WOLF CREEK
NUCLEAR OPERATING CORPORATION

Cleveland Reasoner
Site Vice President

October 13, 2014
WO 14-0082

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Docket No. 50-482: Request for Notice of Enforcement Discretion for Technical Specification 3.8.1, "AC Sources – Operating"

Gentlemen:

This letter confirms the results of the teleconference that was conducted between Wolf Creek Nuclear Operating Corporation (WCNOC) and Nuclear Regulatory Commission (NRC) Staff representatives at 0800 hours Central Daylight Time (CDT) on October 9, 2014 in which WCNOC requested the NRC to exercise enforcement discretion for the Wolf Creek Generating Station (WCGS), regarding the requirements of Technical Specification (TS) 3.8.1, "AC Sources – Operating." With the plant operating in MODE 1 at 100% Rated Thermal Power, the request was made in order to provide additional time to complete post maintenance testing of the 'B' diesel generator (DG) before a plant shutdown would have otherwise been required.

The events leading to WCNOC's request began during the performance of the 24 hour endurance and margin test (Surveillance Requirement 3.8.1.14) on October 6, 2014. The 'B' DG was started at 1010 hours and fully loaded at 1041 hours. At 1326 hours on October 6, 2014 the 'B' DG was declared inoperable when a fire was observed in the NE106 control cabinet. During troubleshooting and problem resolution efforts, it was determined that the power potential transformer in the NE106 control cabinet had failed. The necessary repairs on the 'B' DG have been completed and post maintenance testing required to declare the DG OPERABLE is in progress. Testing of the 'B' DG to establish OPERABILITY, will result in exceeding the 72 hour Completion Time of TS 3.8.1, Required Action B.4.1.

Enforcement discretion was sought to permit noncompliance with TS 3.8.1, i.e., allow additional time to complete post maintenance testing of the 'B' DG before a plant shutdown was required. An additional 8 hours was requested to restore the 'B' DG to OPERABLE status such that the Completion Time of Required Action B.4.1 would expire at 2126 hours CDT on October 9, 2014.

ADD1
NRR

The incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (ICLERP) was quantified for the requested additional time for restoring the 'B' DG. The results of the quantification are within the guidance threshold in NRC Inspection Manual Chapter 0410, "Notices of Enforcement Discretion." It has been determined that there is no net increase in radiological risk.

At 1015 hours on October 9, 2014, Mr. Troy Pruett, Director Division of Reactor Projects (Acting), notified WCNOC that after NRC Region IV Office consideration of WCNOC's verbal request for enforcement discretion, and in consultation with the NRR technical staff, the request for a Notice of Enforcement Discretion (NOED) was approved. The approval was effective and would begin at 1326 hours on October 9, 2014, for an additional 8 hours. WCNOC is required to submit a written request for the NOED within 2 working days of the NRC verbal approval.

At 1717 hours on October 9, 2014, the 'B' DG was restored to OPERABLE status after satisfactory completion of the endurance and margin test. The 'B' DG was restored to OPERABLE status prior to the expiration of Condition H (be in MODE 3 in 6 hours) of TS 3.8.1.

The Attachment provides the information documenting WCNOC's earlier verbal request for the NOED. If you should have any questions regarding this submittal, please contact me at (620) 364-4171, or Mr. Steven R. Koenig at (620) 364-4041.

Sincerely,

Cleveland Reasoner

COR/rlt
Attachment

cc: M. L. Dapas (NRC), w/a
C. F. Lyon (NRC), w/a
N. F. O'Keefe (NRC), w/a
Senior Resident Inspector (NRC), w/a

Request for Notice of Enforcement Discretion (NOED) Regarding Technical Specification 3.8.1, "AC Sources – Operating"

a. The type of NOED being requested.

A regular NOED to avoid an unnecessary transient as a result of compliance with the Technical Specifications is being requested since compliance with the Technical Specifications (TSs) would involve an unnecessary shutdown of the unit without a corresponding health and safety benefit.

b. The Technical Specification (TS) or other license conditions that will be violated.

Required Action B.4.1 of Technical Specification (TS) 3.8.1 was entered when the 'B' diesel generator (DG) was declared inoperable on October 6, 2014, at 1326 hours Central Daylight Time (CDT), when a fire was observed in the NE106 control cabinet in the 'B' DG room. The 72 hour Completion Time for this Required Action requires the inoperable DG to be restored to OPERABLE status by 1326 hours on October 9, 2014 before entering Condition H of TS 3.8.1. This Condition requires a plant shutdown such that MODE 3 must be entered within 6 hours (per Required Action H.1) and MODE 5 must be entered within 36 hours (per Required Action H.2).

c. The circumstances surrounding the situation: including likely causes; the need for prompt action; action taken in attempt to avoid the need for an NOED; and identification of any relevant historical events.

The events leading to the Wolf Creek Nuclear Operating Corporation (WCNOC) request for enforcement discretion began during the performance of procedure STS KJ-011B, "EDG NE02 24 Hour Run," on October 6, 2014. The performance of this procedure satisfies the following TS surveillance requirements (SRs): SR 3.8.1.2, SR 3.8.1.3, SR 3.8.1.14, SR 3.8.2.1, SR 3.8.3.2 and SR 3.8.3.4. Additionally, the procedure was being performed to satisfy TS 5.5.8, "Inservice Testing Program," requirements for select DG support components.

