

ENCLOSURE 5

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
NEUTRON MONITORING SURVEILLANCE REQUIREMENTS

TECHNICAL SPECIFICATION PAGES - UNIT 1

TABLE 4.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES

- (a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (b) Within 4 hours prior to startup, if not performed within the previous 7 days.
- (c) The IRM channels shall be compared to the APRM channels and the SRM instruments for overlap during each startup, if not performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, *if not performed within the previous 7 days.*
- (e) This calibration shall consist of the adjustment of the APRM readout to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER.
- (f) This calibration shall consist of the adjustment of the APRM flow-biased setpoint to conform to a calibrated flow signal.
- (g) The LPRMs shall be calibrated at least once per effective full power month (EFPM) using the TIP system.
- (h) This calibration shall consist of a physical inspection and actuation of these position switches.
- (i) Instrument alignment using a standard current source.
- (j) Calibration using a standard radiation source.
- (k) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.
- (l) Transmitters are exempted from the monthly channel calibration.
- (m) Placement of Reactor Mode Switch into the Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (n) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (o) Surveillance is not required when THERMAL POWER is less than 30% of RATED THERMAL POWER.

TABLE 4.3.4-1

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
1. <u>APRM</u>				
a. Upscale (Flow Biased)	NA	S/U ^(c) _(e) , M	R ^(b) (a)	1
b. Inoperative	NA	S/U ^(c) _(e) , Q ^(f)	NA	1, 2, 5
c. Downscale	NA	S/U ^(c) _(e) , M	NA	1
d. Upscale (Fixed)	NA	S/U ^(c) _(e) , Q ^(f)	R ^(a)	2, 5
2. <u>ROD BLOCK MONITOR</u>				
a. Upscale	NA	S/U ^(c) _(e) , M	R ^(a)	1(g)
b. Inoperative	NA	S/U ^(c) _(e) , Q	NA	1(g)
c. Downscale	NA	S/U ^(c) _(e) , M	R ^(a)	1(g)
3. <u>SOURCE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(c) _(e) , W ^(d)	NA	2, 5
b. Upscale	NA	S/U ^(c) _(e) , W ^(d)	NA	2, 5
c. Inoperative	NA	S/U ^(c) _(e) , W ^(d)	NA	2, 5
d. Downscale	NA	S/U ^(c) _(e) , W ^(d)	NA	2, 5
4. <u>INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(c) _(e) , W ^(d)	NA	2
	NA	W ^(f)	NA	5
b. Upscale	NA	S/U ^(c) _(e) , W ^(d)	NA	2
	NA	W	NA	5
c. Inoperative	NA	S/U ^(c) _(e) , W ^(d)	NA	2
	NA	W	NA	5
d. Downscale	NA	S/U ^(c) _(e) , W ^(d)	NA	2
	NA	W	NA	5
5. <u>SCRAM DISCHARGE VOLUME</u>				
a. Water Level - High	NA	Q	2	1, 2, 5(h)

TABLE 4.3.4-1 (Continued)

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NOTES

- (a) CHANNEL CALIBRATIONS are electronic.
- (b) This calibration shall consist of the adjustment of the APRM flow biased setpoint to conform to a calibrated flow signal.
- (c) Within 24 hours prior to startup, if not performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 7 days.
- (e) Placement of Reactor Mode Switch into Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (f) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (g) When THERMAL POWER is greater than the preset power level of the RWM and RSCS.
- (h) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.
- (i) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 92 days.

ENCLOSURE 6

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
NEUTRON MONITORING SURVEILLANCE REQUIREMENTS

TECHNICAL SPECIFICATION PAGES - UNIT 2

TABLE 4.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES

- (a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (b) Within 24 hours prior to startup, if not performed within the previous 7 days.
- (c) The IRM channels shall be compared to the APRM channels and the SRM instruments for overlap during each startup, if not performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, *if not performed within the previous 7 days.*
- (e) This calibration shall consist of the adjustment of the APRM readout to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER greater than or equal to 25% of RATED THERMAL POWER.
- (f) This calibration shall consist of the adjustment of the APRM flow-biased setpoint to conform to a calibrated flow signal.
- (g) The LPRMs shall be calibrated at least once per effective full power month (EFPM) using the TIP system.
- (h) This calibration shall consist of a physical inspection and actuation of these position switches.
- (i) Instrument alignment using a standard current source.
- (j) Calibration using a standard radiation source.
- (k) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.
- (l) Transmitters are exempted from the monthly channel calibration.
- (m) Placement of Reactor Mode Switch into the Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (n) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (o) Surveillance is not required when THERMAL POWER is less than 30% of RATED THERMAL POWER.

