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DUKE POWER

February 26, 1991

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

Subject: Catawba Nuclear Station, Units 1 and 2
Docket Nos. 50-413 and 50-414
Request for Temporary Waiver of Compliance
Technical Specification Surveillances 4.7.6 e.2), 4.7.6 e.5), and 3.3.3.1

Gentlemen:

This letter constitutes written follow-up to a verbal request for temporary waiver of compliance which was made (and subsequently granted) via telephone between Duke Power personnel and the NRC Staff on February 25, 1991. Emergency relief from compliance with TS surveillances 4.7.6 e.2); 4.7.6 e.5); and Table 3.3-6, Item 3 (Action 31) is necessary to avoid an unnecessary shutdown of Catawba Unit 1 and 2.

A waiver of compliance with TS 4.7.6 e.2), TS 4.7.6.e.5), and TS 3.3.3.1 Table 3.3-6 Item 3 (Action 31) is requested until approval by the NRC Staff of an emergency TS change to be submitted by March 4, 1991.

Atachment 1 contains the marked up TS, Attachment 2 contains the request for Temporary Waiver of Compliance, and Attachment 3 contains the Safety Evaluation.

Very Truly Yours,

M. S. Tuckman by

M. S. Tuckman

/rgm

Attachment

IE01

cc: Mr. Stewart D. Ebneter
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ATTACHMENT 1

TS MARK-UPS FOR WAIVER OF COMPLIANCE

No changes to this page

INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING FOR PLANT OPERATIONS

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels for plant operations shown in Table 3.3-6 shall be OPERABLE with their Alarm/Trip Setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

a. With a radiation monitoring channel Alarm/Trip Setpoint for plant operations exceeding the value shown in Table 3.3-6, adjust the Setpoint to within the limit within 4 hours or declare the channel inoperable.

b. With one or more radiation monitoring channels for plant operations inoperable, take the ACTION shown in Table 3.3-6.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel for plant operations shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-3.

No changes to this page

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

FUNCTIONAL UNIT	CHANNELS TO TRIP/ALARM	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	ACTION
1. Containment					
a. Containment Atmosphere - High Gaseous Radioactivity (Low Range - EMF-39)	1	1	All	***	30
b. Reactor Coolant System Leakage Detection					
1) Particulate Radioactivity (Low Range - EMF-38)	N.A.	1	1, 2, 3, 4	N.A.	33
2) Gaseous Radioactivity (Low Range - EMF-39)	N.A.	1	1, 2, 3, 4	N.A.	33
2. Fuel Storage Pool Areas					
a. High Gaseous Radioactivity (Low Range - EMF-42)	1	1	**	$\leq 1.7 \times 10^{-4}$ µCi/ml	34
b. Criticality-Radiation Level (Fuel Bridge - Low Range - 1EMF-15, 2EMF-4)	1	1	*	$\leq$ 15 mR/h	32
3. Control Room					
Air Intake-Radiation Level - High Gaseous Radioactivity (Low Range - EMF-43 A & B)	1/intake	2 (1/intake)	All	$\leq 1.7 \times 10^{-4}$ µCi/ml	31
4. Auxiliary Building Ventilation High Gaseous Radioactivity (Low Range - EMF-41)	1	1	1, 2, 3, 4	$\leq 1.7 \times 10^{-4}$ µCi/ml	35
5. Component Cooling Water System (EMF-46 A&B)	1	1	All	$\leq 1 \times 10^{-3}$ µCi/ml	36

TABLE 3.3-6 (Continued)

TABLE NOTATIONS

* With fuel in the fuel storage pool areas.
** With irradiated fuel in the fuel storage pool areas.
*** When venting or purging from containment to the atmosphere, the trip setpoint shall not exceed the equivalent limits of Specification 3.11.2.1 in accordance with the methodology and parameters in the ODCM. When not venting or purging in Modes 5 or 6, the alarm setpoint concentration (μCi/ml) shall be such that the actual submersion dose rate would not exceed 5mR/hr without alarm. When not venting or purging in Modes 1 through 4 the alarm setpoint shall be no more than 3 times the containment atmosphere activity as indicated by the radiation monitor.

