b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours.

c) A power distribution map is obtained from the movable incore detectors and FQ(Z) and $F^N H$ are verified to be within their limits within 72 hours.

d) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 Each shutdown and control rod not fully inserted in the core shall be determined to be OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days.

4.1.3.1.2 Each full length rod position shall be determined to be within ±12 steps of the associated group demand counter by verifying the individual rod position at least once per 12 hours except during intervals when the Rod Position Deviation monitor is inoperable, then verify the group position at least once per 4 hours.

*See Special Test Exceptions 3.10.2 and 3.10.4

LIMITING CONDITION FOR OPERATION

3.1.3.2 The shutdown and control rod position indication system shall be OPERABLE as follows:

Group Demand Counter(1), 1 per group

Individual analog rod position instrument channel, 1 per rod ± 12 steps(1) accuracy(3)

Automatic Rod Position Deviation Monitor(2), setpoints ≤ 12 steps, or, setpoint verification by recording analog/digital rod position at least once per 4 hours. The provisions of Specification 3.0.4 are not applicable to this monitor(3).

(1) During the first hour following rod motion, the group demand counter is the primary indicator of precise rod position information, with the analog channels displaying general rod movement information. For power levels below 50%, a 1-hour thermal soak time is allowed before the analog channels are required to perform within the specified accuracy.

(2) For power levels below 50% a one hour thermal soak time is allowed. Therefore, if a Rod Position Deviation Monitor alarm clears itself within this hour, the alarm is considered invalid.

(3) The reporting requirements of Specification 6.9.1.9 are not applicable for the group demand counters, analog RPI or Rod Deviation Monitor providing that no actual rod misalignment existed due to the malfunction. These malfunctions shall be reported in the monthly operating report.

APPLICABILITY: MODES 1 and 2#

ACTION:

a. If the Rod Position Indicating System indicates[2] a potentially misaligned rod(s), this indication shall be verified immediately (within 15 minutes) by measuring the analog rod position channel primary voltage. If this measurement confirms that a rod is misaligned, Specification 3.1.3.1.3.c is applicable.

b. With a maximum of one group demand position indicator per bank inoperable either:

   1. Verify that all rod position indicators for the affected bank are OPERABLE and that the most withdrawn rod and the least withdrawn rod of the bank are within a maximum of 12 steps (indicated position) of each other at least once per 8 hours, or

   2. Reduce THERMAL POWER to less than 50% of RATED THERMAL within 8 hours.

c. With a maximum of one analog rod position indicator per bank inoperable, (following a one-hour thermal soak at less than 50% of Rated Thermal Power or at anytime when Rated Thermal Power is greater than or equal to 50%) either,

   1. Determine rod position for the affected rod(s) by measuring the detector primary voltage, as follows:

      a. Immediately

      b. If the associated rod moved greater than 6 steps (greater than 12 steps if all the rods in the group have been determined to be within 6 steps of group demand counter indicator by primary voltage measurements within the previous 4 hours)

      c. At 4 hour intervals if the affected rod(s) are not fully inserted or withdrawn.

      d. At 24 hour intervals if the affected rod(s) are fully inserted or withdrawn, or

e. If the position of a maximum of one rod cannot be determined by either the direct reading of the rod position indicators or by reading primary detector voltage measurements,

1. Determine the position of the non-indicating rod indirectly by the movable incore detectors immediately and at least once per 8 hours and immediately after any motion of the non-indicating rod which exceeds 24 steps in one direction since the last determination of the rod's position.

f. If the position of more than one rod cannot be determined by either the direct reading of the rod position indicators or by reading primary detector voltage measurements, then Specification 3.0.3 is applicable.

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL within 8 hours.

d. With the Automatic Rod Deviation Monitor inoperable, POWER OPERATION may continue provided that the deviation between the indicated positions is checked by the operator at least once per 4 hours. The provisions of Specification 3.0.4 are not applicable.(3)

SURVEILLANCE REQUIREMENTS

4.1.3.2.1 Each of the group demand counters shall be determined to be OPERABLE by:

a. Performing a CHANNEL CHECK by the group demand counters within a bank, and observing proper overlap* of the indicated positions, and

b. Performing a CHANNEL CHECK by an intercomparison between the control bank benchboard indicators and the logic solid state indicators in the logic cabinet, and determining their agreement within ± 2 steps, at least once per 92 days.

* During startup and shutdown, overlap must be checked for all control banks at the respective bank overlap height transition points.

4.1.3.2.2 Each of the analog rod position indicators shall be determined to be OPERABLE by:

a. Performing a CHANNEL CHECK by intercomparison** between each analog rod position indicator and its corresponding group demand counter at least once per 24 hours.

b. Performing a CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION at least once per 18 months.

4.1.3.2.3 The Automatic Rod Deviation Monitor shall be determined to be OPERABLE by performing a functional test at least once per 7 days, and the deviation between the position indicated by the individual analog rod position instrument channel and the position indicated by the corresponding group demand counter shall be checked** manually for each rod at least once per 24 hours.

#For Core PHYSICS TESTING in Mode 2, primary detector voltage measurements may be used to determine the position of rods in shutdown banks A and B and control banks A and B for the purpose of satisfying Specification 3.1.3.2. During Mode 2 operation, rod position indicators for shutdown banks A and B and control banks A and B may deviate from the group demand indicators by greater than ± 12 steps during reactor startup and shutdown operations, while rods are being withdrawn or inserted. If the rod position indicators for shutdown banks A and B and control banks A and B deviate by greater than ± 12 steps from the group demand indicator, rod withdrawal or insertion may continue until the desired group height is achieved. When the desired group height is achieved, a one hour soak time is allowed below 50% reactor power to permit stabilization of the rod position analog indicators. To attain thermal equilibrium during the one hour soak time, the absolute value of rod motion shall not exceed 6 steps.

