear Plant Technical Specifications contain requirements for operation of a chlorine detection system. As a result of the removal of all large, i.e., containing more than 150 pounds, chlorine storage containers from the plant site, there is no safety or regulatory requirement to maintain the Chlorine Detection System. As a result, Southern Nuclear Operating Company is proposing to delete the technical specification requirements for the Chlorine Detection System.

Enclosure 1 provides a description of the proposed change and the bases for the change requests. Enclosure 2 provides the basis for a determination that the proposed change does not involve a significant hazards consideration. Enclosure 3 contains the proposed changed Technical Specification pages in support of the amendment. Southern Nuclear has determined that the proposed license amendment will not significantly affect the quality of the environment.

If there are any questions, please advise.

Respectfully submitted,




J. D. Woodard

REM/clt:CHLORNRC.DOC  
Enclosures

cc: Mr. S. D. Ebner  
Mr. B. L. Siegel  
Mr. T. M. Ross  
Dr. D. E. Williamson

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 19<sup>th</sup> DAY OF October 1994



Notary Public

My Commission Expires: 9-14-98

ADD 11

Enclosure 1

Technical Specification Amendment for  
Deletion of Chlorine Detection System

Safety Analysis for Proposed Change

Technical Specification Amendment for Deletion of Chlorine Detection System  
Safety Analysis for Proposed Change

Proposed Change

Technical Specification 3/4.3.3.6 and its associated basis provide for the operation of a Chlorine Detection System in accordance with Regulatory Guide 1.95. The proposed Technical Specification changes will delete requirements for the Chlorine Detection Systems from Units 1 and 2 Technical Specifications.

Basis

Stored gaseous chlorine, except for containers having an inventory of 150 pounds or less, have been removed from the Farley Nuclear Plant site and replaced by chlorine compounds in alternative forms which maintain the desired level of dissolved chlorine in the treated water but preclude the need for storage of large amounts of gaseous chlorine. A small amount of gaseous chlorine (150 pound bottles) will be kept in a chlorination house as a backup for the hypochlorite system and the failure of one container will not lead to the release of multiple containers. This chlorination house is located more than 100 meters from the control room and its fresh air inlets. Furthermore, manual isolation of the control room is provided by existing hand switches for those valves in which the automatic chlorine isolation signal is being removed.

The removal of the gaseous chlorine and deletion of the chlorine detection system is in compliance with the requirements of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," dated February, 1975. This Regulatory Guide allows for the presence of chlorine containers having an inventory of 150 pounds or less provided that the chlorine is stored more than 100 meters from the Control Room, the capability for manual isolation of the Control Room is provided, and, if more than one container is present, the containers are interconnected in such a manner that failure of a single container will not cause release from several containers.

Farley Nuclear Plant is committed to the requirements of Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," June, 1974. This Regulatory Guide identifies chlorine as a potentially hazardous chemical which, if released in sufficient quantities, could result in the control room becoming uninhabitable. The Regulatory Guide provides guidance that hazardous chemicals stored or situated at distances greater than 5 miles need not be considered since, in the case of an accidental release, there should be sufficient time for the control room operators to take appropriate action. If hazardous chemicals are known or projected to be frequently shipped by rail, water or road routes within a five mile radius of a nuclear power plant, estimates of these shipments should be considered in the evaluation of control room habitability. In addition, hazardous chemicals (chlorine) stored on the nuclear plant site should be accompanied by instrumentation that will detect its escape, set off an alarm and provide a readout in the control room. However, based on Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," instrumentation (either local or remote) is not required if onsite chlorine storage is limited to 150 pounds or less stored more than 100 meters from the control room or its fresh air inlets.

