Ameren
MISSOURI

Callaway Plant

September 22, 2011

ULNRC-05654

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

10 CFR 50.90

Ladies and Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
PROPOSED REVISION TO TECHNICAL SPECIFICATION 3.3.6,
"CONTAINMENT PURGE ISOLATION INSTRUMENTATION"
(LICENSE AMENDMENT REQUEST LDCN 09-0040)

Pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," Union Electric (dba Ameren Missouri) herewith transmits an application for amendment to Facility Operating License Number NPF-30 for the Callaway Plant in order to incorporate a proposed change to Technical Specification (TS) 3.3.6, "Containment Purge Isolation Instrumentation."

The proposed amendment would revise Required Action B.1 of TS 3.3.6, "Containment Purge Isolation Instrumentation," such that a Note would be added to the Required Action to conditionally allow containment mini-purge supply and exhaust valves that have been closed in accordance with the Action to be opened under administrative controls as required for certain operational needs. The proposed change is similar to allowances already in place in TS 3.6.3, "Containment Isolation Valves," and TS 3.9.4, "Containment Penetrations." The appropriate TS Bases changes for the proposed revisions to TS 3.3.6 are included for information and reflect the proposed changes.

Attachments 1 through 4 provide the Evaluation, Markup of Technical Specifications, Proposed Technical Specification Bases changes, and Retyped Technical Specifications, respectively, in support of this amendment request. Attachment 3 is provided for information only. Final TS Bases changes will be processed under the program for updates per TS 5.5.14, "Technical Specifications Bases Control Program," at the time this amendment is implemented.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92, "Issuance of amendment." Pursuant to 10 CFR 51.22, "Criterion categorical exclusion or otherwise not requiring environmental review," Section (b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

The Callaway Onsite Review Committee and a subcommittee of the Nuclear Safety Review Board have reviewed and approved the proposed changes and have approved the submittal of this amendment application.

In accordance with 10 CFR 50.91 "Notice for public comment; State consultation," Section (b)(1), a copy of this amendment application is being provided to the designated Missouri State official.

Ameren Missouri requests approval of the requested license amendment prior to August 1, 2012. Ameren Missouri further requests that the license amendment be made effective upon NRC issuance, to be implemented within 90 days from the date of issuance.

This letter does not contain new commitments. Please contact Scott Maglio, Regulatory Affairs Manager, at (573) 676-8719 for any questions you may have regarding this amendment application.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Executed on: 9-22-2011

David W. Neterer
Plant Director

DJW/nls

Attachments:

1. Evaluation
2. Markup of Technical Specifications
3. Technical Specification Bases Changes (for information only)
4. Retyped Technical Specifications

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ULNRC-05654

Attachment 1

Evaluation

Attachment 1
to ULNRC-05654

EVALUATION

EVALUATION

1.0 SUMMARY DESCRIPTION

The change proposed in this amendment application would add a Note to Required Action B.1 of Technical Specification (TS) 3.3.6, "Containment Purge Isolation Instrumentation," to conditionally allow the containment mini-purge valves that have been closed to satisfy the Required Action B.1 to be opened under administrative controls.

2.0 DETAILED DESCRIPTION

In the event of inoperable containment purge isolation instrumentation, Condition B of TS 3.3.6 is required to be entered when one or more functions (listed in TS Table 3.3.6-1) with one or more manual channels or automatic actuation trains is inoperable. Required Action B.1 must then be entered.

TS 3.3.6 Required Action B.1, "Place and maintain containment purge supply and exhaust valves in closed position," would remain unchanged under this license amendment application. However, a new Note would be added above the Required Action that reads:

> "Containment mini-purge supply and exhaust valves closed to satisfy Required Action B.1 may be opened under administrative controls, provided Table 3.3.6-1 Functions 2 and 4 are OPERABLE."

The TS markups and retyped pages are provided in Attachments 2 and 4, respectively. Corresponding changes to the TS Bases are provided for information only in Attachment 3.

3.0 TECHNICAL EVALUATION

3.1 System Description

The containment purge system includes two subsystems which at Callaway are referred to as the shutdown purge system and the mini-purge system. Since the supply and exhaust lines for the containment purge system penetrate the containment boundary, each of the purge systems has inner and outer containment isolation valves in its supply and exhaust ducts.