TABLE 4.3.4-1

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
1. <u>APRM</u>				
a. Upscale (Flow Biased)	NA	S/U(c)	R(b)(a)	1
b. Inoperative	NA	S/U(c)(e), Q(f)	NA	1, 2, 5
c. Downscale	NA	S/U(c)	NA	1
d. Upscale (Fixed)	NA	S/U(c)(e), Q(d)(f)	R(a)	2, 5
2. <u>ROD BLOCK MONITOR</u>				
a. Upscale	NA	S/U(c), M	R(a)	1(g)
b. Inoperative	NA	S/U(c), Q	NA	1(g)
c. Downscale	NA	S/U(c), M	R(a)	1(g)
3. <u>SOURCE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U(c), W(d)	NA	2, 5
b. Upscale	NA	S/U(c), W(d)	NA	2, 5
c. Inoperative	NA	S/U(c), W(d)	NA	2, 5
d. Downscale	NA	S/U(c), W(d)	NA	2, 5
4. <u>INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U(c)(e), W(d)	NA	2
	NA	W(f)	NA	5
b. Upscale	NA	S/U(c), W(d)	NA	2
	NA	W	NA	5
c. Inoperative	NA	S/U(c), W(d)	NA	2
	NA	W	NA	5
d. Downscale	NA	S/U(c), W(d)	NA	2
	NA	W	NA	5
5. <u>SCRAM DISCHARGE VOLUME</u>				
a. Water Level - High	NA	Q	R	1, 2, 5(h)

TABLE 4.3.4-1 (Continued)

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NOTES

- (a) CHANNEL CALIBRATIONS are electronic.
- (b) This calibration shall consist of the adjustment of the APRM flow biased setpoint to conform to a calibrated flow signal.
- (c) Within 24 hours prior to startup, if not performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, *if not performed within the previous 7 days.*
- (e) Placement of Reactor Mode Switch into Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (f) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (g) When THERMAL POWER is greater than the preset power level of the RWM and RSCS.
- (h) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.
- (i) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, *if not performed within the previous 92 days.*

ENCLOSURE 7

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
NEUTRON MONITORING SURVEILLANCE REQUIREMENTS

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 1

TABLE 4.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES

- (a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (b) Within 24 hours prior to startup, if not performed within the previous 7 days.
- (c) The IRM channels shall be compared to the APRM channels and the SRM instruments for overlap during each startup, if not performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 7 days.
- (e) This calibration shall consist of the adjustment of the APRM readout to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER greater than or equal to 25% of RATED THERMAL POWER.
- (f) This calibration shall consist of the adjustment of the APRM flow-biased setpoint to conform to a calibrated flow signal.
- (g) The LPRMs shall be calibrated at least once per effective full power month (EFPM) using the TIP system.
- (h) This calibration shall consist of a physical inspection and actuation of these position switches.
- (i) Instrument alignment using a standard current source.
- (j) Calibration using a standard radiation source.
- (k) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.
- (l) Transmitters are exempted from the monthly channel calibration.
- (m) Placement of Reactor Mode Switch into the Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (n) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (o) Surveillance is not required when THERMAL POWER is less than 30% of RATED THERMAL POWER.

TABLE 4.3.4-1

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
1. <u>APRM</u>				
a. Upscale (Flow Biased)	NA	S/U ^(c)	R ^{(b)(d)}	1
b. Inoperative	NA	S/U ^{(c)(e)} , Q ^(f)	NA	1, 2, 5
c. Downscale	NA	S/U ^(c)	NA	1
d. Upscale (Fixed)	NA	S/U ^{(c)(e)} , Q ^{(i)(f)}	R ^(a)	2, 5
2. <u>ROD BLOCK MONITOR</u>				
a. Upscale	NA	S/U ^(c) , M	R ^(a)	1 ^(g)
b. Inoperative	NA	S/U ^(c) , Q	NA	1 ^(g)
c. Downscale	NA	S/U ^(c) , M	R ^(a)	1 ^(g)
3. <u>SOURCE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(c) , W ^(d)	NA	2, 5
b. Upscale	NA	S/U ^(c) , W ^(d)	NA	2, 5
c. Inoperative	NA	S/U ^(c) , W ^(d)	NA	2, 5
d. Downscale	NA	S/U ^(c) , W ^(d)	NA	2, 5
4. <u>INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^{(c)(e)} , W ^(d)	NA	2
	NA	W ^(f)	NA	5
b. Upscale	NA	S/U ^(c) , W ^(d)	NA	2
	NA	W	NA	5
c. Inoperative	NA	S/U ^(c) , W ^(d)	NA	2
	NA	W	NA	5
d. Downscale	NA	S/U ^(c) , W ^(d)	NA	2
	NA	W	NA	5
5. <u>SCRAM DISCHARGE VOLUME</u>				
a. Water Level - High	NA	Q	R	1, 2, 5 ^(h)

TABLE 4.3.4-1 (Continued)

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NOTES

- (a) CHANNEL CALIBRATION are electronic.
- This calibration shall consist of the adjustment of the APKM flow biased setpoint to conform to a calibrated flow signal.
- Within 24 hours prior to startup, if not performed within the previous 7 days.
- When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 7 days.
- (e) Placement of Reactor Mode Switch into Startup/Hot Standby position permitted for the purpose of performing the required surveillance to withdrawal of control rods for the purpose of bringing the reactor criticality.
- (f) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the control head bolts are tensioned.
- (g) When POWER is greater than the preset power level of the RWM and RSCS.
- (h) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.
- (i) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 92 days.