ACTION STATEMENTS

ACTION 30 - With less than the Minimum Channels OPERABLE requirement, operation may continue provided the containment purge and exhaust valves are maintained closed. initiate and maintain operation of the

ACTION 31 - With the number of operable channels one less than the Minimum Channels OPERABLE requirement, within 1 hour ~~isolate the affected~~ Control Room Ventilation System ~~intake from outside air~~ with flow through the HEPA filters and activated carbon adsorbers. Area

ACTION 32 - With less than the Minimum Channels OPERABLE requirement, operation may continue for up to 30 days provided an appropriate portable continuous monitor with the same Alarm Setpoint is provided in the fuel storage pool area. Restore the inoperable monitors to OPERABLE status within 30 days or suspend all operations involving fuel movement in the fuel building.

ACTION 33 - Must satisfy the ACTION requirement for Specification 3.4.6.1.

ACTION 34 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Fuel Handling Ventilation Exhaust System is operating and discharging through the HEPA filters and activated carbon adsorbers. Otherwise, suspend all operations involving fuel movement in the fuel building.

ACTION 35 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue provided the Auxiliary Building Filtered Exhaust System is operating and discharging through the HEPA filter and activated carbon adsorbers.

ACTION 36 - With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, operation may continue for up to 30 days provided that, at least once per 12 hours, grab samples are collected and analyzed for radioactivity (gross gamma) at a lower limit of detection of no more than 10^{-7} μCi/ml.

No changes to this page

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM AREA VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 Two independent Control Room Area Ventilation Systems shall be OPERABLE.

APPLICABILITY: ALL MODES

ACTION: (Units 1 and 2)

MODES 1, 2, 3 and 4:

With one Control Room Area Ventilation System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

a. With one Control Room Area Ventilation System inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Area Ventilation System.

b. With both Control Room Area Ventilation Systems inoperable, or with the OPERABLE Control Room Area Ventilation System, required to be operating by ACTION a., not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6 Each Control Room Area Ventilation System shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 90°F;

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and activated carbon adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or activated carbon adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d* of Regulatory Guide 1.52, Revisions 2, March 1978, and the system flow rate is 6000 cfm ± 10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative activated 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, for a methyl iodide penetration of less than 0.175%; and

3) Verifying a system flow rate of 6000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1980.

d. After every 1440 hours of activated carbon adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis** of a representative activated 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, for a methyl iodide penetration of less than 0.175%;

e. At least once per 18 months by:

1) Verifying that the pressure drop across the combined HEPA filters, activated carbon adsorber banks, and moisture separators is less than 8 inches Water Gauge while operating the system at a flow rate of 6000 cfm ± 10%;

2) Verifying that on a High Radiation, Air Intake, or Smoke Density-High test signal, the system ~~automatically isolates the affected intake from outside air with recirculating flow through the HEPA filters and activated carbon adsorber banks~~ receives an alarm in the control room;

3) Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge relative to adjacent areas at less than or equal to pressurization flow of 4000 cfm to the control room during system operation;

4) Verifying that the heaters dissipate 25 ± 2.5 kW, and

*The requirement for reducing refrigerant concentration to 0.01 ppm may be satisfied by operating the system for 10 hours with heaters on and operating.
**Activated carbon adsorber samples are tested at 30 degree C.

SURVEILLANCE REQUIREMENTS (Continued)

actuates an alarm in the Control Room

5) Verifying that on a High Chlorine/Toxic Gas test signal, the system ~~automatically isolates the affected intake from outside air with recirculating flow through the HEPA filters and activated carbon adsorbers banks within 10 seconds (plus air travel time between the detectors and the isolation dampers)~~.

f. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 6000 cfm ± 10%; and

g. After each complete or partial replacement of an activated carbon adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 6000 cfm ± 10%.