The 'B' DG was started at 1010 hours and fully loaded at 1041 hours. At 1326 hours on October 6, 2014 personnel in the 'B' DG room heard a 'bang' and observed smoke and small flames coming from the NE106 control cabinet. Figure 1 provides a view of the NE106 control cabinet. A generator differential trip occurred on the 'B' DG resulting in the shutdown of the DG. The 'B' DG was declared inoperable at 1326 hours on October 6, 2014. During troubleshooting and problem resolution efforts, it was determined that the power potential transformer in the NE106 control cabinet had failed.

Figure 1

Likely Cause

During troubleshooting and problem resolution efforts, it was determined that the most likely cause of the failed power potential transformer in the NE106 control cabinet was the result of a failure of the power current transformers power rectifier bridge. When the power rectifier bridge failed, power from power current transformers to the field was lost. As a result, the voltage regulator attempted to maintain the field current using only the power potential transformer. As the power potential transformer are not rated to sustain full field current, the transformers were overloaded resulting in excess temperature leading to failure. The cause of the power rectifier bridge failure is under investigation.

Identification of any Relevant Historical Events

1985 IE Information Notices

A search of IE Information Notices around the 1985 time period was performed and identified the below Notices that related to DG operating experience. A review of the Notices and the evaluations of the Notices determined that these Notices had been adequately evaluated previously and were not applicable to the October 6, 2014 event.

IE Information Notice No. 85-28, "Partial Loss of AC Power and Diesel Generator Degradation"

IE Information Notice No. 85-32: "Recent Engine Failure of Emergency Diesel Generators"
IE Information Notice No. 85-68: "Diesel Generator Failure at Calvert Cliffs Nuclear Station Unit 1"
IE Information Notice No. 85-73: "Emergency Diesel Generator Control Circuit Logic Design Error"
IE Information Notice No. 85-82: "Diesel Generator Differential Protection Relay Not Seismically Qualified"

Incident Investigation Team (IIT) Report 94-05

The events on September 30, 1994 and October 11, 1994 led to the subsequent issuance of NRC Information Notice 96-23, "Fires in Emergency Diesel Generator Exciters During Operation Following Undetected Fuse Blowing." On September 30, 1994, the 'A' Emergency Diesel Generator (EDG) Power Potential Transformer caught fire while performing a maintenance run in accordance with procedure MGM KJ-006, "Maintenance Run of the Standby Emergency Diesel Generator Engines." Initial evaluation determined the cause to be a component failure of the Power Potential Transformer ('B' phase to ground fault) which resulted in the transformer fire and fuse failure. The transformer, cables and fuse were replaced, and the maintenance runs were completed. Procedure STS MT-016, "Standby Diesel Generator Inspection," was performed which includes final inspection of the engine, generator, voltage regulator, and ancillary equipment.

On October 11, 1994, the 'B' EDG Power Potential Transformer caught fire while completing final inspections in accordance with STS MT-016. The maintenance runs, performed under MGM KJ-006, were complete. The two events are very similar in the transformer caught on fire and secondary fuse was found to be open. An investigation into both events was performed. The investigation determined that preceding both transformer fires an abnormal engine shutdown occurred which resulted in the engine being shut down without de-energizing the excitation to the field. A shutdown without de-energizing the field will result in the demand for maximum excitation from the potential source which opens one secondary fuse. During the next high power operation of the diesel, the unbalanced current through the transformer windings results in an overload condition and will overheat the transformer.

The initiating events, which resulted in the abnormal shutdown, were different for each diesel generator. On the 'A' EDG, the time delay portion of an Agastat relay did not work as designed. As a result the diesel was shutdown locally (at the fuel racks) which left the exciter demanding high current and resulted in an open fuse. On the 'B' EDG, three scenarios were postulated that could cause the event. The three scenarios involve a mechanical shutdown of the diesel without an electrical signal to de-energize the exciter.

The events from 1994 were determined to be caused by different initiating events than the failure on October 6, 2014.

Condition Report 85125, "Burnt Electrical Smell from NE106"

On June 11, 2014 during performance of procedure SYS KJ-124, "Post Maintenance Run of Emergency Diesel Generator B," a burning electrical smell was coming from the NE106 control cabinet in the 'B' DG room. Small amounts of smoke could be seen coming from the three transformers at the bottom right side of the NE106 control cabinet.

It was determined that the smell and vapors were caused by the evaporation of shrink tubing plasticizer on the transformers terminals. The most probable cause of this was due to material age. To address the issue, the transformer was scheduled to be replaced at the next available opportunity. The transformer was still capable of performing its design function as expected by successfully performing subsequent monthly surveillances to satisfy Surveillance Requirement (SR) 3.8.1.2 and 3.8.1.3. The June 11, 2014 event is different and isolated from the October 6, 2014 event primarily because the smell on June 11, 2014 was from evaporating plasticizer while the event on October 6, 2014 was an apparent electrical failure of the transformer. Additionally, during post event inspection of the power potential transformer failure, the terminals in question were found to be undisturbed, other than the obvious scorching from the fire.

Action Taken in Attempt to Avoid the Need for an NOED

Upon declaring the 'B' DG inoperable, emergent work was declared requiring continuous coverage for diagnosis and repair. An evidence and action (E&A) matrix was prepared in order to aid diagnosis and repair of the 'B' DG, while field efforts were made to perform cleaning and general area inspections for the extent of damage due to the fire.

The affected 'B' DG components were replaced, when possible, with available spares. The power potential transformer and the damaged cables were replaced, along with the power potential transformer fuse blown detection transformers.

