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ILLINOIS POWER

U-603282
8E.100a

October 25, 1999

Docket No. 50-461

10CFR50.90

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: Clinton Power Station Proposed Amendment of
Facility Operating License No. NPF-62 (LA-98-013)

Dear Madam or Sir:

Pursuant to 10 CFR 50.90, Illinois Power (IP) hereby applies for amendment of Facility Operating License No. NPF-62 for Clinton Power Station. Specifically, IP requests review and approval of proposed changes to the Technical Specifications to revise the Allowable Values for the associated Reactor Protection System Electric Power Monitoring Assembly overvoltage and undervoltage trip setpoints.

A description of the proposed changes and associated justification are provided in Enclosure 2. The Basis for No Significant Hazards Consideration is provided in Enclosure 4. An annotated copy of the affected page from the current Technical Specifications (TS) is provided in Enclosure 4. Further, an affidavit supporting the facts set forth in this letter and its enclosures is provided in Enclosure 1.

Sincerely yours,

M. T. Coyle
Assistant Vice President

JEP/TBE/krk

Enclosures

A001

cc: NRC Clinton Licensing Project Manager
Regional Administrator, USNRC Region III
NRC Resident Office, V-690
Illinois Department of Nuclear Safety

AFFIRMATION

Michael T. Coyle, being first duly sworn, deposes and says: That he is Assistant Vice President for Clinton Power Station; that this application for amendment of Facility Operating License NPF-62 has been prepared under his supervision and direction; that he knows the contents thereof; and that the letter and the statements made and the facts contained therein are true and correct to the best of his knowledge and belief.

Date: This 25th day of October 1999.

Signed: M. T. Coyle
M. T. Coyle
Assistant Vice President

STATE OF ILLINOIS)
) SS.
DeWitt COUNTY)

Subscribed and sworn to before me this 25th day of October 1999.

" OFFICIAL SEAL "
Jacqueline S. Matthias
Notary Public, State of Illinois
My Commission Expires 11/24/2001

Jacqueline S. Matthias
(Notary Public)

Revision of the RPS Electric Power Monitoring Assembly Overvoltage and Undervoltage Allowable Values

BACKGROUND

The RPS solenoid bus power supplies are a part of the NSPS power supply system. The principal elements of the NSPS power supply system are described in Updated Safety Analysis Report (USAR) Section 8.3.1.1.3.1, "NSPS Power Supply System," and Figure 8.3-2. The NSPS power supply system has both divisional and non-divisional equipment. The divisional portion of the system supplies safety-related instrumentation and logic and consists of four independent Class 1E 120 VAC uninterruptible power supplies and their respective NSPS power buses. Each uninterruptible power supply (UPS) is powered by a Class 1E power supply consisting of a battery charger, a station battery, a DC-to-AC power inverter, and a solid-state transfer switch. Alternate power is available to each NSPS power bus from a Class lE power supply via a step-down transformer and an isolation transformer. The solid-state transfer switch is designed to automatically transfer from the preferred (inverter) source of power to the alternate (transformer) source of power in case of inverter failure or load fault on the NSPS system.

The non-divisional portion provides power to the RPS solenoid buses and is configured similar to the divisional portion. The RPS solenoid bus power supplies also have a normal and alternate lineup. The normal (preferred) lineup is via the UPS and consists of a Class 1E, DC-to-AC power inverter fed from a non-Class 1E battery and associated 480-to-120 VAC charger, or non-Class 1E source. The alternate supply is from a Class 1E-qualified regulating transformer fed from the same non-Class 1E bus as the battery charger. The inverter output includes a Class 1E-qualified power monitor system which, independently of the inverter, trips the RPS bus supply output breaker upon sensing overvoltage, undervoltage, overfrequency, or an underfrequency condition during either normal operation from the inverter or bypass operation from the alternate source. The power monitoring circuit and breaker combination is typically referred to as an electric power monitoring assembly. [See attached figure.]

The RPS solenoid bus power supplies are dedicated to the RPS and main steam isolation valve (MSIV) solenoid circuits. Each inverter output powers a solenoid bus for normal operation. The "A" bus powers all the "A" solenoids and the "B" bus powers all the "B" solenoids. Each RPS solenoid bus power supply is normally lined up to provide 120 VAC power to its respective bus via the 480 VAC non-divisional power supply through the preferred battery charger and inverter path. Each RPS solenoid bus power supply also has a manual bypass switch that may be used to switch from the normal to the alternate supply in case of inverter failure or for maintenance purposes.

