WOLF CREEK
NUCLEAR OPERATING CORPORATION

Richard A. Muench
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February 4, 1998

ET 98-0002

U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555

Reference: Letter ET 97-0050, dated May 15, 1997, from R. A. Muench, WCNOC to NRC

Subject: Docket No. 50-482: Proposed Revision to Technical Specification 3/4.3, Changes to ESFAS Functional Units 6.f, 8.a, and 8.b

Gentlemen:

This letter transmits an application for amendment to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS).

This license amendment request proposes to revise Engineered Safety Features Actuation System (ESFAS) Functional Unit 6.f, Loss of Offsite Power-Start Turbine-Driven Pump, in Technical Specification Tables 3.3-3, 3.3-4, and 4.3-2 to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the turbine-driven auxiliary feedwater pump on a loss of offsite power.

Additionally, this request proposes to revise Engineered Safety Features Actuation System (ESFAS) Functional Unit 8.a, 4 kV Undervoltage - Loss of Voltage and 8.b, 4 kV Undervoltage - Grid Degraded Voltage, in Technical Specification Table 4.3-2 to add a table notation to clarify that the testing of the time delay relays is performed as part of the CHANNEL CALIBRATION.

A Safety Evaluation is provided in Attachment I. A No Significant Hazards Consideration Determination is provided in Attachment II. Attachment III is the related Environmental Impact Determination. Marked up pages are provided in Attachment IV (for current Technical Specifications and Bases) and in Attachment V (for Improved Technical Specifications and Bases submitted by the Reference).

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Kansas State Official. This proposed revision to the WCGS Technical Specifications will be fully implemented within 60 days of formal NRC approval.

Audit

If you have any questions concerning this matter, please contact me at (316) 364-8831, extension 4034, or Mr. Michael J. Angus, at extension 4077.

Very truly yours,

Richard A. Muench

RAM/jad

Attachments:
I - Safety Evaluation
II - No Significant Hazards Consideration Determination
III - Environmental Impact Determination
IV - Proposed Current Technical Specification Change
V - Proposed Improved Technical Specification Change

cc: V. L. Cooper (KDHE), w/a
W. D. Johnson (NRC), w/a
E. W. Merschoff (NRC), w/a
J. F. Ringwald (NRC), w/a
K. M. Thomas (NRC), w/a

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Richard A. Muench, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the content thereof; that he has executed that same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By RA Muench
Richard A. Muench
Vice President
Engineering

SUBSCRIBED and sworn to before me this 4th day of February, 1998

Julie A. Dale
Notary Public

JULIE A. DALE
Notary Public - State of Kansas
My Appt. Expires 10/20/98

Expiration Date 10/20/98

ATTACHMENT I

SAFETY EVALUATION

Safety Evaluation

Proposed Changes

This license amendment request proposes to revise Wolf Creek Generating Station (WCGS) Technical Specification 3.3, Engineered Safety Features Actuation System (ESFAS) Functional Unit 6.f, Loss of Offsite Power-Start Turbine-Driven Pump, in Tables 3.3-3, 3.3-4, and 4.3-2 to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the turbine-driven auxiliary feedwater pump upon loss of offsite power.

Additionally, this request proposes to revise Engineered Safety Features Actuation System (ESFAS) Functional Unit 8.a, 4 kV Undervoltage - Loss of Voltage and 8.b, 4 kV Undervoltage - Grid Degraded Voltage, in Technical Specification Table 4.3-2 to add a table notation to clarify that the testing of the time delay relays is performed as part of the CHANNEL CALIBRATION.

Background

Loss of Offsite Power Instrumentation and Load Shedder and Emergency Load Sequencer

The emergency diesel generators (EDGs) provide a source of emergency power when offsite power is either unavailable or is insufficiently stable to allow safe unit operation. If a loss of voltage or degraded voltage condition occurs at the 4.16 kV Engineered Safety Features (ESF) buses, undervoltage protection will:

a) Trip the 4.16 kV preferred normal and alternate bus feeder breakers to remove the deficient power source to protect the Class 1E equipment from damage;

b) Shed all loads from the bus except the Class 1E 480 Vac load centers and centrifugal charging pumps to prepare the buses for re-energization by the load shedder and emergency load sequencer (LSELS); and

c) Generate a EDG start signal.