The shutdown purge system has a high-volume air exchange capability and is used only during shutdown conditions, as it is required to be isolated (with its 36-inch supply and exhaust isolation valves maintained closed) during MODES 1-4.

The mini-purge system is typically used during reactor operation to reduce the concentration of noble gases within containment prior to and during personnel access, and to equalize containment internal and external pressures. Since the normally closed 18-inch supply and exhaust isolation valves used in the mini-purge system meet the requirements for automatic containment isolation valves, these valves may be opened under administrative control as needed in MODES 1-4 per the provisions of TS 3.6.3, "Containment Isolation Valves."

The mini-purge system may also have limited use during plant conditions other than reactor operation, and these valves may also be opened as needed during such conditions.

3.2 Containment Purge Isolation

A containment purge isolation signal causes the inner and outer containment isolation valves for each of the containment penetrations associated with the mini-purge system and the shutdown purge system to close, thereby isolating the containment atmosphere from the environment to minimize releases of radioactivity in the event of an accident. The specific signals necessary for automatic closure of the containment isolation valves in both the mini-purge system and the shutdown purge system are generated by containment purge isolation instrumentation. TS Table 3.3.6-1 lists four required containment purge isolation instrumentation functions, described below.

Function 4, "Containment Isolation – Phase A," requires containment purge isolation to initiate on an automatic or manual safety injection (SI) signal through the Containment Isolation - Phase A Function, or by manual actuation of Phase A isolation. The Bases for TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," describe these modes of initiation.

Function 3, "Containment Purge Exhaust Radiation – Gaseous," requires that containment purge radiation monitoring instrumentation is available to initiate containment purge isolation. Containment purge isolation by this function initiates on a high radiation signal from either of two containment purge exhaust gaseous radiation monitoring channels. These two radiation monitoring channels measure gaseous radiation in a sample of the containment purge exhaust. Since the containment purge exhaust monitors constitute a sampling system, various components such as sample line valves and sample pumps are required to support monitor operability.

Function 2, "Automatic Actuation Logic and Actuation Relays (BOP ESFAS)," concerns the ESFAS automatic actuation logic and actuation relays associated with the containment purge isolation function.

Function 1, "Manual Initiation," allows containment purge isolation to be manually initiated from the control room on demand.

For the above Functions associated with automatic containment purge isolation, the applicable Modes are Modes 1, 2, 3 and 4. For manual purge isolation capability (i.e., Function 1 above), the applicable Modes are Modes 1, 2, 3 and 4, as well as during Core Alterations and the movement of irradiated fuel assemblies within containment.

With one radiation monitoring channel inoperable during applicable MODES, Condition A of TS 3.3.6 applies, and Required Action A.1 requires the affected radiation monitoring channel to be restored to Operable status within four hours. If this Completion Time is not met, or if both radiation monitoring channels are inoperable, or if one or more Table 3.3.6-1 Functions with one or more manual channels or automatic actuation trains is inoperable, Condition B applies, and per Required Action B.1 the containment purge supply and exhaust valves must be immediately placed and maintained in the closed position.

3.3 ITS Conversion

During the Improved Technical Specifications (ITS) conversion project for Callaway in the late 1990s, the Completion Time for restoration of one inoperable containment purge exhaust radiation monitoring channel in Callaway ITS 3.3.6 was reduced from 72 hours to 4 hours (Reference 7.1). At the time, the more restrictive Completion Time was considered acceptable given the allowances present in ITS 3.6.3, "Containment Isolation Valves," and ITS 3.9.4, Containment Penetrations," to unisolate the containment purge penetration flow paths under administrative controls.

Unlike ITS 3.6.3 and ITS 3.9.4, subsequent changes to ITS 3.3.6 (Reference 7.3) removed this allowance for administrative controls currently still present in ITS 3.6.3 and ITS 3.9.4. At the time, it was not recognized that removing this allowance for ITS 3.3.6 would unduly limit the use of administrative controls to unisolate the containment mini-purge supply and exhaust valves during certain operational needs. The resulting limitation has particularly impacted the ability to vent the containment in order to maintain containment pressure within its required limits.