The RPS solenoid buses are not required to be energized following a design basis event (unlike the divisional NSPS buses) and are not required to be fed from a Class 1E bus. However, since the loads served by the RPS solenoid buses are safety-related, they require Class 1E devices to ensure, in part, that the RPS and MSIV solenoid circuits are not subjected to abnormal voltage and frequency conditions.

As described in above, the RPS Electric Power Monitoring System is necessary to meet the assumptions of the safety analyses by ensuring that the equipment powered from the RPS buses can perform its intended function. The RPS Electric Power Monitoring System provides protection to the RPS and other systems that receive power from the RPS buses, by disconnecting the RPS from the power supply under specified conditions that could damage the RPS bus powered equipment. Specifically, the RPS Electrical Power Monitoring System is provided to isolate the RPS bus from the normal UPS or alternate power supply in the event of overvoltage, undervoltage, or underfrequency. This system protects the loads connected to the RPS bus against unacceptable voltage and frequency conditions (USAR Section 8.3.1.1.3.1) and forms an important part of the primary success path for the essential safety circuits. As noted previously, the essential equipment powered from the RPS solenoid buses includes the RPS scram solenoids and the MSIV solenoids.

Allowable Values are specified in the Technical Specifications for the RPS Electric Power Monitoring Assembly overvoltage, undervoltage, and underfrequency trip functions. Nominal trip setpoints are specified in the setpoint calculations. The nominal values are selected to ensure that the setpoints do not exceed the Allowable Values between CHANNEL CALIBRATIONS. The Allowable Values are derived from the analytic limits (derived from the limiting values of the process parameters obtained from the safety analysis), corrected for calibration, process, and some of the instrument errors. The specific methodology for determining the RPS Electric Power Monitoring Assembly Allowable Values is based upon General Electric (GE) Design Specification 22A3153, Revision 5. In accordance with TS Bases 3.3.8.2 and Sections 6.1.2.4 and 6.1.2.5 of the Design Specification, the Electric Power Monitoring Assembly voltage setpoints at the inverter are based on providing required voltage to the RPS Scram solenoids and the MSIV solenoids when taking into account associated line losses (voltage drop).

During analysis of a required replacement of the Reactor Protection System (RPS) Electric Power Monitoring Assembly circuits, a potential discrepancy (Condition Report (CR) 1-98-12-202, dated December 17, 1998) was identified regarding the Electric Power Monitoring Assembly voltage setpoints provided by General Electric in 1986. A review of the overvoltage and undervoltage setpoints revealed that the setpoints, as specified in the TS and calculation may not have been conservative. After discovery of this condition, a new calculation was prepared to validate the original Electric Power Monitoring Assembly voltage setpoints. This calculation utilized the same original data and methodology defined in GE Design Specification 22A3153 and added sufficient margin to address short-term repeatability, long-term reliability with instrument drift and inaccuracies. The new calculation confirmed that the Electric Power Monitoring Assembly voltage setpoints were

incorrect. On the basis of this calculation new setpoints, including the associated Allowable Values, were established for the undervoltage and overvoltage trip functions.

DESCRIPTION OF PROPOSED CHANGE

The proposed change revises the Allowable Values for RPS Electric Power Monitoring Assembly overvoltage and undervoltage trip functions. Since these values are specified in Surveillance Requirement (SR) 3.3.8.2.2 of the CPS Technical Specifications, SR 3.3.8.2.2 would be revised to reflect the new values as follows:

