



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 118 TO FACILITY OPERATING LICENSE NO. NPF-11 AND  
AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. NPF-18  
COMMONWEALTH EDISON COMPANY  
LASALLE COUNTY STATION, UNITS 1 AND 2  
DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

By letter dated January 20, 1997, the Commonwealth Edison Company (ComEd, the licensee), submitted a request for changes to the LaSalle County Station, Units 1 and 2, Technical Specifications (TS). The proposed amendments would relocate or revise the surveillance requirements (SR) or action statements for selected indication/alarm only instrumentation.

The LaSalle TS contain requirements for instruments that serve only an alarm or indication function. The TS, as currently written, require that the components associated with these instruments be declared inoperable if the instrument SR can not be met; although inoperability of the instruments does not indicate inoperability of the component or system required by the Limiting Condition for Operation. The licensee has determined that the affected instruments do not meet the criteria for inclusion in the TS because they have only alarm or indication functions and have no automatic or interlock functions. The affected TS are: 4.1.3.5 - Control Rod Scram Accumulators; 4.4.3.2.1 - Reactor Coolant System Operational Leakage; 4.5.1.d - ECCS - Operating; and 3.5.3 and 3.6.2.1 - Suppression Chamber.

2.0 EVALUATION

2.1 Surveillance Requirement 4.1.3.5, Control Rod Scram Accumulators

The control rod scram accumulators ensure that the control rods can be inserted under the most unfavorable depressurization of the reactors. Operability of the accumulators is determined by verifying that the pressure in each accumulator is greater than or equal to 940 psig. TS 4.1.3.5.a requires weekly verification of accumulator pressure. SR 4.1.3.5.b requires the performance of a channel functional test of the control rod drive (CRD) accumulator leak detectors and 7 channel calibration of the pressure detectors every 18 months. Because there is no TS action statement for inoperable CRD accumulator alarm instrumentation, the accumulators must be declared inoperable when an instrument becomes inoperable for any reason, placing the unit in a shutdown action statement.

The licensee proposes to relocate SR 4.1.3.5.b to plant procedures. SR 4.1.3.5.b does not verify operability of the accumulators and this instrumentation has no automatic or interlock functions. Operability of the CRD accumulators is verified by SR 4.1.3.5.a which requires weekly verification that the pressure indicated is greater than or equal to 940 psig. If the pressure detector is not functioning, SR 4.1.3.5.a can not be met and the accumulator will be declared inoperable. This change will allow the licensee to consider the accumulator operable if the alarm function becomes inoperable. Operability of the accumulator alarm function is not critical to the ability to insert control rods because: (1) the rods can be inserted with normal drive water pressure if the accumulator is inoperable; and (2) the automatic CRD charging water header low pressure scram initiates before any accumulator loses its full capability to insert the control rod. Therefore, the staff has determined that the SR for the CRD accumulator instrumentation may be relocated to plant procedures.

## 2.2 Surveillance Requirement 4.4.3.2.1 - Reactor Coolant System Operational Leakage

TS 3.4.3.2 provides limits on the amount of unidentified and total reactor coolant system leakage. The methods available to measure leakage are monitoring of primary containment atmospheric particulate and gaseous radioactivity, primary containment sump flow rate, and primary containment air coolers condensate flow. TS 4.4.3.2.1 requires monitoring by each of these methods at least once per 12 hours. However, there are no action statements associated with these surveillances that address the actions to take if a leakage detection system is inoperable. Per the current TS, if a leakage detection system is inoperable, the TS surveillance could not be met and the unit would be placed in a very restrictive time clock. The appropriate action statements for this situation are in TS 3.4.3.1, "Reactor Coolant System Leakage Detection System." TS 3.4.3.1 allows continued operation for up to 30 days when one leakage detection system is inoperable provided grab samples are analyzed once per 24 hours.