3.4 Containment Pressure

TS 3.6.4, "Containment Pressure," requires containment pressure to be maintained between -0.3 psig and +1.5 psig in MODES 1-4, consistent with initial conditions assumed in the plant's accident analysis. In order to maintain containment pressure within these limits while at power, the containment must be periodically vented via the mini-purge system. When one or more containment mini-purge penetration flow paths are isolated as required per TS 3.6.3 (in the event that one of the purge line containment isolation valves has been declared inoperable, for example), the provision of TS 3.6.3 to unisolate the containment mini-purge supply and exhaust valves under administrative controls allows plant operators to maintain containment pressure within limits. However, if mini-purge supply and exhaust valves are isolated per TS 3.3.6 Required Action B.1, no such provision currently exists. As such, in this situation, there is a risk of plant shutdown (as required by TS 3.6.4).

3.5 Technical Analysis

The proposed Note for TS 3.3.6 Required Action B.1 is similar to the allowances in Technical Specifications 3.6.3 and 3.9.4, which allow containment penetration flow paths to be unisolated (open) under administrative controls. The allowances in TS 3.6.3 and TS 3.9.4 are discussed below.

Per the requirements of TS 3.6.3, which are applicable during Mode 1, 2, 3 and 4, inoperability of one or more containment isolation valves in a containment penetration flow path requires the affected penetration(s) to be isolated by a closed valve(s) in accordance with the applicable Required Action(s) under TS 3.6.3. The Required Actions, however, are modified by Note 1 which allows penetration flow paths, except for the 36-inch shutdown purge valve penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator, at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Similarly, Surveillance Requirement (SR) 3.6.3.3 and SR 3.6.3.4 contain exceptions to their valve closure verification requirements for containment isolation valves that are open under administrative controls.

TS 3.9.4 specifies requirements for containment penetrations during refueling conditions, i.e., during Core Alterations or the movement of irradiated fuel assemblies within containment. For containment penetrations providing direct access from the containment atmosphere to the outside atmosphere (apart from the equipment hatches and airlocks), part "c" LCO 3.9.4 requires such penetrations to either be (1) closed by a manual or automatic isolation valve, blind flange, or equivalent, or (2) capable of being closed by an Operable Containment Purge Isolation Valve.

For the kinds of flow paths addressed by part c.1 of LCO 3.9.4, the following Note is provided in conjunction with the LCO:

----------NOTE----------
Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

In the event a Containment Purge Isolation Valve is rendered inoperable by inoperable purge isolation instrumentation (which would have to be one or both of the required manual channels since only the manual function for purge isolation is required during Core Alterations and movement of irradiated fuel assemblies within containment), Condition C of TS 3.3.6 would apply. Required Action C.1 requires action to either (1) place and maintain the containment purge isolation valves in the closed position or (2) enter the applicable Condition and Required Action of LCO 3.9.4.

For a purge isolation valve(s) closed to satisfy Required Action C.1 of TS 3.3.6 (per the first option noted above), such a status for the valve(s) would satisfy the provisions of part c.1 of the LCO under TS 3.9.4, and therefore, the provisions of the Note attached to the LCO could be applied. Consequently, the closed containment purge isolation valve(s) is allowed to be opened under administrative control.

As can be seen by the provisions described above for TS 3.6.3 and TS 3.9.4, limited allowances for permitting short-term provisional deviations from certain assumptions of the accident analysis have been approved by NRC, typically for short durations with compensating administrative controls. The proposed change to TS 3.3.6 would apply during MODES 1 through 4 and would be similar to the existing allowance of Note 1 in TS 3.6.3.

The primary difference between the existing TS 3.6.3 Note and the proposed Note for TS 3.3.6 Required Action B.1 is the inclusion of a provision requiring Operability of TS Table 3.3.6-1 Functions 2 and 4 in the proposed Note. As stated in Section 3.0 of this evaluation, a containment purge isolation signal is automatically generated either by ESFAS actuation from a Phase A containment isolation signal (Functions 2 and 4, respectively) or by the containment purge radiation monitoring instrumentation. With the containment purge radiation monitoring instrumentation inoperable, the provision requiring Operability of Functions 2 and 4 ensures that mini-purge supply and exhaust valves opened under this allowance retain the capability to be automatically closed within the response time assumed in the accident analysis. (Since the manual isolation capability of Function 1 is a back-up function and does not support the automatic response time assumed in the accident analysis, a requirement for this capability is not included in the provisions of the proposed note.)

