

Specification LCO 4.4.2 - Control Room Temperature -
Limiting Condition for Operation

The reactor shall not be operated at power if the control room temperature exceeds 120°F.

Basis for Specification LCO 4.4.2

The limiting temperature in the control room is established to assure no over temperature condition which might cause damage to essential instrumentation and control equipment. Satisfactory operation of safety related control and, electrical equipment located in the control room for temperatures up to 120°F is discussed in FSAR Amendment No. 19, Question 7.5.

Specification LCO 4.4.3 - Area Radiation Monitors -
Limiting Condition for Operation

| At least one area radiation monitor from groups 1 through
| 6 shall be operable. If any area monitor from group 1, or
| groups 3 through 6 becomes inoperable, a portable monitor
| equipped with an alarm shall be placed in the area, and
| the potentially affected personnel notified of the
| condition. The detectors are grouped as shown in Table
| 4.4.3-1.

| If both area radiation monitors in group 2 or the area
| radiation monitor in group 7 become inoperable, corrective
| action shall be initiated to restore the monitor to
| operable status within 7 days, or in the event of
| inability to restore operability, a special report shall
| be submitted to the Nuclear Regulatory Commission as
| described in Section AC 7.5.3.e.

Basis for Specification LCO 4.4.3

The grouping of area radiation monitors is such that each monitor in the group supplements the others in the group.

The notification of personnel of any malfunction, coupled with the provision of a portable instrument, or a replacement, adequately ensures protection for personnel, and detection of abnormalities.

| Personnel access to the Hot Service Facility (HSF-Group 2)
| is not required on a regular basis and is limited by
| controlled procedures requiring Health Physics dose
| assessment prior to entry, regardless of area monitor
| operability. Therefore, immediate replacement or repair
| upon indication of inoperability is not necessary to
| maintain personnel protection and may be contrary to the
| ALARA (As Low As Reasonably Achievable) philosophy due to
| unnecessary personnel exposure to highly radioactive or
| irradiated components routinely contained in the HSF.

| The group 7 monitor was added in response to NUREG-0737,
| Item II.F.1.3. The maximum dose rate in the reactor
| building during Design Basis Accident No. 1 (FSAR Section
| 14.10) has been determined to be 1.4 rad/hr. The area
| radiation monitors in group 1 and groups 3 through 6 have
| adequate range to detect dose rates during the course of
| such events. Therefore, immediate replacement or repair
| upon indication of group 7 monitor inoperability is not
| necessary.

Table 4.4.3-1

GROUP NO.	DETECTOR NO.	LOCATION
1	RT-93250-1	4881 Refueling Machine Control Room
1	RT-93252-1	4881 Refueling Floor Northeast
1	RT-93251-1	4864 Reactor Plant Exhaust Filter Room
1	RT-93252-2	4864 South Stairwell
2	RT-93250-3	4856 Hot Service Facility (HSF) Platform
2	RT-93251-3	4868 HSF Blower Suction
3	RT-93250-2	4854 East Walkway Outside HSF
3	RT-93250-4	4839 East Walkway - HSF Entrance
3	RT-93251-4	4816 General Office Area
3	RT-93252-4	4829 Analytic Instrument Room
4	RT-93250-13	4791 Condensate Demineralizers
4	RT-93250-5	4829 Main Control Room
4	RT-93251-6	4791 Truck Bay
4	RT-93252-6	4791 South Stairwell
5	RT-93251-5	4781 Gas Waste Filters
5	RT-93251-7	4781 Core Support Filter
5	RT-93252-7	4781 East Walkway
6	RT-93250-8	4771 Northeast Walkway
6	RT-93251-8	4771 Decontamination Laundry Room
6	RT-93251-9	4740 Buffer Helium Dryer Loop 1
7	RT-93250-14	4881 East Wall Refueling Floor

Specification LCO 4.4.4 - Seismic Instrumentation -
Limiting Conditions for Operation

The reactor shall not be operated at power unless three (3) of the six (6) seismic instruments are operable.

Basis for Specification LCO 4.4.4

The monitoring provided by three (3) seismic instruments, in the event of an earthquake, is adequate to determine the ground acceleration at the site.

Specification LCO 4.4.5 - Analytical System Primary
Coolant Moisture Instrumentation - Limiting Condition for
Operation

The reactor shall not be operated between a shutdown condition and 5% power during startup unless the primary coolant is being sampled for moisture by two moisture monitors, normally from the Analytical System.

If one of the two moisture monitors above becomes inoperable while increasing reactor power between shutdown and 5%, a second monitor shall be made operable or the reactor shall be shut down within 12 hours.

If all available moisture monitors become inoperable, during the above mentioned power increase, the reactor shall be shut down immediately.

