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10 CFR 50.90

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March 26, 2009

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

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Request for a License Amendment to Technical Specification 3.5.1, "Emergency Core Cooling Systems (ECCS) Operating"

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) is requesting a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. Specifically, the proposed change will revise TS 3.5.1, "Emergency Core Cooling Systems (ECCS) Operating," to delete the existing allowance associated with the Automatic Depressurization System (ADS) accumulator backup compressed gas system that currently allows a Completion Time (CT) of 72 hours to restore bottle pressure to ≥ 500 psig.

The proposed change is a result of an issue identified in June 2006, concerning the common pneumatic supply utilized to support the Low-Low Setpoint (LLS) function of the Safety Relief Valves (SRVs) and the ADS function of the SRVs. The sharing of a common pneumatic supply could result in a condition that prevents the ADS SRVs from performing their design function. The current basis for the TS CT of 72 hours is that the ADS accumulator backup compressed gas system nitrogen bottles are only required to provide long-term cooling and would not be required immediately following an accident. However, due to the shared interface between the pneumatic supply utilized by both LLS and ADS, sufficient compressed gas might not be available to ensure both the LLS and ADS SRV functions are met.

To be consistent with an existing CT for two or more required ADS valves inoperable, the current CT for TS 3.5.1 Condition D that allowed 72 hours to restore ADS accumulator backup compressed gas system bottle pressure to ≥ 500 psig is being deleted and the existing TS 3.5.1 Condition H is being revised to include the condition associated with inoperability of the ADS accumulator backup compressed gas system.

To further ensure the safety function of the ADS SRVs is maintained during bottle replacement operations, a reserve bottle at each bottle bank has been installed for use during bottle replacement. Surveillance Requirement (SR) 3.5.1.4 will be modified to maintain a minimum bottle pressure of 500 psig for each bottle bank or a minimum bottle pressure of 1100 psig for the reserve bottle. To ensure the safety function of the ADS SRVs is maintained during any postulated condition, the ADS accumulator backup compressed gas system will be required to be operable whenever the ADS function is required to be operable. With the backup compressed gas system bottle pressure of ≥ 500 psig or the reserve bottle pressure of ≥ 1100 psig there is sufficient nitrogen available for any postulated event involving LLS actuation and a subsequent need for ADS.

This request is subdivided as shown below.

Attachment 1 provides an evaluation supporting the proposed change.

Attachment 2 includes the marked-up TS pages with the proposed change indicated.

Attachment 3 includes the typed TS Bases pages with the proposed changes incorporated. The TS Bases pages are provided for information only, and do not require NRC approval.

Attachment 4 provides simplified schematics of the ADS pneumatic system and the ADS/LLS interface for LSCS to illustrate the pre- and post-modification alignment.

Attachment 5 includes the typed proposed LSCS Technical Requirements Manual (TRM) Section 3.5.b.

This proposed change is being submitted to address a degraded non-conforming condition and to resolve a non-conservative TS. This issue has been entered into the EGC Corrective Action Program (CAP) and an Operability Evaluation is in place. In addition, LSCS has implemented the necessary compensatory actions and administrative controls to ensure continued operability of the ADS system and the ADS SRV accumulator backup compressed gas system. LSCS has also entered the timeliness of this License Amendment Request into the EGC CAP.

EGC requests approval of the proposed change by March 31, 2010, with the amendment being implemented within 60 days of issuance.

The proposed amendment has been reviewed by the LSCS Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program.

EGC is notifying the State of Illinois of this application for a change to the TS by sending a copy of this letter and its attachments to the designated State Official in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b).

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, please contact Ms. Alison Mackellar at (630) 657-2817.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 26th day of March 2009.

Respectfully,

Patrick R. Simpson
Manager - Licensing

Attachment 1: Evaluation of Proposed Change
Attachment 2: Markup of Proposed Technical Specifications Page Changes
Attachment 3: Typed Pages for Technical Specifications Bases Page Changes
Attachment 4: Simplified Schematics of the ADS/LLS Interface
Attachment 5: Proposed Technical Requirements Manual Section 3.5.b and Bases

ATTACHMENT 1
Evaluation of Proposed Change

INDEX

1.0 DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) is requesting a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. Specifically, the proposed change will revise TS 3.5.1, "Emergency Core Cooling Systems (ECCS) Operating," to delete the existing allowance associated with the Automatic Depressurization System (ADS) accumulator backup compressed gas system that currently allows a Completion Time (CT) of 72 hours to restore bottle pressure to ≥ 500 psig.

The proposed change is a result of an issue identified in June 2006, concerning the common pneumatic supply utilized to support the Low-Low Setpoint (LLS) function of the Safety Relief Valves (SRVs) and the ADS function of the SRVs. The sharing of a common pneumatic supply could result in a condition that prevents the ADS SRVs from performing their design function. The current basis for the TS CT of 72 hours is that the ADS accumulator backup compressed gas system nitrogen bottles are only required to provide long-term cooling and would not be required immediately following an accident. However, due to the shared interface between the pneumatic supply utilized by both LLS and ADS, sufficient compressed gas might not be available to ensure both the LLS and ADS SRV functions are met.

To be consistent with an existing CT for two or more required ADS valves inoperable, the current CT for TS 3.5.1 Condition D that allowed 72 hours to restore ADS accumulator backup compressed gas system bottle pressure to ≥ 500 psig is being deleted and the existing TS 3.5.1 Condition H is being revised to include the condition associated with inoperability of the ADS accumulator backup compressed gas system.

To further ensure the safety function of the ADS SRVs is maintained during bottle replacement operations, a reserve bottle at each bottle bank has been installed for use during bottle replacement. The reserve bottle is valved in during replacement of the four bottles normally valved in for each bottle bank and allows bottle replacement without affecting the operating unit or requiring entry into a TS Required Action for an inoperable ADS accumulator backup compressed gas system. Surveillance Requirement (SR) 3.5.1.4 will be modified to maintain a minimum bottle pressure of 500 psig for each bottle bank or a minimum bottle pressure of 1100 psig for the reserve bottle. This will ensure that sufficient usable nitrogen exists to support both the LLS and ADS function of the SRVs plus assumed design leakage with no operator action. To ensure the safety function of the ADS SRVs is maintained during any postulated condition, the ADS accumulator backup compressed gas system will be required to be operable whenever the ADS function is required to be operable. With the backup compressed gas system bottle pressure of ≥ 500 psig or the reserve bottle pressure of ≥ 1100 psig there is sufficient nitrogen available for any postulated event involving LLS actuation and a subsequent need for ADS.

As a result of the identified issue, compensatory actions have been implemented to ensure the continued operability of the ADS system and of the ADS SRV accumulator backup compressed gas system until this proposed TS amendment is implemented. In addition, Technical Requirements Manual (TRM) Section 3.5.b, "Safety Relief Valve (SRV) System Low-Low Set (LLS) Function," will be added as a new section to the LSCS TRM and TRM Bases to give further detail to ensure the LLS function of the SRVs does not affect the operability of the ADS function of the SRVs.

2.0 PROPOSED CHANGES

Existing TS 3.5.1 Condition D, that allowed 72 hours to restore bottle pressure to ≥ 500 psig, is being deleted and existing TS 3.5.1 Condition H is being revised to include the condition of inoperability of the ADS accumulator backup compressed gas system. Revised Condition H will require that if the ADS accumulator backup compressed gas system is inoperable, the affected unit will be required to be in MODE 3 within 12 hours and the reactor steam dome pressure will be required to be reduced to ≤ 150 psig within 36 hours.

SR 3.5.1.4 will be modified to add an additional requirement to either maintain a minimum ADS accumulator backup compressed gas system bottle pressure of 500 psig or a minimum ADS accumulator reserve bottle pressure of 1100 psig. With the backup compressed gas system bottle pressure of ≥ 500 psig or the reserve bottle pressure of ≥ 1100 psig there is sufficient nitrogen available for any postulated event.

The proposed changes to the existing TS 3.5.1 Condition H and SR 3.5.1.4 are identified in Attachment 2. Due to the deletion of the existing TS 3.5.1 Condition D, remaining Conditions are re-lettered, as appropriate.