There are two sets of undervoltage protection circuits, one for each 4.16 kV Class 1E system (NB) bus. Each set consists of a loss of voltage and degraded voltage function. Four potential transformers on each bus provide the necessary input voltages to the protective devices used to perform these functions. The undervoltage protection circuits are described in the Updated Safety Analysis Report (USAR) Section 8.3.1.1.3.

Four undervoltage relays with an associated time delay are provided for each 4.16kV Class 1E system bus for detecting a loss of bus voltage. The outputs are combined in a two-out-of-four logic to generate an undervoltage signal if the voltage is below approximately 70%. A brief time delay is employed to prevent false trips arising from transient undervoltage conditions.

Four degraded voltage bistables with associated time delays are provided for each 4.16 kV Class 1E system bus for detecting a sustained degraded voltage condition. The four bistable outputs are combined in a two-out-of-four logic to generate a degraded voltage signal if the voltage is below approximately 90% for a predetermined time.

Balance of Plant (BOP) ESFAS

The BOP ESFAS processes signals from the Solid State Protection System (SSPS), signal processing equipment, and plant radiation monitors to actuate certain ESF equipment. There are two redundant trains of Balance of Plant (BOP) ESFAS. The redundant trains provide actuation for the motor-driven auxiliary feedwater pumps (and repositions automatic valves as required, i.e., steam generator blowdown and sample line isolation valves, Essential Service Water (ESW) supply valves, Condensate Storage Tank (CST) supply valves), containment purge isolation, control room emergency ventilation, and emergency exhaust actuation functions. A third separation group is provided to actuate the turbine-driven auxiliary feedwater (TDAFW)pump and reposition automatic valves (turbine steam supply valves, turbine trip and throttle valve, ESW supply valves, CST supply valve) as required.

Turbine-Driven Auxiliary Feedwater Pump Start on Loss of Offsite Power

A loss of offsite power (LOP) is indicated by the undervoltage relays detecting a loss of voltage on each ESF bus, as discussed above. Upon satisfying the two-out-of-four loss of voltage logic in the LSELS cabinets, LSELS output relays feed the redundant separation groups 1 and 4 BOP-ESFAS cabinets as shown in Figure 1. The separation groups 1 and 4 BOP-ESFAS cabinets perform several functions, as discussed above, but on a LOP signal these cabinets perform only two functions, i.e., the steam generator blowdown and sample lines are isolated and electrically isolated outputs are provided to the separation group 2 BOP-ESFAS cabinet. The separation group 2 BOP-ESFAS cabinet is only associated with the TDAFW pump and is considered to be part of that end device, i.e., the TDAFW pump, in the Technical Specifications. On a LOP signal, the turbine steam supply valves (ABHV0005 and ABHV0006) and the turbine trip and throttle valve (FCHV0312) are opened for the start of the TDAFW pump.

Evaluation

Table 3.3-3

Table 3.3-3 is revised to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the TDAFW pump upon loss of offsite power. This separation is required to correct the present inconsistency between the operability requirements imposed in Table 3.3-3, written only for the digital circuitry, and the surveillance requirements imposed in Table 4.3-2 which have meaning only for the analog circuitry.

The analog portion, labeled new Functional Unit 6.f.1), consists of the same 4kV bus (NB01 and NB02) undervoltage relays specified in Functional Unit 8.a; however, differing MODE Applicabilities require a separate line item be added to Table 3.3-3. The ACTION Statement for new Functional Unit 6.f.1) is the same as that for Functional Unit 8.a (i.e., ACTION 19) and the same 3.0.4 exception footnote is applied. The current ACTION Statement 22 for Functional Unit 6.f, with its 48 hour allowed outage time (AOT), and the currently specified Total Number of Channels (2), Channels to Trip (1), and Minimum Channels OPERABLE (2) do not apply to the analog portion with its four channels in a two-out-of-four logic, for which continued operation should be allowed with an inoperable channel as long as it is tripped within 1 hour.