4.0 REGULATORY EVALUATION

This section addresses the standards of 10 CFR 50.92 as well as the applicable regulatory requirements and acceptance criteria.

The proposed change in this amendment application would add a Note to Required Action B.1 of TS 3.3.6, "Containment Purge Isolation Instrumentation," to allow the containment mini-purge penetrations to be unisolated (open) under administrative controls, provided that Table 3.3.6-1 Functions 2 and 4 are Operable.

4.1 Applicable Regulatory Requirements/Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include Technical Specifications (TSs) as part of the license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The U.S. Nuclear Regulatory

Commission's (NRC's) requirements related to the content of the TSs are contained in Section 50.36 of Title 10 of the *Code of Federal Regulations* (10 CFR 50.36) which requires that the TSs include items in the following specific categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements per 10 CFR 50.36(c)(3); (4) design features; and (5) administrative controls.

This amendment application is related to the second category above (LCOs) and is a less restrictive change; however, the requested change still affords an adequate assurance of safety when judged against applicable standards.

The following regulatory requirements and guidance documents also apply to the containment mini-purge isolation valves and the associated actuation circuitry:

- GDC 2 requires that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without the loss of the capability to perform their safety functions. Because the proposed change does not affect the design of the purge exhaust and supply lines, nor purge system instrumentation and the containment mini-purge system will continue meet the requirements of GDC 2.

- GDC 4 requires that structures, systems, and components important to safety be designed to accommodate the effects of, and to be compatible with, the environmental conditions associated with the normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, discharging fluids that may result from equipment failures, and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping. Because the proposed change does not affect the design of the purge exhaust and supply lines, nor purge system instrumentation, the containment mini-purge system isolation valves will continue to meet the requirements of GDC-4.

- GDC 13 requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Because the proposed change does not affect the purge system instrumentation, the containment mini-purge isolation system will continue to meet the requirements of GDC 13.

- GDC 20 requires that the protection system(s) shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety. Because the proposed change does not alter the automatic functions of the purge system instrumentation, the requirement for automatic alarm and operation remains unchanged.

- GDC 21 requires that the protection system(s) shall be designed for high functional reliability and testability. The proposed change does not impact the system functional reliability or testability.

- GDC 22 through GDC 25 and GDC 29 require various design attributes for the protection system(s), including independence, safe failure modes, separation from control systems, requirements for reactivity control malfunctions, and protection against anticipated operational occurrences. The proposed changes do not impact these various design attributes and the containment mini-purge system will continue with its various design attributes unchanged.

- GDC 56 requires each line that connects directly to the containment atmosphere and penetrates primary reactor containment to be provided with containment isolation valves, as described. The proposed change does not impact the isolation capability of the containment mini-purge isolation system.

- Regulatory Guide 1.22 discusses an acceptable method of satisfying GDC-20 and GDC-21 regarding the periodic testing of protection system actuation functions. These periodic tests should duplicate, as closely as practicable, the performance that is required of the actuation devices in the event of an accident. The proposed change does not alter how the containment mini-purge system meets acceptable methods of satisfying GDC-20 and GDC-21.

- 10 CFR 50.55a(h) requires that the protection systems meet IEEE 279-1971. Section 4.2 of IEEE 279-1971 discusses the general functional requirement for protection systems to assure they satisfy the single failure criterion. The proposed change does not alter any of the containment mini-purge system design or protection requirements.

There will be no changes to the actuation circuitry for the containment mini-purge isolation valves, nor to the containment mini-purge isolation valves themselves, such that compliance with any of the above regulatory requirements and guidance documents would come into question.

4.2 No Significant Hazards Consideration (NSHC)

Ameren Missouri has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," Part 50.92(c), as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Overall protection system performance will remain within the bounds of the previously performed accident analyses since there are no design changes. All design, material, and construction standards that were applicable prior to this amendment request will be maintained. There will be no changes to any design or operating limits.