3.0 BACKGROUND

The ECCS consists of a High Pressure Core Spray (HPCS) system, a Low Pressure Core Spray (LPCS) system, a Low Pressure Coolant Injection (LPCI) system, and an ADS.

The ECCS is designed to satisfy the following:

1. To prevent fuel cladding fragmentation for any mechanical failure of the nuclear boiler system up to, and including, a break equivalent to the largest nuclear boiler system pipe;

2. To provide this protection by at least two independent, automatically actuated cooling systems;

3. To function with or without external (offsite) power sources; and

4. To permit testing of all ECCS by acceptable methods including, wherever practical, testing during power plant operations.

On receipt of an initiation signal, ECCS pumps automatically start and inject water, taken from the suppression pool, into the Reactor Coolant System (RCS). If the break is small, HPCS will maintain coolant inventory and vessel level while the RCS is still pressurized. If HPCS fails, the ADS system, in combination with LPCI and LPCS, will cool the core and limit cladding temperature. All ECCS subsystems are designed to ensure that no single active component failure will prevent automatic initiation and successful operation of the minimum required ECCS subsystems.

SRVs are located on the main steam lines between the reactor vessel and the first main steam isolation valve within the drywell. Each SRV discharges steam through a discharge line to a point below the minimum water level in the suppression pool. The SRVs can actuate in the relief mode, the safety mode, the ADS mode, or the LLS mode.

The SRVs that have relief, ADS, and LLS functions have three solenoid pilot valves designated "A," "B" and "C" that control gas provided to the pneumatic operator. For the SRVs that have both an ADS function and a LLS function, the "A" solenoid is energized by Division 1 ADS logic; the "B" solenoid is energized by Division 2 ADS, relief, or LLS logic; and the "C" solenoid is energized by relief or LLS logic.

Low-Low Setpoint (LLS) Function

Following a reactor isolation event, some or all of the SRVs will open at their designated relief or safety mode pressure setpoints. In order to reduce the number of SRVs that reopen following a reactor isolation event, seven of the 13 SRVs (i.e., SRVs "C," "E," "P," "U," "D," "S," and "K") are provided with LLS logic. Once armed, the LLS logic lowers the closing setpoint of all seven LLS SRVs and lowers the opening setpoint of two of the LLS SRVs (i.e., SRVs "S" and "U") to values significantly less than the other five LLS SRVs. The LLS logic is armed when two or more SRVs open. Once armed, the LLS setpoints override the normal setpoints, act to hold the seven LLS SRVs open longer, and act to lower the opening setpoints of SRVs "S" and "U." This LLS system logic functions to limit the number of SRVs that reopen following a reactor isolation event.

Automatic Depressurization (ADS) Function

The ADS function of the SRVs utilizes seven of the 13 SRVs (i.e., SRVs "C," "E," "R," "U," "D," "S," and "V"). This function backs up the HPCS system by depressurizing the RCS, therefore allowing LPCI and LPCS to overcome RCS pressure and inject coolant into the vessel.

There are three initiation signals for the ADS: reactor vessel low water level, drywell high pressure, and confirmed reactor vessel low water level. Reactor vessel low water level indicates that the fuel is in danger of becoming uncovered. Drywell high-pressure indicates a breach in the reactor coolant pressure boundary inside the drywell.

ADS Pneumatic System

Each ADS SRV has an ADS accumulator installed to provide a source of stored compressed gas for SRV operation. The Drywell Pneumatic System consists of a safety-related portion and a non safety-related portion. The non safety-related portion is the normal pneumatic supply to the ADS accumulators. The safety-related portion, referred to as the ADS accumulator backup compressed gas system, maintains the ADS accumulators pressurized following a loss of the normal non-safety related pneumatic supply.

The ADS accumulator backup compressed gas system consists of two bottle banks that serve as the safety-related pneumatic supply for the seven ADS SRVs. One bottle bank supplies four of the seven ADS SRVs while the other serves the remaining three ADS SRVs. Each bottle bank consists of four bottles of compressed nitrogen. Each bottle bank at the minimum required pressure of 500 psig has the capacity to provide nitrogen for more than 15 SRV actuations. The design basis event for the LLS/ADS requires 15 SRV Relief/LLS actuations prior to the final ADS actuation. The 15 actuations were determined using the GE SAFER/GESTR-LOCA computer code and is independent of fuel type.

Each ADS accumulator is provided with a pressure switch to detect low pressure. These pressure switches are provided with alarms in the control room. A control room alarm is also

annunciated for low pressure in the ADS nitrogen bottle banks supply headers to indicate that the pressure in a bottle bank is approaching the bottle change-out pressure. Indication of bottle pressure is available locally at the bottles and at each emergency pressurization station.

ADS and LLS interface

The proposed change is a result of an issue identified in June 2006, concerning the common pneumatic supply utilized to support both the LLS function and the ADS function of the SRVs. The sharing of a common pneumatic supply could result in a condition that prevents the ADS SRVs from performing their design function. The TS allowable minimum pressure of 500 psig for the ADS accumulator backup compressed gas bottles was based on the available volume of the nitrogen bottle bank to provide long-term cooling capability of the ADS SRVs following an accident (without the availability of the non-safety related portion of the Drywell Pneumatic System). The long-term cooling function of the ADS SRVs is to provide a flow path from the reactor to the suppression pool in the event the Residual Heat Removal (RHR) shutdown cooling flow path from the reactor vessel to the RHR system is not available. The nitrogen supply ensures the SRVs can be maintained open for a prolonged period of time to direct water from the reactor vessel to the suppression pool.

The concern identified is that the current allowed outage time of 72 hours is based on the ADS accumulator backup compressed gas system nitrogen bottles only being required to provide long-term cooling and that they would not be required immediately following an accident. However, due to the shared interface between the pneumatic supply utilized by both LLS and ADS, the ADS accumulator backup compressed gas bottles may be required to support the LLS function prior to ADS. In such situations sufficient compressed gas might not be available to ensure both the LLS and ADS SRV functions are performed for both long-term and short-term cooling requirements.

The current basis for the TS allowed outage time of 72 hours is that the ADS accumulator backup compressed gas system nitrogen bottles are only required to provide long-term cooling and would not be required immediately following an accident. However, as detailed below and illustrated in Attachment 4, the initial relief function and any subsequent Division 2 LLS actuations occurring prior to an ADS actuation could utilize the compressed nitrogen in the ADS accumulators if the non safety-related portion of the Drywell Pneumatic System were unavailable. Therefore, the ADS backup compressed gas system (i.e., nitrogen bottle banks) does have a short-term function of maintaining the ADS accumulators pressurized. Should the LLS function of the SRVs exhaust the compressed nitrogen in the ADS accumulators and the ADS backup compressed gas system (i.e., the nitrogen bottle banks) not be available to maintain the ADS accumulators pressurized, the ADS SRVs would not be capable of accomplishing their design function.

As show in Table 1 and illustrated in Attachments 4A and 4B, the seven ADS SRVs are supplied by the ADS accumulator backup compressed gas system (i.e., nitrogen bottle banks). Of these, the "B" solenoid of five SRVs (i.e., SRVs "C," "D," "E," "S," and "U") is actuated by both ADS and LLS. This means that on a loss of the non safety-related pneumatic supply system, the ADS accumulator for each of these SRVs could be required to provide the pneumatic supply to support SRV operation when either the relief, LLS or ADS function is actuated.

Interface between Div 2 ADS and LLS

Basic Logic to Energize SRV Solenoids ADS and LLS functions only				
SRV	A Solenoid	**B Solenoid**	C Solenoid	N2 Bottle Bank
C	ADS Div 1	**ADS Div 2 LLS**	LLS	South
D	ADS Div 1	**ADS Div 2 LLS**	LLS	North
E	ADS Div 1	**ADS Div 2 LLS**	LLS	South
F				
H				
K	LLS (Unit 2)	LLS	LLS (Unit 1)	
L				
M				
P	LLS (Unit 2)	LLS	LLS (Unit 1)	
R	ADS Div 1	ADS Div 2		South
S	ADS Div 1	**ADS Div 2 LLS**	LLS	North
U	ADS Div 1	**ADS Div 2 LLS**	LLS	South
V	ADS Div 1	ADS Div 2		North

Compensatory Measures and Actions to Correct

NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications that are insufficient to assure Plant Safety," addresses the NRC's expectations regarding correction of facility TS when they are found to contain nonconservative values. In the case of a deficient TS, these expectations include the evaluation of compensatory measures, such as administrative controls implemented in accordance with 10 CFR 50.59, "Changes, tests, and experiments," and prompt actions to correct the TS.