A spare transfer switch was available but was not a like for like replacement. A complete set of diodes were not available to repair the power rectifier bridge. To address the transfer switch and power rectifier bridge, a temporary modification was installed to lift leads and remove the failed power rectifier bridge from service. The redundant power rectifier bridge was placed in-service.

The in-service power amplifier was subjected to sufficient currents to damage the power potential transformer. Although the in-service power amplifier was not believed to be damaged, it was decided to use the redundant power amplifier until such time the in-service power amplifier could be thoroughly tested.

To ensure there was no additional failures or damage caused by the power rectifier bridge and the power potential transformer, testing and/or inspection was performed on the following components: Voltage regulator power transformers, voltage regulator logic cards, power current transformers, power current transformers and power potential transformer primary fuses, power amplifier fuses, generator field, and generator stator.

Post maintenance testing to restore the 'B' DG to OPERABLE status includes:

Post maintenance run/full load rejection test
24 hour endurance and margin test (SR 3.8.1.14)

The last NOED request was initiated on October 18, 2013. This NOED requested additional time to repair and test the 'A' Class 1E electrical equipment (A/C) unit (SGK05A) before a shutdown from MODE 3 to MODE 5 would have otherwise been required.

d. Information to show that the cause of the situation that led to the NOED request is fully understood.

An investigation was performed to determine the logic sequence within the DG control system that lead to the automatic trip of the 'B' DG. Analysis of the computer point data, local control panel conditions, and personnel interviews determined the DG tripped and locked out due to generator output phase differential.

An evidence and action (E&A) matrix was prepared in order to aid diagnosis and repair of the 'B' DG, while field efforts were made to perform cleaning and general area inspections for the extent of damage due to the fire.

Based on the E&A matrix, inspection and testing commenced. Aside from the obvious damage to the power potential transformer, the nearby electrical cables were also damaged. The most significant finding of the testing was that the in-service power rectifier bridge had also failed. In addition, the transfer switch between each power rectifier bridge was also not functioning properly.

An industry expert in excitation systems was contacted for useful insight into the issues identified in the testing and inspections. The feedback received identified that the design of the WNR 800 static excitation system, and the failures identified, leads to a conclusion that the power rectifier bridge was the likely initiating failure. Figure 2 below provides the circuitry associated with the WNR 800 static excitation system.

When the power rectifier bridge failed, power from the power current transformers to the field was lost. As a result the voltage regulator attempted to maintain the field current using only the power potential transformer. As the power potential transformer is not rated to sustain full field current the transformers were overloaded resulting in excess temperature leading to thermal failure.

The electrical failure of the power potential transformer would have been abrupt. This generally implies the power potential transformer electrical failure would be coincident with the DG generator differential trip. One of the three phases on the power potential transformer had substantial damage implying a large phase differential, from the arc, would have occurred and only on one phase.

The failure of the power current transformer power rectifier bridge would not be immediately apparent as the voltage regulator would compensate with the power potential transformer. The power potential transformer being overloaded would have taken some period of time to increase in temperature to the point the insulation would fail.

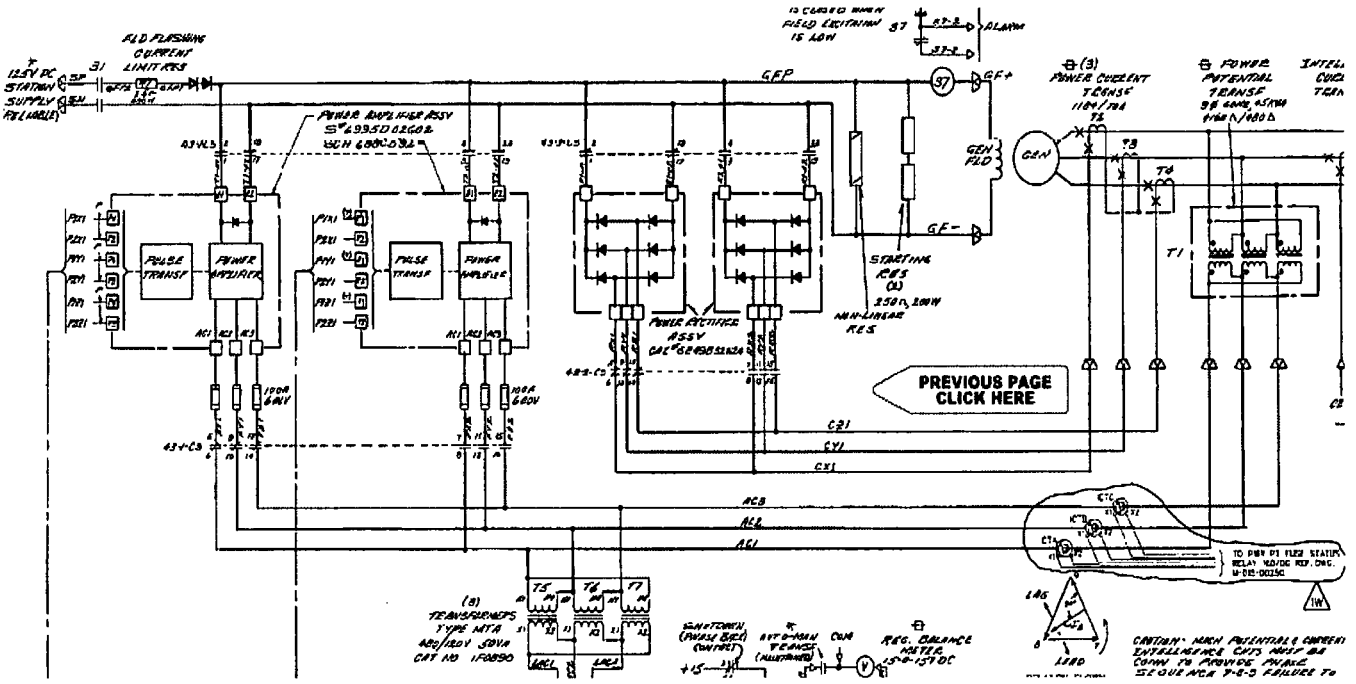


Figure 2

e. Information on the proposed course of action to resolve the situation, such that there is a high likelihood that planned actions can be completed within the proposed NOED time frame.