The licensee proposes to revise the TS to require that reactor coolant system leakage be demonstrated to be within the specified limits on the average of once per 8 hours, not to exceed 12 hours. The proposed TS meets the intent of the TS - to ensure that reactor coolant system leakage remains within limits - but does not reference specific detection systems to be used. As long as there is enough operable leakage detection instrumentation to meet the requirements of TS 3.4.3.1, there is sufficient instrumentation to determine operational leakage to satisfy the requirements of 3.4.3.2. Because an existing TS 3.4.3.1 provides the LCO, Action Statements, and SR for the leakage detection systems, the revision to TS 4.4.3.2.1 is acceptable.

## 2.3 Surveillance Requirement 4.5.1.d - ECCS - Operating; Automatic Depressurization System

The Automatic Depressurization System (ADS) controls seven selected safety-relief valves (SRV) for depressurization of the reactor. Each SRV utilized

for automatic depressurization is equipped with an air accumulator and check valve arrangement. The ADS accumulator supply header pressure is supplied by the normal instrument nitrogen system which maintains the ADS valve accumulators at greater than or equal to 150 psig. These accumulators ensure that the ADS valves can be held open following failure of the air supply to the accumulators. The accumulators are backed up by two banks of nitrogen bottles, one for each accumulator supply header, with similar check valve arrangements to assure ADS operability through the cooldown decay heat removal period. These ADS bottle banks provide the safety-related pneumatic supply for long-term cooling. Therefore, ADS is a backup for shutdown cooling. The nitrogen bottle banks are equipped with indication and alarms for low pressure.

Current TS 4.5.1.d.1 requires a monthly channel functional test of the accumulator backup compressed gas system (bottle banks) low pressure alarm system. Because there are no action statements for inoperable monitoring instruments, inoperability of the compressed gas system low pressure alarm would result in the ADS valves associated with that nitrogen bottle bank being declared inoperable. Each bottle bank serves one supply header which supplies either three or four ADS valve accumulators. Therefore, inoperability of a nitrogen bank low pressure alarm or indicator would render three or four ADS valves inoperable and TS 3.0.3 must be entered.

The licensee proposes to revise TS SR 4.5.1.d.1 to delete a functional test of the compressed gas low pressure alarm system and instead require monthly verification that ADS accumulator supply header pressure is greater than or equal to 150 psig and accumulator backup compressed gas system bottle pressure is greater than or equal to 500 psig.

The proposed surveillances more accurately verify operability of the ADS because low pressure in the supply header directly affects the ability of the accumulator to open and hold open the SRVs. Maintaining the supply header pressure at greater than or equal to 150 psig will ensure that the accumulators are pressurized and will be able to operate the SRV two times following failure of the pneumatic supply to the accumulator. If pressure decreases below 150 psig in any accumulator, an alarm will signal in the control room. In addition, multiple alarms will indicate a loss of the normal pneumatic supply. The proposed surveillance of nitrogen bottle bank pressure will ensure long-term availability of ADS during and following an accident. Unless normal supply is lost, the only losses are through gas leakage and, therefore, pressure decrease between the monthly surveillances will be minimal. In addition, the alarms on low nitrogen bottle pressure, although no longer a TS requirement, will be maintained and will signal low pressure in the control room. Therefore, the proposed surveillances are acceptable.

The licensee also proposes to add an action statement for low pressure in the compressed gas bottles. The action statement would require that with bottle pressure less than 500 psig, pressure must be restored within 72 hours or the associated ADS valves must be declared inoperable. The allowed outage time of 72 hours provides sufficient time to replace low pressure bottles with full



bottles. Because the nitrogen bank provides long-term cooling, it would not be required immediately following an accident. Operation of the ADS SRVs immediately following an accident is accomplished by the pressurized accumulators which are required to be maintained at 150 psig. Therefore, the proposed action statement is acceptable.

The current TS 4.5.1.d.2.c requires performance of a channel calibration of the accumulator backup compressed gas system low pressure alarm system and verification of alarm setpoints every 18 months. The licensee proposes to delete this requirement because it has determined that operability of ADS is not dependent on operability of the backup compressed gas system instrumentation. In addition, there are no automatic functions associated with the low pressure alarm. This instrumentation and the SR are being relocated to plant procedures. Verification of alarm operability has been replaced with the proposed monthly verification of compressed gas bottle pressure as discussed above. This change is acceptable.

