

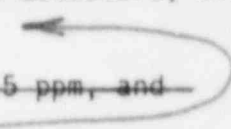
ATTACHMENT BINDEXLIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.3 INSTRUMENTATION</u>	
3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION.....	3/4 3-1
3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION.....	3/4 3-9
3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION.....	3/4 3-23
3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION	
ATWS Recirculation Pump Trip System Instrumentation.....	3/4 3-35
End-of-Cycle Recirculation Pump Trip System Instrumentation.....	3/4 3-39
3/4.3.5 REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION.....	3/4 3-45
3/4.3.6 CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION.....	3/4 3-50
3/4.3.7 MONITORING INSTRUMENTATION	
Radiation Monitoring Instrumentation.....	3/4 3-56
Seismic Monitoring Instrumentation.....	3/4 3-60
Meteorological Monitoring Instrumentation.....	3/4 3-63
Remote Shutdown Monitoring Instrumentation.....	3/4 3-66
Accident Monitoring Instrumentation.....	3/4 3-69
Source Range Monitors.....	3/4 3-72
Traversing In-core Probe System.....	3/4 3-73
Chlorine and Ammonia Detection System.....	3/4 3-74
Fire Detection Instrumentation.....	3/4 3-75
Radioactive Liquid Effluent Monitoring Instrumentation.....	3/4 3-81
Radioactive Gaseous Effluent Monitoring Instrumentation.....	3/4 3-86
Loose-Part Detection System.....	3/4 3-91
3/4.3.8 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION.....	3/4 3-92

INSTRUMENTATION

CHLORINE AND AMMONIA DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8 Two independent ~~chlorine and~~ ammonia detection system subsystems shall be OPERABLE,* each with two ~~chlorine and~~ two ammonia detectors, with their alarm/trip setpoints adjusted to actuate at ~~a-~~ an 

- ~~a. Chlorine concentration of less than or equal to 5 ppm, and~~
- ~~b. Ammonia concentration of less than or equal to 25 ppm.~~

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With ~~one chlorine and/or~~ one ammonia detector in either detection subsystem inoperable, restore the inoperable detector(s) to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room charcoal filter system train in the recirculation mode of operation.
- b. With both ~~chlorine and/or~~ ammonia detection subsystems inoperable, within one hour initiate and maintain operation of at least one control room charcoal filter system train in the recirculation mode of operation.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.8 Each of the above required ~~chlorine and~~ ammonia detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

*The normal or emergency power source may be inoperable in OPERATIONAL CONDITION 4 or 5.

INSTRUMENTATION

BASES

MONITORING INSTRUMENTATION (Continued)

3/4.3.7.5 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess important variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations".

3/4.3.7.6 SOURCE RANGE MONITORS

The source range monitors provide the operator with information of the status of the neutron level in the core at very low power levels during startup and shutdown. At these power levels, reactivity additions should not be made without this flux level information available to the operator. When the intermediate range monitors are on scale adequate information is available without the SRMs and they can be retracted.

3/4.3.7.7 TRAVERSING IN-CORE PROBE SYSTEM

The OPERABILITY of the traversing in-core probe system with the specified minimum complement of equipment ensures that the measurements obtained from use of this equipment accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.7.8 ~~CHLORINE AND AMMONIA~~ DETECTION SYSTEM

The OPERABILITY of the chlorine and ammonia detection system ensures that an accidental ~~chlorine and/or~~ ammonia release will be detected promptly and the necessary protective actions will be automatically initiated to provide protection for control room personnel. Upon detection of a high concentration of ~~chlorine and/or ammonia~~, the control room emergency ventilation system will automatically be placed in the recirculation mode of operation to provide the required protection. The detection systems required by this specification are consistent with the recommendations of Regulatory Guide ~~1.95 "Protection of~~ 1.78 Nuclear Power Plant Control Room ~~Operators against an Accidental Chlorine Release~~, February 1975. DURING A Postulated Hazardous Chemical

3/4.3.7.9 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

Assumptions for
Evaluating The
Habitability of a

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 18 months^{##} or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the train by:
1. Verifying that the train satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the train flow rate is 4000 cfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
 3. Verifying a train flow rate of 4000 cfm \pm 10% during subsystem operation when tested in accordance with ANSI N510-1975.
- c. After every 720^{**} hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 8 inches Water Gauge while operating the train at a flow rate of 4000 cfm \pm 10%.
a simulated ammonia detection signal
 2. Verifying that on ~~each of the below recirculation mode actuation test signals~~, the recirculating charcoal filter automatically switches to the recirculation mode of operation and the isolation dampers close within 6 seconds:
 - a) Chlorine detection, and
 - b) Ammonia detection.