The necessary repairs on the 'B' DG have been completed and post maintenance testing required to declare the DG OPERABLE is in progress. Steps to return the 'B' DG to OPERABLE status include the following post maintenance testing:

	DATE	PROJECTED COMPLETION
Post maintenance run/full load rejection test	10/8/14	1600
(Note – full load rejection test was completed satisfactorily at approximately 1430)		
24 hour endurance and margin test (SR 3.8.1.14)	10/9/14	1800
(Note – the 'B' DG was restored to OPERABLE status at 1717 on October 9, 2014)		

f. Information to show that the resolution of the situation will not result in a different, unnecessary transient.

The planned resolution is to restore the 'B' DG to OPERABLE status. Both offsite circuits and the 'A' DG remain OPERABLE. Repairs to the 'B' DG power potential transformer and associated equipment and restoration of the DG will not result in a different unnecessary transient as the DG is not an initiator of any event. Testing performed to restore the 'B' DG to OPERABLE is consistent with the TS surveillance requirements. None of these activities are expected to result in a different, unnecessary transient during the requested period of enforcement discretion.

g. Explain why there was not time to process an emergency license amendment, or that a license amendment is not needed.

The 72 hour Completion Time of Required Action B.4.1 in conjunction with when it was determined to pursue the requested NOED did not provide sufficient duration to pursue or process an emergency license amendment. Further, the proposed extension of the Completion Time is for a one-time extension and is not intended to be a permanent relaxation of the Completion Time.

h. The condition and operational status of the plant (including safety related equipment out of service or otherwise inoperable).

Currently the plant is operating in MODE 1 with no safety related equipment out of service other than the 'B' DG. The current Plant Awareness Level is 2 due to the 'B' DG being inoperable. Plant Awareness Level identifies the risk of performing work activities, by considering core damage frequency and commercially significant equipment. Plant Awareness Level 2 refers to medium core damage frequency of shorter LCO durations.

i. The justification for the duration of the non-compliance.

This request is for an additional 8 hours from entry in Condition H of TS 3.8.1 to occur on October 9, 2014 at 1326 hours (i.e., initiation of a plant shutdown per Required Action H.1 would occur at 2126 hours). This duration is based on the additional time necessary to complete the required post-maintenance testing for restoring the 'B' DG to OPERABLE status. The 24 hour endurance and margin test (SR 3.8.1.14) was started on October 8, 2014 at 1603 hours and should be completed on October 9, 2014 at approximately 1800 hours.

j. Detail and explain compensatory actions that have been taken and will be taken to reduce the risk associated with the specified configuration.

Qualitative risk insight indicates that compensatory measures to limit the possibility of experiencing a Station Blackout Event (SBO) have significant impact on the risk to the plant. Compensatory measures are:

- Ensure no planned switchyard work is allowed. This includes XMR01, No. 4, 5, and 7 transformers,
- Enhanced operator sensitivity to safety bus electrical power supply issues to recognize and respond expeditiously to a SBO or loss of offsite power event,
- Control Room staff briefing to review the important risk significant manual actions, and
- Avoidance of testing and maintenance impacting availability of the 'A' train safety bus, including but not limited to, the Essential Service Water (ESW), Motor Driven Auxiliary Feedwater Pump (MDAFP), Turbine Driven Auxiliary Feedwater Pump (TDAFP), Component Cooling Water (CCW), Residual Heat Removal (RHR), Air Conditioning Units, and the 125 Volt DC System (NK) Batteries and the associated DG to maximize the mitigative response to a SBO.

k. The status and potential challenges to off-site and on-site power sources.

The plant is operating, providing power to the offsite power grid with both offsite circuits OPERABLE and the 'A' DG OPERABLE. According to System Operations (Westar Energy Transmission Services), the transmission system is stable with no expected disturbances. Grid voltage is required to be maintained between 97% and 105% of nominal value. The voltage is at 101 % at 1000 hours on October 8, 2014 and is continually monitored by System Operations. WCNOC has an off normal procedure (OFN AF-025, "Unit Limitations," Attachment E) should the voltage deviate from the required band. There is no scheduled work to be done on equipment that could challenge offsite power availability.

TS SR 3.8.1.2 was performed on the 'A' DG on October 6, 2014 in accordance with TS 3.8.1 Required Action B.3.2 to provide assurance of continued OPERABILITY of the DG. Thermography was performed on the power potential transformer in the NE107 control cabinet with the 'A' DG at full load. The thermography reading indicated a rise of only 8.5 degrees Celsius above ambient temperature and the power potential transformer is rated for a temperature rise of 115 degrees Celsius.

l. The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action.

