Iowa Electric Light and Power Company

JOHN F. FRANZ, JR.
VICE PRESIDENT, NUCLEAR

March 24, 1993
NG-93-0067

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Request for Technical Specification Change (RTS-243A) Resubmittal: Revision to TS Section 3.8, "Auxiliary Electrical Systems"

Reference: 1) Letter NG-92-3873, Franz (IELP) to Murley (NRC), dated October 30, 1992
2) Letter NG-92-5326, Franz (IELP) to Murley (NRC), dated December 31, 1992

File: A-117, R-42

Dear Dr. Murley:

In Reference 1, Iowa Electric Light and Power Company (IELP) requested revisions to the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC). Subsequent to that letter, some erroneous references were identified in the Evaluation and Description of the Changes (Attachments 1 and 2 to Reference 1). This letter corrects those errors, makes some editorial changes and further incorporates an additional editorial improvement to the TS by capitalizing the initial letters of system names. This improvement was also incorporated into the rewrite of TS Section 3.6 (Reference 2).

This letter and attachments constitute a resubmittal of the original request for TS revision (RTS-243, Reference 1), and supersedes that submittal in its entirety.

A copy of this submittal, which includes our analysis of significant hazards consideration, is being forwarded to our appointed state official pursuant to the requirements of 10 CFR 50.91.

A001 Cert No. 16286366

This letter is true and accurate to the best of my knowledge and belief.

IOWA ELECTRIC LIGHT AND POWER COMPANY

By John F. Franz
John F. Franz
Vice President, Nuclear

State of Iowa
(County) of Linn

Signed and sworn to before me on this 24th day of March, 1993, by John F. Franz Jr.

Mary Michele O'Neal
Notary Public in and for the State of Iowa

MARY MICHELE O'NEAL
MY COMMISSION EXPIRES
6-8-95

June 8, 1995
Commission Expires

JFF/SRC/pjv

Attachments:
1) Evaluation of Change with Respect to 10 CFR 50.92
2) Proposed Change RTS-243A to the Duane Arnold Energy Center Technical Specifications
3) Environmental Consideration
4) Safety Assessment

cc: S. Catron
L. Liu
L. Root
R. Pulsifer (NRC-NRR)
A. Bert Davis (Region III)
S. Brown (State of Iowa)
NRC Resident Office
DCRC

Evaluation of Change with Respect to 10 CFR 50.92

Background

In 1991, an independent evaluation of the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC) was completed. This evaluation was performed as part of the DAEC TS Improvement Program and included comparisons of the DAEC TS with TS from peer plants, Standard Technical Specifications (STS) and the then draft Improved Technical Specifications (NUREG-1433). The purpose of this proposed change is to resolve the issues applicable to TS Sections 3.8 and 4.8, "Auxiliary Electrical Systems," which were identified in the 1991 review. The proposed change would also improve organization and clarity. Specifically, TS Sections 3.8 and 4.8 have been reorganized to clearly delineate OPERABILITY, Limiting Conditions for Operation (LCO) and Surveillance Requirements for AC Power Systems, DC Power Systems, Onsite Power Distribution Systems, Auxiliary Electrical Equipment - CORE ALTERATIONS and the Emergency Service Water System.

In addition to these changes, a concern was identified by the NRC staff regarding OPERABILITY testing of the emergency diesel generators (EDGs) at the DAEC. The current specification requires that upon loss of one EDG, or one EDG and one of the two offsite power sources, the other EDG must be demonstrated OPERABLE. The current method of OPERABILITY testing is to start the EDG, synchronize it to the grid and run it fully loaded for one hour. This condition makes the remaining OPERABLE EDG vulnerable to grid transients which could damage it, or trip the EDG, requiring operator action to restore it. Additionally, while running parallel to the grid, if offsite power is lost, the operating diesel would attempt to pick up the plant loads. This situation would also cause the EDG to trip. The proposed specification requires the remaining EDG to be demonstrated OPERABLE by conducting a start test only. The vulnerability of the EDG will be eliminated if the required demonstration of OPERABILITY does not necessitate synchronization and loading to the grid.