To address this degraded non-conforming condition, this proposed change is being submitted to resolve the non-conservative TSs. This issue has been entered into the EGC Corrective Action Program and an open Operability Evaluation is in effect. In addition, LSCS has implemented the necessary compensatory actions and administrative controls to ensure continued operability of the ADS system and the ADS SRV accumulator backup compressed gas system. In addition, Section 3.5.b, "Safety Relief Valve (SRV) System Low-Low Set (LLS) Function," will be added to the LSCS TRM and TRM Bases to give further detail to ensure the LLS function of the SRVs does not affect the operability of the ADS function of the SRVs.

To be consistent with an existing CT for two or more required ADS valves inoperable, the current CT for TS 3.5.1 Condition D that allowed 72 hours to restore ADS accumulator backup compressed gas system bottle pressure to ≥ 500 psig is being deleted and the existing TS 3.5.1 Condition H is being revised to include the condition associated with inoperability of the ADS accumulator backup compressed gas system.

To further ensure the safety function of the ADS SRVs is maintained, a modification has been completed to the ADS accumulator backup compressed gas system for both LSCS Units 1 and 2. The modifications illustrated in Attachment 4C include the addition of a normally isolated reserve bottle at each bottle bank. This reserve bottle is used during bottle replacement activities. Once valved in, the reserve bottle is verified to have a minimum bottle pressure of 1100 psig. This ensures sufficient usable nitrogen exists to support both the LLS and ADS function of the SRVs plus assumed design leakage with no operator action. With the backup compressed gas system bottle pressure of ≥ 500 psig or the reserve bottle pressure of ≥ 1100 psig there is sufficient nitrogen available for any postulated event involving LLS actuation and a subsequent need for ADS.

4.0 TECHNICAL ANALYSIS

The proposed change supports the correction of a non-conservative TS associated with the ADS mode of SRV operation. To correct the TS and to ensure the safety function of the ADS SRVs is maintained during any postulated condition, the existing allowance associated with the ADS accumulator backup compressed gas system that allowed a CT of 72 hours to restore bottle pressure to ≥ 500 psig is being deleted.

The non-conservative TS is a result of an interface between the pneumatic supply for the ADS and the pneumatic supply utilized by the Division 2 SRV LLS. This interface does not support the current basis for the CT of 72 hours associated with inoperability of the ADS accumulator backup compressed gas system (i.e., nitrogen bottle banks). One of the SRV LLS design functions is that it does not interfere with the design function of ADS. However, when the LLS logic energizes the Division 2 solenoid (i.e., Solenoid B) compressed gas from the associated ADS accumulator is utilized to perform the LLS SRV function. The ADS/LLS interface only affects the Division 2 LLS logic and therefore does not affect all SRVs.

The concern identified is that sufficient compressed nitrogen would not be available following the initial relief function to support both the LLS and ADS function of the SRVs and therefore a condition could potentially exist where the safety function of the ADS could not be fulfilled.

This issue affects five of the seven ADS SRVs (i.e., SRVs "C," "D," "E," "S," and "U") as they are supplied by the ADS accumulator back-up compressed gas system (i.e., nitrogen bottle banks) through the "B" solenoid and perform both LLS and ADS functions. These five ADS SRVs (i.e., SRVs "C," "D," "E," "S," and "U") accumulators are supplied by two separate nitrogen bottle banks designated as the south bottle bank and the north bottle bank.

The south bottle bank supplies nitrogen to the ADS accumulators associated with the affected SRVs "C," "E," and "U." The north bottle bank supplies nitrogen to the ADS accumulators associated with the affected ADS SRVs "D" and "S." The south bottle bank would supply nitrogen to support the initial lift of the three affected SRVs (i.e., SRVs "C," "E," and "U") at their relief setpoint, the subsequent lifts of one SRV at its reduced LLS setpoint, and provide make-up for leakage while maintaining the ADS accumulators pressurized to support subsequent ADS operation. The north bottle bank would supply nitrogen to support the initial lift of the affected two SRVs (i.e., SRVs "D" and "S") at their relief setpoint, the subsequent lifts of one SRV at its reduced LLS setpoint, and provide make-up for leakage while maintaining the ADS accumulators pressurized to support subsequent ADS operation.

This issue does not affect the remaining two ADS SRVs (i.e., SRVs "R" and "V"). These SRVs only perform an ADS and relief function but not an LLS function. The relief function for these valves is controlled by the "C" solenoid, which is supplied by the non-ADS accumulator. The Division 1 LLS logic and ADS do not have a similar interface and remain unaffected by this issue.

Contrary to the current justification for TS 3.5.1 Condition D, that is based on the ADS accumulator backup compressed gas system (i.e., nitrogen bottle banks) supporting long-term cooling, it has been determined that the system is also necessary to refill the ADS accumulators to support the short-term LLS and ADS function of the SRVs. Therefore, should the ADS accumulator back-up compressed gas system (i.e., the nitrogen bottle banks) not be available or not contain sufficient compressed nitrogen, a condition could potentially exist where the safety function of the ADS SRVs could not be fulfilled.

To be consistent with an existing CT for two or more required ADS valves inoperable, the CT for the existing TS 3.5.1 Condition D that allowed 72 hours to restore bottle pressure to ≥ 500 psig is being deleted and the existing TS 3.5.1 Condition H is being revised to include the condition associated with inoperability of the ADS accumulator backup compressed gas system. Additionally, the proposed changes also ensure other failures in addition to low bottle pressure that impact the ADS accumulator backup compressed gas system operability will be treated similarly.

An additional consideration is applicable for the functionality of the low and medium LLS SRVs. This consideration is applicable to ADS operability for a single low-probability event. This event involves a specific loss of coolant accident (LOCA) inside the primary containment with a concurrent loss of offsite power and a random failure that results in the inoperability of one of the two ADS bottle banks.

The LOCA in question is a small flaw/crack on the HPCS injection line of sufficient size that results in the following conditions.

- Sufficient loss of injection flow such that HPCS does not provide adequate makeup to the reactor vessel.

  And

- The small flaw/crack on the HPCS injection line does not allow sufficient flow from the reactor vessel to allow depressurization such that ADS is not required.

If this event were to occur, both the low and medium LLS SRVs would be needed to remain functional to ensure sufficient nitrogen remains available to support LLS and ADS actuations to mitigate the event.

The following modifications have been completed for both LSCS Units 1 and 2 ADS to enhance the ADS compressed gas system. The details of the modifications are listed below and simple schematics showing the pre and post modification alignment are illustrated in Attachments 4B and 4C.

- A reserve bottle at each bottle bank has been added that can be utilized during bottle replacement. The reserve nitrogen bottle is valved in during the replacement of the four bottles currently installed in each bottle bank to allow for bottle change.

- Although the revised TS SR 3.5.1.4 requires a minimum bottle pressure of 500 psig for each bottle bank, LSCS administratively controls bottle pressure at a higher value to provide additional margin. In addition, the pressure switch setpoint has been increased to the administrative limit to annunciate in the control room when the pressure in the bottle bank is approaching the bottle change-out pressure.

- A local pressure indicator for the reserve nitrogen bottle has been installed to permit verification of the reserve nitrogen bottle pressure.

- A local pressure indicator has been installed at each emergency pressurization station. This provides another means to verify nitrogen bottle bank pressure. The emergency pressurization stations are located in an environmentally controlled area that is accessible during all conditions.