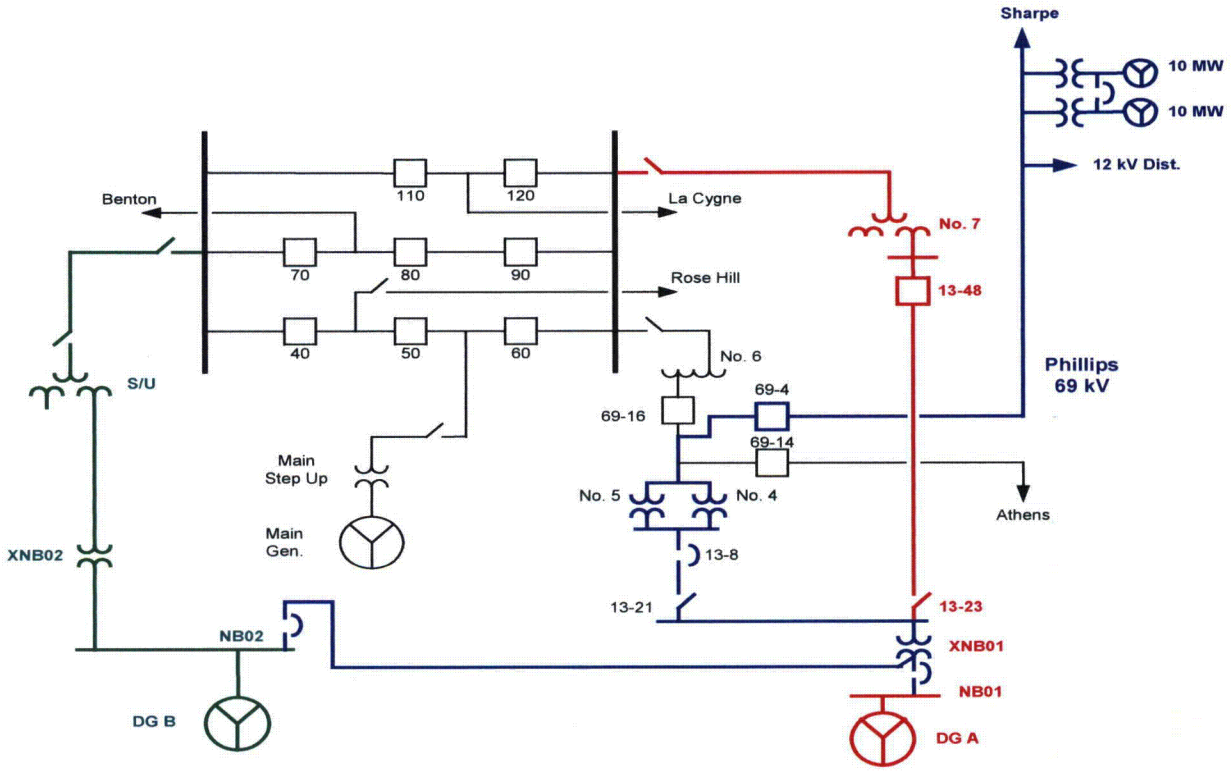
Description of Class 1E Power System at Wolf Creek Generating Station (WCGS)

The onsite power system is generally divided into two load groups. Each load group consists of an arrangement of buses, transformers, switching equipment, and loads fed from a common power supply. Power is supplied to loads at 13.8 kV, 4.16 kV, 480 V, 480/277 V, 208/120 V, 120 VAC, 250 VDC, and 125 VDC. The Class 1E AC system loads are accordingly separated into two load groups, which, as noted above, are powered from separate engineered safety feature (ESF) transformers. Each load group has power distributed by a 4.16-kV bus (NB01 or NB02), 480-V load centers, and 480-V motor control centers. Each load group is independently capable of safely bringing the plant to a cold shutdown condition, as the Class 1E electrical power distribution system is designed to satisfy the single-failure criterion.

The onsite standby power system includes Class 1E AC and DC power supply capability for equipment used to achieve and maintain a cold shutdown of the plant and to mitigate the consequences of a design basis accident (DBA). With respect to Class 1E AC power, each of the two Class 1E load groups, at the 4.16-kV bus level, is capable of being powered from an independent diesel generator (one per load group) which functions to provide power in the event of a loss of the preferred power source. Undervoltage relays are provided for each 4.16-kV bus to detect an undervoltage condition. Upon recognition of a loss of voltage at the 4.16-kV buses, a logic signal generated by the load shedder and emergency load sequencer (LSELS) initiates a 1) trip of the 4.16-kV preferred normal and alternate bus feeder breakers, 2) shed of all loads from the bus except the Class 1E 480 Vac load centers and centrifugal charging pumps, and 3) an automatic DG start signal.

The standby power supply for each Class 1E load group consists of one DG complete with its accessories and fuel storage and transfer systems. The DG is capable of supplying essential loads necessary to reliably and safely shut down and isolate the reactor. Each DG is rated at 6,201 kW for continuous operation.

A simplified one-line diagram of the offsite power system and 4.16-kV buses is provided below. As can be seen from the figure, and as described above, each of the two 4.16-kV Class 1E buses is normally supplied by its preferred (offsite) power source (via its respective ESF transformer) and is capable of being exclusively supplied by its associated DG (as there is no automatic connection between the redundant load groups.)



The DG engine is a Colt Pielstick/Fairbanks Morse, V-14, turbocharged, four-stroke, diesel engine. Each engine operates at 514 rpm and develops 8600 BHP at full load using #2 diesel fuel.

