

ATTACHMENT 1

PROPOSED ZION APPENDIX A  
TECHNICAL SPECIFICATION CHANGES TO  
SECTIONS 3.4 and 3.15

SAFEGUARDS INSTRUMENTATION AND CONTROL  
AUXILIARY ELECTRICAL POWER SYSTEM

Pages Modified

131  
133a  
135  
258

Pages Added

130a

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PDR ADOCK 05000295  
P PDR

0462K

| <u>Actuation Channel<br/>Description (Per Unit)</u>           | <u>1.<br/>No. of<br/>Channels</u> | <u>2.<br/>No. of<br/>Channels<br/>to trip</u> | <u>3.<br/>Minimum<br/>Operable<br/>Channels+++</u> | <u>4.<br/>Minimum<br/>Degree of<br/>Redundancy</u> | <u>5.<br/>Operator Action<br/>if column 3 or 4<br/>cannot be met +</u> | <u>6.<br/>Setpoints+</u>   |
|---|-----------------------------------|---|--|--|--|--|
| <u>V. Auxiliary Feedwater</u>                                 |                                   |   |  |  |  |  |
| 1. Manual   | 1/pump                            | 1/pump  | 1/pump   | 0  | Maintain Hot Shutdown***   | N.A.   |
| 2. Automatic  | 2                                 | 1   | 2  | 1  | Maintain Hot Shutdown***   | N.A.   |
| 3. Steam Generator (S/G)<br>Water Level low-low               |                                   |   |  |  |  |  |
| I. Start Motor<br>Driven Pumps                                | 3 per S/G                         | 2 per S/G<br>any 1/4 S/G                      | 2 per S/G  | 1 per S/G  | Maintain Hot Shutdown***   | 10%<br>Narrow Range  |
| II. Start Turbine<br>Driven Pumps                             | 3 per S/G                         | 2 per S/G<br>any 2/4 S/G                      | 2 per S/G  | 1 per S/G  | Maintain Hot Shutdown***   | 10%<br>Narrow Range  |
| 4. Undervoltage-RCP busses<br>Start Turbine Driven Pump       | 4-1/bus                           | 2   | 3  | 1  | Maintain Hot Shutdown***   | 75%<br>RCP Bus<br>Voltage  |
| 5. S.I. Start Motor and<br>Turbine Driven Pumps               | 2                                 | 1   | 2  | 1  | Maintain Hot Shutdown***   | N.A.   |
| 6. Station Blackout<br>Start Motor and Turbine<br>Driven Pump | 3-1/bus                           | 2   | 2  | 1  | Maintain Hot Shutdown***   | Time<br>Dependent<br>on Voltage  |
| 7. Secondary Undervoltage                                     | 2/bus                             | 2   | 2  | 0  | N.A.   | 3846 $\pm$ 2% volts<br>for 5 $\pm$ 5% min.<br>with inherent<br>time delay of<br>8 $\pm$ 2 sec. |

SEE FOOTNOTES ON PAGE 131b.

ENGINEERED SAFEGUARDS ACTUATION SYSTEM - LIMITING CONDITIONS FOR OPERATION AND SETPOINTS

PERMISSIVES

Setpoint +

P-11

Pressurizer pressure (2/3) below 1915 psig allows manual block of safety injection actuation during a plant cooldown.

P-12

Tavg (2/4) below 540°F allows manual block of High Steam Flow safety injection actuation if borated to greater than cold shutdown conditions.

SEE FOOTNOTES ON PAGE 131b.