#### 2.4 TS 3.5.3 and 3.6.2.1 - Suppression Chamber

The TS limit on suppression chamber level ensures that a sufficient volume of water is available to the high-pressure core spray, low-pressure core spray and low-pressure core injection systems in the event of a loss-of-coolant accident and for depressurization. In operational conditions 1, 2, and 3, the TS minimum level is -4.5" and the maximum level is +3". In operational conditions 4 and 5 the minimum required water volume is reduced because the reactor coolant is maintained at or below 200 degrees Fahrenheit. The minimum water volume in these conditions (-12' 7") is based on net positive suction head, recirculation volume, and vortex prevention, plus a 28" safety margin. Normal operational monitoring of suppression chamber water level between -4.5" and +3" is satisfied with two narrow range instruments. One narrow range instrument indicates and alarms in the control room and the other indicates at the remote shutdown panel. There are two channels of wide range level instrumentation for accident monitoring. Suppression chamber water temperature indication instrumentation consists of 14 channels in two divisions and is used for both normal and accident conditions. The TS requires daily verification of suppression chamber level and temperature with increased temperature monitoring during periods of significant heat addition.

TS 3.5.3 Actions c and d, and TS 3.6.2.1 Actions c and d, provide actions for inoperable water level instrumentation. They require that with one channel inoperable, the channel must be restored within 7 days or water level must be verified to be greater than the minimum required for the operational mode once per 12 hours by local indication. With both channels inoperable, one channel must be restored within 8 hours or the unit must be in cold shutdown within 36 hours and the level must be verified by local indication every 12 hours. TS 3.6.2.1 actions c and d also require that with one division of suppression chamber temperature indication inoperable, it must be restored within 7 days or the temperature must be verified at least once per 12 hours and with both divisions of temperature indication inoperable, one must be restored within

8 hours or the unit must be in cold shutdown in 36 hours. The licensee proposes to delete these action statements.

The licensee has determined that these instruments are not required to be included in TS because they have only indication or alarm functions and do not impact the operability of the suppression chamber. There are no automatic or interlock functions associated with these instruments. The LCOs for TS 3.5.3 and 3.6.2.1 require operability of the suppression chamber based on the volumes and temperature of water in the pool. Requirements for operability of the instruments to measure level and temperature do not relate directly to operability of the suppression chamber and are inappropriate for inclusion in these TS. The TS contain other requirements specific to operability of these instruments that will continue to be met. TS 3.3.7.4, "Remote Shutdown Monitoring Instrumentation" requires operability of one channel of narrow range level instrumentation that indicates at the remote shutdown panel. This TS requires the plant to be in hot shutdown within 12 hours if the channel is not restored within 7 days and requires channel checks and channel calibrations. Wide range level instrumentation will continue to be required by TS 3.3.7.5, "Accident Monitoring Instrumentation." TS 3.3.7.5 requires operability of two channels of suppression chamber level instrumentation and seven channels of suppression pool temperature instrumentation. The TS requires that with one channel of suppression chamber level instrumentation or one division of suppression chamber temperature instrumentation inoperable, restore within 7 days or be in hot shutdown within 12 hours. TS 3.3.7.5 requires that with both channels/divisions of suppression chamber level or temperature instrumentation inoperable, restore one channel/division within 48 hours or be in hot shutdown within 12 hours.

The licensee proposes to relocate the requirements for calibration and testing of the suppression chamber level and temperature instruments to plant procedures. TS 4.5.3.1.b and 4.6.2.1.c require a channel check every 24 hours, a channel functional test every 31 days, and a channel calibration every 18 months of suppression chamber level and temperature instrumentation. Although these requirements will be deleted from the TS, the instruments are still required to be operable to fulfill the requirements to meet TS 4.5.3.1.a and 4.6.2.1.a and b. The deletion of these surveillances is consistent with the deletion of the associated action statements as discussed above.