To further ensure the safety function of the ADS SRVs is maintained during bottle replacement operations, the reserve nitrogen bottle is valved in during the replacement of the four bottles currently installed in each bottle bank and allows bottle replacement without affecting the operating unit. Before it is placed into service, the pressure in the reserve bottle would be checked to verify that it contains a sufficient quantity of compressed gas. Once valved in, the reserve bottle is verified to have a minimum bottle pressure of 1100 psig. This ensures that sufficient usable nitrogen exists to support both the LLS and ADS function of the SRVs plus assumed design leakage assuming no operator action. With the backup compressed gas system bottle pressure of ≥ 500 psig or the reserve bottle pressure of ≥ 1100 psig there is sufficient nitrogen available for any postulated event involving LLS actuation and a subsequent need for ADS.

Compensatory actions are in place that meet NRC Administrative Letter 98-10, and will remain in effect until this license amendment is implemented following approval. The modifications to the ADS SRV accumulator backup compressed gas system and the proposed changes to TS 3.5.1, SR 3.5.1.4 and the associated TS Bases and TRM will ensure the safety function of the ADS SRVs is maintained during any postulated condition.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) is requesting a change to the Technical Specifications (TS) of Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. Specifically, the proposed change will revise TS 3.5.1, "Emergency Core Cooling Systems (ECCS) Operating," to delete the existing allowance associated with the Automatic Depressurization System (ADS) accumulator backup compressed gas system that currently allows a Completion Time (CT) of 72 hours to restore bottle pressure to ≥ 500 psig.

The proposed change is a result of an issue identified in June 2006, concerning the common pneumatic supply utilized to support the Low-Low Setpoint (LLS) function of the Safety Relief Valves (SRVs) and the ADS function of the SRVs. The sharing of a common pneumatic supply could result in a condition that prevents the ADS SRVs from performing their design function. The current basis for the TS CT of 72 hours is that the ADS accumulator backup compressed gas system nitrogen bottles are only required to provide long-term cooling and would not be required immediately following an accident. However, due to the shared interface between the pneumatic supply utilized by both LLS and ADS, the ADS backup compressed gas system (i.e., nitrogen bottle banks) sufficient compressed gas might not be available to ensure both the LLS and ADS SRV functions are met.

To be consistent with an existing CT for two or more required ADS valves inoperable, the current CT for TS 3.5.1 Condition D that allowed 72 hours to restore ADS accumulator backup compressed gas system bottle pressure to ≥ 500 psig is being deleted and the existing TS 3.5.1 Condition H is being revised to include the condition associated with inoperability of the ADS accumulator backup compressed gas system.

To further ensure the safety function of the ADS SRVs is maintained during bottle replacement operations, a reserve bottle at each bottle bank has been installed for use during bottle replacement. Surveillance Requirement (SR) 3.5.1.4 will be modified to maintain a minimum bottle pressure of 500 psig for each bottle bank or a minimum bottle pressure of 1100 psig for the reserve bottle. To ensure the safety function of the ADS SRVs is maintained during any postulated condition, the ADS accumulator backup compressed gas system will be required to be operable whenever the ADS function is required to be operable. With the backup compressed gas system bottle pressure of ≥ 500 psig or the reserve bottle pressure of ≥ 1100 psig there is sufficient nitrogen available for any postulated event involving LLS actuation and a subsequent need for ADS.

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

In support of this determination, an evaluation of each of the three criteria set forth in 10 CFR 50.92 is provided below regarding the proposed license amendment.

1. The proposed TS change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes do not involve a significant increase in the probability of an accident previously evaluated. The ADS accumulator backup compressed gas system is designed to maintain the availability of a mitigation system. It is not recognized as the initiator of any accident. The failure of the ADS accumulator backup compressed gas

system will not propagate into the onset of an analyzed event. As such, this proposed change does not involve a significant increase in the probability of an accident previously evaluated.

This proposed change does not involve a significant increase in the consequences of an accident previously evaluated. Deleting the existing allowance associated with the inoperability of the ADS accumulator backup compressed gas system provides assurance that the design function of the ADS SRVs assumed in the safety analyses will be achieved under all postulated conditions. The change that deletes the existing allowable completion time for an inoperable ADS accumulator backup compressed gas system is in the conservative direction and will revise the existing non-conservative TS to be consistent with existing licensing requirements for multiple inoperable ADS valves. Therefore, this proposed change will not increase the consequences of an accident previously evaluated in the UFSAR.

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

2. **The proposed TS change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The proposed change does not affect the control parameters governing unit operation or the response of plant equipment to transient conditions. The proposed change does involve the addition of a reserve nitrogen bottle that can be valved in during bottle replacement, however, during the short duration the reserve nitrogen bottle will be valved in the required minimum bottle pressure will be maintained at 1100 psig. The reserve bottle pressure requirement for this short duration ensures that the safety function of the ADS SRVs continues to be met.

Deleting the existing allowance associated with the inoperability of the ADS accumulator backup compressed gas system does not introduce any new or different modes of plant operation, nor does it affect the operational characteristics of any safety-related equipment or systems; as such, no new failure modes are being introduced. The proposed action provides assurance that the design function of the ADS SRVs assumed in the safety analyses will be achieved; and, therefore the LCO will be met. The change that deletes the existing allowable completion time for an inoperable ADS accumulator backup compressed gas system is in the conservative direction and will revise the existing non-conservative TS to be consistent with existing licensing requirements for multiple inoperable ADS valves.

Based on the above information, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **The proposed TS change does not involve a significant reduction in a margin of safety.**

The margin of safety is determined by the design and qualification of the plant equipment, the operation of the plant within analyzed limits, and the point at which protective or mitigative actions are initiated. The modified TS and TRM will ensure

sufficient nitrogen supply exists to support both the LLS and ADS function of the SRVs plus assumed design leakage with no operator action.

The change that deletes the existing allowable completion time for an inoperable ADS accumulator backup compressed gas system is in the conservative direction and will revise the existing non-conservative TS to be consistent with existing licensing requirements for multiple inoperable ADS valves.

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

Based on the above evaluation, EGC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c).

5.2 Applicable Regulatory Requirements/Criteria

EGC proposes to control the availability of the LLS function in the LSCS Technical Requirements Manual (TRM). The following assessment of the LLS function against the four criteria of 10 CFR 50.36, "Technical Specifications," is presented to support this method of control.

Criterion 1: Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

The LLS function is to minimize the containment design load. Following a reactor isolation event, some or all of the SRVs will open at their designated relief or safety mode pressure setpoints. In order to reduce the number of SRVs that reopen following a reactor isolation event, seven of the 13 SRVs are provided with LLS logic. Once armed, the LLS logic lowers the closing setpoint of all seven LLS SRVs and lowers the opening setpoint of two of the LLS SRVs to values significantly less than the other five LLS SRVs. The LLS logic is armed when two or more SRVs open. Once armed, the LLS setpoints override the normal setpoints, act to hold the seven LLS SRVs open longer, and act to lower the opening setpoints of the low and medium SRVs. This LLS system logic functions to limit the number of SRVs that reopen following a reactor isolation event.

The LLS feature does not monitor any of the parameters that are used to provide the Reactor Protection System (RPS) function. Likewise, it provides no control room indication of the status of any RPS function or fission product barrier status. As such, the LLS function does not meet Criterion 1 for inclusion in the LSCS TS.

Criterion 2: A process variable, design feature or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The LLS function is not assumed to function for the mitigation of a design basis event or transient analysis. It is not an assumed initial condition of these analyses, and its operation is not credited to prevent a challenge to or failure of a fission product barrier. Additionally, further means of mitigating the limiting event (e.g., a small break loss of coolant accident (LOCA)) are available and are also not credited. These means would include the Reactor Core Isolation Cooling (RCIC) system and the ability to manually depressurize the reactor sufficient to allow the low head Emergency Core Cooling Systems (ECCS) to function effectively.

Criterion 3: A structure, system or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The structures, systems and components assumed in the mitigation of a design basis event or transient are:

- RPS and associated instrumentation
- Primary Containment and associated isolation logic and instrumentation
- Reactor Coolant System
- ECCS and required support systems
- Normal and/or Emergency onsite power sources (AC and DC)

Additionally, the following features function to limit the offsite dose and the dose to the operator:

- Secondary Containment and associated isolation logic and instrumentation
- Standby Gas Treatment System
- Control Room Emergency Filtration System

As such, the LLS feature does not comprise a primary success path for the mitigation of a design basis accident or transient.