ENGINEERED SAFEGUARDS ACTUATION SYSTEM - LIMITING CONDITIONS FOR OPERATION AND SETPOINTS

TABLE 3.4-1 (CONTINUED)

| <u>Description</u>  | <u>Channel Description</u> | <u>Device</u>   |
|---|----------------------------|---|
| <b>V. <u>AUXILIARY FEEDWATER</u></b>                      |                            |   |
| 1. Manual   |                            | NA  |
| 2. Automatic  |                            | NA  |
| 3. Steam Generator<br>Water Level Low-low                 |                            | LC-517B, LC-527B, LC-537B, LC-547B<br>LC-518B, LC-528B, LC-538B, LC-548B<br>LC-519B, LC-529B, LC-539B, LC-549B  |
| 4. Undervoltage - RCP Busses<br>Start Turbine Driven Pump |                            | Unit I 447(KP)-142, 447(KP)-143, 447(KP)-144, 447(KP)-145<br>Unit II 447(KP)-242, 447(KP)-243, 447(KP)-244, 447(KP)-245   |
| 5. SI Start Motor and<br>Turbine Driven Pumps             |                            | See Section I of this Table.  |
| 6. Station Blackout                                       |                            |   |
| a. Start Motor Driven Pumps                               |                            | Unit I 427(CV-7)-142, 427(CV-7)-143, 427(CV-7)-144<br>Unit II 427(CV-7)-242, 427(CV-7)-243, 427(CV-7)-244   |
| b. Start Turbine Driven Pumps                             |                            | Unit I 447(KP)-142, 447(KP)-143, 447(KP)-144, 447(KP)-145<br>Unit II 447(KP)-242, 447(KP)-243, 447(KP)-244, 447(KP)-245   |
| 7. Secondary Undervoltage<br>Protection System            |                            | Unit I 427-1(27D)-147, 427-1(27D)-148, 427-1(27D)-149<br>427-2(27D)-147, 427-2(27D)-148, 427-2(27D)-149<br><br>Unit II 427-1(27D)-247, 427-1(27D)-248, 427-1(27D)-249<br>427-2(27D)-247, 427-2(27D)-248, 427-2(27D)-249 |
| <b><u>PERMISSIVES</u></b>                                 |                            |   |
| P-11  |                            | Pressurizer pressure - PT-455, PT-456, PT-457   |
| P-12  |                            | Temperature - TE-411A, TE-411B, TE-421A, TE-421B,<br>TE-431A, TE-431B, TE-441A, TE-441B   |

ENGINEERED SAFEGUARDS SYSTEM INSTRUMENT NUMBERS

TABLE 3.4-2 (Continued)

| ACTUATION<br>CHANNEL DESCRIPTION  | CHANNEL<br>CHECK                   | CHANNEL<br>CALIBRATION | CHANNEL<br>FUNCTION TEST |
|---|------------------------------------|------------------------|--------------------------|
| IV. <u>STEAMLINE ISOLATION</u>  |                                    |                        |                          |
| 1. Manual Actuation   | N.A.                               | N.A.                   | R                        |
| 2. Automatic Actuation  | N.A.                               | N.A.                   | * M                      |
| 3. High-High Containment Pressure   | _____ See Item II Above _____      |                        |                          |
| 4. High Steam Line Flow in Coincidence with Low-Low Tavg or Low Steam Pressure  | _____ See Item I Above _____       |                        |                          |
| V. <u>AUXILIARY FEEDWATER</u>   |                                    |                        |                          |
| 1. Manual   | N.A.                               | N.A.                   | R                        |
| 2. Automatic  | N.A.                               | N.A.                   | M                        |
| 3. Steam Generator Water Level Low-Low  | S                                  | R                      | Q                        |
| 4. Undervoltage - RCP Busses  | N.A.                               | R                      | R                        |
| 5. Safety Injection   | _____ See Item I on Page 134 _____ |                        |                          |
| 6. Station Blackout   | N.A.                               | R                      | R                        |
| 7. Secondary Undervoltage   | M                                  | R                      | R                        |
| <u>PERMISSIVES</u>  |                                    |                        |                          |
| 1. P-11   | N.A.                               | N.A.                   | Q                        |
| 2. P-12   | N.A.                               | N.A.                   | Q                        |
| S - Once per shift                      M - Once per month                      N.A. - Not applicable   |                                    |                        |                          |
| R - Once per refueling shutdown - calibration of these instruments may be done as much as six months prior to the start of refueling outage and still satisfy this requirement. |                                    |                        |                          |