The proposed change does not involve or result in any changes to accident initiators or precursors, nor does it alter the design assumptions or conditions of the plant. The proposed change for the mini-purge valves which support the mitigation of certain accidents would not affect the initiation of those accidents and therefore does not affect the probability of occurrence of an accident.

Per the provisions of the proposed Note for Required Action B.1 of TS 3.3.6, the automatic containment isolation function(s) associated with a Phase A containment isolation signal (which is the trip function/signal credited in the accident analysis) would continue to be required Operable. At the same time, the proposed change helps to support venting of containment to ensure the initial condition assumptions for containment pressure in the accident analyses are met during a TS-allowed period of radiation monitor inoperability. There are no design changes to the containment mini-purge isolation valves or the associated actuation circuitry. There will be no changes to the operation of these valves other than the limited durations during which they may be open under administrative controls with inoperable actuation instrumentation (i.e. while a TS Required Action is in effect). Exceptions to Technical Specification requirements are allowed in situations where plant operation would otherwise be restricted in a manner that is not commensurate with the desired safety objective, especially when those exceptions are of short duration and are accompanied by compensatory measures. Therefore, the proposed change will not alter or prevent the capability of structures, systems, and components (SSCs) to perform their intended functions for mitigating the consequences of an accident as assumed in the accident analysis.

The proposed change does not physically alter the design of any safety-related systems, nor does it affect the way in which safety-related systems are assumed to perform their functions.

The proposed change will not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an

accident previously evaluated. The applicable radiological dose criteria will continue to be met.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

There are no proposed design changes, nor are there any changes in the method by which any safety-related plant structure, system, or component (SSC) is assumed to perform its specified safety function. The proposed change will not affect the normal method of plant operation or change any operating parameters. Equipment performance necessary to fulfill safety analysis missions will be unaffected. The proposed change will not alter any assumptions required to meet the safety analysis acceptance criteria.

No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of this amendment. There will be no adverse effect or challenges imposed on any safety-related system as a result of this amendment.

The proposed amendment will not alter the design or performance of the 7300 Process Protection System, Nuclear Instrumentation System, or Solid State Protection System used in the plant protection systems.

The proposed change does not, therefore, create the possibility of a new or different accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

There will be no effect on those plant systems necessary to assure the accomplishment of protection functions. There will be no impact on the overpower limit, departure from nucleate boiling ratio (DNBR) limits, heat flux hot channel factor (F_Q), nuclear enthalpy rise hot channel factor ($F\Delta H$), loss of coolant accident peak cladding temperature (LOCA PCT), peak local power density, or any other margin of safety. Mode-specific required shutdown margins in the COLR will not be changed. The applicable radiological dose consequence acceptance criteria will continue to be met.

The proposed changes do not alter the design of the containment mini-purge system or the supporting instrumentation. As containment is a principal safety barrier to the release of radioactivity to the environment for postulated design basis accidents, there will be continued assurance that the containment mini-purge isolation system will

perform its intended function of supporting containment such that the assumptions in the accident analyses remain valid.

The proposed change does not eliminate any surveillances or alter the frequency of surveillances required by the Technical Specifications. None of the acceptance criteria for any accident analysis will be changed.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Ameren Missouri concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

Ameren Missouri has determined that the proposed amendment would allow an exception so that mini-purge isolation valves that have been isolated to satisfy TS Required Action B.1 may be briefly unisolated under certain conditions and under administrative controls for the purpose of equalizing containment pressure. Ameren Missouri has evaluated the proposed amendment and has determined that the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. As discussed above, the proposed changes do not involve a significant hazards consideration and the proposed changes do not impact the fact that the consequences of a design basis accident would still remain within the 10 CFR 100 limits. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

6.1 Ameren Missouri (Union Electric Company) letter ULNRC-03927, "Response to Request for Additional Information on the Proposed Conversion to the Improved Technical Specifications – Section 3.3," TAC No. M98803, dated November 25, 1998.