The exciter system used on the DG is a Westinghouse WNR 800 static excitation system. It is a potential-current scalar addition system. The power potential transformer, along with the power current transformers, provides current to the generator field. The current from each of these transformers is added using a vector summing methodology. The power current transformers supply the field through a power rectifier bridge and are specifically sized to output less than the required field current at rated generator load. The power potential transformer is used by the voltage regulator to provide buck and boost control at load, as well maintain field excitation current in an unloaded state. The exciter system is equipped with two of each power rectifier bridges and power amplifiers. Transfer switches allow any one pair of them to be in-service at a given time.

ICCDP and ICLERP Determination

The Wolf Creek Generating Station (WCGS) zero maintenance Revision 7 Probabilistic Risk Assessment (PRA) model was used to quantify the impact on risk of extending the allowed outage time per this request. Core Damage Frequency (CDF), Large Early Release Frequency (LERF), Incremental Conditional Core Damage Probability (ICCDP), and Incremental Conditional Large Early Release Probability (ICLERP) factors are listed below.

The 'B' DG has been out of service for 72 hours for unplanned maintenance activities. This evaluation considers the risk impact of the keeping the 'B' DG out of service an additional 8 hours to complete surveillance testing.

Numerical results of two cases for the risk evaluation are provided below. The first is the Base Case. It uses the Zero Test and Maintenance model reflecting the current configuration of the plant. The second case added the non-functional 'B' DG (KKJ01B). Both cases are quantified at a truncation limit of 1E-12.

	CDF/yr	LERF/yr
Base CDF zero T&M, PAP01 OOS	2.29E-06	2.68E-07
Base with KKJ01B OOS	4.06E-06	2.73E-07

The ICCDP and ICLERP were calculated using Equations 1 and 2 below.

Equation 1: ICCDP = (ΔCDF) x Duration in years
Equation 2: ICLERP = (ΔLERF) x Duration in years

The Duration in years is defined as the additional time for the 'B' DG to be out of service beyond the 72 hours allowed by Technical Specification. This request is for an additional 8 hours. The ICCDP and ICLERP are calculated for 8 hours.

ICCDP = (4.06E-06 – 2.29E-06) * (8hrs ÷ 8760hrs/yr) = 1.62E-09
ICLERP = (2.73E-07 – 2.68E-07) * (8hrs ÷ 8760hrs/yr) = 4.57E-12

The ICCDP shown above fits into Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," as an activity that merits risk management considerations and activities. The calculated value for ICCDP and ICLERP meets the NRC Inspection Manual Chapter 0410-07, "Staff Evaluation," guidance threshold of less than or equal to 5.0E-07 ICCDP and 5E-08 ICLERP.

The calculated ICCDP and ICLERP values reported above do not account for various conservatisms in place including, but not limited to, the following:

- Reduction in risk by the avoidance of shutting down the plant with only one available DG and
- Enhanced awareness of the operations staff for procedure SYS SY-120, "Sharpe Station Diesel Operation and Alignment to Site."

Numerical risk reductions for avoidance of Transition and Shutdown Risk are not included in the above results. WCNOC developed a Shutdown PRA in 1999. It utilized the same methodologies for fault tree development as the At-Power model. While it was not fully approved, insights from its use showed a notable risk increase transitioning in MODE 4 due to the defeat of automatic actuations for Safety Injection. This caused a higher reliance on the success of Operator Actions. By simple qualitative evaluation, the numerical insight was reasonable.

Dominant Risk Contributors

The following lists the top 5 initiating event contributors:

- Loss of Off-Site Power (LOOP) (37.9%)
- Steam Generator (SG) Tube Rupture (10.7%)
- Loss of 13.8KV Buss PA001 (8.6%)
- Transient With Steam Conversion (7.3%)
- Large Feedwater Line Break (5.7%)

LERF is dominated by Interfacing System LOCA (72.3% combined). The only other significant contribution to LERF comes from Steam Generator Tube Rupture (23.7%).

Dominant Operator Action Contributors

The top Operator Action contributors by Risk Achievement Worth (RAW) are as follows:

- Failure to start a standby Service Water Pump
- Failure to reopen manual isolation valve on SG atmospheric relief valve after surveillance testing (pre-initiator)
- Miscalibration of refueling water storage tank (RWST) Lo-Lo level bistables (pre-initiator)
- Failure to trip the reactor
- Failure to transfer from Service Water to ESW
- Failure of RCS cool down and depressurize

Seismic Event

Seismic considerations are treated as follows. The seismically induced LOOP is taken from Risk Assessment of Operational Events Volume 2 – External Events Revision 1.01 - January 2008.

Appendix A, "Frequencies of Seismically-Induced LOOP Events for SPAR Models," are:

3.29E-04 Seismic Initiating Event Frequency
5.70E-02 Conditional Loss of Offsite Power
1.87E-05 Seismic Induced Loss of Offsite Power

The relevant DG basic events are:

DGNE-----NE01-PR 5.161E-002	DIESEL GENERATOR NE01 FAILS TO RUN
DGNE-----NE01-PS 2.874E-003	DIESEL GENERATOR NE01 FAILS TO START
DGNE-----NE01-TM 7.768E-003	TRAIN A OF EMERGENCY DIESEL GENERATOR IN T&M
DGNE-----NE02-PR 5.161E-002	DIESEL GENERATOR NE02 FAILS TO RUN
DGNE-----NE02-PS 2.874E-003	DIESEL GENERATOR NE02 FAILS TO START
DGNE-----NE02-TM 5.801E-003	DG NE02 UNAVAILABLEDUE TO TEST OR MAINTENANCE.