The digital portion, labeled new Functional Unit 6.f.2), consists of the output relays from the load shedder and emergency load sequencer (LSELS) cabinets and that portion of the BOP-ESFAS separation group 1,2 and 4

circuitry associated with the start of the TDAFW pump upon a loss of offsite power. A new ACTION Statement 30 has been added which recognizes that this digital circuitry is only associated with the TDAFW pump. As such, the inoperablity of one logic train would be given a 48 hour AOT after which the TDAFW pump would be declared inoperable and ACTION would be taken as required by Technical Specification 3.7.1.2. The 48 hour AOT is a reasonable restoration time considering the nature of this Functional Unit and the available redundancy. The 48 hour AOT is also consistent with that allowed by the current ACTION Statement 22 for Functional Unit 6.f, as well as the AOT allowed by ACTION Statements for other automatically initiated functions (e.g., ACTION Statement 5.a for Reactor Trip System Functional Unit 6.b and ACTION Statement 26 for ESFAS Functional Unit 9). If both logic trains were inoperable, new ACTION Statement 30 would require that the TDAFW pump be immediately declared inoperable. There would be no requirement to enter Specification 3.0.3 for loss of both logic trains since the only affected end device is the TDAFW pump and ACTIONS already exist under Specification 3.7.1.2 to address TDAFW pump inoperability. Similar approaches addressing end device OPERABILITY are also used for ESFAS Functional Units 3.c (ACTION Statement 17), 6.a (ACTION Statement 24), and 10 (ACTION Statement 25).

Table 3.3-4

Table 3.3-4 is revised to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the TDAFW pump upon a loss of offsite power. This is necessary since the current "N.A." setpoint listings apply only to the digital portion. The analog portion has a Trip Setpoint and Allowable Value as specified under Functional Unit 8.a.

Table 4.3-2, Functional Unit 6.f

Table 4.3-2 is revised to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the TDAFW pump upon a loss of offsite power. This is necessary since only the analog portion of this function is subject to a CHANNEL CALIBRATION and a monthly Trip Actuating Device Operational Test (TADOT) can reasonably be performed only on the analog portion, since the performance of a TADOT on the digital portion at power is not possible without the use of jumpers and lifted leads. It is proposed that the digital portion only be tested during refueling outages, similar to Functional Unit 6.g, while noting that all the BOP-ESFAS actuation logic is tested monthly under Functional Unit 6.c.

Table 4.3-2, Functional Unit 8

Table 4.3-2, Functional Unit 8.a, 4 kV Undervoltage - Loss of Voltage and 8.b, 4 kV undervoltage - Grid Degraded Voltage, is revised to add a table notation to clarify that the testing of the time delay relays is performed as part of the CHANNEL CALIBRATION.

Table 3.3-4, Functional Units 8.a (4kV Undervoltage - Loss of Voltage) and 8.b (4kV Undervoltage - Grid Degraded Voltage) specify voltage trip setpoints and the associated time delays with tolerances for the relays. Testing of the time delays relays has been performed as part of the 18 month CHANNEL CALIBRATION. The calculated tolerances for the time delay setpoints have been evaluated to insure that safety-related systems, subsystems and components would not be adversely affected by drift within the permissible tolerance band. A review of data obtained from past surveillance testing identified that the time delay relays have remained within the technical specification tolerances. The monthly TADOT is a measurement of the voltage setpoint.

Conclusion

Based on the above discussions and the No Significant Hazards Consideration Determination presented in Attachment II, the proposed changes do not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Updated Safety Analysis Report; or create a possibility for an accident or malfunction of a different type than any previously evaluated in the safety analyses report; or reduce the margin of safety as defined in the basis for any technical specification. Therefore, the proposed changes do not adversely affect or endanger the health or safety of the general public or involve a significant safety hazard.