^{##} This surveillance shall include the recirculating charcoal filter, "odor eater," in the normal control room supply filter train using ANSI N510-1975 as a guide to verify \geq 70% efficiency in removing freon test gas.

^{**} Except that recirculating charcoal filter samples shall be removed and analyzed at least once per 18 months.

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.3 INSTRUMENTATION</u>	
3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION.....	3/4 3-1
3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION.....	3/4 3-9
3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION.....	3/4 3-23
3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION	
ATWS Recirculation Pump Trip System Instrumentation.....	3/4 3-35
End-of-Cycle Recirculation Pump Trip System Instrumentation.....	3/4 3-39
3/4.3.5 REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION.....	3/4 3-45
3/4.3.6 CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION.....	3/4 3-50
3/4.3.7 MONITORING INSTRUMENTATION	
Radiation Monitoring Instrumentation.....	3/4 3-57
Seismic Monitoring Instrumentation.....	3/4 3-60
Meteorological Monitoring Instrumentation.....	3/4 3-63
Remote Shutdown Monitoring Instrumentation.....	3/4 3-66
Accident Monitoring Instrumentation.....	3/4 3-69
Source Range Monitors.....	3/4 3-72
Traversing In-core Probe System.....	3/4 3-73
Chlorine and Ammonia Detection System.....	3/4 3-74
Fire Detection Instrumentation.....	3/4 3-75
Radioactive Liquid Effluent Monitoring Instrumentation.....	3/4 3-81
Radioactive Gaseous Effluent Monitoring Instrumentation.....	3/4 3-86
Loose-Part Detection System.....	3/4 3-91
3/4.3.8 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION.....	3/4 3-92

INSTRUMENTATION

CHLORINE AND AMMONIA DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8 Two independent ~~chlorine and~~ ammonia detection system subsystems shall be OPERABLE,* each with ~~two chlorine and~~ two ammonia detectors, with their alarm/trip setpoints adjusted to actuate at a: ~~AN~~ ←

- ~~a. Chlorine concentration of less than or equal to 5 ppm, and~~
- ~~b. Ammonia concentration of less than or equal to 25 ppm.~~

APPLICABILITY: All OPERATIONAL CONDITIONS.

ACTION:

- a. With ~~one chlorine and/or~~ one ammonia detector in either detection subsystem inoperable, restore the inoperable detector(s) to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room charcoal filter system train in the recirculation mode of operation.
- b. With both ~~chlorine and/or~~ ammonia detection subsystems inoperable, within one hour initiate and maintain operation of at least one control room charcoal filter system train in the recirculation mode of operation.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.8 Each of the above required ~~chlorine and~~ ammonia detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

*The normal or emergency power source may be inoperable in OPERATIONAL CONDITION 4 or 5.

INSTRUMENTATION

BASES

MONITORING INSTRUMENTATION (Continued)

3/4.3.7.5 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess important variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations".

3/4.3.7.6 SOURCE RANGE MONITORS

The source range monitors provide the operator with information of the status of the neutron level in the core at very low power levels during startup and shutdown. At these power levels, reactivity additions should not be made without this flux level information available to the operator. When the intermediate range monitors are on scale adequate information is available without the SRMs and they can be retracted.

3/4.3.7.7 TRAVERSING IN-CORE PROBE SYSTEM

The OPERABILITY of the traversing in-core probe system with the specified minimum complement of equipment ensures that the measurements obtained from use of this equipment accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.7.8 ~~CHLORINE AND AMMONIA DETECTION SYSTEM~~

*"ASSUMPTIONS
For Evaluating
the Habitability
Of a"*

The OPERABILITY of the chlorine and ammonia detection system ensures that an accidental ~~chlorine and/or ammonia~~ release will be detected promptly and the necessary protective actions will be automatically initiated to provide protection for control room personnel. Upon detection of a high concentration of ~~chlorine and/or ammonia~~, the control room emergency ventilation system will automatically be placed in the recirculation mode of operation to provide the required protection. The detection systems required by this specification are consistent with the recommendations of Regulatory Guide ~~1.95 "Protection of~~ 1.78 Nuclear Power Plant Control Room ~~Operators against an Accidental Chlorine Release", February 1975.~~ During a Postulated Hazardous Chemical