MVAL--HV0030-ACC 1.555E-003	3	MOTOR OPERATED VALVE ALHV0030 FAILS TO OPEN
MVAL--HV0031-ACC 1.555E-003	3	MOTOR-OPERATED VALVE ALHV0031 FAILS TO OPEN
MVAL--HV0032-ACC 1.555E-003	3	MOTOR-OPERATED VALVE ALHV0032 FAILS TO OPEN
MVAL--HV0033-ACC 1.555E-003	3	MOTOR-OPERATED VALVE ALHV0033 FAILS TO OPEN
MVAL--HV0034-AOO 1.555E-003	3	MOTOR OPERATED VALVE ALHV0034 FAILS TO CLOSE
MVAL--HV0035-AOO 1.555E-003	3	MOTOR OPERATED VALVE ALHV0035 FAILS TO CLOSE
MVAL--HV0036-AOO 1.555E-003	3	MOTOR-OPERATED VALVE ALHV0036 FAILS TO CLOSE

By simple inspection, additional failures of DGs to run or the AFW (ALHV) valves to open, quickly takes the sequence below a value of 1.06E-08.

For example:

Seismic Induced Loss of Offsite Power	DGNE---NE01-PR	DGNE----NE02-PR	Core Damage Frequency / Rx-yr
1.87E-05*(8/8760)	5.16E-02	1.0 (not available)	8.81E-10

External Events

A review of the Fire Protection Impairment Control Permit log and of the Breach Authorization Permit log did not identify any additional challenges from fire or flood.

Control Room Fire

At the time of this request for enforcement discretion, the 'B' DG is running and available, and therefore capable of powering its emergency bus if required. Should a control room fire occur, operator actions are no different than if the DG were considered OPERABLE.

The concept of defense-in-depth is applied to the WCGS Fire Protection Program, including the control room, with the following three objectives:

1. Prevent fires from starting;
2. Detect rapidly, control, and extinguish promptly those fires that do occur; and,
3. Provide protection of structures, systems, and components (SSCs) important to safety so that a fire that is not promptly extinguished by fire suppression activities will not prevent safe shutdown of the plant.

Defense-in-depth fire protection features established for meeting the above objectives for the control room includes the following:

1. Fixed spot-type ionization smoke detectors are provided within the following control room cabinets:
   a. RL001 through RL028, Main Control Boards
   b. RP068, Balance of Plant Panel
   c. NF039A, Band C- Load shedder/sequencer
2. Halon 1301 system actuated by fixed spot-type ionization smoke detectors is provided inside the cable trenches beneath the control room floor.
3. Fixed spot-type ionization smoke detectors installed at the ceiling level throughout the control room.
4. Duct smoke detectors installed on the control room back panel area return ductwork.
5. Administrative controls minimize the introduction of transient combustibles in the control room.
6. Minimum 3-hour fire barriers separating the control room from other areas of the plant.
7. Except under strictly controlled conditions, hot work activities are not permitted in the control room during power operation.
8. Cables in the control room are limited to those that terminate in the control room for instrumentation and control circuits as well as lighting and other ancillary uses.
9. The carpet material used in the control room is 100 percent nylon and meets or exceeds the surface flammability requirements per ASTM E84 or CPSC Standard FF1-70, the static propensity rating per ASTM D2679 or AA TCC-134, smoke

development rating per ASTM E662," and the critical radiant flux rating per ASTM E-648 or NFPA 253.

10. The control room is continuously manned, allowing for quick response to any fire event in the control room.

Based on the above discussion the fire protection defense-in-depth features within the control room provide reasonable assurance that a severe fire that causes the evacuation of the control room is unlikely.

m. Demonstrate that the NOED condition, along with any compensatory measures, will not result in more than a minimal increase in radiological risk

The results meet the criteria of NRC Inspection Manual Chapter 0410, "Notices of Enforcement Discretion," for 8 hours. Continued operation of the plant during the period of enforcement discretion will not cause risk to exceed the level determined acceptable during normal work controls and therefore there is no net increase in radiological risk to the public. The risk metrics described by the NOED guidance are ICCDP less than or equal to 5.0E-07 and ICLERP less than or equal to 5.0E-08.

n. Discuss forecasted weather and pandemic conditions for the requested NOED period and any plant vulnerabilities related to weather or pandemic conditions.

There is no severe weather (i.e., severe thunderstorms or tornados) in the current 4-day forecast for Burlington, Ks (see National Weather Service forecast below). The National Weather Service defines a severe thunderstorm that produces a tornado, winds of at least 58 mph, and/or hail at least 1 inch in diameter.

Based on the forecasted weather, WCNOC does not expect any vulnerability related to the weather. There is no related pandemic to consider.

The National Weather Service forecast for the area as of October 7, 2014 at 1500 hours is:

- Wednesday – A 30 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. Southeast wind around 10 mph.
- Wednesday night – A 50 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. Southeast wind around 10 mph.
- Thursday – A 50 percent changes of showers and thunderstorms. Mostly cloudy, with a high near 79. South wind 5 to 10 mph becoming west in the afternoon.
- Thursday night – showers and thunderstorms likely. Cloudy, with a low around 55. Chance of precipitation is 70%.
- Friday – a chance of showers. Mostly cloudy, with a high near 61. Chance of precipitation is 50%.
- Friday night – A 30 percent chance of showers. Mostly cloudy, with a low around 48.

o. The basis for the conclusion that the noncompliance will not be of potential detriment to the public health and safety.

