

U.S. Nuclear Regulatory Commission
LIC-92-099A

ATTACHMENT A

TABLE 2-1

ENGINEERED SAFETY FEATURES SYSTEM INITIATION INSTRUMENT SETTING LIMITS

<u>Functional Unit</u>	<u>Channel</u>	<u>Setting Limit</u>	
1. High Containment Pressure	a. Safety Injection b. Containment Spray ⁽¹⁾ c. Containment Isolation d. Containment Air Cooler DBA Mode e. Steam Generator Isolation	≤ 5 psig	
2. Pressurizer Low/Low Pressure	a. Safety Injection b. Containment Spray ⁽¹⁾ c. Containment Isolation d. Containment Air Cooler DBA Mode	≥ 1600 psia ⁽¹⁾	
3. Containment High Radiation	Containment Ventilation Isolation	In accordance with the Offsite Dose Calculation Manual	
4. Low Steam Generator Pressure	a. Steam Line Isolation b. Auxiliary Feedwater Actuation	≥ 500 psia ⁽²⁾ ≥ 466.7 psia	
5. SIRW Low Level Switches	Recirculation Actuation	16 inches +0, -2 in. above tank bottom	
6. 4.16 KV Emergency Bus Low Voltage	a. Loss of Voltage b. Degraded Voltage i) Bus 1A3 Side	(2995.2 +104, -20.8) volts $\leq 5.9^{(a)}$ seconds ≥ 3825.52 4029.4 volts (4.8 \pm .5) seconds	}TRIP }TRIP

TABLE 2-1 (Continued)

ENGINEERED SAFETY FEATURES SYSTEM ACTIVATION INSTRUMENT SETTING LIMITS

<u>Functional Unit</u>	<u>Channel</u>	<u>Setting Limit</u>
6. (Continued)	b. (Continued)	
	ii) Bus 1A4 Side	≥ 3724.08 3978.6 volts ($4.8 \pm .5$) seconds } TRIP
7. Low Steam Generator Water Level	Auxiliary Feedwater Actuation	$\geq 28.2\%$ of wide range tap span
8. High Steam Generator Delta Pressure	Auxiliary Feedwater Actuation	≤ 119.7 psid

(1) May be bypassed below 1700 psia and is automatically reinstated above 1700 psia.

(2) May be bypassed below 550 psia and is automatically reinstated above 550 psia.

(3) Simultaneous high containment pressure and pressurizer low/low pressure.

(4) Applicable for bus voltage $\leq 2995.2 - 20.8$ volts only. (For voltage $\geq (2995.2 - 20.8)$ volts, time delay shall be > 5.9 seconds.)

TABLE 2-1

ENGINEERED SAFETY FEATURES SYSTEM INITIATION INSTRUMENT SETTING LIMITS

<u>Functional Unit</u>	<u>Channel</u>	<u>Setting Limit</u>	
1. High Containment Pressure	a. Safety Injection b. Containment Spray ⁽¹⁾ c. Containment Isolation d. Containment Air Cooler DBA Mode e. Steam Generator Isolation	≤ 5 psig	
2. Pressurizer Low/Low Pressure	a. Safety Injection b. Containment Spray ⁽²⁾ c. Containment Isolation d. Containment Air Cooler DBA Mode	≥ 1600 psia ⁽¹⁾	
3. Containment High Radiation	Containment Ventilation Isolation	In accordance with the Offsite Dose Calculation Manual	
4. Low Steam Generator Pressure	a. Steam Line Isolation b. Auxiliary Feedwater Actuation	≥ 500 psia ⁽²⁾ ≥ 466.7 psia	
5. SIRW Low Level Switches	Recirculation Actuation	16 inches $\pm 0, -2$ in. above tank bottom	
6. 4.16 KV Emergency Bus Low Voltage	a. Loss of Voltage b. Degraded Voltage i) Bus 1A3 Side	(2995.2 \pm 104, -20.8) volts $\leq 5.9^{(4)}$ seconds ≥ 4029.4 volts (4.8 \pm .5) seconds	}TRIP }

TABLE 2-1 (Continued)

ENGINEERED SAFETY FEATURES SYSTEM INITIATION INSTRUMENT SETTING LIMITS

<u>Functional Unit</u>	<u>Channel</u>	<u>Setting Limit</u>	
6. (Continued)	b. (Continued)	≥ 3978.6 volts	} TRIP
	ii) Bus 1A4 Side	$(4.8 \pm .5)$ seconds	
7. Low Steam Generator Water Level	Auxiliary Feedwater Actuation	$\geq 28.1\%$ of wide range tap span	
8. High Steam Generator Delta Pressure	Auxiliary Feedwater Actuation	≤ 119.7 psid	

(1) May be bypassed below 1700 psia and is automatically reinstated above 1700 psia.

(2) May be bypassed below 550 psia and is automatically reinstated above 550 psia.

(3) Simultaneous high containment pressure and pressurizer low/low pressure.

(4) Applicable for bus voltage $\leq 2995.2 - 20.8$ volts only. (For voltage $\geq (2995.2 - 20.8)$ volts, time delay shall be > 5.9 seconds.)

