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Facility: **MCGUIRE NUCLEAR STATION**
SUBJECT
MNS-SLC-16.9.9 Boration Systems - Flow Path (Operating)

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Remarks: **Please change out the entire section of MNS SLC 16.9.9**

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| 16.1 | REVISION 148 | 2/27/15 |
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| 16.5.1 | REVISION 151 | 9/29/15 |
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| 16.7.6 | REVISION 139 | 8/28/13 |
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| 16.11.7 | REVISION 134 | 3/6/13 |
| 16.11.8 | REVISION 0 | 12/14/99 |
| 16.11.9 | REVISION 0 | 12/14/99 |
| 16.11.10 | REVISION 134 | 3/6/13 |
| 16.11.11 | REVISION 134 | 3/6/13 |
| 16.11.12 | REVISION 67 | 2/28/05 |
| 16.11.13 | REVISION 137 | 5/13/13 |
| 16.11.14 | REVISION 21 | 1/17/02 |
| 16.11.15 | REVISION 21 | 1/17/02 |
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| 16.12.1 | REVISION 0 | 12/14/99 |
| 16.12.2 | REVISION 0 | 12/14/99 |
| 16.13.1 | REVISION 51 | 10/1/03 |
| 16.13.2 | DELETED - REVISION 75 | 7/20/05 |
| 16.13.3 | DELETED - REVISION 75 | 7/20/05 |
| 16.13.4 | REVISION 148 | 2/27/15 |
| 16.14.1 | REVISION 0 | 12/14/99 |
| 16.14.2 | REVISION 104 | 3/18/09 |

16.9 AUXILIARY SYSTEMS

16.9.9 Boration Systems – Flow Path (Operating)

- COMMITMENT Two of the following three boron injection flow paths shall be OPERABLE:
- a. The flow path from a boric acid tank via a boric acid transfer pump and a charging pump to the reactor coolant system, and
 - b. Two flow paths from the refueling water storage tank via charging pumps to the reactor coolant system.

Note: An OPERABLE charging pump used to satisfy OPERABILITY requirements of one boration flow path may not be used to satisfy OPERABILITY requirements for a second boration flow path.

APPLICABILITY MODES 1, 2, and 3.

REMEDIAL ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|-----------------|
| A. One required boron injection flow path inoperable. | A.1 Restore the required boron injection flow path to OPERABLE status. | 72 hours |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 Be in MODE 3. | 6 hours |
| | <u>AND</u> | |
| | B.2 Borate to the SDM requirements of Tech Spec 3.1.1. | 6 hours |
| | <u>AND</u> | |
| | B.3 Restore the required boron injection flow path to OPERABLE status. | 7 days |

(continued)

REMEDIAL ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|-------------------|-----------------|
| C. Required Action and associated Completion Time of Condition B not met. | C.1 Be in MODE 4. | 30 hours |

TESTING REQUIREMENTS

| TEST | FREQUENCY |
|--|--|
| TR 16.9.9.1 Verify the temperature of piping associated with the flow path from the boric acid storage tanks is $\geq 65^{\circ}\text{F}$ when it is a required water source | 7 days |
| TR 16.9.9.2 Verify that each manual, power operated, or automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position. | 31 days |
| TR 16.9.9.3 Deleted | |
| TR 16.9.9.4 Verify that each charging pump's developed head at the test flow point is greater than or equal to the required developed head. | In accordance with the Inservice Testing Program |
| TR 16.9.9.5 Verify that the flow path from the boric acid tanks via a boric acid transfer pump and a charging pump delivers ≥ 30 gpm to the reactor coolant system. | 18 months |

BASES

The Boron Injection System ensures that negative reactivity control is available during each mode of facility operation. The components required to perform this function include: (1) borated water sources, (2) charging pumps, (3) separate flow paths, (4) boric acid transfer pumps, and (5) an emergency power supply from OPERABLE diesel generators.

In Modes 1, 2, and 3, a minimum of two boron injection flow paths are required to ensure single functional capability in the event an assumed failure renders one of the flow paths

BASES (continued)

inoperable. The boration capability of either flow path is sufficient to provide a SHUTDOWN MARGIN from expected operating conditions of 1.3% delta k/k after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions. Further discussion is provided in Bases for Shutdown Margin Requirements (Tech Spec 3.1.1 and 3.1.2).

REFERENCES

1. PIP M-07-03237
2. DPND-1552.63-0099, Rev. 0, "Required Boration Flow Paths in Mode 4"
3. NRC Issuance of Amendments 184/166, Improved Technical Specification conversion and relocations to SLC Manual.