TABLE 3.2-B (Continued)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum No. of Operable Instrument Channels Per Trip System (1)	Trip Function	Trip Level Setting	Number of Instrument Channels Provided by Design	Remarks
2	125 VDC System Undervoltage Relay	$\geq$105 VDC $\pm$ 5% (6)	2	2 relays, 1 per bus
1	250 VDC System Undervoltage Relay	$\geq$210 VDC $\pm$ 5% (6)	1	1 relay, 1 per bus
4	$\pm$ 24 VDC System Undervoltage Relay	$\geq$21 VDC $\pm$ 5% (6)	4	4 relays, 2 per bus
1	120 VAC Uninterruptible AC Undervoltage Relay	$\geq$110 VAC $\pm$ 5% (6)	1	1 relay, 1 per bus
2	120 VAC Instrument AC Undervoltage Relay	$\geq$110 VAC $\pm$ 5% (6)	2	2 relays, 1 per bus

NOTES FOR TABLE 3.2-B

1. Whenever any CSCS subsystem is required by Subsection 3.5 to be operable, there shall be two operable trip systems. If the first column cannot be met for one of the trip systems, that trip system shall be placed in the tripped condition or the reactor shall be placed in the Cold Shutdown Condition within 24 hours.

2. Close isolation valves in RCIC subsystem.

3. Close isolation valves in HPCI subsystem.

4. Zero referenced to top of active fuel.*

5. HPCI has only one trip system for these sensors.

6. There is no trip function associated with these relays. The relays provide signals to annunciators only.

7. Four undervoltage relays with integral timers per 4KV bus. The relay output contacts are connected to form a one-out-of-two-twice coincident logic matrix. With one relay inoperable, operation may proceed provided that the inoperable relay is placed in the tripped condition within one hour.

*Top of active fuel zone is defined to be 344.5 inches above vessel zero (see Bases 3.2).

TABLE 4.2-B

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

Instrument Channel	Instrument Functional Test(9)	Calibration Frequency (9)	Instrument Check
1) Reactor Water Level	(1)	Once/3 months	Once/day
2) Drywell Pressure	(1)	Once/3 months	None
3) Reactor Pressure	(1)	Once/3 months	None
4) Auto Sequencing Timers	N/A	Annual	None
5) ADS - LPCI or CS Pump Discharge Pressure Interlock	(1)	Once/3 months	None
6) Trip System Bus Power Monitors	(1)	Not Applicable	None
7) Recirculation System d/p	(1)	Once/3 months	Once/day
8) Core Spray Sparger d/p	(1)	Once/3 months	Once/day
9) Steam Line High Flow (HPCI & RCIC)	(1)	Once/3 months	None
10) Steam Line High Temp. (HPCI & RCIC)	(1)	Annual	Once/day
11) HPCI and RCIC Steam Line Low Pressure	(1)	Once/3 months	None
12) HPCI Suction Source Levels	(1)	Once/3 months	None
13) a. 4KV Emergency Power System Voltage Relays	Annual	Annual	None
b. 4KV Emergency Power System Voltage Relays (Degraded Voltage)	Once/month	Annual	None
14) Instrument AC, Uninterruptible AC and battery bus undervoltage relays	(1)	Annual	None
15) Low-Low Set Function	(1)	Once/6 months	Once/day

stop valves or fast closure of the turbine control valves with reactor power greater than 30% and a simultaneous failure of the turbine bypass valves to open. The operating limit MCPR of section 3.12.C is calculated assuming an operable EOC-RPT system. If the requirements of Table 3.2-G are not met, then the reactor power level is reduced to a level (85% of rated) which will ensure that the full-power MCPR limits of section 3.12.C will not be violated if such a transient were to occur.

Trip function settings are included for Instrument AC and Uninterruptible AC and battery busses for surveillance of undervoltage relays. The undervoltage relays are required to sense a reduction in the power source voltage so that the subject instruments can be transferred to an alternate power source.

Surveillance tests other than a monthly functional check of the bus power monitors for the RHR, Core Spray, ADS, HPCI and RCIC trip systems are not required since they serve as annunciators for complete loss of power and do not monitor reduction of voltage. The subject functional check consists of opening the appropriate circuit breakers or removing the appropriate fuses and observing the loss of power annunciator activation.

The accident monitoring instrumentation listed in Table 3.2-H were specifically added to comply with the requirements of NUREG-0737 and Generic Letter 83-36. The instrumentation listed is designed to provide plant status for accidents that exceed the design basis accidents discussed in Chapter 15 of the DAEC UFSAR.

Footnote 9 of Table 3.2-H deviates from the guidance of Generic Letter 83-36 as continued operation for 30 days (instead of 7 days as recommended in the generic letter) is allowed with one of two torus water level monitor (TWLM) channels inoperable. Continued operation is justified by the following considerations:

1) Redundancy is available in that at least one channel of the containment water level monitor (CWLM) instrumentation must be available. Since the CWLM envelopes the span measured by the TWLM, the torus water level can be monitored by the CWLM system.

SAFETY ANALYSIS

1.0 Introduction

By letter dated August 29, 1988, from W. Rothert to T. Murley, Iowa Electric Light and Power Company requested changes to the Duane Arnold Energy Center (DAEC) Technical Specifications (TSs) to revise the setpoints of the Uninterruptible AC and Instrument AC Undervoltage Relays. Other administrative changes were also requested.

The setpoint changes are necessary to accommodate a modification to the power supplies for the Uninterruptible AC and Instrument AC electrical systems. This modification will replace the existing 120/240 VAC split-phase power supplies with 120 VAC single-phase static inverter power supplies to satisfy a Regulatory Guide 1.97 commitment. Consequently, the existing 240VAC (rated voltage) relays will be replaced with 120 VAC (rated voltage) relays, requiring the setpoint change from 220 VAC $\pm$5% to 110 VAC $\pm$5% for these relays.

2.0 Evaluation

We have conducted an evaluation to assess the acceptability of the requested TS changes to revise the setpoints of the Uninterruptible AC and Instrument AC electrical system undervoltage relays. Based upon this evaluation, we have determined that the proposed setpoint change necessary for the conversion of the Uninterruptible AC and Instrument AC electrical systems from 120/240 VAC split-phase systems to 120 VAC single-phase systems is acceptable. The changes will have no adverse effects on any existing Uninterruptible AC or Instrument AC electrical system loads or

the upgraded power supplies. The revised setpoints were determined using methodology similar to that used to establish the existing setpoints and are consistent with vendor recommendations. The setpoint changes are judged not to degrade operator response or introduce a human engineering deficiency.

The proposed administrative changes are editorial in nature and correct previous discrepancies and they clarify current Technical Specification requirements.

Based on the above evaluation, we conclude that the proposed TS changes are acceptable.