TABLE 3.3.6-2

CONTROL ROD BLOCK INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
1. ROD BLOCK MONITOR		
a. Upscale	0.66 W + 40%	< 0.66 W + 43%
b. Inoperative	NA	NA
c. Downscale	≥ 5% of RATED THERMAL POWER	≥ 3% of RATED THERMAL POWER
2. APRM		
a. Flow Biased Neutron Flux - High	< 0.66 W + 42%*	< 0.66 W + 45%*
b. Inoperative	NA	NA
c. Downscale	> 5% of RATED THERMAL POWER	> 3% of RATED THERMAL POWER
d. Neutron Flux - Upscale, Setdown	≤ 12% of RATED THERMAL POWER	≤ 14% of RATED THERMAL POWER
3. SOURCE RANGE MONITORS		
a. Detector not full in	NA	NA
b. Upscale	< 1.0×10^5 cps	< 1.6×10^5 cps
c. Inoperative	NA	NA
d. Downscale	≥ 3 cps**	≥ 2 cps**
4. INTERMEDIATE RANGE MONITORS		
a. Detector not full in	NA	NA
b. Upscale	< 108/125 divisions of full scale	< 110/125 divisions of full scale
c. Inoperative	NA	NA
d. Downscale	> 5/125 divisions of full scale	> 3/125 divisions of full scale
5. SCRAM DISCHARGE VOLUME		
a. Water Level-High	< 589'11½"	< 591'0"
b. Scram Trip Bypass	NA	NA
6. REACTOR COOLANT SYSTEM RECIRCULATION FLOW		
a. Upscale	< 108/125% of rated flow	< 111/125% of rated flow
b. Inoperative	NA	NA
c. Comparator	≤ 10% flow deviation	≤ 11% flow deviation
7. REACTOR MODE SWITCH SHUTDOWN POSITION	NA	NA

*The APRM rod block function is varied as a function of recirculation loop drive flow (W). The trip setting of this function must be maintained in accordance with Specification 3.2.2.

**~~The downscale rodblock setpoint count rate may be reduced to 0.3 cps prior to achieving a burnup of 2000 MWD/T on the first core provided the signal-to-noise ratio is >2. After a burnup of 2000 MWD/T on the first core, the count rate may be reduced to 0.7 cps provided the signal-to-noise ratio is ≥2.~~

May be reduced to ≥ 0.7 cps provided the signal-to-noise ratio is ≥ 20.

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Amendment No. X, 9

INSTRUMENTATION

SOURCE RANGE MONITORS

LIMITING CONDITION FOR OPERATION

3.3.7.6 At least the following source range monitor channels shall be OPERABLE:

a. In OPERATIONAL CONDITION 2*, three.

b. In OPERATIONAL CONDITIONS 3 and 4, two.

APPLICABILITY: OPERATIONAL CONDITIONS 2*, 3, and 4.

ACTION:

a. In OPERATIONAL CONDITION 2* with one of the above required source range monitor channels inoperable, restore at least 3 source range monitor channels to OPERABLE status within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours.

b. In OPERATIONAL CONDITION 3 or 4 with one or more of the above required source range monitor channels inoperable, verify all insertable control rods to be inserted in the core and lock the reactor mode switch in the Shutdown position within 1 hour.

SURVEILLANCE REQUIREMENTS

4.3.7.6 Each of the above required source range monitor channels shall be demonstrated OPERABLE by:

a. Performance of a:

1. CHANNEL CHECK at least once per:

a) 12 hours in CONDITION 2*, and

b) 24 hours in CONDITION 3 or 4.

2. CHANNEL CALIBRATION** at least once per 18 months.

b. Performance of a CHANNEL FUNCTIONAL TEST:

1. Within 24 hours prior to moving the reactor mode switch from the Shutdown position, if not performed within the previous 7 days, and

2. At least once per 31 days.

c. Verifying, prior to withdrawal of control rods, that the SRM count rate is ~~at least 0.7~~ ≥ 3*** cps with the detector fully inserted.

*With IRM's on range 2 or below.

**Neutron detectors may be excluded from CHANNEL CALIBRATION.

***~~Provided signal-to-noise ratio is $\geq$ 2. Otherwise, 3 cps~~.
May be reduced to $\geq$ 0.7 cps provided signal-to-noise ratio is $\geq$ 20.

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 At least 2 source range monitor* (SRM) channels shall be OPERABLE and inserted to the normal operating level with:

a. Annunciation and continuous visual indication in the control room,

b. One of the required SRM detectors located in the quadrant where CORE ALTERATIONS are being performed and the other required SRM detector located in an adjacent quadrant, and

c. Unless adequate shutdown margin has been demonstrated per Specification 3.1.1, the "shorting links" shall be removed from the RPS circuitry prior to and during the time any control rod is withdrawn#.