3/4.3.7.9 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 18 months^{##} or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the train by:
1. Verifying that the train satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the train flow rate is 4000 cfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
 3. Verifying a train flow rate of 4000 cfm \pm 10% during subsystem operation when tested in accordance with ANSI N510-1975.
- c. After every 720** hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 8 inches Water Gauge while operating the train at a flow rate of 4000 cfm \pm 10%.
 2. Verifying that on ~~each of the below recirculation mode actuation test signals~~, *a simulated ammonia detection signal*, the recirculating charcoal filter automatically switches to the recirculation mode of operation and the isolation dampers close within 6 seconds:
 - a) Chlorine detection, and
 - b) Ammonia detection.

^{##}This surveillance shall include the recirculating charcoal filter, "odor eater," in the normal control room supply filter train using ANSI N510-1975 as a guide to verify \geq 70% efficiency in removing freon test gas.

**Except that recirculating charcoal filter samples shall be removed and analyzed at least once per 18 months.

ATTACHMENT C

SIGNIFICANT HAZARDS CONSIDERATION

Commonwealth Edison has evaluated the proposed Technical Specification Amendment and determined that it does not represent a significant hazards consideration. Based on the criteria for defining a significant hazards consideration established in 10 CFR 50.92, operation of LaSalle County Station Units 1 and 2 in accordance with the proposed amendment will not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated because: the chlorine detectors are not used in the analysis mitigation or detection of any accident analyzed in Chapter 15 accident analysis.
- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated because: chlorine gas does not contribute to or cause or change any type of accident for which an analysis is provided in Chapter 15.
- 3) Involve a significant reduction in the margin of safety because: the protection was originally installed beyond requirements. The HVAC system still has the ammonia detection and automatic transfer ability as well as manual transfer to the recirculation mode.

The likelihood of any chlorine release in the vicinity of LaSalle County Station is negligible and the likelihood of any release reaching the control room ventilation is also considered negligible as no known bulk shipments or storage of chlorine exists within a 5 mile radius of LaSalle Station. In addition, the citing of LaSalle is favorable in that prevailing winds would tend to carry any toxic gas away from the plant, the Illinois River is greater than 4 miles from the plant and 200 feet lower in elevation.

Based on the preceding discussion, it is concluded that the proposed system change clearly falls within all acceptable criteria with respect to the system reaching component, the consequences of previously evaluated accidents will not be increased and the margin of safety will not be decreased. Therefore, based on the guidance provided in the Federal Register and the criteria established in 10 CFR 50.92(c), the proposed change does not constitute a significant hazards consideration.

ATTACHMENT D

SURVEY OF CHLORINE SHIPMENT IN THE VICINITY OF LASALLE COUNTY STATION

Introduction

The licensing of the LaSalle County Station required a survey of industries and transportation routes in the site vicinity, which may use, store and/or transport hazardous chemicals. This information was then used to evaluate the control room habitability at the LaSalle County Station. One such survey, conducted in 1975, revealed that anhydrous ammonia and probably chlorine were transported by barge on the Illinois River. The information gathered during this survey was not complete enough to conclude that chlorine was not shipped in large quantities by barge on the Illinois River.

A new survey was conducted in January-February 1986 to supplement the information obtained from the 1975 survey. The purpose of the new survey was to determine if chlorine is a hazard to the control room habitability. The following discussion describes the Regulatory Guides which form the basis of the control room habitability evaluation, the results of the two surveys and the conclusion regarding chlorine as a hazard. Based on the information collected to date, it is concluded that no special protection provisions are required for chlorine at the LaSalle County Station.

Regulatory Guides

Regulatory Guide 1.78, "Assumption for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release" identifies chlorine as a hazardous chemical and requires a control room habitability analysis in case there is an accidental chlorine release from stationary or mobile sources near the plant. Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release" specifically addresses onsite accidental chlorine release. However, it can also be used in analyzing effects of an offsite chlorine release.