Auxiliary Feedwater Turbine Loss-of-Power Actuation Logic

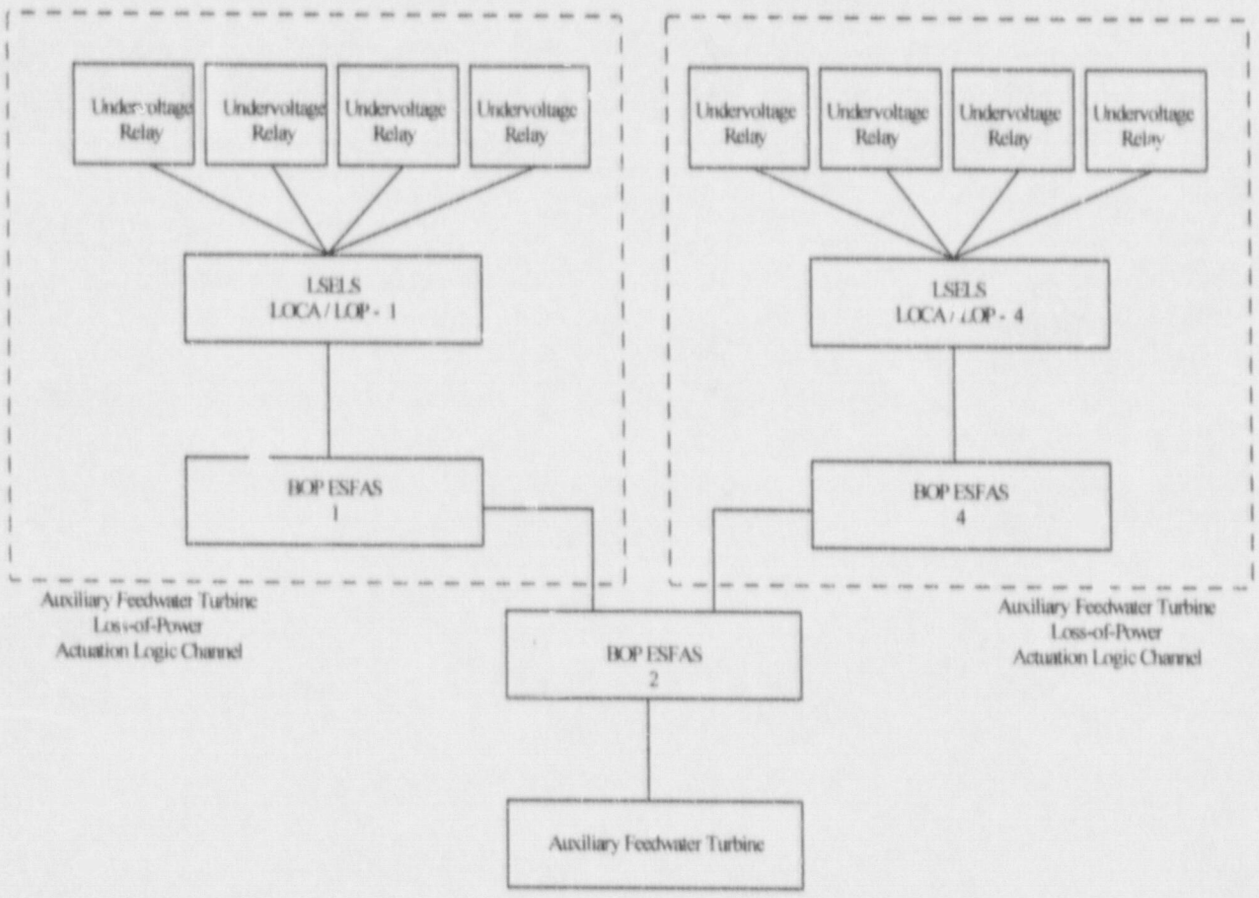

Figure 1

ATTACHMENT II

SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

No Significant Hazards Consideration Determination

Proposed Changes

This license amendment request proposes to revise Wolf Creek Generating Station (WCGS) Technical Specification 3.3, Engineered Safety Features Actuation System (ESFAS) Functional Unit 6.f, Loss of Offsite Power-Start Turbine-Driven Pump, in Tables 3.3-3, 3.3-4, and 4.3-2 to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the turbine-driven auxiliary feedwater pump upon loss of offsite power.

Additionally, this request proposes to revise Engineered Safety Features Actuation System (ESFAS) Functional Unit 8.a, 4 kV Undervoltage - Loss of Voltage and 8.b, 4 kV Undervoltage - Grid Degraded Voltage, in Technical Specification Table 4.3-2 to add a table notation to clarify that the testing of the time delay relays is performed as part of the CHANNEL CALIBRATION.

Application of Standards

The following Standards identified in 10 CFR 50.92 have been used to determine whether the proposed changes involve a Significant Hazards Consideration. Each of the identified proposed changes is evaluated against the three Standards.