During reactor power reduction from 5% power to shutdown conditions, at least one moisture monitor must be in operation. If all available moisture monitors become inoperable, the reactor shall be shut down immediately.

Basis for Specification LCO 4.4.5

During reactor operation, primary coolant moisture monitors are required below 5% reactor power for administration of LCO 4.2.11. One moisture monitor is sufficient to detect primary coolant moisture content on a continual basis.

Two analytical system moisture monitors will normally be in service sampling primary coolant. These analytical moisture monitors do not provide any automatic action (other than an alarm function). Alternate moisture monitors can also be placed in service sampling primary coolant, such as through re-alignment of a moisture monitor in the analytical system or utilization of operable (as defined in LCO 4.4.1, Note (t)) plant protective system dewpoint moisture monitors placed in the "indicate" mode (note that in the "indicate" mode a trip is input to the PPS). Operator action is required to take corrective action in the event of high moisture levels in the primary coolant in the shutdown to 5% reactor power range.

Operator reaction time to shut down the reactor in the event of high moisture levels in the primary coolant

system at reactor power levels of 5% or less are acceptable. As indicated by Figure 4-2 in Document GA-A13677, Test and Evaluation of the Fort St. Vrain Dew Point Moisture Monitors System, one of the limiting parameters for determining required response times to shut the reactor down in the event of high primary coolant moisture is graphite oxidation. The allowable weight loss of the hottest fuel element in the core is 1%.

At operating temperatures experienced at 5% reactor power, response times to scram the reactor to limit oxidation to 1% by weight is approximately 6700 seconds, well within the capabilities of an operator.

Specification LCO 4.4.6 - Room Temperature, 480 Volt Switchgear

The reactor shall not be operated at power if the 480 V switchgear room temperature exceeds 120°F.

Basis for Specification LCO 4.4.6

The most limiting temperature in the 480 V switchgear room is 120°F. This limit is established to assure satisfactory operation of safety-related control and electrical equipment located there during reactor power operation.

| Specification LCO 4.4.7 - Control Room Emergency Ventilation System,
| Limiting Conditions For Operation

| The control room emergency ventilation system shall be operable
| to provide for filtered pressurization of the control room.

| APPLICABILITY: LOW POWER AND POWER OPERATION

| ACTION:

| a. With either the control room emergency filter fan or the
| control room supply fan inoperable, restore the inoperable
| fan to operable status within 7 days or the reactor shall
| be shut down within the next 24 hours.

| b. Inoperable dampers shall be repaired or manually
| positioned to maintain control room pressurization via the
| Turbine Building air supply within 24 hours or the reactor
| shall be shut down within the next 24 hours.

| c. With both the control room emergency filter fan and the
| control room supply fan inoperable, restore one to
| operable status within 24 hours or the reactor shall be
| shut down within the next 24 hours. Restore both fans to
| an operable status within 7 days from the time of the
| initial loss or be in a shut down condition within the
| next 24 hours.

| ASSOCIATED SURVEILLANCE REQUIREMENT(S): SR 5.10.1

| Basis for Specification LCO 4.4.7

| The operability of the control room emergency ventilation system
| ensures that the control room will remain habitable for control room
| personnel during and following all credible accident conditions.
| Control room habitability can be maintained with a minimum of one
| supply fan providing for control room pressurization and minimum
| makeup from the turbine building. Although control room habitability
| could also be maintained temporarily with the HVAC system isolated,
| assuming total failure of the pressurization system, this mode of
| operation is only considered acceptable under actual accident
| conditions.

| Specification LCO 4.4.8 - Chlorine Detection and Alarm System -
| Limiting Condition For Operation

| The chlorine detection and alarm system shall be operable to
| alert control room personnel in the event of an accidental chlorine
| release.

| APPLICABILITY: SHUTDOWN, LOW POWER, AND POWER OPERATION

| ACTION:

| With either the detection or alarm system inoperable, restore
| the inoperable system to operable status within 24 hours, or
| initiate and maintain operation of the control room emergency
| ventilation system in the minimum makeup mode of operation.

| ASSOCIATED SURVEILLANCE REQUIREMENT(S): SR 5.4.14

| Basis:

| The operability of the chlorine detection and alarm system
| ensures the capability to detect an accidental chlorine release
| and alert control room personnel so that protective action may
| be initiated to maintain control room habitability.

4.10 Fire Suppression Systems - Limiting Conditions for Operation

Applicability

Applies to the minimum operable equipment for the plant fire suppression system.

Objective

To ensure that the capability for suppressing any fire involving safety related equipment is maintained.