WCNOC has evaluated whether or not a significant hazards consideration is involved with the requested enforcement discretion by focusing on the three standards set forth in 10 CFR 50.92(c) as discussed below:

(i) Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change (i.e., one-time extension of the TS Completion Time) does not involve any change to the design, material, and construction standards applicable to the DG design (as the intent is to restore the machine to its intended design). No design changes or permanent modifications to the facility are involved, and therefore no new failure modes or potential accident initiators would be introduced. On this basis, the proposed change would not affect the probability of an event (accident/transient) previously evaluated.

In addition, the proposed change involves no changes to normal plant operating parameters or accident mitigation performance. The TSs already contain a provision that permits one DG to be inoperable for a limited period of time. This provision does not change the accident analysis assumptions regarding the assumed availability of at least one train of equipment for effecting plant shutdown and/or mitigating accidents evaluated per the safety analyses as presented and described in the Updated Safety Analysis Report (USAR). Although the change involves a temporary, one-time increase in the Completion Time for one DG being inoperable, the remaining DG remains OPERABLE, and risk-management measures will ensure that safety related equipment needed to effect plant shutdown and/or mitigate an accident remains available (in a protected status) to perform its required safety function(s). Additionally, it is expected that the 'B' DG will be running and available. The proposed change, therefore, does not affect the assumptions of the safety analysis regarding required or assumed accident mitigation functions and capability and, therefore, does not involve an increase in the consequences of any accident evaluated in the USAR.

Therefore, the proposed request does not involve a significant increase in the probability or consequences of an accident previously evaluated.

(ii) Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change does not result in changes in the manner in which the electrical distribution subsystems provide plant protection or the method by which safety related plant systems are required to perform their safety functions. The proposed change involves no changes to normal plant operation, nor would it cause the plant to be operated outside its normal or assumed bounds of operation. The one-time extension of the Completion Time does not change any existing accident scenarios, nor create any new or different accident scenarios. The proposed change is consistent with the safety analysis assumptions and current plant operating practice.

Therefore, the proposed request does not create a new or different kind of accident from any accident previously evaluated.

(iii) Does the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change does not affect the acceptance criteria for any analyzed event nor is there a change to any Safety Analysis Limit (SAL). There will be no effect on the manner in which safety limits, limiting safety system settings, or limiting conditions for operation 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 the overpower limit, Departure From Nucleate Boiling Ratio (DNBR) limits, F_Q, $F_{\Delta}H$, LOCA peak centerline temperature (PCT), peak local power density, or any other margin of safety. The radiological dose consequence acceptance criteria listed in the Standard Review Plan will continue to be met.

Therefore, the proposed change does not involve a significant reduction in the margin of safety.

Based on the above evaluations, WCNOC concludes that the activities associated with the above described enforcement discretion request present no significant hazards consideration under the standards set forth in 10 CFR 50.92 and as such, would not be a potential detriment to the public health and safety.

p. The basis for the conclusion that the noncompliance will not involve adverse consequences to the environment.

WCNOC has determined that the requested enforcement discretion to allow additional time beyond the TS 3.8.1 specified Completion Time of 72 hours and meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as specified below:

(i) Involves no significant hazards consideration.

As demonstrated in Section o. above, this request does not involve any significant hazards consideration.

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

The request does not involve 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 request would not adversely affect the operation of the reactor and would not affect any system that would affect occupational radiation exposure. The proposed request does not create additional exposure to utility personnel nor affect radiation levels that are present. The request will not result in any increase in individual or cumulative occupational radiation exposure.

Accordingly, the requested enforcement discretion does not involve adverse consequences to the environment and meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the requested enforcement discretion is not required.

q. A statement that the request has been approved by the facility organization that normally reviews safety issues (Plant Safety Review Committee).

This NOED request has been approved by the WCNOC Plant Safety Review Committee (PSRC) on October 9, 2104. Revision bars identify areas of change based on the PSRC review.

r. A commitment is required that the written NOED request will be submitted within 2 working days and the follow-up amendment will be submitted within 4 working days of verbally granting the NOED. State if the NRC has agreed during the teleconference that a follow-up amendment is not needed.

WCNOC verbally commits to submit the written NOED request within 2 working days from the date of verbal approval of the request.

This request for enforcement discretion is a one-time only extension of the Completion Time to complete post maintenance testing on the 'B' DG to restore it to OPERABLE status. As such, a follow-up license amendment is not required.

s. If the NOED request is a natural event NOED, provide the following additional information:

1. List the name, organization, and telephone number of the official in the government or independent entity who made the emergency determination, if applicable. If deemed necessary, the staff may contact the appropriate official to independently verify the information the licensee provided before making a NOED determination.

2. Include details of the basis and nature of the emergency including, but not limited to, its effect on the following:

(a.) on-site and off-site emergency preparedness,

(b.) plant and site ingress and egress,

(c.) off-site and on-site power sources,

(d.) plant security,

(e.) grid stability, and

(f.) actions taken to avert or alleviate the emergency situation (e.g., coordinating with other utilities and the load dispatcher organization for buying additional power or for cycling loads, or shedding interruptible industrial or non-emergency loads)

3. **Identify and discuss the potential consequences of compliance with existing license requirements (e.g., plant trip, controlled shutdown).**

4. **Discuss the potential adverse effects on public health and safety from enforcing compliance with specific license requirements during the emergency.**

5. **Discuss the impact of the emergency on plant safety, including any limitations of the UHS.**

6. **For a grid instability NOED, assure the NRC that all reasonable opportunities for purchasing replacement power have been exhausted, and the NOED shall not last any longer than replacement power becomes available, if applicable.**

Not applicable. This NOED request is not related to a natural event.