Current SR 3.3.8.2.2 Allowable Values

a. Overvoltage
   Bus A $\leq$ 134.2 V
   Bus B $\leq$ 133.6 V

b. Undervoltage
   Bus A $\geq$ 114.2 V
   Bus B $\geq$ 113.2 V

Proposed SR 3.3.8.2.2 Allowable Values

a. Overvoltage
   Bus A $\leq$ 127.3 V
   Bus B $\leq$ 126.7 V

b. Undervoltage
   Bus A $\geq$ 115.0 V
   Bus B $\geq$ 114.7 V

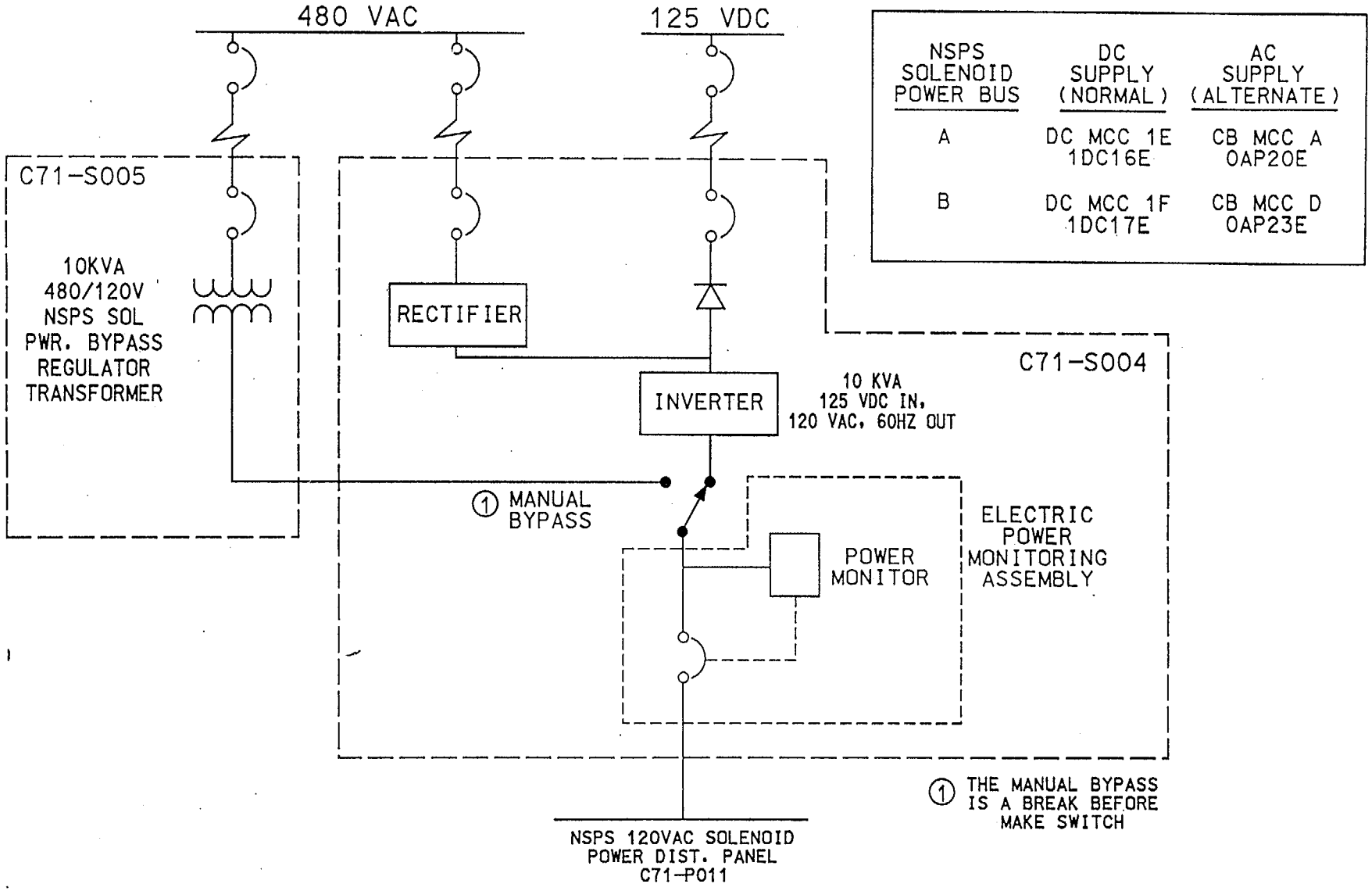
JUSTIFICATION FOR PROPOSED CHANGES

Under calculation 19-AN-34, Revision 0, (Volume A), new setpoints were calculated for the RPS Electric Power Monitoring Assembly undervoltage and overvoltage trip functions in accordance with the GE Design Specification. The calculation includes consideration of the worst-case voltage drop associated with each solenoid and load. After establishing the most limiting voltage drop, the calculation uses the voltage limitations of the solenoids (minimum voltage and maximum voltage) as a basis to establish the acceptable Allowable Values. The smallest voltage drop was added to the maximum voltage rating of the solenoid, and conversely, the largest voltage drop was added to the minimum voltage rating of the solenoids. This established a voltage operating range and consequently the overvoltage and undervoltage Electric Power Monitoring Assembly trip setpoints. (Due to differences in the field configuration of the "A" and "B" solenoid buses, voltage drop calculations yield slightly different results for determination of the "A" Electric Power

Monitoring Assembly setpoints in comparison to the "B" Electric Power Monitoring Assembly setpoints.)