Commercial barge traffic occurs within 1 mile of the control room. An average of less than 250 barges pass Farley Nuclear Plant each year. The main products transported by barge through the Columbia Lock and Dam are chemicals (chlorine gas is not included), diesel fuel, gasoline, oil, dredging equipment, pipelines, fertilizer, antifreeze, liquid feed, corn and soybeans, and steel. The nearest road to the plant is Alabama Route 95 located less than a mile from the control room. There are no known regular shipments

of chlorine on this road. The Central of Georgia Railroad, passing about 5 miles north of the plant, has one freight train making one round trip daily. Based on estimated frequency and size of shipments, an evaluation of the effect on plant operation of potential accidents in either a barge, truck or railroad car located at their closest points of approach concluded that accidents on these transportation routes would not affect the safe operation of the plant. Currently, no chlorine gas is processed at, stored at, or transported to or from any of the industrial facilities located within 5 miles of the plant. Based on the distances of these facilities from the plant and the types and quantities of materials used and stored in such facilities, it has been concluded that an accident at one of these facilities would not constitute a hazard to the safe operation of the plant.

As previously evaluated and recently confirmed, there are no identified chlorine hazards to the plant posed by commercial facilities or nearby transportation modes. This evaluation was performed with regard to Regulatory Guides 1.78 and 1.95. Protection of the control room against accidental chlorine releases was provided solely to guard against the accidental release of chlorine stored on-site. Thus, since on-site sources of gaseous chlorine have been reduced to 150 pound containers or removed, there are no concerns regarding potential chlorine hazards to the control room and the chlorine detection system is no longer required for protection of control room personnel.

Enclosure 2

Technical Specification Amendment for  
Deletion of Chlorine Detection System

Significant Hazards Evaluation

Joseph M. Farley Nuclear Plant  
Unit 1 and Unit 2

Deletion of Chlorine Detection System  
10 CFR 50.92 EVALUATION

Pursuant to 10CFR50.92, Southern Nuclear Operating Company (SNC) has evaluated the deletion of the chlorine detection system technical specification requirements from the Farley Nuclear Plant Units 1 and 2 Technical Specifications and has determined that operation of the facility in accordance with the proposed amendment would not involve significant hazards considerations.

Background

Technical Specification 3/4.3.3.6 and its associated basis provide for the operation of a Chlorine Detection System in accordance with Regulatory Guide 1.95. The proposed Technical Specification changes will delete requirements for the Chlorine Detection Systems from Units 1 and 2 Technical Specifications.

Stored gaseous chlorine, except for containers having an inventory of 150 pounds or less, have been removed from the plant site and replaced by chlorine compounds in alternative forms which maintain the desired level of dissolved chlorine in the treated water but preclude the need for storage of large amounts of gaseous chlorine. A small amount of gaseous chlorine (150 pound bottles) will be kept in a chlorination house as a backup for the hypochlorite system. This chlorination house is located more than 100 meters from the control room and its fresh air inlets. Furthermore, manual isolation of the control room is provided by existing hand switches for those valves in which the automatic chlorine isolation signal is being removed.

The removal of the gaseous chlorine and deletion of the chlorine detection system is in compliance with the requirements of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," dated February, 1975. This Regulatory Guide allows for the presence of chlorine containers having an inventory of 150 pounds or less provided that the chlorine is stored more than 100 meters from the Control Room, the capability for manual isolation of the Control Room is provided, and, if more than one container is present, the containers are interconnected in such a manner that failure of a single container will not cause release from several containers.

Analysis

Farley Nuclear Plant is committed to the requirements of Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," June, 1974. This Regulatory Guide identifies chlorine as a potentially hazardous chemical which, if released in sufficient quantities, could result in the control room becoming uninhabitable. The Regulatory Guide provides guidance that hazardous chemicals stored or situated at distances greater than 5 miles need not be considered since, in the case of an accidental release, there should be sufficient time for the control room operators to take appropriate action. If hazardous chemicals are known or projected to be frequently shipped by rail, water or road routes within a five mile radius of a nuclear power plant, estimates of these shipments should be considered in the evaluation of control room habitability. In addition, hazardous chemicals (chlorine) stored on the nuclear plant site should be accompanied by instrumentation that will detect its escape, set off an alarm and provide a readout in the control room. However, based on Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an

Accidental Chlorine Release," instrumentation (either local or remote) is not required if onsite chlorine storage is limited to 150 pounds or less stored more than 100 meters from the control room or its fresh air inlets.

