ATTACHMENT A-1

Beaver Valley Power Station, Unit No. 1
Reactor Trip Set Points Bases Change No. 260

The following is a list of the affected pages:

Affected Pages: B 2-3

2.2 LIMITING SAFETY SYSTEM SETTINGS

BASES

2.2.1 REACTOR TRIP SET POINTS

The Reactor Trip Setpoint Limits specified in Table 2.2-1 are the values at which the Reactor Trips are set for each parameter. The Trip Values have been selected to ensure that the reactor core and reactor coolant system are prevented from exceeding their safety limits. Operation with a Trip Setpoint less conservative than its Setpoint Limit but within its specified Allowable Value is acceptable on the basis that each Allowable Value is equal to or less than the drift allowance assumed to occur for each trip used in the accident analyses.

Insert 1 →

Manual Reactor Trip

The Manual Reactor Trip is a redundant channel to the automatic protective instrumentation channels and provides manual reactor trip capability.

Power Range, Neutron Flux

The Power Range, Neutron Flux channel high setpoint provides reactor core protection against reactivity excursions which are too rapid to be protected by temperature and pressure protective circuitry. The low set point provides redundant protection in the power range for a power excursion beginning from low power. The trip associated with the low setpoint may be manually bypassed when P-10 is active (two of the four power range channels indicate a power level of above approximately 9 per cent of RATED THERMAL POWER) and is automatically reinstated when P-10 becomes inactive (three of the four channels indicate a power level below approximately 9 percent of RATED THERMAL POWER).

Power Range, Neutron Flux, High Rates

The Power Range Positive Rate trip provides protection against rapid flux increases which are characteristic of rod ejection events from any power level. Specifically, this trip complements the Power Range Neutron Flux High and Low trips to ensure that the criteria are met for rod ejection from partial power.

(Proposed wording)

Attachment A-1
Beaver Valley Power Station, Unit No. 1
License Amendment Request No. 260

INSERT 1

For the Overtemperature ΔT, and Overpower ΔT trips, Table 2.2-1 specifies several time constants (τ's) in terms of equalities, such as τ=x seconds. These time constants represent nominal values and are periodically adjusted to within their specified calibration accuracy. With the time constants within the specified accuracy the accident analysis produces acceptable results.

ATTACHMENT A-2

Beaver Valley Power Station, Unit No. 2
License Amendment Request No. 133

The following is a list of the affected pages:

Affected Pages: B 2-3

2.2.1 REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS, continued

acceptable since an allowance has been made in the safety analysis to accommodate this error. An optional provision has been included for determining the OPERABILITY of a channel when its trip setpoint is found to exceed the Allowable Value. The methodology of this option utilizes the "as measured" deviation from the specified calibration point for rack and sensor components in conjunction with a statistical combination of the other uncertainties in calibrating the instrumentation. In Equation 2.2-1, $Z + R + S \leq TA$, the interactive effects of the errors in the rack and the sensor, and the "as measured" values of the errors are considered. Z, as specified in Table 2.2-1, in percent span, is the statistical summation of errors assumed in the analysis excluding those associated with the sensor and rack drift and the accuracy of their measurement. TA or Total Allowance is the difference, in percent span, between the trip setpoint and the value used in the analysis for reactor trip. R or Rack Error is the "as measured" deviation, in percent span, for the affected channel from the specified trip setpoint. S or Sensor Drift is either the "as measured" deviation of the sensor from its calibration point or the value specified in Table 2.2-1, in percent span, from the analysis assumptions. Use of Equation 2.2-1 allows for a sensor drift factor, an increased rack drift factor, and provides a threshold value for REPORTABLE EVENTS.

The methodology to derive the trip setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the trip setpoints are the magnitudes of these channel uncertainties. Sensors and other instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

Insert 2 →

Manual Reactor Trip

The Manual Reactor Trip is a redundant channel to the automatic protective instrumentation channels and provides manual reactor trip capability.

Power Range, Neutron Flux

The Power Range, Neutron Flux channel high setpoint provides reactor core protection against reactivity excursions which are too rapid to be protected by temperature and pressure protective circuitry. The low setpoint provides redundant protection in the power range for a power excursion beginning from low power. The trip

Attachment A-2
Beaver Valley Power Station, Unit No. 2
License Amendment Request No. 133

INSERT 2

For the Overtemperature ΔT, Overpower ΔT, and Low Pressurizer Pressure trips, Table 2.2-1 specifies several time constants (τ's) in terms of equalities, such as τ=x seconds. These time constants represent nominal values and are periodically adjusted to within their specified calibration accuracy. With the time constants within the specified accuracy the accident analysis produces acceptable results. For time lags in the Tavg and Delta T circuits, these values are set as close to "zero" as practical to provide minimum filter action.