The revised overvoltage setpoints will ensure that the solenoids are protected from experiencing a voltage higher than the design voltage. This protects from overheating and damaging the insulation of the solenoids. The revised undervoltage setpoints will ensure that the solenoids are protected from chattering and potentially losing their control capability which could result in a loss of primary scram action. Thus, the revised voltage setpoints ensure that the RPS scram solenoids and MSIV solenoids will perform their intended safety function.

AC DISTRIBUTION SYSTEM



NSPS SOLENOID POWER BUS	DC SUPPLY (NORMAL)	AC SUPPLY (ALTERNATE)
A	DC MCC 1E 1DC16E	CB MCC A 0AP20E
B	DC MCC 1F 1DC17E	CB MCC D 0AP23E

NSPS SOLENOID POWER
(RPS SOLENOID POWER)

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

In accordance with 10CFR 50.92, a proposed change to the operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not: (1) involve a significant increase in the probability or consequences of any 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. The proposed change has been evaluated against each of the three criteria and it has been determined that the change does not involve a significant hazard because:

(1) The proposed change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

The proposed Technical Specification (TS) change revises the Reactor Protection System (RPS) Electric Power Monitoring Assembly overvoltage and undervoltage Allowable Values. The new Allowable Values and setpoints will continue to provide adequate margin to the normal operating voltage range for the RPS and MSIV solenoids, thus minimizing the potential for inadvertent trips. The proposed change does not have a detrimental impact on the condition or performance of any plant structure, system, or component that may initiate an analyzed event. The proposed change does not physically impact the plant nor does it impact any design or functional requirements of the associated system. That is, the proposed change does not degrade the performance or increase the challenges of any safety systems assumed to function in the accident analysis. Further, the proposed change does not impact the Surveillance Requirements themselves nor the way in which the Surveillances are performed. Consequently, the probability of an accident previously evaluated is not significantly increased.

Additionally, the proposed change does not affect the availability of equipment or systems required for mitigating the consequences of an accident. The revision of the overvoltage and undervoltage setpoints will ensure that the associated trip functions continue to protect the RPS scram solenoids and main steam isolation valve (MSIV) solenoids so that these devices will perform their intended safety function. Thus, the affected equipment is still required to be maintained Operable and capable of performing the accident mitigation functions assumed in the accident analysis. As a result, the consequences of any accident previously evaluated are not significantly effected.

Therefore, based on the above, this change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

(2) The proposed change would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed TS change revises the Reactor Protection System (RPS) Electric Power Monitoring Assembly overvoltage and undervoltage Allowable Values. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The revised setpoints will continue to ensure that the RPS bus would be disconnected from its power supply under specified conditions that could damage the RPS bus powered equipment. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) The proposed change will not involve a significant reduction in the margin of safety.

The proposed TS change revises the Reactor Protection System (RPS) Electric Power Monitoring Assembly overvoltage and undervoltage Allowable Values. The proposed change provides necessary conservatism in the Allowable Values in the RPS Surveillance Requirement to ensure that the equipment used to meet the Limiting Condition for Operation (i.e., each of the two electric power monitoring assemblies) can continue to perform its required functions. At the same time, the revised setpoint/Allowable Values continue to provide adequate margin to the expected operating voltage range to prevent inadvertent or unnecessary tripping of the electric power monitoring assemblies (thus preventing unnecessary or excessive transfer to the alternate power source). The affected equipment will thus continue to be tested (calibrated and functionally tested) in a manner that gives confidence that the equipment can perform its assumed safety function. Therefore, this change does not involve a significant reduction in a margin of safety.

Based upon the above analysis, the proposed change will not increase the probability or consequences of any accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in the margin of safety. Therefore, the proposed change meets the requirements of 10 CFR 50.92(c) and involves no significant hazard consideration.

Environmental Impact Consideration

The proposed license amendment was evaluated against the criteria of 10 CFR 51.22 for environmental considerations. Since the proposed change involves no change to the design or operation of the facility, the proposed change (1) does not significantly increase individual or cumulative occupational radiation exposures, (2) does not significantly change the types or significantly increase the amount of effluents that may be released offsite, and (3) as discussed in this enclosure, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed Technical Specification change meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.