6.2 Ameren Missouri (Union Electric Company) letter ULNRC-03979, "Follow-up Items Related to the Proposed Conversion to the Improved Technical Specifications – Sections 3.3, 3.4, 3.6, 3.7, 3.8, 3.9, and 5.0," TAC No. M98803, dated March 9, 1999.

6.3 Ameren Missouri (Union Electric Company) letter ULNRC-04007, "Follow-up Items Related to the Proposed Conversion to the Improved Technical Specifications – Sections 3.3, 3.4, 3.6, and 3.7," TAC No. M98803, dated April 7, 1999.

6.4 Technical Specification Task Force (TSTF) - Improved Standard Technical Specifications Change Traveler 312-A, Revision 1, "Administratively Control Containment Penetrations," dated August 16, 1999 (NRC approval date).

6.5 Ameren Missouri (Union Electric Company) letter ULNRC-04285, "Proposed Revision to Technical Specification 3.9.4 'Containment Penetrations' to Allow Use of Administrative Controls for Open Penetrations During Refueling Operations," TAC No. MA9591, dated July 21, 2000.

6.6 Letter from Jack N. Donohew (NRC) to Garry L. Randolph (Union Electric Company), "Callaway Plant, Unit 1 – Issuance of Amendment Re: Use of Administrative Controls for Open Containment Penetrations During Refueling (TAC No. MA9591)," dated September 26, 2000.

ULNRC-05654

Attachment 2

Markup of Technical Specifications

LDCN 09-0040

" NO CHANGE TO THIS PAGE INFORMATION ONLY "

3.3 INSTRUMENTATION

3.3.6 Containment Purge Isolation Instrumentation

LCO 3.3.6 The Containment Purge Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

NOTE
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitoring channel inoperable.	A.1 Restore the affected channel to OPERABLE status.	4 hours

(continued)

INSERT TS-1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------- NOTE ---------- Only applicable in MODE 1, 2, 3, or 4. ---------- One or more Functions with one or more manual channels or automatic actuation trains inoperable. OR Both radiation monitoring channels inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1 Place and maintain containment purge supply and exhaust valves in closed position.	Immediately

(continued)

INSERT TS-1

----------NOTE ----------

Containment mini-purge supply and exhaust valves closed to satisfy Required Action B.1 may be opened under administrative controls, provided Table 3.3.6-1 Functions 2 and 4 are OPERABLE.

"NO CHANGES
INFORMATION ONLY"

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ---------- NOTE ---------- Only applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. ----------	C.1	Place and maintain containment purge supply and exhaust valves in closed position.	Immediately
	OR		
One or more manual channels inoperable.	C.2	Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge supply and exhaust valves made inoperable by isolation instrumentation.	Immediately

LDCN 09-0040

"NO CHANGES INFORMATION ONLY"

TABLE 3.3.6-1 (PAGE 1 OF 1)
Containment Purge Isolation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	NOMINAL TRIP SETPOINT
1.	Manual Initiation	1, 2, 3, 4, (a), (b)	2	SR 3.3.6.4	NA
2.	Automatic Actuation Logic and Actuation Relays (BOP ESFAS)	1, 2, 3, 4	2 trains	SR 3.3.6.2 SR 3.3.6.6	NA
3.	Containment Purge Exhaust Radiation - Gaseous	1, 2, 3, 4	2	SR 3.3.6.1 SR 3.3.6.3 SR 3.3.6.5	(c)
4.	Containment Isolation - Phase A	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a, for all initiation functions and requirements.			

(a) During CORE ALTERATIONS.
(b) During movement of irradiated fuel assemblies within containment.
(c) Set to ensure ODCM limits are not exceeded.

ULNRC-05654

Attachment 3

Proposed Technical Specification Bases Changes
(for information only)

LDCN 09-0040

B 3.3 INSTRUMENTATION

B 3.3.6 Containment Purge Isolation Instrumentation

BASES

BACKGROUND

The containment purge system includes two subsystems: the shutdown purge system and the mini-purge system. Containment purge isolation instrumentation closes the containment isolation valves in the mini-purge system and the shutdown purge system. This action isolates the containment atmosphere from the environment to minimize releases of radioactivity in the event of an accident. The mini-purge system is typically used during reactor operation, but may have limited use during plant conditions other than reactor operation. The shutdown purge system is used when the reactor is shutdown.