ATTACHMENT 2

REQUEST FOR TEMPORARY WAIVER OF COMPLIANCE

Duke Power Company
Catawba Nuclear Station
Units 1 and 2

Request for Temporary Waiver of Compliance

Discussion of the Requirements for Which a Waiver is Requested

Duke Power Company requests a temporary waiver of compliance from three Technical Specifications (TS) requirements:

1. TS Surveillance 4.7.6 e.2) requires each Control Room Area Ventilation System to be demonstrated Operable at least once per 18 months by verifying that on a High Radiation - Air Intake or Smoke Density - High test signal, the system automatically isolates the affected intake from the outside air with recirculating flow through the HEPA filters and activated carbon adsorber banks.

2. TS Surveillance 4.7.6 e.5) requires each Control Room Area Ventilation System to be demonstrated Operable at least once per 18 months by verifying that on a High Chlorine/Toxic Gas test signal, the system automatically isolates the affected intake from the outside air with recirculating flow through the HEPA filters and activated carbon adsorbers banks within 10 seconds (plus air travel time between the detectors and the isolation dampers).

3. TS Table 3.3-6, Item 3, Action 31 states with the number of Operable Air Intake - Radiation Level channels one less than the Minimum Channels OPERABLE requirement, within 1 hour isolate the affected Control Room Ventilation System intake from outside air with flow through the HEPA filters and activated carbon adsorbers.

Duke Power requests that the above TS requirements be waived until approval of an emergency TS which will be submitted by March 4, 1991. The emergency TS will modify item 1 such that automatic isolation of the outside air intakes is not required upon detection of high radiation or smoke. Item 2 Waiver of Compliance is only requested until modifications are completed for items 1 and 3 above. Additionally, the emergency TS will modify item 3 to delete the requirement to isolate the outside air intake if the corresponding radiation monitor is inoperable. Detection of one or more of these conditions will be alarmed in the control room, therefore, allowing an appropriate operator response. Copies of the proposed TS revisions to be submitted by March 4, 1991 are attached.

Discussion of Circumstances and Need for Prompt Action

The Control Room area ventilation system is shared by both Units 1 and 2 and is designed to maintain a suitable environment for equipment operation and safe occupancy of the control room under all plant operating conditions. The system consists of two redundant full capacity equipment trains each containing intake smoke, radiation, and chlorine detectors; prefilters; final filters; supply fans; pressurizing fans; and chilled

water cooling units. The system is fully redundant except for some passive interconnecting duct headers.

The control room area is normally maintained at a slightly positive pressure relative to the outdoors by taking makeup air from either or both of two outside intakes located on opposite sides of each reactor building, away from the respective unit vent. Each outside air intake is monitored for the presence of radioactivity, chlorine, and smoke. Isolation of the outside air intake occurs automatically upon detection of one or more of these conditions. Should both intakes close, the operator can override the intake monitors and open the desired intake based upon plant conditions to ensure control room pressurization. Pressurization is necessary to ensure control room habitability and compliance with GDC 19 following a design basis accident. Refer to Section 9.4.1 of the Catawba FSAR for additional information.

On February 19, 1991, based on problem identification at McGuire Nuclear Station, Catawba Nuclear Station identified a similar problem concerning the isolation of the control room air intakes on a loss of offsite power (LOOP). This problem would prevent sufficient outside air flow to pressurize the control room. The outside air isolation valves would close when re-energized by the D/G load sequencer following a LOOP because the smoke detector and radiation detector control power is non-safety. Upon loss of the control power, the detectors are currently designed to fail in the conservative (alarm) direction, which would cause the valves to close. As long as the intake air isolation valves were opened within three minutes, however, the GDC 19 dose limit or its equivalent (30 REM Thyroid) would not be violated. Therefore, manual compensatory measures were defined and implemented whereby the outside air isolation valves would be opened by the operator immediately following a simultaneous LOOP and LOCA event.