Specification LCO 4.10.1 - Room Isolation Dampers, Three Room Control Complex, Limiting Condition for Operation

The HVAC Room Isolation Dampers for the control room, auxiliary electric room and the 480 volt switchgear room, shall be operable during reactor power operation. If an isolation damper becomes inoperable and room isolation could not be maintained with an operable redundant damper, the inoperable damper shall be made operable within 72 hours or the reactor shall be shut down within the next 24 hours. If an isolation damper becomes inoperable and room isolation could be maintained with an operable redundant damper, the inoperable damper shall be made operable within 7 days or the reactor shall be shut down within the next 24 hours.

Basis for Specification LCO 4.10.1

The HVAC room isolation dampers for the control room, auxiliary electric room and the 480 volt switchgear room, provide the required area isolation for maintaining an effective concentration of Halon after actuation of the Halon fire suppression system.

Specification LCO 4.10.2 - Halon Fire Suppression System, Three Room Control Complex, Limiting Condition for Operation

The Halon Fire Suppression system for the control room, auxiliary electric room, and the 480 volt switchgear room shall be operable during reactor power operation. If the Halon system becomes inoperable and cannot be made operable within 72 hours the reactor shall be shut down in an orderly manner.

Basis for Specification LCO 4.10.2

The Halon system provides fire suppression capability for the control room, auxiliary electric room, and the 480 volt switchgear room. Halon is a non-toxic, halogenated chemical fire suppressant. The Halon system is a total flooding extinguishing system divided into three sections. One section supplies the 480 volt switchgear room, the second section supplies the control room, and the third the auxiliary electric room. Total flooding of these areas will extinguish an active fire without requiring abandonment of the area.

Specification SR 5.4.14 - Chlorine Detection and Alarm System -
Surveillance Requirements

The chlorine detection and alarm system shall be demonstrated operable by performance of a channel check daily, a functional test quarterly, and a channel calibration at least once per 18 months.

Basis for Specification SR 5.4.14

The surveillance interval specified for this instrumentation assures its proper operation in the event of an accidental chlorine release.

5.10 Fire Suppression Systems - Surveillance Requirements

Applicability

Applies to the surveillance of the fire suppression and protection systems and equipment.

Objective

To establish the minimum frequency and type of surveillance on the equipment of the fire suppression and protection equipment to assure that the capability exists for suppressing any fire involving safety related equipment.

Specification SR 5.10.1 - Three Room Control Complex HVAC System, Surveillance Requirement

The isolation and pressurization dampers and associated fans of the control room, auxiliary electric room, and the 480 volt switchgear room HVAC systems, shall be tested and demonstrated to be operable annually to verify the correct isolation and pressurization responses to simulated automatic and manual actuation signals from the Halon Fire Suppression System and the Control Room Emergency Ventilation System.

Basis for Specification SR 5.10.1

Annual equipment and control system testing of the room isolation and pressurization dampers and associated fans of the three-room control complex is sufficient to demonstrate the capability to operate when required by the Halon Fire Suppression System or the Control Room Emergency Ventilation System. The isolation dampers in the ventilation systems of the control and auxiliary electric rooms, and of the 480 volt switchgear room automatically close upon actuation of the Halon Fire Suppression System for that room. At the same time, the various ventilation fans associated with these areas are also tripped off or prevented from starting. The isolation of the ventilation system concurrent with Halon discharge is required to maintain effective concentrations of Halon in the area of the fire. During radiological or chemical release emergencies, control room pressurization or isolation functions would be required to maintain control room habitability.

Specification SR 5.10.2 - Halon Fire Suppression System, Surveillance Requirements

Operability of the Halon fire suppression system for the control room, auxiliary electric equipment room, and 480 volt switchgear room shall be demonstrated as follows:

- a) Quarterly, verify that Halon Storage Cylinder weight is at least 95% of full rated charge.
- b) Quarterly, verify that Halon Storage Cylinder pressure is at least 90% of full rated charge.

7. Offsite Dose Calculation Manual (ODCM) implementation.

8. Quality Assurance Program for effluent environmental monitoring using the guidance in Regulatory Guide 1.21, Revision 1, June, 1974 and Regulatory Guide 4.1, Revision 1, April, 1975.

| 9. A Post-Accident Sampling program which will
| ensure the capability to obtain and analyze
| reactor coolant samples under accident
| conditions. The program shall include the
| following:

- | a) Training of personnel;
- | b) Procedures for sampling and analysis;
- | c) Provisions for maintenance of sampling
| and analysis equipment.

b. Procedures and administrative policies of a) above, and changes thereto, shall be reviewed by the PORC and approved by the appropriate Manager prior to implementation and reviewed periodically as set forth in Administrative Procedures.

Security Plan procedures, and changes thereto, shall be reviewed by the Plant Operations Review Committee and approved by the designated Plant Security Officer prior to implementation.

Security Plan procedures and changes thereto, shall be reviewed by the Fort St. Vrain Security Committee.