**For power levels below 50% one hour thermal "soak time" is permitted. During this soak time, the absolute value of rod motion is limited to six steps.

POSITION INDICATION SYSTEM-SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.3.3 The group demand position indicators shall be OPERABLE and capable of determining within ± 2 steps the demand position for each shutdown or control rod not fully inserted.

APPLICABILITY: MODES 3*, 4*, and 5*

ACTION:

With less than the above required group demand position indicators OPERABLE, open the reactor trip system breakers.

SURVEILLANCE REQUIREMENTS

4.1.3.3 Each of the above required group demand position indicator(s) shall be determined to be OPERABLE by movement of the associated control rod at least 10 steps in any one direction at least once per 31 days when the reactor coolant system pressure is >400 psig.

*With the reactor trip system breakers in the closed position.

ATTACHMENT B
SAFETY EVALUATION

Proposed Change Request No. 66, Revision 6 amends the Beaver Valley Power Station, Unit No. 1 Technical Specifications Appendix A, concerning Rod Position Indication.

The following Sections have been revised: 3.1.3.1, 3.1.3.2, and 3.1.3.3.

Section 3.1.3.1, Surveillance Requirement 4.1.3.1.2 has been added to conform to the Standard Technical Specification requirements. The position of each full length rod shall be determined to be within ±12 steps of the associated group demand counter by verifying the individual rod position at least once per 12 hours except during time intervals when the Rod Position Deviation Monitor is inoperable, then verify the group positions at least once per four hours.

Section 3.1.3.2 has been revised to incorporate Note (3) applicable to the individual analog rod position instrument channel. Note (3) - The reporting requirements of specification 6.9.1.9 are not applicable for the group demand counters, analog rod position indicators or rod deviation monitor providing that no actual rod misalignment existed due to the malfunction. These types of malfunctions shall be reported in the monthly operating report. Analog to digital setpoint verification has been added as an alternate method of determining that the Automatic Rod Position Deviation Monitor is operable. This is done by recording the Analog/Digital rod position at least once per four hours. The provisions of specification 3.0.4 are not applicable to this monitor because it is not necessary for the safe operation of the plant. Note (3) is applicable to the Automatic Rod Deviation Monitor so that malfunctions will be reported in the monthly operating report. Section 3.1.3.2(c) has been revised to permit a one hour thermal soak period when the reactor is at less than 50% Rated Thermal Power before applying the Action statements.

Section 3.1.3.2(c)(1) has been amended to include items (e) and (f), which were in our specifications prior to amendment 51.

<u>Item (e)</u>: If the position of a maximum of one rod cannot be determined by either the direct reading of the rod position indicators or by reading primary detector voltage measurements.

1. Determine the position of the non-indicating rod indirectly by the movable incore detectors immediately and at least once per eight hours and immediately after any motion of the non-indicating rod which exceeds 24 steps in one direction since the last determination of the rod's position.

Item (f): If the position of more than one rod cannot be determined by either the direct reading of the rod position indicators or by reading primary detector voltage measurements, then Specification 3.0.3 is applicable.

Section 3.1.3.2(d) has been revised to include Note (3).

A note has been added to Surveillance Requirement 4.1.3.2.1 to describe the requirement for observing proper overlap: that during startup, overlap must be checked for all control banks at the respective bank overlap height transition points.

Section 3.1.3.3 has been revised so that the operability requirement is applicable to the group demand position indicators. The ACTION statement for this specification has been revised as follows: With less than the above required group demand position indicator(s) OPERABLE, open the reactor trip system breakers.

The Surveillance Requirement for this specification has been revised for applicability to the group demand position indicator(s): Each of the above required group demand position indicator(s) shall be determined to be OPERABLE by movement of the associated control rod at least 10 steps in any one direction at least once per 31 days when the reactor coolant system pressure is greater than 400 psig.

The requirement that the RCS pressure be $>$400 psig ensures that the reactor vessel control rod drive mechanism housings are filled and vented thereby providing water for lubrication of the control rod drive mechanisms.

The operating practice at Beaver Valley Power Station is to maintain the shutdown banks fully withdrawn during plant heatup to permit rapid insertion of negative reactivity if required. This is the preferred mode whenever dilution capability exists while on RHR and at higher temperatures during heatup.

The following sections of the Updated Final Safety Analysis Report (UFSAR) were reviewed: 7.7.1.3.2 Rod Position Monitoring of Full Length Rods: 14.1.3 Rod Cluster Control Assembly Withdrawal at Full Power. The revised specifications tend to reduce the potential for misleading information and spurious alarms that could generate ambiguity and lead to erroneous actions by the reactor operator.

Based on the UFSAR review, it has been determined that no change to the UFSAR is required as a result of this proposed change. It is concluded that the revisions requested by this proposed Technical Specification change will not increase the probability of occurrence or the consequence of an accident or malfunction of equipment important to safety previously evaluated in the UFSAR, nor will they create the possibility for an accident or malfunction of a different type not previously evaluated.

The Technical Specification Bases, 3/4.1.3 Movable Control Assemblies, were reviewed and there is nothing in the proposed changes which would decrease the margin of safety.

The OSC and ORC have reviewed this proposed change and based on the above safety evaluation, it is concluded there is reasonable assurance that the public health and safety will not be endangered by operation in the proposed manner.