On February 25, 1991, subsequent evaluations of the detector control circuits identified an additional concern. A combination of the LOOP and LOCA scenario described above and the failure of an Emergency Diesel Generator could prevent post-accident pressurization of the control room. If the diesel generator providing power to the outside air isolation valves failed after the isolation valves went closed (due to the detectors failing), but before manual operator action could be taken to open the valve, the outside air isolation valves could not be opened quickly enough to prevent the calculated Design Basis Dose from exceeding GDC 19 limits from being exceeded.

This most recent postulated failure was reviewed by Duke Power's Design Engineering Department at approximately 2:15 p.m. on February 25, 1991, and the station was notified that the Control Room Ventilation System should be declared inoperable shortly after 4:00 p.m. the same day. Because both trains were affected, the station was in TS 3.0.3 on both Units. The NRC Resident Inspectors were notified of the potential need for a Waiver of Compliance, and a telephone conference was arranged with the NRC Staff at approximately 5:00 p.m. to request a waiver of compliance with the associated TSs. Although the Catawba TSs presently require that the air intake radiation, chlorine, and smoke detectors be operable and capable of closing the air intake valves when in alarm, these functions do not affect the design basis radiation dose to the control room operators following a design basis event.

Discussion of Compensatory Measures Implemented

Compensatory measures have been implemented by the station to ensure the control room area can be pressurized following all postulated accidents. The LOCA analysis for Catawba conservatively assumes that both outside air intakes remain open for the duration of a LOCA. A mixture of clean and contaminated outside air is assumed to be used to pressurize the control room. Under these conditions GDC 19 dose limits are shown not to be exceeded. The control room ventilation system was initially declared inoperable because of the accident scenario which caused the outside air isolation valves to fail closed and prevent pressurization of the control room. To alleviate the above problem, the outside air isolation valves were verified to be open and then power was removed from the valve actuators. This compensatory measure ensures that the design basis dose limit is not exceeded since the valves remain open for the duration of any postulated accident as currently assumed in the dose analysis.

Because the interlock function between the radiation, chlorine, and smoke detectors and the outside air isolation valves is required to be tested by TSs, and this feature was defeated by the compensatory measure of removing power from the valves, both Catawba units are still in violation of TSs and required to shutdown per TS 3.0.3. However, this request for temporary waiver of compliance would allow Catawba to waive adherence to the TSs indicated until the NRC staff approves an emergency TS submittal deleting this testing requirement altogether. Upon approval of the emergency TS, the station will modify the outside air isolation valve control circuitry to delete the automatic close function due to alarm/trip conditions on the radiation and smoke detectors. This modification will allow the control room operators to assess plant conditions as indicated by the detector alarms in the control room and isolate an individual outside air intake if deemed appropriate. Manual operator action is an acceptable alternative to automatic closure since the Catawba dose consequence analysis currently assumes the valves remain open for the duration of an accident and therefore, is bounding.

Additional compensatory measures to be implemented by the station until approval of the emergency TS and modification of the valve circuitry include the following:

Minimizing the amount of chlorine in service to that amount allowed under Regulatory Guide 1.95 for non-automatic closure of the control room air intakes.

The movement of chlorine bottles on site has been limited to a single 150 lb. bottle at a time.

The plant modification deleting the automatic closure feature of the outside air isolation valves on high radiation and smoke will be implemented within ten days of the date of this request, thereby allowing power to be restored to the outside air isolation valves.

Preliminary Evaluation of Safety Significance

SEE ATTACHED SAFETY EVALUATION

Summary

While reviewing the design basis of the control room ventilation system, an accident scenario was postulated which prevented the control room area from being pressurized due to closed outside air isolation valves. This condition resulted in the possibility of the calculated control room operator dose exceeding GDC 19 dose limits, and the control room ventilation system therefore being inoperable. Opening the outside air isolation valves and removing motive power resolved the GDC 19 operability concern, but the station was still in TS 3.0.3 because it could not meet the surveillance requirements associated with the automatic isolation functions associated with the smoke, chlorine and radiation detectors.