Commercial barge traffic occurs within 1 mile of the control room. An average of less than 250 barges pass Farley Nuclear Plant each year. The main products transported by barge through the Columbia Lock and Dam are chemicals (chlorine gas is not included), diesel fuel, gasoline, oil, dredging equipment, pipelines, fertilizer, antifreeze, liquid feed, corn and soybeans, and steel. The nearest road to the plant is Alabama Route 95 located less than a mile from the control room. There are no known regular shipments of chlorine on this road. The Central of Georgia Railroad, passing about 5 miles north of the plant, has one freight train making one round trip daily. Based on estimated frequency and size of shipments, an evaluation of the effect on plant operation of potential accidents in either a barge, truck or railroad car located at their closest points of approach concluded that accidents on these transportation routes would not affect the safe operation of the plant. Currently, no chlorine gas is processed at, stored at, or transported to or from any of the industrial facilities located within 5 miles of the plant. Based on the distances of these facilities from the plant and the types and quantities of materials used and stored in such facilities, it has been concluded that an accident at one of these facilities would not constitute a hazard to the safe operation of the plant.

As previously evaluated and recently confirmed, there are no identified chlorine hazards to the plant posed by commercial facilities or nearby transportation modes. This evaluation was performed with regard to Regulatory Guides 1.78 and 1.95. Protection of the control room against accidental chlorine releases was provided solely to guard against the accidental release of chlorine stored on-site. Thus, since on-site sources of gaseous chlorine have been reduced to 150 pound containers or removed, there are no concerns regarding potential chlorine hazards to the control room.

### Results

Based on the information presented above, the following observations are made with respect to 10 CFR 50.92 for removal of the chlorine detection systems.

1. Removal of the control room chlorine detection system does not involve a significant increase in the probability or consequences of an accident previously evaluated because on-site gaseous chlorine will be limited to a maximum per container inventory of 150 pounds located greater than 100 meters from the control room, and manual isolation of the control room is provided. This is in compliance with Regulatory Guide 1.95. Furthermore, offsite chlorine storage and transportation meets the requirements of Regulatory Guides 1.78 and 1.95. Therefore, the probability of occurrence of an accident is not affected.

There are no radiological consequences associated with chlorine release accidents. Therefore, the consequences of an accident previously evaluated are not increased.

2. Removal of the control room chlorine detection system does not create the possibility of a new or different kind of accident from any accident previously evaluated since the chlorine detectors are utilized for detection of accidental chlorine release and are not accident initiators. Gaseous chlorine has been removed from the plant site, except for a permissible

maximum per container inventory of 150 pounds which will be located greater than 100 meters away from the control room. In addition, there is a provision for the manual isolation of the control room. Therefore, on-site chlorine storage meets the requirements of Regulatory Guide 1.95. Furthermore, offsite chlorine storage and transportation meet the requirements of Regulatory Guides 1.78 and 1.95.

3. Removal of the control room chlorine detection system does not involve a significant reduction in the margin of safety related to the protection of control room operators from excessive levels of chlorine since the onsite chlorine storage will be limited to a maximum per container inventory of 150 pounds at the chlorination house, which is located greater than 100 meters from the control room. In addition, manual isolation of the control room is also provided. This meets the requirements of Regulatory Guide 1.95. Therefore, onsite and offsite chlorine storage and transportation meets the requirements of Regulatory Guides 1.78 and 1.95.

### Conclusions

Based on the preceding analysis, it has been concluded that the proposed Technical Specifications changes to remove the chlorine detection system do not involve a significant increase in the probability of consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in a margin of safety. Therefore, the proposed changes do not involve a significant hazard in accordance with 10 CFR 50.92.



Enclosure 3

Revised Technical Specification Pages  
(Marked up pages with changes annotated are also included.)

Unit 1

Page IV

3/4 3-52

B 3/4 3-3

Revision

Replace

Replace

Replace

Unit 2

Page IV

3/4 3-52

B 3/4 3-3

Revision

Replace

Replace

Replace