ENCLOSURE 8

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
NEUTRON MONITORING SURVEILLANCE REQUIREMENTS

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 2

TABLE 4.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

NOTES

- (a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (b) Within 24 hours prior to startup, if not performed within the previous 7 days.
- (c) The IRM channels shall be compared to the A channels and the SRM instruments for overlap during each startup, if performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 7 days.
- (e) This calibration shall consist of the adjustment of the APRM readout to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER greater than or equal to 25% of RATED THERMAL POWER.
- (f) This calibration shall consist of the adjustment of the APRM flow-biased setpoint to conform to a calibrated flow signal.
- (g) The LISMs shall be calibrated at least once per effective full power month (EFPM) using the TIP system.
- (h) This calibration shall consist of a physical inspection and actuation of these position switches.
- (i) Instrument alignment using a standard current source.
- (j) Calibration using a standard radiation source.
- (k) The transmitter channel check is satisfied by the trip unit channel check. A separate transmitter check is not required.
- (l) Transmitters are exempted from the monthly channel calibration.
- (m) Placement of Reactor Mode Switch into the Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (n) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (o) Surveillance is not required when THERMAL POWER is less than 30% of RATED THERMAL POWER.

TABLE 4.3.4-1

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED</u>
1. <u>APRM</u>				
a. Upscale (Flow Biased)	NA	S/U ^(c)	R ^{(b)(a)}	1
b. Inoperative	NA	S/U ^{(c)(e)} , Q ^(f)	NA	1, 2, 5
c. Downscale	NA	S/U ^(c)	NA	1
d. Upscale (Fixed)	NA	S/U ^{(c)(e)} , Q ^{(i)(f)}	R ^(a)	2, 5
2. <u>ROD BLOCK MONITOR</u>				
a. Upscale	NA	S/U ^(c) , M	R ^(a)	1(g)
b. Inoperative	NA	S/U ^(c) , Q	R ^(a)	1(g)
c. Downscale	NA	S/U ^(c) , M	R ^(a)	1(g)
3. <u>SOURCE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^(c) , W ^(d)	NA	2, 5
b. Upscale	NA	S/U ^(c) , W ^(d)	NA	2, 5
c. Inoperative	NA	S/U ^(c) , W ^(d)	NA	2, 5
d. Downscale	NA	S/U ^(c) , W ^(d)	NA	2, 5
4. <u>INTERMEDIATE RANGE MONITORS</u>				
a. Detector not full in	NA	S/U ^{(c)(e)} , W ^(d)	NA	2
	NA	W ^(f)	NA	5
b. Upscale	NA	S/U ^(c) , W ^(d)	NA	2
	NA	W	NA	5
c. Inoperative	NA	S/U ^(c) , W ^(d)	NA	2
	NA	W	NA	5
d. Downscale	NA	S/U ^(c) , W ^(d)	NA	2
	NA	W	NA	5
5. <u>SCRAM DISCHARGE VOLUME</u>				
a. Water Level - High	NA	Q	R	1, 2, 5 ^(h)

TABLE 4.3.4-1 (Continued)

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NOTES

- (a) CHANNEL CALIBRATIONS are electronic.
- (b) This calibration shall consist of the adjustment of the APRM flow biased setpoint to conform to a calibrated flow signal.
- (c) Within 24 hours prior to startup, if not performed within the previous 7 days.
- (d) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 7 days.
- (e) Placement of Reactor Mode Switch into Startup/Hot Standby position is permitted for the purpose of performing the required surveillance prior to withdrawal of control rods for the purpose of bringing the reactor to criticality.
- (f) Placement of Reactor Mode Switch into the Shutdown or Refuel position is permitted for the purpose of performing the required surveillance provided all control rods are fully inserted and the vessel head bolts are tensioned.
- (g) When THERMAL POWER is greater than the preset power level of the RWM and RSCS.
- (h) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.
- (i) When changing from OPERATIONAL CONDITION 1 to OPERATIONAL CONDITION 2, perform the required surveillance within 12 hours after entering OPERATIONAL CONDITION 2, if not performed within the previous 92 days.