Iowa Electric Light and Power Company, Docket No. 50-331
Duane Arnold Energy Center, Linn County, Iowa
Date of Amendment Request: March 24, 1993

Description of Amendment Request:

The proposed license amendment revises DAEC TS Sections 4.5.G.1, 3.8 and 4.8 to improve clarity and consistency of LCOs and Surveillance Requirements for Auxiliary Electrical Systems.

These changes are consistent with STS for BWR/4 plants (NUREG-1202). The significant changes are described below. Other editorial changes have also been proposed to make the wording consistent with the rest of DAEC TS.

TS Section 4.5.G.1 has been revised to include a reference to the proposed Specification 4.8.A.2.a.1.a for demonstration of emergency diesel generator OPERABILITY.

TS Section 3/4.8 Auxiliary Electrical Systems -

This section has been revised to reorganize the information pertaining to the electrical power systems. This information was previously divided into two major categories: Auxiliary Electrical Equipment and Operation with Inoperable Components. This revision divides the systems into logical categories, such as AC Power Systems, DC Power Systems, Onsite Power Distribution Systems, etc. This revision is consistent with STS Section 3/4.8 organization.

Each new section contains a description of the conditions under which the described systems are required to be OPERABLE. These OPERABILITY statements have been reworded for clarity and consistency with the rest of DAEC TS.

The equipment OPERABILITY requirements are clearly specified followed by limitations on operation with inoperable components. This organization results in a human-factors enhancement.

Each section was reviewed to ensure that any equipment having OPERABILITY requirements also had associated Limiting Conditions for Operation when the equipment is inoperable.

The Surveillance Requirements were also reviewed against those contained in STS. The proposed revision includes certain surveillances which the DAEC had already been performing and which contribute to TS equipment OPERABILITY assurance/verification, but were not previously included in the TS.

This change also eliminates an unnecessary conditional surveillance testing requirement from 4.8.E.2 (current Section 4.8.C.2). The statement "When one emergency service water system pump or loop becomes inoperable, the OPERABLE pump and loop shall be demonstrated to be OPERABLE immediately and daily thereafter," has been changed to "With one Emergency Service Water System pump or loop inoperable, the OPERABLE pump and loop shall be verified to be OPERABLE." Currently, when one Emergency Service Water System pump or loop becomes inoperable, the other is required to

be tested immediately and daily thereafter. This testing of redundant components results in unnecessary wear and challenges to the equipment since the basis for OPERABILITY is unchanged if the surveillance testing frequency remains unchanged. This revision proposes that the alternate systems be determined OPERABLE based on the DAEC Inservice Testing (IST) Program results and verification that the systems are in an OPERABLE status. Title 10 CFR, Part 50.55a, clearly indicates that "operational readiness of pumps and valves whose function is required for safety" is demonstrated by inservice examinations conducted in accordance with ASME Code, Section XI. The DAEC IST Program, which is based on these generally recognized codes and standards, has been previously submitted to the NRC in response to NRC Generic Letter 89-04. This change is similar to those changes made in Amendment 174 to the DAEC TS and is consistent with the testing requirements contained in STS.

In Section 3.8.A.2.c (currently 3.8.B.3.b), the LCO period for the loss of both the startup and standby transformers has been reduced from 7 days to now require HOT SHUTDOWN in 12 hours and COLD SHUTDOWN in the following 24 hours. This change is consistent with Standard TS and is prudent considering the higher risk associated with continued operation during repair of the transformers versus the risk of a controlled shutdown. The industry has recognized that a loss of offsite power is a significant contributor to the probability of a core-melt, and the preliminary results from the DAEC probabilistic risk assessment agree with that conclusion. IELP has concluded that, in this instance, the risk of continuing to operate the DAEC for up to 7 days while the transformers are repaired is greater than the risk of a controlled shutdown in order to make repairs while the plant is in a condition of lower overall risk. (In fact, with a loss of power to the essential buses, the Reactor Protection System (RPS) would initiate an automatic scram.)

In Section 4.8.A.1.b (currently 4.8.B.3.b), an option has been added to allow verification of emergency diesel generator OPERABILITY through observance of diesel operation. This option is necessary because in this situation, while highly unlikely, (no offsite power) both emergency diesel generators would be running and carrying loads such that the surveillance testing requirements could not be accomplished.