While LLS is safety grade and does function during the decay-heat dominant period late in an isolation transient, LLS is not assumed in any design basis accident or transient analysis. In addition, the most recent containment analysis performed as a result of power uprate also does not assume the LLS function. Therefore LLS does not meet Criterion 3 for inclusion in the LSCS TS.

The proposed change does relocate the ADS accumulator backup compressed gas system bottle pressure to a Surveillance Requirement but maintains the operability requirement in TS 3.5.1, "ECCS - Operating," and deletes the existing allowance associated with the inoperability of the ADS accumulator backup compressed gas system to be consistent with the plant design. The change is in the conservative direction and is consistent with the existing CT for two or more ADS valves inoperable. The ADS accumulator backup compressed gas system will be required to be operable whenever the ADS function is required to be operable and therefore the Criterion 3 of 10 CFR 50.36 will be met.

Criterion 4: A structure, system or component which either operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

The LLS system is a design feature that is present in a limited number of nuclear plants, predominantly the BWR-5 and BWR-6 designs. There is no body of operating experience that suggests it is significant to public health and safety.

Likewise, there is no probabilistic basis for inclusion in the TS. Given the singular nature of the ADS-LLS interaction, the small range of susceptible LOCAs where the interface may be of concern, and the specific combination of failures required for the interface concern to manifest itself, there is an extremely low probability of the ADS-LLS interface being of significance to public health and safety.

10 CFR 50.36 further states that SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCO will be met. Revising the ADS accumulator backup compressed gas system bottle pressure to include a requirement of 1100 psig for the reserve bottle during bottle replacement operations provides assurance that design function of the ADS SRVs assumed in the safety analyses will be achieved; and, therefore the LCO will be met.

10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," paragraph (b)(5), "Long-term cooling," states that after any calculated successful initial operation of the ECCS, the calculated core temperature shall be maintained at an acceptably low value and decay heat shall be removed for the extended period of time required for the long-lived radioactivity remaining in the core. Deleting the existing allowance associated with the inoperability of the ADS accumulator backup compressed gas system provides assurance that the design function of the ADS SRVs assumed in the safety analyses will be achieved under all postulated conditions. Revising the ADS accumulator backup compressed gas system bottle pressure to include a requirement of 1100 psig for the reserve bottle during bottle replacement operations provides assurance that the backup compressed gas system will continue to meet the long-term cooling design function of the ADS SRVs assumed in the safety analyses.

10 CFR 50 Appendix K, "ECCS Evaluation Models," describes the required analyses and assumptions of ECCS evaluation models and the required documentation. LSCS Updated Final Safety Analysis Report (UFSAR) Section 6.3.3, "ECCS Performance Evaluation," provides the results of these analyses. Deleting the existing allowance associated with the inoperability of the ADS accumulator backup compressed gas system and revising the ADS accumulator backup compressed gas system bottle pressure to include a requirement of the reserve bottle during bottle replacement operations provides assurance that the design function of the ADS SRVs assumed in the safety analyses will be achieved under all postulated conditions and does not affect any of the design inputs to the current LSCS ECCS evaluation model.

10 CFR Part 50 Appendix A, General Design Criteria (GDC) 35, "Emergency core cooling," states that the system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts. Deleting the existing allowance associated with the inoperability of the ADS accumulator backup compressed gas system and revising the ADS accumulator backup compressed gas system bottle pressure to include a requirement for the reserve bottle during bottle replacement operations provides assurance that the design function of the ADS SRVs assumed in the safety analyses will be achieved under all postulated conditions. Therefore the proposed change will ensure the requirements of GDC 35 will continue to be met.

6.0 ENVIRONMENTAL EVALUATION

EGC has evaluated this proposed operating license amendment consistent with the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments." EGC has determined that this proposed change meets the criteria for a categorical exclusion set forth in paragraph (c)(9) of 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical

exclusion or otherwise not requiring environmental review," and as such, has determined that no irreversible consequences exist in accordance with paragraph (b) of 10 CFR 50.92, "Issuance of amendment." This determination is based on the fact that this change is being proposed as an amendment to the license issued pursuant to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for Protection Against Radiation," or which changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria:

(i) The amendment involves no significant hazards consideration.

As demonstrated in Section 5.1, "No Significant Hazards Consideration," the proposed change does not involve any significant hazards consideration.

(ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

The proposed change does not result in an increase in power level, does not increase the production nor alter the flow path or method of disposal of radioactive waste or byproducts. The modified TS and TRM will ensure sufficient nitrogen supply exists to support both the LLS and ADS function of the SRVs plus assumed design leakage with no operator action.

It is expected that all plant equipment would operate as designed in the event of an accident to minimize the potential for any leakage of radioactive effluents; thus, there will be no change in the amounts of radiological effluents released offsite.

Based on the above evaluation, the proposed change will not result in a significant change in the types or significant increase in the amounts of any effluent released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

There is no net increase in individual or cumulative occupational radiation exposure due to the proposed change. The proposed action will not change the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposed action result in any change in the normal radiation levels within the plant.

Based on the above information, there will be no increase in individual or cumulative occupational radiation exposure resulting from this change.

7.0 REFERENCES

1. Letter from W. T. Subalusky (Commonwealth Edison Company) to NRC, "LaSalle County Station Units 1 and 2 Application for Amendment of Facility Operating Licenses NPF-11 and NPF-18, Appendix A, Technical Specifications, Relocation of alarm only instrumentation surveillance requirements and adding or changing an Action statement for selected Technical Specifications," dated January 20, 1997

2. Letter from NRC to I. J. Johnson, "Issuance of Amendments," dated July 16, 1997

3. Memorandum from R. L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," dated December 1, 1975

ATTACHMENT 2

LASALLE COUNTY STATION
UNITS 1 and 2

Docket Nos. 50-373 and 50-374

License Nos. NPF-11 and NPF-18

Markup of Proposed Technical Specifications Page Changes

REVISED TS PAGES

3.5.1-2
3.5.1-3
3.5.1-4

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. High Pressure Core Spray (HPCS) System inoperable.	B.1	Verify by administrative means RCIC System is OPERABLE when RCIC is required to be OPERABLE.	Immediately
	AND		
	B.2	Restore HPCS System to OPERABLE status.	14 days
C. Two low pressure ECCS injection/spray subsystems inoperable.	C.1	Restore one low pressure ECCS injection/spray subsystem to OPERABLE status.	72 hours
~~D. ADS accumulator backup compressed gas system bottle pressure < 500 psig.~~	~~D.1~~	~~Restore ADS accumulator backup compressed gas system bottle pressure ≥ 500 psig.~~	~~72 hours~~
	~~OR~~		
	~~D.2~~	~~Declare associated ADS valves inoperable.~~	~~72 hours~~
D ~~E.~~ Required Action and associated Completion Time of Condition A, B, or C not met.	D ~~E.~~1	Be in MODE 3.	12 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~F.~~ E. One required ADS valve inoperable.	~~F.~~1 E Restore required ADS valve to OPERABLE status.	14 days
~~G.~~ F. Required Action and associated Completion Time of Condition ~~F~~ E not met.	~~G.~~1 F Be in MODE 3	12 hours
~~H.~~ G. Two or more required ADS valves inoperable. OR ADS accumulator backup compressed gas system inoperable.	G ~~H.~~1 Be in MODE 3. AND G ~~H.~~2 Reduce reactor steam dome pressure to ≤ 150 psig.	12 hours 36 hours
H ~~I.~~ HPCS and one or more low pressure ECCS injection/spray subsystems inoperable. OR Three or more ECCS injection/spray subsystems inoperable. OR One or more ECCS injection/spray subsystems and one or more required ADS valves inoperable.	~~I.~~1 H Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3	Verify ADS accumulator supply header pressure is ≥ 150 psig.	31 days
SR 3.5.1.4	Verify ADS accumulator backup compressed gas system bottle pressure is ≥ 500 psig.	31 days
SR 3.5.1.5	Verify each ECCS pump develops the specified flow rate against the specified test line pressure. INSERT SYSTEM / FLOW RATE / TEST LINE PRESSURE LPCS: ≥ 6350 gpm: ≥ 290 psig LPCI: ≥ 7200 gpm: ≥ 130 psig HPCS (Unit 1): ≥ 6250 gpm: ≥ 370 psig HPCS (Unit 2): ≥ 6200 gpm: ≥ 330 psig	In accordance with the Inservice Testing Program

(continued)

OR

Verify ADS accumulator reserve bottle pressure is ≥ 1100 psig.