TS 4.5.3.1.b and 4.6.2.1.c also require that the low water level alarm be set at greater than or equal to -3 inches. The licensee proposes to relocate this requirement because there are no associated action statements for an inoperable alarm. Inoperability of the alarm would put the plant in an action statement that would require the instrument to be restored within 8 hours or begin unit shutdown. This action is inappropriate for this instrument. In addition, operability of the alarms is not critical to operability of the suppression chamber because, due to the large volume of water in the suppression pool, it takes a long time for level or temperature to change significantly and the daily surveillances of level and temperature would detect any change.

## 2.5 Criteria for Relocation of Requirements from TS

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TS as part of the license. The Commission's regulatory requirements related to the content of the TS are set forth in 10 CFR 50.36. The regulation does not specify the particular requirements to be included in a plant's TS.

The Commission has provided guidance for the content of TS in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," 58 FR 39132 (July 22, 1993), in which the Commission indicated that compliance with the Final Policy Statement satisfies Section 182a of the Act. In particular, the Commission indicated that certain items could be relocated from the TS to licensee-controlled documents.

The Final Policy Statement identified four criteria to be used in determining whether a particular matter is required to be included in the TS. These criteria were subsequently incorporated into the regulations by an amendment to 10 CFR 50.36 (60 FR 36953; July 19, 1995). The criteria incorporated into the rule are as follows:

- (1) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;
- (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;
- (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;
- (4) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

Existing TS requirements which fall within or satisfy any of the criteria must be retained in the TS, while those TS requirements which do not fall within or satisfy these criteria may be relocated to other, licensee-controlled documents.

The licensee has evaluated the instrumentation discussed above against the four criteria of 10 CFR 50.36(c)(2)(ii) and determined that none of the criteria applies to the TS that are being relocated for the reasons below:

Criterion 1: The instrumentation being relocated does not detect and indicate in the control room a significant degradation of the reactor

coolant pressure boundary. The relocated instruments are used to detect and indicate control rod scram accumulator pressure, ADS accumulator backup compressed gas system pressure, and suppression chamber water level and temperature.

Criterion 2: The process variables monitored by the relocated instrumentation are assumed in initial conditions of accidents or transients. However, the instruments themselves are not and may be relocated from the TS. If a process variable can not be determined to be within its limit due to inoperability of the associated instruments, then the TS action requirements must be entered. The instruments serve no active function in an accident or transient.

Criterion 3: These instruments do not function to mitigate an accident or transient, with the exception of the instruments that measure suppression chamber water level and temperature. These instruments meet Criterion 3 because they are Regulatory Guide 1.97, Category 1, Type A, instruments that are required to be retained as accident monitoring instrumentation. However, these instruments will continue to be required per TS 3/4.3.7.5, Accident Monitoring Instrumentation, which is not affected by this amendment.

Criterion 4: The licensee has verified that operating experience and the LaSalle probabilistic safety assessment have not determined these instruments to be significant to public health or safety.

Therefore, the instrumentation that is proposed to be relocated from the TS does not meet the criteria of 10 CFR 50.36.(c)(2)(ii) as being required to be included in TS. The instrumentation, along with the supporting actions and surveillances, may be moved to plant procedures.

## 2.6 Editorial Change to TS 3.1.3.5

The licensee proposes to make an editorial change to action statement a.2 of TS 3.1.3.5 because the current page format is incorrect. The last line of the action statement, "Otherwise be in at least HOT SHUTDOWN within 12 hours," is indented incorrectly in the Unit 2 TS. As currently indented, the statement appears to apply to action statements a.1 and a.2 of TS 3.1.3.5 rather than only a.2 as intended. The Unit 1 TS are indented correctly.

The staff has reviewed the proposed change and agrees that the format of the Unit 1 TS 3.1.3.5 is correct and the Unit 2 TS should be changed to be consistent.

## 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.



#### 4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (62 FR 8795). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

#### 5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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