Standard I - Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated

Overall protection system performance will remain within the bounds of the previously performed accident analyses since no hardware changes are proposed. The recognition that different OPERABILITY and surveillance requirements apply to analog vs. digital circuitry does not impact any previously analyzed accidents. The clarification that testing of the time delay relays is performed as part of the CHANNEL CALIBRATION does not impact any previously analyzed events. The proposed change will not affect any of the analysis assumptions for any of the accidents previously evaluated. The proposed change does not alter the current method or procedures for meeting the surveillance requirements in Table 4.3-2. The proposed change will not affect the probability of any event initiators nor will the proposed change affect the ability of any safety-related equipment to perform its intended function. There will be no degradation in the performance of nor an increase in the number of challenges imposed on safety-related equipment assumed to function during an accident situation. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Standard II - Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated

There are no hardware changes nor are there any changes in the method by which any safety-related plant system performs its safety function. The separation of analog and digital portions of Functional Unit 6.f or the clarification of testing of the time delay relays will not impact the normal method of plant operation.

The OPERABILITY requirements, ACTION Statement, and surveillance requirements for the analog portion, new Functional Unit 6.f.1), are identical to those of Functional Unit 8.a, while the requirements for the digital portion, new Functional Unit 6.f.2), are consistent with the current technical specifications, other than the new ACTION Statement 30 provisions that defer to the TDAFW pump Specification 3.7.1.2 requirements and the performance of a

TADOT during appropriate plant conditions. These changes do not change any ESFAS design standard and are appropriate for digital functions such as this.

Testing of the time delays relays has been performed as part of the 18 month CHANNEL CALIBRATION. The tolerances for the time delay relays are sufficient to account for relay drift encountered during the 18 month surveillance testing. The calculated tolerances for the time delay setpoints have been evaluated to insure that safety-related systems, subsystems and components would not be adversely affect by drift within the permissible tolerance band.

No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced as a result of this change. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

Standard III - Involve a Significant Reduction in the Margin of Safety

The proposed change does not affect the acceptance criteria for any analyzed event. There will be no effect on the manner in which safety limits or limiting safety system settings are determined nor will there be any effect on those plant systems necessary to assure the accomplishment of protection functions. There will be no impact on any margin of safety.

Conclusions

Based on the above discussions, it has been determined that the requested technical specification revisions do not involve a significant increase in the probability of consequences of an accident or other adverse conditions over previous evaluations; or create the possibility of a new or different kind of accident or condition over previous evaluations; or involve a significant reduction in a margin of safety. Therefore, the requested license amendment does not involve a significant hazards consideration.

ATTACHMENT III

ENVIRONMENTAL IMPACT DETERMINATION

Environmental Impact Determination

This license amendment request proposes to revise Wolf Creek Generating Station (WCGS) Technical Specification 3.3, Engineered Safety Features Actuation System (ESFAS) Functional Unit 6.f, Loss of Offsite Power-Start Turbine-Driven Pump, in Tables 3.3-3, 3.3-4, and 4.3-2 to create separate Functional Units for the analog and digital portions of the ESFAS function associated with starting the turbine-driven auxiliary feedwater pump upon loss of offsite power.

Additionally, this request proposes to revise Engineered Safety Features Actuation System (ESFAS) Functional Unit 8.a, 4 kV Undervoltage - Loss of Voltage and 8.b, 4 kV Undervoltage - Grid Degraded Voltage, in Technical Specification Table 4.3-2 to add a table notation to clarify that the testing of the time delay relays is performed as part of the CHANNEL CALIBRATION.

10 CFR 51.22(b) specifies the criteria for categorical exclusions from the requirement for a specific environmental assessment per 10 CFR 51.21. This amendment request meets the criteria specified in 10 CFR 51.22(c)(9) as specified below:

(i) the amendment involves no significant hazards consideration

As demonstrated in Attachment II, the proposed changes do not involve any significant hazards consideration.

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite

None of the proposed changes involves a change to the facility or operating procedures that would cause an increase in the amounts of effluents or create new types of effluents.

(iii) there is no significant increase in individual or cumulative occupational radiation exposure

The proposed changes relate to differentiating between the analog and digital portions of the ESFAS function associated with starting the turbine-driven auxiliary feedwater pump. These changes have no relation to occupational radiation exposure, either individual or cumulative.

Based on the above, it is concluded that there will be no impact on the environment resulting from this change and the change meets the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.21 relative to requiring a specific environmental assessment by the Commission.