ATTACHMENT 3

LASALLE COUNTY STATION
UNITS 1 and 2

Docket Nos. 50-373 and 50-374

License Nos. NPF-11 and NPF-18

Typed Pages of Proposed

Technical Specifications Bases

Page Changes

REVISED TS BASES PAGES

B 3.5.1-4
B 3.5.1-8
B 3.5.1-9
B 3.5.1-11
B 3.5.1-15

BASES

BACKGROUND (continued)

pressure in the drywell pneumatic receiver tank. Nitrogen bottle banks provide a backup source to maintain the ADS accumulators charged following isolation of the normal pneumatic supply. Each bottle bank also has an additional reserve nitrogen bottle that can be valved in during the change out of the four bottles in the bottle bank. Each ADS accumulator is provided with a pressure switch to detect low pressure (< 150 psig). These pressure switches are provided with alarms in the control room. A control room alarm is also annunciated for low pressure in the ADS nitrogen bottle banks.

APPLICABLE SAFETY ANALYSES

The ECCS performance is evaluated for the entire spectrum of break sizes for a postulated LOCA. The accidents for which ECCS operation is required are presented in References 5, 6, and 7. The required analyses and assumptions are defined in 10 CFR 50 (Ref. 8), and the results of these analyses are described in Reference 9.

This LCO helps to ensure that the following acceptance criteria for the ECCS, established by 10 CFR 50.46 (Ref. 10), will be met following a LOCA assuming the worst case single active component failure in the ECCS:

a. Maximum fuel element cladding temperature is ≤ 2200°F;

b. Maximum cladding oxidation is ≤ 0.17 times the total cladding thickness before oxidation;

c. Maximum hydrogen generation from zirconium water reaction is ≤ 0.01 times the hypothetical amount that would be generated if all of the metal in the cladding surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react;

d. The core is maintained in a coolable geometry; and

e. Adequate long term cooling capability is maintained.

The limiting single failures are discussed in Reference 11. For the LOCA evaluation model which covers the entire spectrum of break sizes (large breaks to small breaks), failure of the HPCS ECCS subsystem in Division 3 due to failure of its associated diesel generator is, in general,

(continued)

BASES

ACTIONS
(continued)

D.1

If any Required Action and associated Completion Time of Condition A, B, or C are not met, the plant must be brought to a MODE in which the overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 15) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state. The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1

The LCO requires six ADS valves to be OPERABLE to provide the ADS function. Reference 11 contains the results of an evaluation of the effect of one required ADS valve being out of service. Per this evaluation, operation of only five ADS valves will provide the required depressurization. However, overall reliability of the ADS is reduced because a single failure in the OPERABLE ADS valves could result in a reduction in depressurization capability. Therefore, operation is only allowed for a limited time. The 14 day Completion Time is based on a reliability study (Ref. 12) and has been found to be acceptable through operating experience.

(continued)

BASES

ACTIONS
(continued)

F.1

If any Required Action and associated Completion Time of Condition E is not met, the plant must be brought to a MODE in which overall plant risk is minimized. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours. Remaining in the Applicability of the LCO is acceptable because the plant risk in MODE 3 is similar to or lower than the risk in MODE 4 (Ref. 15) and because the time spent in MODE 3 to perform the necessary repairs to restore the system to OPERABLE status will be short. However, voluntary entry into MODE 4 may be made as it is also an acceptable low-risk state. The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

G.1 and G.2

If two or more ADS valves are inoperable or if the ADS accumulator backup compressed gas system is inoperable, there is a reduction in the depressurization capability. The plant must be brought to a condition in which the LCO does not apply. An inoperable backup compressed gas system could impact the operability of the associated ADS valves. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to $\leq$ 150 psig within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

H.1

When multiple ECCS subsystems are inoperable, as stated in Condition G, the plant is in a condition outside of the design basis. Therefore, LCO 3.0.3 must be entered immediately.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.3 (continued)

actuation. The ADS valve accumulators are sized to provide two cycles of the ADS valves upon loss of the nitrogen supply (Ref. 13). The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. The accumulator supply header pressure verification may be accomplished by monitoring control room alarms. The 31 day Frequency takes into consideration alarms for low pneumatic pressure.

SR 3.5.1.4

Verification every 31 days that ADS accumulator backup compressed gas system bottle pressure is ≥ 500 psig or that the ADS accumulator backup compressed gas system reserve bottle pressure is ≥ 1100 psig assures availability of an adequate backup pneumatic supply to the ADS accumulators following a loss of the drywell pneumatic supply (Ref 15). The reserve bottle is only utilized during bottle changeouts and once valved in, the reserve bottle will be verified to have a minimum bottle pressure of 1100 psig. The reserve bottle will allow bottle change out without affecting the operating unit or requiring entry into TS LCO 3.5.1.G. The 31 day frequency is adequate because each ADS bottle bank is monitored by a low pressure alarm. Also, unless the normal drywell pneumatic supply is lost, the only expected losses from the bottles are due to leakage, which is minimal.

SR 3.5.1.5

The performance requirements of the ECCS pumps are determined through application of the 10 CFR 50, Appendix K, criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME OM Code requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of 10 CFR 50.46 (Ref. 10).

The pump flow rates are verified against a test line pressure that was determined during preoperational testing to be equivalent to the RPV pressure expected during a LOCA. Under these conditions, the total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the

(continued)

BASES

REFERENCES
(continued)

15. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.

16. Design Analysis L-003263, Rev. 2.

ATTACHMENT 4

LASALLE COUNTY STATION
UNITS 1 and 2

Docket Nos. 50-373 and 50-374

License Nos. NPF-11 and NPF-18

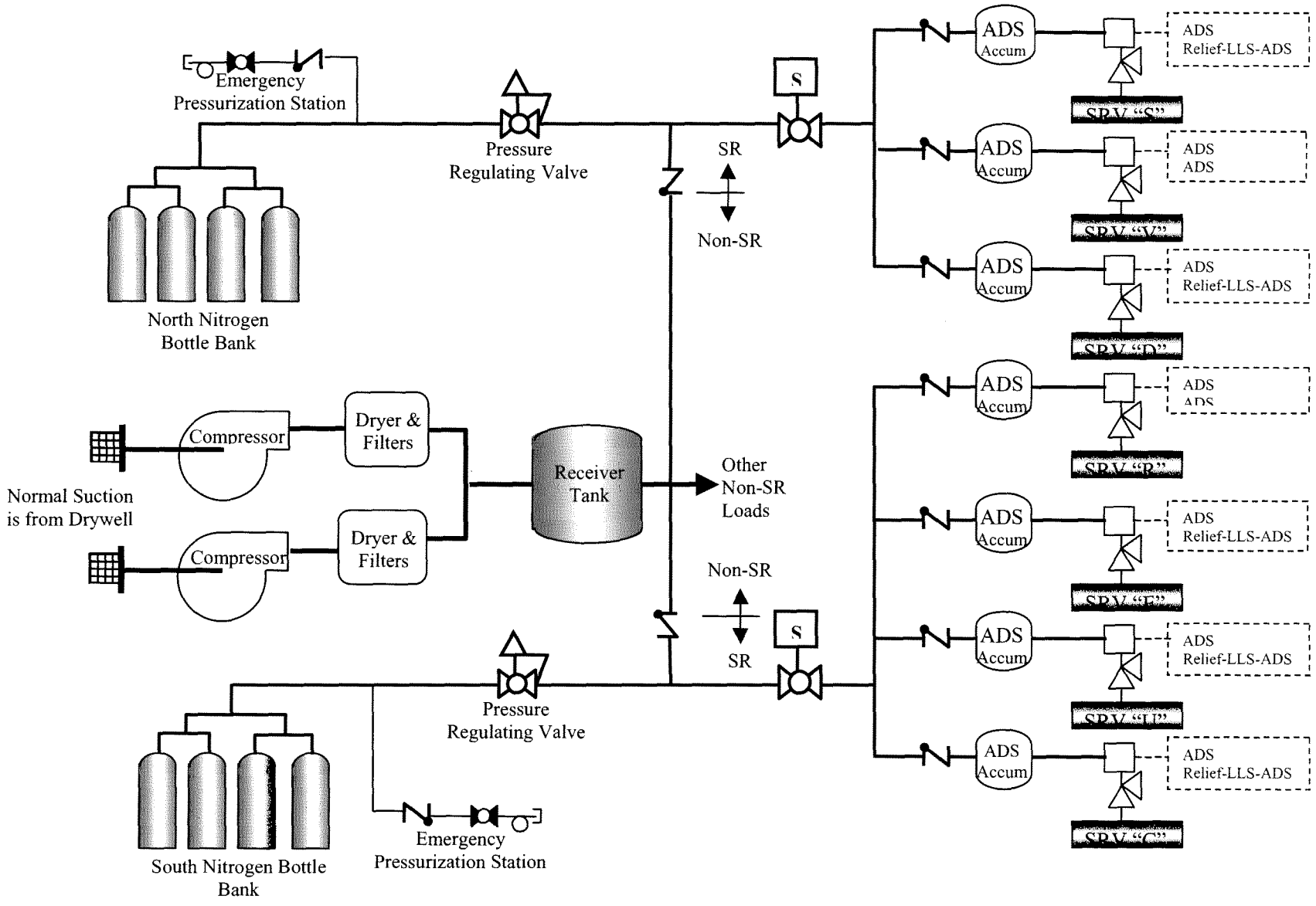
Simplified Schematics of the ADS/LLS Interface