A temporary waiver of compliance is requested until an emergency TS is approved deleting the automatic closure functions of the outside air isolation valves for smoke and radiation. The emergency TS will be submitted by March 4, 1991. This will allow re-energizing the intake isolation valves so that manual operator actions can be taken as appropriate if smoke, or radiation conditions at one of the intakes is detected. The modification will be implemented by within ten days of the date of this letter. Additional compensatory measures will be implemented to reduce the handling of chlorine bottles onsite as well as the quantity of chlorine in-service. This will maintain the station within the chlorine limits of Regulatory Guide 1.9.5 for non-automatic isolation of the control room air intakes.

The existing control room dose consequence analysis conservatively assumes the outside air isolation valves remain open for the duration of the Design Basis Accident. Therefore, the current compensatory measure of opening the isolation valves and removing power, as well as the plan to use manual operator action to keep control room doses ALARA is bounded by the present dose analysis and within the GDC 19 limit.

ATTACHMENT 3

SAFETY EVALUATION

Purpose:

The purpose of this calculation is to determine if maintaining all four VC intake valves open by removing power involves any unreviewed safety questions (USQs) using the criteria of 10CFR50.59(a)(2). This evaluation is QA Condition 1.

Background Information:

On February 19, 1991 McGuire Nuclear Station identified a problem with regard to isolation of the control room ventilation (VC) outside air intakes on a loss of off-site power (LOOP). On that same date, Catawba Nuclear Station began a review and identified a problem similar to that at McGuire. Catawba determined that with all four VC intake valves closed as a result of a LOOP, control room pressurization capability as required by Technical Specification 4.7.6.e.3 is lost. Pressurization is necessary to ensure control room habitability and compliance with GDC 19 following a design basis accident.

This problem was subsequently reported to the NRC for CNS as an unanalyzed condition in accordance with 10CFR50.72 (b) (ii) (B). A compensatory action was immediately initiated to place the plant back within the design basis.

Following the activities of February 19, 1991, a Problem Investigation Report (PIR) was written to examine the past operability aspects of this problem and to develop a long-term resolution to remove the compensatory action.

The initial compensatory action was adopted to restore the ability to pressurize following a LOOP coincident with a LOCA. It required the operator to immediately open at least one outside air intake. It was believed this would be possible because the valve operators and control circuits would be reenergized by the diesel generators through shared essential motor control centers. (Ref. 4)

On February 25, 1991 an additional scenario was identified that could not be addressed by the initial compensatory action. The scenario involves the intake valve control scheme, power supplies to the intake valve operators, timing of the diesel generator load sequencer and a single failure of one of the diesel generators. Specifically, the sequencer will provide power to the valve operators when the first load group is energized (approximately 11 sec. following the D/G start). Because of the control circuit contact state for the Radiation Monitors (EMF 43A

and EMF 43B) and the smoke detectors, the valve operators will close the valves. If, with the valves closed, the diesel generator providing power to the valves tripped and was not immediately recoverable, the valves could not be reopened and pressurization of the control room could not be reestablished. Ref. 5 indicates pressurization should occur within three (3) minutes to ensure the calculated design basis accident control room operator 30-day dose does not exceed GDC 19 dose limits.

In response to this concern, all four control room intake valves will be opened, power removed and supply breakers maintained open to ensure the ability to pressurize the control room exists. This constitutes a change in a design feature of the VC system. The following safety review and USQ evaluation address the acceptability of this design feature change.

Safety Review:

Control Room Air Intake Isolation on High Radiation

Technical Specification 3.3.3.1 requires radiation monitors EMF-43A and EMF-43B to be operable in all modes of operation or the associated control room intakes must be closed. (Ref. 2, page 3/4 3-51). The Bases for this specification indicate the monitors determine if predetermined limits are being exceeded and initiate alarms or automatic actions. Technical Specification 4.7.6.e (2) requires automatic closure of the VC intake valves on the affected side of the plant if high airborne activity is detected. This automatic action will be precluded if the intakes are maintained open as proposed.