Regulatory Position 1 of Regulatory Guide 1.78 states that chlorine stored or situated at distances greater than five miles from the control room would not be considered in evaluating habitability of the nuclear power plant control room during a postulated chlorine release. Regulatory Guide 1.78 also specifies frequency, distance, and quantity of chemicals transported or stored with respect to the control room that require a control room habitability analysis. The

Regulatory Guide also specifies three modes of transportation of chlorine manufactured, stored or used by the industries in the vicinity of the control room: railroads, highways, and waterways.

1975 Survey of Chlorine Shipment

The LaSalle Final Safety Analysis Report (FSAR) Section 2.1.1 describes the location of the plant site and the transportation routes near the site. The FSAR Section 2.2.2 describes the nearby industrial, transportation, and military facilities. All industrial facilities are located outside of a five mile radius of the plant; therefore, chlorine used or stored at these facilities need not be considered in evaluating control room habitability. A survey of these industries was conducted in 1975 to determine the shipment of chlorine by the three modes of transportation. U.S. Highway 6 and State Highway 47, the nearest highways to the station used by these industries and the Chicago Rock Island and Pacific, the nearest railroad, are all located farther than five miles from the station. Therefore, transportation of chlorine by these two modes of transportation need not be considered in the control room habitability analysis.

The FSAR Section 2.2.2.4 describes the river traffic on the Illinois River passing the site. Section 2.2.3.1.C concluded that the only transportation route carrying chlorine within five miles of the station is the Illinois River, which is located approximately 4.7 miles north of the station. A review of the 1974 data on commodities transported on the Illinois River (FSAR Table 2.2-4) did not differentiate barge shipments of chlorine from other chemicals. In addition, the survey also revealed that although small quantities of chlorine were being used by the Illinois Nitrogen Corporation located at river mile 248.7, approximately five miles north of the station, sufficient information was not available to determine that it was not receiving its chlorine supply by barges. Therefore, in order to expedite the licensing process, chlorine detectors were provided in the control room HVAC system intake air ducts.

1986 Survey of Chlorine Shipments

To supplement the 1975 survey and to obtain additional specific information on chlorine shipment, a survey was conducted during January-February 1986 to determine if chlorine is still transported in barges on the Illinois River.

For this survey, information was obtained from the Chlorine Institute, a national trade organization with headquarters in

New York, whose members are mostly chlorine producers. The Institute carries out research, produces literature, and in general, maintains the most up-to-date information on chlorine in the United States.

In 1975, the Institute supplied a list of the active chlorine barge operators in the United States (Reference 1). As a part of the January 1986 survey, all the barge operators that travel on inland waterways, were contacted. The 1975 list was used (Exhibit 1), since the Chlorine Institute stated that no new chlorine barges have been built in the U.S. in 16 years. All, but one, of the barge operators stated that they do not operate on the Illinois River. One operator, E. I. du Pont refused to provide any information on the whereabouts of its chlorine barges. Despite the lack of information from the one barge operator, information from other barge operators and agencies indicates that no chlorine barges operate on the Illinois River.

In addition to the Chlorine Institute, the following government agencies were also contacted for information on the shipment of chlorine on the Illinois River:

- The U.S. Coast Guard, Washington, D.C.;
- The U.S. Army Corps of Engineers, Rock Island, Illinois (for the Lockmaster at Dresden); and
- The Lockmaster at Marseilles Lock and Dam.

These agencies regulate, or are responsible for gathering data on the transportation of chemicals on inland waterways.

To determine if chlorine would be transported in barges other than chlorine barges, the U.S. Coast Guard in Washington, D.C. (Reference 2) was contacted. The Coast Guard stated that the U.S. Department of Transportation does not prohibit chlorine from being transported along with other cargo on other types of barges, other than chlorine barges. However, according to the U.S. Coast Guard, since chlorine in bulk quantity is transported by barge only, if there are no producers or bulk users of chlorine along the Illinois River, it would be highly unlikely that chlorine is being shipped on the river. Small industrial users of chlorine are not likely to transport chlorine by barge. The 1986 survey also indicated that a previously identified small industrial user, Illinois Nitrogen Corp. (See FSAR Table 2.2-3), is not listed anymore in the 1985 Illinois Manufacturers Directory (Reference 3). Illinois Nitrogen Corporation's facilities were purchased by Kaiser Aluminum and Chemical Company in 1981. Kaiser does not receive, ship, store, or use chlorine at this site (Reference 4). In addition, there were two dock and

anchorage facilities (Seneca Port District and Conti-Carriers & Terminals) identified on the Illinois River within five miles of the LaSalle site. However, these do not receive, ship, store, or use chlorine (Reference 5 and 6).