Containment purge isolation initiates on an automatic or manual safety injection (SI) signal through the Containment Isolation - Phase A Function, or by manual actuation of Phase A Isolation. The Bases for LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," discuss these modes of initiation.

Two gaseous radiation monitoring channels are also provided as input to the containment purge isolation. The two channels measure gaseous radiation in a sample of the containment purge exhaust. Since the purge exhaust monitors constitute a sampling system, various components such as sample line valves and sample pumps are required to support monitor OPERABILITY.

Each of the purge systems has inner and outer containment isolation valves in its supply and exhaust ducts. A high radiation signal from either of the two radiation monitoring channels initiates containment purge isolation, which closes both inner and outer containment isolation valves in the Mini-purge System and the Shutdown Purge System. These systems are described in the Bases for LCO 3.6.3, "Containment Isolation Valves."

INSERT TSB-3

APPLICABLE SAFETY ANALYSES

The safety analyses assume that the containment remains intact with penetrations unnecessary for core cooling isolated early in the event. ~~The isolation of the purge valves has not been analyzed mechanistically in the dose calculations, although its rapid isolation is assumed.~~ The containment purge isolation gaseous radiation channels act as backup to the Phase A isolation signal to ensure closing of the purge supply and exhaust valves. In the postulated fuel handling accident, the dose calculations performed in support of Reference 5 (for allowing the personnel airlock to be open during CORE ALTERATIONS and during

Containment

INSERT TSB-1

¶ break

(continued)

INSERT TSB-3

Containment isolation ensures meeting the containment leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR 100 (Reference 1) limits.

INSERT TSB-1

In addition, automatic isolation of the containment mini-purge valves is assumed in the minimum containment pressure analysis for ECCS performance capability, as described in the FSAR (Reference 6). The effect of having the containment mini-purge system in operation at the onset of the most limiting case (i.e., a double-ended cold leg guillotine break) is addressed in the analysis by increasing the assumed containment volume. Consequently, the response time assumed for the automatic isolation of the mini-purge system determines the adjustment made to the containment volume in the analysis.

BASES

APPLICABLE SAFETY ANALYSES (continued)

movement of irradiated fuel assemblies within containment) do not assume automatic containment purge isolation. (See also the Bases for LCO 3.9.4, "Containment Penetrations.") Containment isolation ensures meeting the containment

leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR 100 (Ref. 1) limits.

The containment purge isolation instrumentation satisfies Criterion 3 of 10CFR50.36(c)(2)(ii).

LCO

The LCO requirements ensure that the instrumentation necessary to initiate Containment Purge Isolation, listed in Table 3.3.6-1, is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate Containment Purge Isolation at any time by using either of two push buttons in the control room.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

(SAHS0011, SAHS0015)

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet as well as the BOP ESFAS output actuation relays needed to effect a manual containment purge isolation.

2. Automatic Actuation Logic and Actuation Relays (BOP ESFAS)

The LCO requires two trains of Automatic Actuation Logic and Actuation Relays OPERABLE to ensure that no single random failure can prevent automatic actuation of containment purge isolation.

Automatic Actuation Logic and Actuation Relays (BOP ESFAS) consist of the same features and operate in the same manner as described for ESFAS Function 6.c, Auxiliary Feedwater.

(continued)

LCO (continued)

3. Containment Purge Exhaust Radiation - Gaseous

The LCO specifies two required Containment Purge Exhaust Radiation – Gaseous channels (GTRE0022 and GTRE0033) to

3. Containment Purge Exhaust Radiation - Gaseous (continued)

ensure that the radiation monitoring instrumentation necessary to initiate Containment Purge Isolation remains OPERABLE. For sampling systems, channel OPERABILITY involves more than OPERABILITY of the channel electronics. OPERABILITY also requires correct valve lineups and sample pump operation, as well as detector OPERABILITY, since these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.

4. Containment Isolation - Phase A

Containment Purge Isolation is also initiated by all Table 3.3.2-1 Functions that initiate Containment Isolation - Phase A. Therefore, the requirements are not repeated in Table 3.3.6-1. Instead, refer to LCO 3.3.2, Function 3.a, for all initiating Functions and requirements.