The design of the VC system is such that the maximum radiation dose received by control room personnel under accident conditions is within the limits of General Design Criterion 19 of Appendix A to 10CFR50. Maintaining all four valves in an open position will not affect the calculated control room operator dose.

The VC system utilizes dual air inlets as part of its design to minimize post-accident contamination in the control room. The dual air inlet design affects the amount of atmospheric dispersion (X/Q) credit that can be taken in the control room dose consequence analysis. Standard Review Plan 6.4 (Ref. 6) outlines the considerations that may be applied to the evaluation of the control room X/Qs for the following dual inlet designs:

(1) Dual inlet designs without manual or automatic selection control,

(2) Dual inlet designs limited to manual selection control, and

(3) Dual inlet designs with automatic selection control features.

SRP 6.4 allows the least amount of dispersion credit for the Case (1) design. Although the dual inlets for the Catawba VC system are currently designed to automatically isolate (Case (3)), the dose consequence analysis assumes that both inlets are open for the duration of the accident (Case (1)). Therefore, the action of maintaining open all four VC inlet valves will not affect the existing control room dose consequence analysis. Automatic closure is appropriate from an ALARA point of view, but is not necessary for the Catawba design to meet the acceptance criteria outlined in Ref. 6.

Control Room Air Intake Isolation on High Chlorine

Technical Specification 3.3.3.7 requires operability of the chlorine detectors. Automatic valve closure is required by Technical Specification 4.7.6.e (5). The specification is based on the recommended protective action of Ref. 7. Inoperability requires restoration to operability and the alignment of VC intake flow through HEPA filters and activated carbon adsorbers.

Operable chlorine detectors provide alarms in the control room as required by Ref. 9. The quantity of chlorine in service at Catawba is less than that limited by Reg. Guide 1.95 (Ref. 11). As a compensatory action, movement of chlorine will be limited to single 150 lb. cylinders, the cylinders at the RF/RY house will normally be valved out of service, and cylinders at the bottle gas storage house are not valved together and are properly stored to minimize toxic gas release. The combination of limited quantities of chlorine in service and availability of alarms minimizes the threat to control room operators. Therefore, automatic closure of the intake valves on high chlorine is unnecessary.

Control Room Air Intake Isolation on Smoke

Automatic closure of the VC intake valves upon the detection of smoke is required by Technical Specification 4.7.6.e (2). The smoke detectors are not required by Ref. 6, but are recommended by Ref. 8. Automatic isolation is not required by Ref. 9 which specifically allows for manual isolation. Automatic closure is

not required to meet the acceptance criteria of Ref. 6, 9, or 10. Because there are no industrial-chemical plants or storage facilities, oil and gas pipelines, or transportation routes adjacent to the site, consequences from fires are not considered justifiable for impact evaluation. Brush and forest fires would be handled by the station and are not considered to cause any impact; therefore, these fires were not evaluated (Ref. 1). Additionally, HEPA filters will effectively remove particles of combustion as will the carbon adsorbers.

The filter trains are normally in service, the smoke detection alarms will not be defeated, and the impact of fires is considered to be minimal. Therefore, automatic closure of the intake valves on high smoke concentration is unnecessary.

Control room habitability is also assured by the presence of self-contained breathing apparatus, and the ability to re-energize and close the valves as necessary.

USQ Evaluation:

As a result of this design feature change:

1. May the probability of an accident previously evaluated in the FSAR be increased?

   No. The VC system is not an accident initiator and this modification does not affect any accident initiators. It does not affect any of the Chapter 15 analyses.

2. May the consequences of an accident previously evaluated in the FSAR be increased?

   No. No fission product barriers or source term evaluations are affected by this modification. Post LOCA control room dose calculations are unaffected by operation with all valves open.

3. May the possibility of an accident which is different than any already evaluated in the FSAR be created?

   No. VC is not an accident initiator. A failure will not create a situation which has not been considered in the FSAR.

4. May the possibility of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

   No. VC is not an accident initiator and does not interact with other safety equipment. The initiation of flow through HEPA filters and carbon adsorbers is not affected as they are part of the normal flowpath. The ability of the VC system to maintain control room and control room area temperature is not affected.