In Section 3.8.A.3 (currently Section 3.8.A.2), the minimum quantity of diesel fuel to be available on site has been increased to 36,317 gallons. A new engineering calculation (CAL-IELP-M91-14) has determined that this quantity is the minimum necessary to support operation of a diesel for the specified 7 days. The administrative control procedures have

already been revised to reflect this new limit.

The diesel start test of Section 4.8.A.2.a.1 (formerly 4.8.A.1.a.1) has been divided into three parts. The proposed specification separates the start test from the portion of the test which requires synchronizing the generator to the grid, loading the diesel generator and running it for an extended period. This separation simplifies reference to these individual portions of the testing and does not change the actual test requirements.

The diesel fuel testing requirements in the proposed Sections 4.8.A.2.d, e, f and g reflect the current DAEC fuel quality assurance program. This change is conservative in that it adds detail to the acceptance testing requirements in 4.8.A.2.d (current Section 4.8.A.1.f). It also adds a test for accumulated particulate contamination in the stored fuel. This test provides indication of fuel degradation. The DAEC diesel fuel quality assurance testing was previously described in our letter from J. Franz to Dr. Murley, dated July 1, 1992 (NG-92-2216).

In Section 3.8.B.2.c, a reference to Specification 3.7.D has been added. Since the 250 Volt DC System also supplies power to certain primary containment power operated isolation valves, this revision adds a reference to the section containing requirements for the affected valves. This change will provide more information to operations personnel in the event the 250 Volt DC System becomes inoperable.

In the new Section 3.8.B.2.d, a reference has been added to Specifications 3.1 and 3.2 in the event that a +/- 24 Volt DC System becomes inoperable. Currently, there is no LCO specified for the +/- 24 Volt DC System. This revision adds a reference to the sections containing requirements for the components powered by this system. This change is intended to alleviate potential confusion by providing guidance in the event that a required system becomes inoperable.

The new Section 3.8.C.2.a contains an LCO for the essential buses providing power to the River Water Supply System and Section 3.8.C.2.b contains an LCO for the other essential buses. These new LCOs are consistent with the most limiting LCOs for equipment powered by these buses. This change will provide more information to operations personnel in the event an essential bus becomes inoperable, since they will not have to search for the appropriate LCO through other specifications.

Surveillance Requirements have been added for the Onsite Power Distribution Systems (new Section 4.8.C.1). The surveillance

consists of inspections and preventive maintenance based on the equipment manufacturer's recommendations. The schedule is based on the current practice of working on one of the four 4160 volt AC buses per REFUELING OUTAGE. The scope includes all breakers and load centers supplied by these buses down to the motor control centers and lighting panels. Since there are four such buses, the schedule for each is once each 4 OPERATING CYCLES.

The Bases have been revised to provide additional clarification and consistency to the DAEC TS Sections 3.8 and 4.8.

Basis for Proposed No Significant Hazards Consideration Determination

The Commission has provided standards (10 CFR 50.92(c)) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility 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; (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.

After reviewing the proposed request for Technical Specification change, we have concluded:

1) The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated because the requested revisions do not affect the FSAR safety analyses involving these systems.

   AC Power Systems

   The revision to the applicability of TS Section 3/4.8.A, "AC Power Systems" only clarifies the wording. The systems are still required to be OPERABLE under the same conditions. The revisions to the LCO statements are also clarifications of the current specifications and the normal responses of plant operations personnel. The revision to the shutdown requirement is consistent with STS and other sections in DAEC TS. Separating the start and loading portions of the EDG monthly test is administrative and does not affect the current requirements. Removing the requirement to operate the EDG connected to the bus following a loss of the other EDG decreases the probability of the EDG being subject to grid transients or attempting to pick up non-safety related loads during loss of offsite power. No changes are proposed

to the systems or operation of the DAEC. The AC electrical power systems will still be available for operation of normal and safety-related systems and components under the same conditions so that these changes will not increase the probability or consequences of an accident previously evaluated.