APPLICABILITY

The Manual Initiation, Automatic Actuation Logic and Actuation Relays (BOP ESFAS), and Containment Purge Exhaust Radiation - Gaseous Functions are required OPERABLE in MODES 1, 2, 3, and 4. The Containment Isolation – Phase A Function is required to be OPERABLE as directed by LCO 3.3.2, Function 3.a. The Containment Purge Manual Initiation Function, is also required OPERABLE during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. During CORE ALTERATIONS or during movement of irradiated fuel assemblies within containment, automatic actuation functions of the containment purge isolation gaseous radiation channels are not required to be OPERABLE.

The automatic actuation logic and actuation relays for the Containment Purge Exhaust Radiation – Gaseous channels (GTRE0022 and GTRE0033) are not required to be OPERABLE during CORE ALTERATIONS or during the movement of irradiated fuel assemblies within containment, except for those BOP ESFAS output actuation relays needed to effect a manual containment purge isolation. If required, the

(continued)

BASES

ACTIONS (continued)

B.1

Condition B applies to all Containment Purge Isolation Functions and addresses the train orientation of the BOP ESFAS actuation logic and actuation relays for these Functions. It also addresses the failure of both gaseous radiation monitoring channels, or the inability to restore a single failed gaseous radiation monitoring channel to OPERABLE status in the time allowed for Required Action A.1.

If one or more trains or manual initiation channels are inoperable, both gaseous radiation monitoring channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment purge supply and exhaust valves in their closed position is met.

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4.

INSERT TS B-2

C.1 and C.2

Condition C applies to the Manual Initiation Function. If one or more manual initiation channels are inoperable, operation may continue as long as the Required Action to place and maintain containment purge supply and exhaust valves in their closed position is met or the applicable Conditions of LCO 3.9.4, "Containment Penetrations," are met for each valve made inoperable by failure of isolation instrumentation. The Completion Time for these Required Actions is Immediately.

A Note states that Condition C is applicable during CORE ALTERATIONS or during movement of irradiated fuel assemblies within containment.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.6-1 determines which SRs apply to which Containment Purge Isolation Functions.

SR 3.3.6.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that

(continued)

INSERT TSB-2

Required Action B.1 is modified by a Note to allow containment mini-purge supply and exhaust valves that have been closed to satisfy Required Action B.1 to be opened under administrative controls, provided Table 3.3.6-1 Functions 2 and 4 are OPERABLE. Opening these valves allows containment pressure to be equalized when necessary. The administrative controls consist of designating a control room operator to rapidly close the valves when a need for system isolation is indicated. This provision is acceptable based on the level of protection provided by the automatic isolation functions required by the Note in TS 3.3.6 Required Action B.1. With containment purge radiation monitoring instrumentation inoperable, the provision requiring OPERABILITY of Table 3.3.6-1 Functions 2 and 4 ensures that the mini-purge supply and exhaust valves can be automatically closed by the Phase A isolation signal.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.6

SR 3.3.6.6 is the performance of the required response time verification every 18 months on a STAGGERED TEST BASIS on those functions with time limits provided in Reference 3. Each verification shall include at least one train such that both trains are verified at least once per 36 months.

REFERENCES

1. 10 CFR 100.11.
2. NUREG-1366, July 22, 1993.
3. FSAR Table 16.3-2.
4. Callaway OL Amendment No. 20 dated April 10, 1987.
5. Callaway OL Amendment No. 114 dated July 15, 1996.
6. FSAR SECTION 6.2.1.5.

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Attachment 4

Retyped Technical Specifications

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------- NOTE ---------- Only applicable in MODE 1, 2, 3, or 4. ---------- One or more Functions with one or more manual channels or automatic actuation trains inoperable. <u>OR</u> Both radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	---------- NOTE ---------- Containment mini-purge supply and exhaust valves closed to satisfy Required Action B.1 may be opened under administrative controls, provided Table 3.3.6-1 Functions 2 and 4 are OPERABLE. ---------- B.1 Place and maintain containment purge supply and exhaust valves in closed position.	Immediately

(continued)