5. May the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

   No. The modification does not affect any equipment in the FSAR in a way not already analyzed. The chlorine detectors will continue to be energized by class 1E power but will provide alarm only. The VC system will be operated in a manner which is equivalent to the action statement for Technical Specification 3.3.3.7.

6. May the possibility of malfunctions of equipment important to safety different than those previously evaluated in the FSAR be increased?

   No. The modification does not affect any equipment in the FSAR in a way not already analyzed. No new safety related equipment will be added. The chlorine detectors will continue to be energized by class 1E power but will provide alarm only. The VC system will be operated in a manner which is equivalent to the action statement for Technical Specification 3.3.3.7.

7. Will the margin of safety as defined in the basis to any Technical Specification be reduced?

   No. No setpoints, design limits or operating parameters are affected by this modification. It does not affect any margin of safety defined in Technical Specifications.

<u>Conclusion.</u>

There are no USQs associated with this modification. Technical Specifications are affected and FSAR revisions are required.

References:

1. Catawba FSAR, 1989 Update

2. CNS Technical Specifications, Ammendments 82/76

3. CNS Safety Evaluation Report including Ammendments 1 through 6

4. 50.59 Review of Compensatory Action, Restoration of Control Room Pressurization Capability After Loss of Offsite Power.

5. February 11, 1991 letter to J S Forbes from C D Ingram, Re: Dose Analysis Support for Compensatory Actions, File: CN-1227.00

6. Standard Review Plan, Section 6.4, Control Room Habitability System

7. Regulatory Guide, 1.95, Rev. 1, January 1977

8. NFPA 90A, Standard for the Installation of Air Conditioning and Ventilation Systems

9. SRP 9.4, Control Room Area Ventilation System

10. SRP 9.5, Fire Protection System

11. CNC-1211.00-00-00-0047, Control Room Habitability During Accidental Chlorine Release

Form 45077 (9-89)

Duke Power Company

10 CFR 50.59 EVALUATION

Attachment 1 to
CNC-1503.13-00-0368

(1) Station: Catawba Nuclear station Unit(s): 1, 2

(2) Evaluation for: Mod. to Maintain Open VC intake Valves

(3) FSAR sections consulted: 2.2, 9.4, 9.5, 11.5, 12.3, 15.6

(4) Technical specifications consulted: 3.3.3.1, 3.3.3.7, 4.7.6

Will technical specification changes be required? * ☒ Yes ☐ No

* Technical specifications affected: 3.3.3.1, 3.3.3.7, 4.7.6

* NPD Regulatory Compliance personnel contacted: R. G. Morgan

(5) USQ EVALUATION APPLICABILITY

Does the modification affect structures, systems, or components that are addressed in the FSAR in a significant manner? ☒ Yes ☐ No

Does the modification appear significant enough to require inclusion in the FSAR? ☒ Yes ☐ No

(6) USQ EVALUATION

USQ EVALUATION NOT APPLICABLE ☐

May the modification:

Increase the probability of an accident evaluated in the SAR? ☐ Yes ☒ No

Increase the consequences of an accident evaluated in the SAR? ☐ Yes ☒ No

Create the possibility for an accident of a different type than any evaluated in the SAR? ☐ Yes ☒ No

Increase the probability of a malfunction of equipment important to safety evaluated in the SAR? ☐ Yes ☒ No

Increase the consequences of a malfunction of equipment important to safety evaluated in the SAR? ☐ Yes ☒ No

Create the possibility for a malfunction of a different type than any evaluated in the SAR? ☐ Yes ☒ No

Will the modification:

Reduce the margin of safety as defined in the basis for any technical specification? ☐ Yes ☒ No

PROVIDE AN ATTACHMENT TO SUBSTANTIATE ALL YES AND NO ANSWERS.

Prepared by/date: John C. Morgan / Feb. 26, 1991

Reviewed by/date: Cyl D. Lyon / Feb. 26, 1991