DC Power Systems

The changes to TS Section 3/4.8.B, "DC Power Systems" are administrative in nature: the applicability statement is revised consistent with 3/4.8.A; a shutdown requirement consistent with STS and other DAEC TS is specified; a reference to 3.7.D is added for the case when the 250 Volt DC System is inoperable; and references to 3.1 and 3.2 are added for the case when a +/- 24 Volt DC System is inoperable. These changes do not alter the system or its OPERABILITY. The DC power systems will still function when required to support plant operation. These changes will not significantly increase the probability or consequences of an accident previously evaluated.

Onsite Power Distribution Systems

The proposed new TS Section 3/4.8.C, "Onsite Power Distribution Systems" consolidates the OPERABILITY requirements and Surveillance Requirements for these systems into one section. This change also includes LCOs for the various AC buses consistent with the equipment powered by the respective buses. These changes result in an enhancement to the specification by clearly stating the system OPERABILITY, Surveillance and LCO requirements in one place. This change will not significantly increase the probability or consequences of an accident previously evaluated because no equipment or operational changes are proposed.

Auxiliary Electrical Equipment - CORE ALTERATIONS

No changes are proposed to this section except to renumber it consistent with the other proposed changes.

Emergency Service Water System

Minor editorial changes are proposed for this section as well as revising the conditional surveillance requirement. The proposed new requirement to "verify" instead of "demonstrate" that one pump or loop of Emergency Service Water (ESW) is still OPERABLE when the other pump or loop

becomes inoperable will not degrade the reliability of ESW to function as required. The assurance that the OPERABLE pump or loop will function as required is provided by the ASME Section XI IST Program.

The probability of human error will decrease with reduced testing. Human error such as misalignment of valves after the system is returned to its normal configuration following testing and the distraction of operator attention from monitoring and directing plant operation is less likely to occur if this testing is eliminated. Additionally, reducing the scope and frequency of surveillance testing will decrease the probability of equipment failure (due to excessive testing) which could require plant shutdown. Therefore, this change will not increase the probability of occurrence or consequences of an accident previously evaluated.

The revisions to the Bases are administrative in that they only reflect the changes to the individual specifications described previously in this section. All changes are consistent with the applicable specifications.

(2) The proposed amendment will not increase the possibility of a new or different kind of accident from any accident previously evaluated for the following reasons:

As described above in response to question #1, none of the proposed changes alters the design of the plant or equipment or the plant's transient response. The changes to the Limiting Conditions for Operation applicable to TS Section 3.8 are consistent with STS and better ensure that equipment assumed to be OPERABLE in our accident analysis will be OPERABLE upon demand. The addition of Limiting Conditions for Operation will better ensure that the assumptions in our accident analysis remain valid.

The changes to the Surveillance Requirements are consistent with the STS. Those systems required to mitigate accidents evaluated in the UFSAR will still be OPERABLE and available.

The reduction in conditional surveillance testing of certain systems and equipment will reduce the probability of equipment failure as a result of excessive testing or due to human error.

(3) The proposed amendment will not involve a significant reduction in a margin of safety for the following reasons:

The revisions to the Limiting Conditions for Operation in Section 3.8 of the TS will not invalidate the original licensing basis assumptions and will not invalidate any assumptions or input parameters for any DAEC event analysis. These changes provide more specific guidance only and are in accordance with the STS.

Extending the time period within which the DAEC must achieve COLD SHUTDOWN conditions will permit increased operator attention and minimal distractions for operators during shutdown, thus minimizing the risks of unexpected operational transients.

Additional surveillance testing for certain systems will provide additional assurance that these systems will be available when needed.

Elimination of unnecessary or conditional surveillance testing will not reduce the minimum necessary equipment OPERABILITY requirements or equipment reliability. Elimination of the redundant testing will reduce equipment failure due to excessive testing or human error.

In summary, the proposed administrative changes do not change the probability or consequences of an accident previously evaluated, do not create the possibility of a new or different kind of accident and do not involve a reduction in the margin of safety.

Therefore, the proposed license amendment is judged to involve no significant hazards consideration.

Local Public Document Room Location: Cedar Rapids Public Library, 500 First Street SE, Cedar Rapids, Iowa 52401

Attorney for Licensee: Jack Newman, Kathleen H. Shea, Newman and Holtzinger, 1615 L Street NW, Washington, DC 20036