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ATTACHMENT B

DISCUSSION, JUSTIFICATION AND NO SIGNIFICANT HAZARDS CONSIDERATIONS

DISCUSSION AND JUSTIFICATION

Omaha Public Power District (OPPD) proposes to change Fort Calhoun Station Unit No. 1 Technical Specification 2.14, Table 2-1, Item No. 6.b. that specifies the setpoint limit for degraded voltage protection.

To ensure that adequate voltage from the 161 KV offsite power supply to 4.16 KV safeguards buses 1A3 and 1A4 exists during an accident, the electrical distribution system has been equipped with a degraded voltage protection system referred to as Offsite Power Low Signal (OPLS). The OPLS provides protection to safeguards equipment when a degraded voltage condition is detected on 4.16 KV buses 1A3 or 1A4, concurrent with a Safety Injection Actuation Signal (SIAS). When a degraded voltage condition exists concurrent with a SIAS, the OPLS isolates 4.16 KV buses 1A3 and 1A4 from the 161 KV offsite power supply and initiates automatic actions to load the safeguards equipment onto the emergency diesel generators. The OPLS setpoints were originally designed to ensure that the voltage supplied to the 4160 V and 480 V loads does not drop below 90% of the nameplate voltage rating during an accident. The motor manufacturer recommends that terminal voltage be maintained at a minimum of 90% of motor nameplate rating to protect the motors from overheating due to excessive current.

An engineering analysis revealed that during an accident in which safeguards equipment would be required to operate, the voltage supplied to some 480 V safeguards loads could degrade to approximately 87.5% of rated voltage without actuating OPLS. Therefore, in February 1991, the OPLS was determined to be outside its design basis. This situation was reported to the NRC in Licensee Event Report 50-285/91-04 dated March 21, 1991, which was subsequently revised on June 21, 1991. Interim corrective actions included placing administrative restrictions on equipment rotation and bus loading configurations. Also, the OPLS setpoints were increased to provide protection consistent with the allowable configurations. In order to remove the operational restrictions of the interim corrective actions, a modification was implemented during the 1992 refueling outage.

This modification alters the existing logic circuitry such that upon receipt of a SIAS, the large 4160 volt motors and equipment (i.e., feedwater, heater drain and condensate pumps) are required to mitigate the consequences of an accident are automatically load shed. Controls have been modified so that during normal operations, plant personnel have additional flexibility in loading equipment onto 4.16 KV buses 1A3 and 1A4. The modification raises the OPLS setpoints so that it actuates (assuming a concurrent SIAS) at a higher level of decreasing voltage on 4.16 KV safeguards buses 1A3 and 1A4 based on Engineering Analysis EA-FC-90-057. As a result, the current OPLS setpoints listed in Technical Specification 2.14, Table 2-1 Item No. 6.b. must be increased.

Administrative Changes

Amendment number 108 is being added to the bottom of page 2-64 as the current revision to this page. Presently this amendment number is not legible on page 2-64.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION

The proposed changes do not involve significant hazards considerations because operation of Fort Calhoun Station Unit No. 1 in accordance with these changes would not:

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

OPLS actuates only when a degraded voltage condition is detected on 4.16 KV safeguards buses 1A3 or 1A4 concurrent with a SIAS. The proposed change to Technical Specification 2.14, Table 2-1, Item No. 6.b. (OPLS setpoints) provides additional assurance that the safety related loads that are sequenced on in this situation will have adequate voltage to accelerate to rated speed. In addition, the proposed increase in OPLS setpoints will insure that voltage is maintained at a minimum of 90% of nameplate rating to protect the 480 V motors from overheating due to excessive current. The proposed change to Technical Specification 2.14, Table 2-1, Item No. 6.b. restores the level of safety intended by the design basis of OPLS. Therefore, neither the probability nor consequences of an accident previously evaluated are increased.

- (2) Create the possibility of a new or different kind of accident from any previously analyzed.

The proposed change will cause OPLS to actuate at a higher level of decreasing voltage (concurrent with a SIAS) on 4.16 KV buses 1A3 and 1A4. For reasons stated in the response to Item 1 above, this proposed change ensures the level of safety intended by the design basis of OPLS and provides additional protection to safeguards loads. It does not create the possibility of a new or different kind of accident.

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

The proposed increase in Technical Specification 2.14, Table 2-1, Item No. 6.b. (OPLS setpoints) revises a nonconservative limit that currently exists in Technical Specification 2.14, Table 2-1, Item No. 6.b. The proposed change provides assurance that safety related loads will have adequate voltage to accelerate to rated speed and that the voltage on 4.16 KV buses 1A3 and 1A4 does not drop below 90% of the nameplate voltage rating during an accident. Therefore, the proposed change to Technical Specification 2.14, Table 2-1, Item No. 6.b. (OPLS setpoints) increases the margin of safety as compared with the current Technical Specification 2.14, Table 2-1, Item No. 6.b. setpoints.

Therefore, based on the above considerations, it is OPPD's position that this proposed amendment does not involve a significant hazards consideration as defined by 10 CFR 50.92 and the proposed changes will not result in a condition which significantly alters the impact of the Station on the environment. Thus, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(e)(9) and pursuant to 10 CFR 51.22(b) no environmental assessment need be prepared.