ENGINEERED SAFEGUARDS SYSTEM TESTING AND CALIBRATION REQUIREMENTS

TABLE 4.4-1 - (Continued)

| LIMITING CONDITION FOR OPERATION | SURVEILLANCE REQUIREMENT  |
|----------------------------------|---|
| 3.15.1.B (continued)             | <p data-bbox="1116 365 1252 393">4.15.1.B</p> <p data-bbox="1388 365 1856 393">3. Refueling outage testing</p> <p data-bbox="1388 431 1964 872">a. During each refueling outage the diesel generators shall be started and loaded under simulated LOCA and Loss-of-Offsite power conditions, and run for a minimum of 5 minutes in each case, with emergency loads. The proper diesel-generator starting and loading time, required bus load shedding, and sequential starting and operation of emergency equipment shall be verified.</p> <p data-bbox="1388 905 1953 1091">b. During each refueling outage, the diesel generator shall be loaded to 4000 KW and held at this load for one hour after the diesel generator operating temperatures have stabilized.</p> <p data-bbox="1388 1125 1970 1405">c. During each refueling outage, the capability of the diesel generator to reject a load of 4000 KW shall be demonstrated. This test need not be performed on the common diesel (0) if it was performed in conjunction with the previous refueling outage of the other unit.</p> |

## ATTACHMENT 2

### DESCRIPTION OF ZION'S DEGRADED GRID

#### PROTECTION SYSTEM

Two undervoltage relays are being installed on each 4160 volt Class 1E bus. This relay scheme is connected to a two-out-of-two per bus logic.

When the voltage on a 4160 volt Class 1E bus ((1)247, (1)248, (1)249) falls below 3846 (+2%) volts for 8 (+2) seconds, the newly-installed undervoltage relays will de-energize and a 5 (+5%) minute timer will be activated. When the five minutes expire, the off-site power supply breaker will be tripped, isolating the 4160 volt bus from the degraded grid. Subsequently, the diesel generator will start, load shedding will occur, and the Class 1E loads will be sequenced back on to the bus.

The proposed Technical Specifications identify the undervoltage relays, setpoints, required logic, and defines the overall testing requirements.



### ATTACHMENT 3

#### EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

##### PROPOSED CHANGES TO ZION TECHNICAL SPECIFICATIONS APPENDIX A - SECTIONS 3.4 AND 3.15

#### DESCRIPTION OF AMENDMENT REQUEST

An amendment to the Zion Facility Operating License is proposed to incorporate the operability, testing, calibration, and functional requirements of the Degraded Grid Voltage Protection System.

#### BACKGROUND

10 CFR 50.92 states that a proposed amendment will involve a no significant hazards consideration if the proposed amendment does 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 addition, the Commission has provided guidance in the practical application of these criteria by publishing eight examples in 48 FR 14870.

The discussion below addresses each of these three criteria and demonstrates that the proposed amendment involves a no significant hazards consideration.

#### BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Does the proposed amendment

- (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?



DISCUSSION - ITEM 1

The installation of degraded grid voltage protection provides additional assurance that a stable source of power for the required safety related equipment will be available. This increases the probability that the equipment will be capable of performing the required function. Thus, the probability and consequences of the previously analyzed accidents have not been increased.

DISCUSSION - ITEM 2

Reference (a) established the design criteria that spurious operation of the degraded grid protection system would not occur. Reference (b) states that this design goal has been met. Thus, this modification can only serve to enhance the power supply's reliability and does not create the possibility of a new type of accident.

DISCUSSION - ITEM 3

The margin of safety is increased by this change. As discussed above, the safety-related power supply should be more reliable when protected against a degraded grid voltage.

It should be noted that the proposed Technical Specifications represent new controls governing the operation of the newly installed protection system. Thus, example (ii) is applicable to the proposed change.

Example (ii) reads as follows:

- (ii) A change that constitutes an additional limitation, restriction, or control not presently included in the technical specifications: for example, a more stringent surveillance requirement.

Therefore, since the application for amendment satisfies the criteria specified in 10 CFR 50.92 and is similar to examples for which no significant hazards consideration exists, Commonwealth Edison Company has made a determination that the application involves no significant hazards consideration.