APPLICABILITY: OPERATIONAL CONDITION 5.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS and insert all insertable control rods.

SURVEILLANCE REQUIREMENTS

4.9.2 Each of the above required SRM channels shall be demonstrated OPERABLE by:

a. At least once per 12 hours:

1. Performance of a CHANNEL CHECK,

2. Verifying the detectors are inserted to the normal operating level, and

3. During CORE ALTERATIONS, verifying that the detector of an OPERABLE SRM channel is located in the core quadrant where CORE ALTERATIONS are being performed and another is located in an adjacent quadrant.

~~*The use of special movable detectors during CORE ALTERATIONS in place of the normal SRM nuclear detectors is permissible as long as these special detectors are connected to the normal SRM circuits.~~ See INS ~~T~~ for new footnote *.

#Not required for control rods removed per Specification 3.9.10.1 and 3.9.10.2.

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* Maintenance of a minimum count rate for these channels is not required when sixteen or fewer fuel assemblies, each of which are installed in one of the four positions directly adjacent to one of the four permanently installed SRM nuclear detectors (four fuel assemblies surrounding each SRM detector), are in the core. SRM minimum count rate requirements apply for any CORE ALTERATION involving any other fuel assembly. The use of special movable detectors during CORE ALTERATIONS in place of the normal SRM detectors is permissible as long as these special detectors are connected to the normal SRM circuits.

SURVEILLANCE REQUIREMENTS (Continued)

b. Performance of a CHANNEL FUNCTIONAL TEST:

1. Within 24 hours prior to the start of CORE ALTERATIONS, and

2. At least once per 7 days.

c. Verifying that the channel count rate is at ~~least 0.7~~ ≥ 3* cps:

1. Prior to control rod withdrawal,

2. Prior to and at least once per 12 hours during CORE ALTERATIONS, and

3. At least once per 24 hours.

d. Verifying, within 8 hours prior to and at least once per 12 hours during, that the RPS circuitry "shorting links" have been removed during the time any control rod is withdrawn** unless adequate shutdown margin has demonstrated per Specification 3.1.1.

~~*For only the fuel movements required to replace neutron sources, the count rate may be reduced to 0.3 counts per second prior to achieving a burnup of 2000 MWD/T on the first core provided the signal-to-noise ratio $\geq$2. After a burnup of 2000 MWD/T, the count rate must be at least 0.7 cps provided the signal-to-noise ratio is $\geq$2. Otherwise, 3 cps.~~

**Not required for control rods removed per Specification 3.9.10.1 or 3.9.10.2.

* See INSERT for new footnote *

INSERT (PAGE 3/4 9-4)

* May be reduced to $\geq$ 0.7 CPS provided the signal-to-noise ratio is $\geq$ 20. Maintenance of a minimum count rate for these channels is not required when sixteen or fewer fuel assemblies, each of which are installed in one of the four positions directly adjacent to one of the four permanently installed SRM nuclear detectors (four fuel assemblies surrounding each SRM detector), are in the core. SRM minimum count rate requirements apply for any CORE ALTERATION involving any other fuel assembly.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 REACTOR MODE SWITCH

Locking the OPERABLE reactor mode switch in the Shutdown or Refuel position, as specified, ensures that the restrictions on control rod withdrawal and refueling platform movement during the refueling operations are properly activated. These conditions reinforce the refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals or fuel assemblies, and exposure of personnel to excessive radioactivity.

3/4.9.2 INSTRUMENTATION

See BASES insert

~~The OPERABILITY of at least two source range monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.~~

3/4.9.3 CONTROL ROD POSITION

The requirement that all control rods be inserted during other CORE ALTERATIONS ensures that fuel will not be loaded into a cell without a control rod.

3/4.9.4 DECAY TIME

The minimum requirement for reactor subcriticality prior to fuel movement ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of fuel within the reactor pressure vessel.

INSERT (BASES)

The OPERABILITY of at least two source range monitors, one located in the quadrant where CORE ALTERATIONS are being performed and the other located in an adjacent quadrant, ensures reactivity monitoring capability is available to detect changes in the reactivity condition of the core. The SRM in the adjacent quadrant provides a back-up to the SRM in the quadrant where CORE ALTERATIONS are being performed whenever a continuous multiplying medium exists between the location of CORE ALTERATIONS and the SRM. The minimum count rate is not required when sixteen or fewer fuel assemblies, each directly adjacent to a permanently installed SRM nuclear detector, are in the core. This provision allows complete core unloading without the use of special movable detectors. During core re-loading up to four irradiated fuel assemblies are placed next to each SRM detector to produce greater than the minimum count rate. Fuel loading patterns are chosen such that each set of contiguous fuel assemblies surrounds at least one SRM detector. This ensures a continuous multiplying medium is established between at least one SRM detector and the location of CORE ALTERATIONS thus enhancing the ability of the SRMs to respond to any abnormal reactivity increase.