4A ADS PNEUMATIC SYSTEM

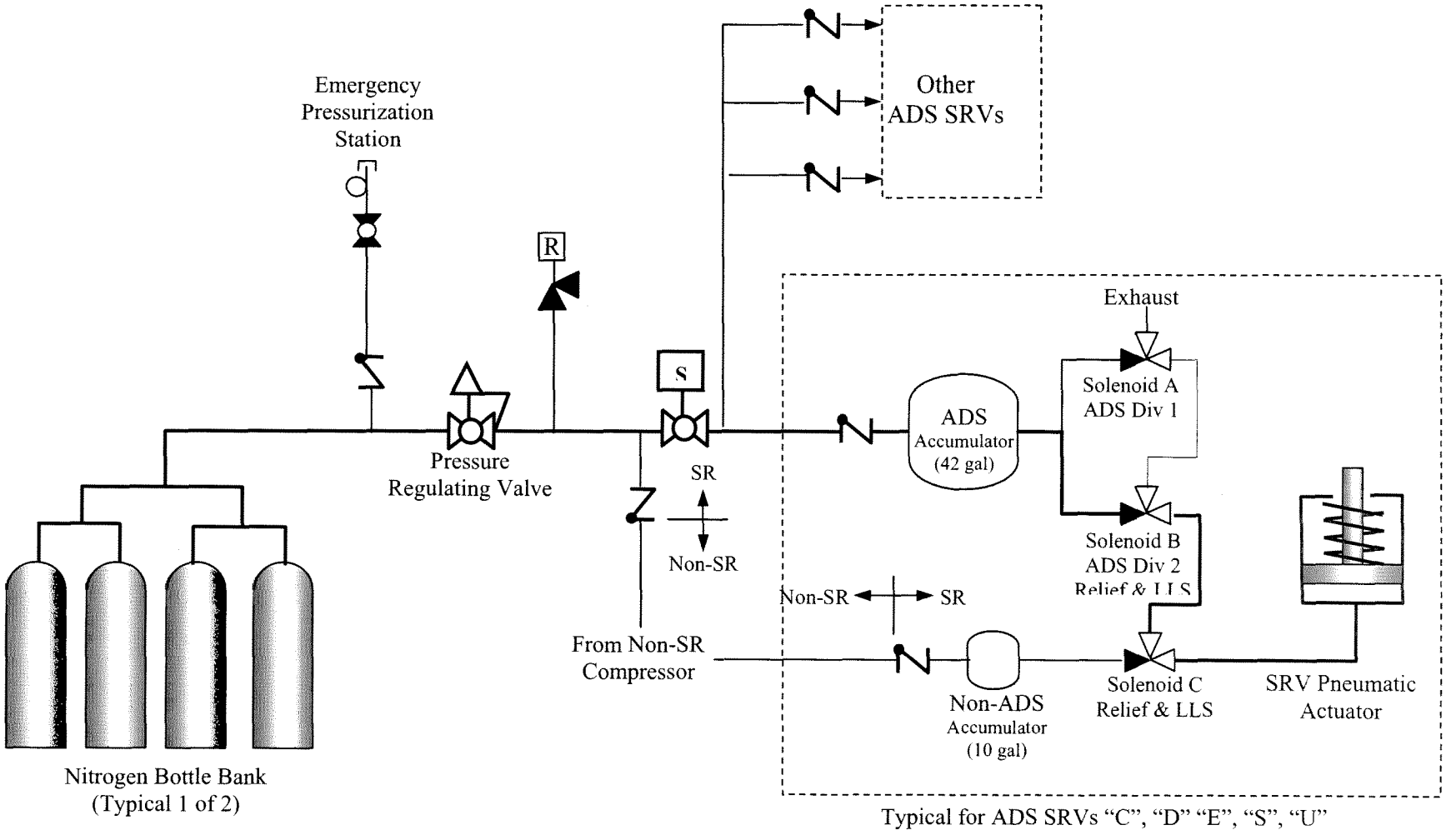
4B ADS/LLS INTERFACE PREVIOUS CONFIGURATION