Since the Chlorine Institute keeps records of chlorine activities, they were contacted to determine if there are any chlorine producers or bulk users along the Illinois River. The Chlorine Institute is not aware of any chlorine producers in Illinois, or any bulk users along the Illinois River (Reference 7). In addition, the lockmasters at both the Dresden and Marseilles locks indicated that in the years they have been working at the locks (approximately 16 to 20 years), neither of them has ever seen a chlorine barge on the Illinois River (Reference 8 and 9).

Conclusion

The habitability of the LaSalle Units 1 & 2 control room was evaluated using the procedures described in Regulatory Guides 1.78 and 1.95. As indicated by the 1986 survey, no offsite storage or use of chlorine occurs at any industry or is transported on any routes (highway, waterway, or railroad) within five miles of the control room. There is no onsite storage of chlorine; sodium hypochlorite biocide system is used, thus eliminating an onsite chlorine hazard. In accordance with plant emergency plans and procedures, self-containing breathing apparatus is provided for assurance of control room habitability in the event of occurrences such as smoke hazards.

Based on the 1986 survey, it is our conclusion that chlorine is not shipped in bulk quantities by highway, railroad or river near the LaSalle County Station. We, therefore, conclude that chlorine detectors are not required for the LaSalle County Station.

References

1. Chlorine Institute, New York, Mr. Michael E. Lyden, Personal Communication with Sargent & Lundy, November 1975.
2. U.S. Coast Guard, Washington, D.C., Lt. Mott Querry, Personal Communication with Sargent & Lundy, January 23, 1986.
3. Illinois Manufacturers Directory, Manufacturers News, Chicago, Illinois, 1985.
4. Kaiser Agricultural Chemicals, Mr. D. Kelly, Production Supervisor; Personal Communication with Sargent & Lundy, February 3, 1986.
5. Seneca Port District, Mr. G. MacDonald, Personal Communication with Sargent & Lundy, February 4, 1986.
6. Conti-Carriers & Terminals, Mr. G. Lamb, Terminal Manager; Personal Communication with Sargent & Lundy, February 3, 1986.
7. Chlorine Institute, New York, Mr. Robert L. Mitchell, President; Personal Communication with Sargent & Lundy, January 21, 1986.
8. Lockmaster, Marseilles Lock & Dam, Mr. Walter Getza, Personal Communication with Sargent & Lundy, January 22, 1986.
9. U.S. Army Corps of Engineers, Rock Island, Illinois, Ms. Sherry Serland, (for the Lockmaster at Dresden Lock and Dam), Personal Communication with Sargent & Lundy, January 22, 1986.

EXHIBIT 1

ACTIVE CHLORINE BARGES IN THE U.S. AND CANADA

<u>OWNER</u>	<u>REPORTING MARKS/NAME</u>	<u>BARGE NOS.</u>	<u>NOM. Cl₂ CAP'Y (T)</u>
Diamond Shamrock (7)	None	601-604 & 608-609	612 (4 x 153)
	None	605-607	620 (4 x 155)
	DACO	1106-1109	1100 (4 x 275)
E.I. du Pont de Nemours & Co. (4) ^a	EIDC	201-204	1100 (4 x 275)
Georgia Pacific (1)	Foss ^b	260	1200 (4 x 300)
Hooker (3)	GRIFFNIP ^b	265	400 (2 x 200)
	FOSS ^b		600 (2 x 300)
	Metlakatla ^b		900 (3 x 300)
PPG Industries (16)	PPG	150-158 (except 154)	600 (4 x 150)
	PPG	301	900 (6 x 150)
	PPG	400-405	1100 (4 x 275)
Pennwalt (3)	PSC	401,402	1100 (4 x 275)
	TYEE ^b		1200 (4 x 300)

Source: The Chlorine Institute, 1975 (Reference 1), supplied a list of active chlorine barge operators in the U.S. This list was updated in January 1986 to show current barge operators. Inactive operators have been deleted from the original list.

^aE.I. du Pont de Nemours will not divulge the whereabouts of their chemical barges.

^bCoast-wise barges operate in Pacific Northwest, rest on inter-coastal waterways.