ATTACHMENT B

Beaver Valley Power Station, Unit Nos. 1 and 2
License Amendment Request Nos. 260 and 133
REVISION OF BASES FOR REACTOR TRIP SET POINT TIME CONSTANTS

A. DESCRIPTION OF AMENDMENT REQUEST

The proposed amendment would revise the Bases section of the technical specifications for Beaver Valley Power Station (BVPS) Units 1 and 2 to add a discussion of the time constants used in the Overtemperature ΔT, and Overpower ΔT trip functions, for Unit 1, and the Overtemperature ΔT, Overpower ΔT and pressurizer pressure trip functions, for Unit 2.

B. DESIGN BASES

The reactor trip setpoint limits are specified in the technical specifications in Table 2.2-1 for each unit. The setpoints are the values at which the reactor trips are set for each parameter. Time constants associated with the Overtemperature ΔT, and Overpower ΔT trip functions, for Unit 1 and the Overtemperature ΔT, Overpower ΔT and pressurizer pressure for Unit 2, also specified in table 2.2-1, are expressed as an equality, such as $\tau = x$, rather than as an inequality, such as $\tau \geq m$. The bases regarding these trip functions, with time constants specified as an equality, are being amended to explain why the values specified for the time constants are acceptable.

C. JUSTIFICATION

For the Overtemperature ΔT and Overpower ΔT trips, for Unit 1, and the Overtemperature ΔT, Overpower ΔT and pressurizer pressure trips for Unit 2, Table 2.2-1 specifies several time constants (τ's) in terms of equalities, such as τ=x seconds. The time constants represent nominal values and in order to clarify the nature of these time constants in relation to the safety analysis assumptions the bases for Technical Specification 2.2.1 is being amended.

D. SAFETY ANALYSIS

For the Overtemperature ΔT and Overpower ΔT trips, for Unit 1, and the Overtemperature ΔT, Overpower ΔT and pressurizer pressure trips for Unit 2, Table 2.2-1 specifies several time constants (τ's) in terms of equalities, such as τ=x seconds. The time constants represent nominal values and are periodically adjusted to within their specified calibration accuracy, typically $\pm$ 10% of the nominal value. With time constants set within the specified accuracy the accident analysis assumptions are preserved. For time constants with nominal values of zero in the Tavg and Delta T trip functions, for Unit 2, these values are set as close to "zero" as practical to provide minimum filter action. With these values set as close to zero as practical the accident analysis assumptions are preserved.

Westinghouse reviewed the NSSS Protective Function Time Constants in March of 1998. They reported the results to Duquesne in their letter dated April 6, 1998, DLC-98-719, NSD-SAE-ESI-98-138, Subject, NSSS Protective Function Time Constants. In a position paper attached to this letter Westinghouse noted that they determined, in the mid 1970's, that sufficient conservatism existed in the non-LOCA safety analysis methodology to accommodate Westinghouse equipment setting uncertainties associated with protective function time constants.

E. NO SIGNIFICANT HAZARDS EVALUATION

The no significant hazard considerations involved with the proposed amendment have been evaluated, focusing on the three standards set forth in 10 CFR 50.92(c) as quoted below:

> The Commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.21(b) or paragraph 50.22 or for a testing 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; or
>
> (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 following evaluation is provided for the no significant hazards consideration standards.

1. Does the change 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 protection systems will continue to function in a manner consistent with the plant design basis. The proposed changes will not affect any of the analysis assumptions for any of the accidents previously evaluated. The proposed changes will not affect the probability of any event initiators nor will the proposed changes 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 challenges imposed on safety-related equipment assumed to function during an accident. There will be no change to normal plant

operating parameters or accident mitigation capabilities. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

There are no hardware changes associated with this license amendment nor are there any changes in the method by which any safety-related plant system performs its safety function. The normal manner of plant operation is unchanged.

No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced as a result of these changes. There will be no adverse effect or challenges imposed on any safety-related system as a result of these changes. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

The proposed change does not involve a significant reduction in a margin of safety.

The proposed changes do not affect the acceptance criteria for any analyzed event nor is there a change to any Safety Analysis Limit (SAL). Maintaining the SAL preserves the margin of safety.

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. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

F. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Based on the considerations expressed above, it is concluded that the activities associated with this license amendment request satisfy the requirements of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration finding is justified.

G. ENVIRONMENTAL CONSIDERATION

This license amendment request changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. It has been determined that this license amendment request involves no significant increase in the amounts, and no significant change in

the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. This license amendment request may change requirements with respect to installation or use of a facility component located within the restricted area or change an inspection or surveillance requirement; however, the category of this licensing action does not individually or cumulatively have a significant effect on the human environment. Accordingly, this license amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this license amendment request.

H. UFSAR CHANGES

None