4C ADS/LLS INTERFACE CONFIGURATION WITH MODIFICATIONS COMPLETE

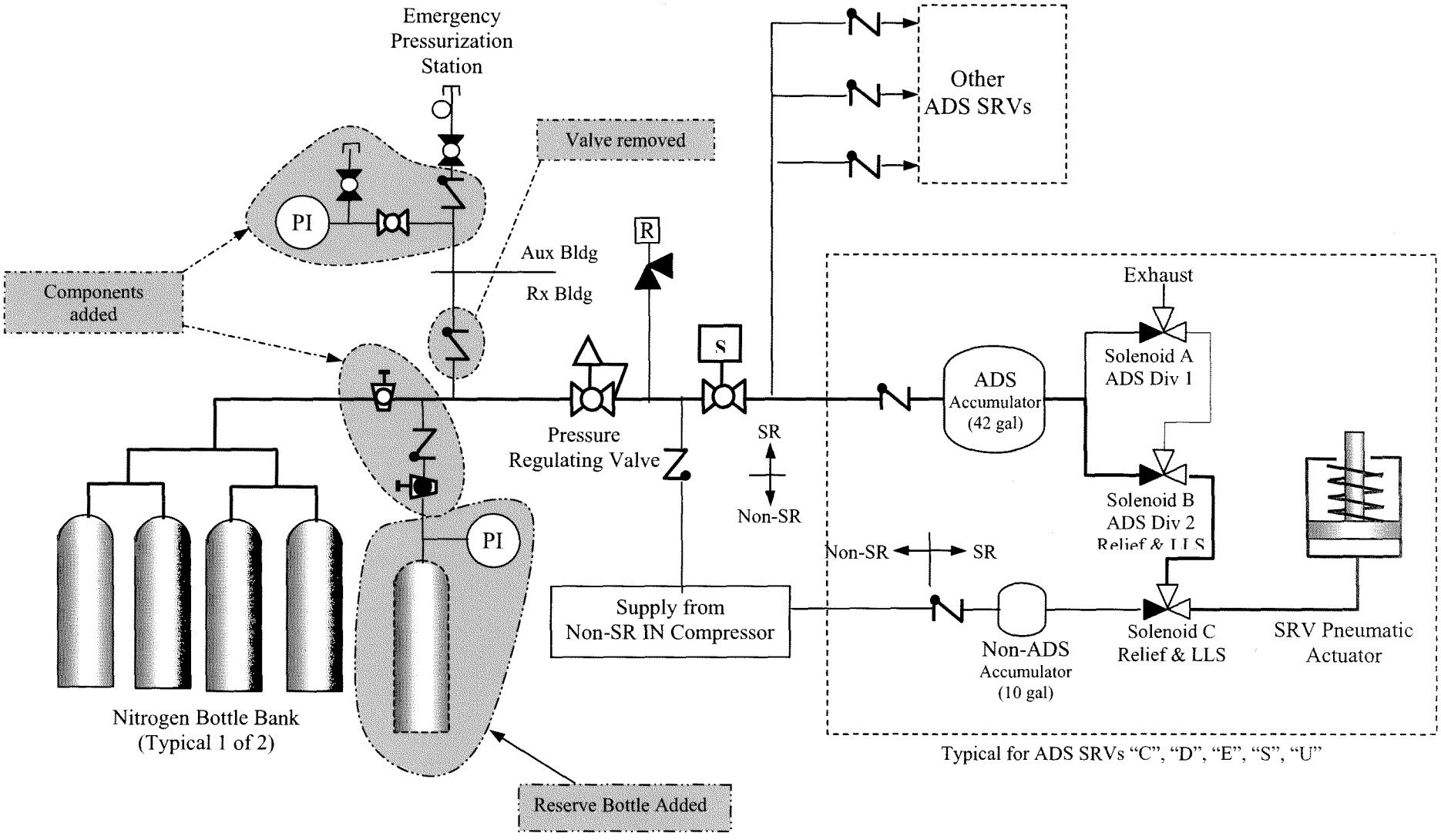
ATTACHMENT 4A
SIMPLIFIED SCHEMATIC OF THE ADS PNEUMATIC SYSTEM



ATTACHMENT 4B
SIMPLIFIED SCHEMATIC OF THE ADS/LLS INTERFACE
PREVIOUS CONFIGURATION



ATTACHMENT 4C
SIMPLIFIED SCHEMATIC OF THE ADS/LLS INTERFACE
CONFIGURATION WITH MODIFICATIONS COMPLETE



ATTACHMENT 5

LASALLE COUNTY STATION
UNITS 1 and 2

Docket Nos. 50-373 and 50-374

License Nos. NPF-11 and NPF-18

Technical Requirements Manual and

Technical Requirements Manual Bases

TRM Section 3.5.b

3.5.b-1

TRM Bases Section 3.5.b

B 3.5.b-1
B 3.5.b-2
B 3.5.b-3

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS)

3.5.b Safety Relief Valve (SRV) System Low-Low Set (LLS) Function

TLCO 3.5.b The Division 2 LLS function of the low and medium LLS SRVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, when steam dome pressure is >150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The required Division 2 LLS function of the low or medium LLS SRV inoperable.	A.1 Enter TS 3.5.1 Condition G for two or more required ADS valves inoperable. AND A.2 Initiate action to restore the required LLS function(s) to OPERABLE status.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.5.b.1	Perform a functional test of the Division 2 LLS function.	24 months

B 3.5 EMERGENCY CORE COOLING SYSTEM (ECCS)

B 3.5.b Safety Relief Valve (SRV) System Low-Low Set (LLS) Function

BASES

BACKGROUND

There are 13 total SRVs, of which 7 have an Automatic Depressurization System (ADS) function (SRVs "C", "E", "R", "U", "D", "S", and "V") and 7 that have a Low-Low Setpoint (LLS) function (SRVs "C", "E", "P", "U", "D", "S", and "K"). The seven ADS SRVs are supplied by the ADS accumulator backup compressed gas system (nitrogen bottle banks). Of these, five SRVs (SRVs "C", "D", "E", "S", "U") have both ADS and LLS functions. For these five SRVs, the logic channels associated with the LLS function are interconnected with the ADS logic channels. In addition, the ADS and LLS functions for these five SRVs utilize a common pneumatic supply.

The seven SRVs ("C", "E", "P", "U", "D", "S", and "K") associated with the LLS relief logic are set to three ranges of valve operation (low, medium, or high). One SRV accomplishes the low range LLS function, another SRV accomplishes the medium range LLS function, and the remaining five SRVs accomplish the high range LLS function. The low range LLS function is normally accomplished by SRV "U" and the medium range LLS function is normally accomplished by SRV "S". The LLS function modifies the "reopen" and "reclose" setpoints of the low and medium ranges SRVs so they are lower than the other SRV setpoints. Failure of the low and medium range LLS function has the potential to adversely impact ADS operability.

APPLICABLE DESIGN BASES

The LLS relief logic functions to minimize the containment design load by reducing the number of relief valves that reopen following a reactor isolation event. The two LLS valves (SRVs "U" and "S") are the same valves used for the lowest SRV pressure group. Therefore, since the valves will already have opened from their original pressure relief signals, the LLS logic acts to hold them open past their normal reclose point until the pressure decreases to a predetermined "low-low" setpoint and acts to lower their opening setpoint. Therefore SRVs "U" and "S" will open sooner and will remain open longer than the other safety/relief valves. This extended relief capacity assures that no more than one valve will reopen a second time (Ref: UFSAR 7.3.1.2.2.10).

(continued)

BASES (continued)

TLCO

The "B" solenoid of five SRVs (SRVs "C", "D", "E", "S", and "U") is actuated by Division 2 ADS and Division 2 LLS. This means that on a loss of the non safety-related pneumatic supply system, the ADS accumulator for each of these SRVs could be required to provide the pneumatic supply to support SRV operation when either the relief, LLS or ADS function is actuated.

Due to the "B" solenoid being common to both Division 2 ADS and LLS, a scenario exists that if the Division 2 LLS function of the low and medium LLS SRVs (SRVs "U" and "S") were unavailable the capability of LLS to limit the number of SRVs experiencing subsequent actuations would be removed. With more SRVs experiencing subsequent actuations, the available compressed gas in the bottle banks and ADS accumulators could be exhausted while controlling reactor pressure leaving insufficient compressed gas to support subsequent ADS operation of the remaining SRVs.

Ensuring that the LLS function of the Low and Medium LLS SRVs are available whenever ADS is required in accordance with TS 3.5.1 mitigates the consequences of this scenario.

APPLICABILITY

The ADS function of six SRVs is required to be OPERABLE in MODES 1, 2 and 3 except when reactor steam dome pressure is ≤ 150 psig as defined by Tech Spec 3.5.1. In order to ensure the ADS function is OPERABLE during all analyzed scenarios, the LLS function of the low and medium LLS SRVs shall be OPERABLE when the ADS function is required.

ACTIONS

A.1 and A.2

The ACTION for an inoperable required LLS function requires immediate entry into TS 3.5.1 Condition G for two or more required ADS valves inoperable and immediate actions to restore the LLS function(s) to an OPERABLE status. If two or more ADS valves are inoperable, there is a reduction in the depressurization capability. The plant must be brought to a condition in which the TS 3.5.1 LCO does not apply.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

TSR 3.5.b.1

This TSR verifies that the Division 2 LLS function will not interfere with the OPERABILITY of ADS by performance of a functional test. This functional test verifies that the Division 2 LLS logic will arm during an event resulting in multiple SRV actuations and that the Division 2 LLS logic properly controls the opening and closing of the low and medium LLS SRVs. Performance of this surveillance ensures that the LLS/ADS Division 2 pneumatic interface will not adversely impact the ADS function.

The 24-month Frequency is based on:

- The need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

- The low probability associated with the scenario of concern (small break LOCA in HPCS concurrent with a LOOP, the low or medium LLS SRV out-of-service, and a singe failure disabling the Division 2 LLS function of the other medium or low LLS SRV).

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REFERENCES

1. UFSAR Section 7.3.1
2. TS Bases 3.5.1
3. Letter from U. S. NRC to Exelon Generation Company, LLC, "LaSalle Station Units 1 and 2 Issuance of Amendments to Technical Specification 3.5.1, "Emergency Core Cooling Systems (ECCS) Operating," (month day), 2008