- c. Temporary changes to procedures of a) above may be made provided:
1. The intent of the original procedure is not altered.
 2. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operators License.
 3. The change is documented, reviewed by the PORC and approved by the appropriate Manager within 14 days of implementation.
- d. Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20, and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

Respiratory protective equipment shall be provided in accordance with 10 CFR 20.103.

submitted to the NRC within 30 days. When more than one of the radionuclides in Table 8.2-3 are detected in the sampling medium, this report shall be submitted if:

$$\frac{\text{Concentration (1)}}{\text{Reporting Level (1)}} + \frac{\text{Concentration (2)}}{\text{Reporting Level (2)}} + \dots \geq 1.0$$

When radionuclides other than those in Table 8.2-3 are detected and are the result of plant effluents, a report shall be submitted if the potential annual dose to a member of the public is equal to or greater than the calendar year limits of Specifications ELCO 8.1.1.i) and ELCO 8.1.2.g). This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Monitoring Report.

- | e. Group 2 or 7 Area Radiation Monitors
- | Inoperable
- | 1. As required by LCO 4.4.3, if both of the
- | area radiation monitors in group 2, or
- | the monitor in group 7 become inoperable

| and corrective action to restore one to
| operable status within 7 days is
| unsuccessful, a special report shall be
| submitted to the Nuclear Regulatory
| Commission within 14 days following the
| event. This report shall outline the
| cause of the inoperability and the plans
| and schedule for restoring the monitor to
| operable status.

ATTACHMENT 3

SIGNIFICANT HAZARDS CONSIDERATIONS

SIGNIFICANT HAZARDS CONSIDERATIONS

I. EVALUATION

LCO 4.4.3

- 1) Although the addition of area radiation monitor RT-93250-14 was requested by the Nuclear Regulatory Commission for Fort St. Vrain conformance with the guidelines of Item II.F.1.3, the monitors of group 1 and groups 3 through 6 have adequate range (10 rad/hr) to detect reactor building dose rates during the course of maximum Design Basis Accident events. Therefore, immediate replacement or repair upon indication of inoperability is not considered necessary, and the Nuclear Regulatory Commission reporting criteria defined in Section AC 7.5.e are considered adequate to maintain the intent of this item.
- 2) Since personnel access to the Hot Service Facility (Group 2) is not required on a regular basis and is controlled and monitored by Health Physics personnel when access is required, it would not be necessary to immediately repair or replace inoperable monitors in this group. Therefore, allowing seven days to restore operability before submitting a special report to the Nuclear Regulatory Commission (AC 7.5.e) will not degrade personnel protection nor detection of abnormalities, and will be consistent with the ALARA philosophy.

LCO 4.4.7

This LCO, along with the modifications to SR 5.10.1, was added to maintain normal operation of the control room emergency ventilation system as designed and ensure control room habitability under worst case accident conditions, consistent with the intent of Item III.D.3.4. Consistent with FSAR analyses, the safety function of the emergency ventilation system is to maintain positive pressure in the control room effectively precluding infiltration during postulated radiological release accidents. The pressurization function has been tested and verified adequate with only the emergency filter fan or only the supply fan operable, therefore the required safety function capability is maintained during the seven day inoperability period. Although normal operation of the emergency ventilation system is considered the preferable method for assuring control room habitability, considerable FSAR analyses and recent independent evaluations provide adequate justification that the habitability as well as safe shutdown functions can be achieved assuming total failure of the pressurization system. Control room isolation, the breathable air system, self-contained breathing apparatus, and alternate remote shutdown capability are all viable alternatives during accident conditions.

LCO 4.4.8

Toxic gas release accidents, specifically chlorine, have been evaluated for impact on control room habitability and found to be very unlikely (P-80438, 12-20-80). In addition, they have not been postulated to occur as a result of other evaluated accidents nor are they considered credible instigators of severe accidents. Therefore, this LCO and the corresponding SR 5.4.14 are considered adequate in protecting control room personnel during an accidental chlorine release and maintaining habitability consistent with the intent of Item III.D.3.4 during normal operation of the plant.

LCO 4.10.1

Isolation of the control room for fire suppression or habitability purposes can be achieved with various dampers inoperable (P-83158, 4-29-83). The seven day inoperability period is consistent with Standard Technical Specification requirements when the required safety function can be performed with operable redundant equipment.

AC 7.4.a.9

This requirement is consistent with existing procedures and meets the intent of Item II.B.3 and the Standard Technical Specifications.

II. CONCLUSION

Based on the above evaluation, it is concluded that operation of Fort St. Vrain in accordance with the proposed changes will not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in any margin of safety.

Therefore, these changes will not increase the risk to the health and safety of the public nor do they involve any significant hazards considerations.