

PLANT SYSTEMS

3/4.7.13 GROUNDWATER LEVEL

LIMITING CONDITION FOR OPERATION

3.7.13 The groundwater level shall be maintained at or below the maximum allowable groundwater level as shown in Table 3.7-7.

APPLICABILITY: At all times.

ACTION: (Unit 1 or 2 as shown in Table 3.7-7)

- a. With the groundwater level above the maximum allowable groundwater level but less than or equal to 5 feet above the top of the adjacent floor slab, reduce the groundwater level to or below the maximum allowable groundwater level within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With the groundwater level above the top of the adjacent floor slab by greater than 5 feet but less than 15 feet, reduce the groundwater level to less than or equal to 5 feet above the top of the affected adjacent floor slab within 24 hours and to or below the maximum allowable groundwater level within 7 days of initially exceeding the above limits or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With the groundwater level above the top of the adjacent floor slab by greater than or equal to 15 feet, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the next 30 hours. Perform an engineering evaluation to determine the effects of this high groundwater level on the affected building(s) and submit the results of this evaluation and any corrective action determined necessary to the Commission as a Special Report pursuant to Specification 6.9.2 prior to increasing T_{avg} above 200°F.
- d. With the groundwater level above the maximum allowable groundwater level at any accessible interior groundwater level monitor determine the rate of rise of the groundwater level at the accessible interior monitor or a representative monitor at least once per hour. If the rate of rise of the groundwater level is greater than or equal to 0.3 foot per hour, determine the rate of rise at least once per 30 minutes. If the rate of rise exceeds 0.5 foot per hour for more than 1 hour, be in at least HOT STANDBY within 1 hour and in COLD SHUTDOWN within the following 30 hours. If the rate of rise is less than 0.5 foot per hour, comply with the requirements of ACTIONS a., b., and c. above.
- e. The provisions of Specification 3.0.4 are not applicable in Modes 5 and 6.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.7.13 The groundwater level shall be determined at the following frequencies by monitoring the water level in each of the accessible interior groundwater level monitoring stations and by verifying the absence of alarm for the exterior and the inaccessible interior groundwater level monitoring stations as shown in Table 3.7-7:

- a. At least once per 7 days when the groundwater level is at or below the maximum allowable groundwater level, and
- b. At least once per 24 hours when the groundwater level is above the maximum allowable groundwater level.

TABLE 3.7-7
GROUNDWATER LEVEL MONITORS

LOCATION	INTERIOR/ EXTERIOR	ACCESSIBLE INACCESSIBLE	ADJACENT FLOOR SLAB ELEVATION (feet)	APPLICABILITY	MAXIMUM ALLOWABLE GROUNDWATER LEVEL (Feet)
Unit 1 Reactor Building	Exterior	Inaccessible	725 + 0	Unit 1	725 + 0
Auxiliary Bldg - West Wall	Exterior	Inaccessible	716 + 0	Unit 1	716 + 0
AA-40, Elev. 736' + 6	Interior	Accessible	736 + 6	Unit 1	739 + 2
DD-42, Elev. 736' + 6	Interior	Accessible	736 + 6	Unit 1	739 + 2
PP-51, Elev. 716' + 0	Interior	Accessible	716 + 0	Unit 1	718 + 8
Unit 2 Reactor Building	Exterior	Inaccessible	725 + 0	Unit 2	725 + 0
Auxiliary Bldg - East Wall	Exterior	Inaccessible	731 + 6	Unit 2	731 + 6
BB-72, Elev. 736' + 6	Interior	Accessible	736 + 6	Unit 2	739 + 2
DD-69, Elev. 736' + 6	Interior	Accessible	736 + 6	Unit 2	739 + 2
PP-61, Elev. 716' + 0	Interior	Accessible	716 + 0	Unit 2	718 + 8
QQ-56, Elev. 716' + 0	Interior	Inaccessible	716 + 0	Units 1 and 2*	718 + 8

* No ACTION required if the monitors at PP-51, Elev. 716' (Unit 1 only) and pp-61, Elev. 716' (Unit 2 only) are operable.

Justification and Safety Analysis

The proposed amendments are necessary to assure consistency between the Technical Specifications and the capabilities of the groundwater monitoring instrumentation installed at McGuire Nuclear Station. The proposed changes permit a 2'-8" additional groundwater level rise before the situation is alarmed by the interior monitors in the Control Room. Groundwater rise of this magnitude is a highly improbable occurrence. The exterior groundwater monitors would alarm as before and would alert the Control Room operators ahead of the interior monitors.

McGuire Nuclear Station has seven permanent interior groundwater monitors. These groundwater monitors are instrumented through holes in the walls into the zoned wall filter at a position which is located 2'-3" above the top of the floor slabs at various locations. Any exterior groundwater level rise 5" above this point would automatically alarm in the Control Room. Four exterior groundwater monitors are located around the perimeter of the Reactor and Auxiliary Buildings. The exterior groundwater monitors alarm when the groundwater reaches a level corresponding to the top of the monitored floor slab inside the building. The current Technical Specifications do not differentiate between the interior groundwater monitors which detect exterior groundwater at a level of 2'-8" above the top of the monitored floor slabs and the exterior groundwater monitors which detect groundwater at a level relative to the top of the floor slabs.

The proposed changes would assure consistency between the Technical Specifications and the asbuilt conditions. To clarify the differences between the interior and exterior groundwater monitors, Table 3.7-7 has been modified. A column for, "Maximum Allowable Groundwater Level (feet)" is being added to Table 3.7-7. The maximum allowable exterior groundwater level for the interior monitors to detect is the adjacent floor slab elevation plus 2'-8" whereas the maximum allowable groundwater level for the exterior monitor is the top of the floor slab elevation which is being monitored. The phrase "Maximum allowable groundwater level" as determined from the Table 3.7-7 is substituted for "top of the adjacent floor slab" in the Technical Specification 3/4.7.13. This results in the following changes:

- 1) The elevation for detecting a rise in the exterior groundwater level is raised by 2'-8" for each of the interior monitors.
- 2) The elevation to which the groundwater level must be lowered in the unlikely event that groundwater rises more than 2'-8" above the top of the adjacent floor slab, is raised by 2'-8" for each interior monitor.

No changes are necessary for the exterior groundwater monitors.

The changes to the Technical Specifications will have no impact on safety. The only safety hazard which could occur due to the increased hydrostatic pressure caused by higher groundwater levels would be a failure of building walls. However, the Reactor Building is designed to withstand the hydrostatic pressure exerted by the groundwater up to the 750' elevation and the Auxiliary Building is designed to withstand the hydrostatic pressure for groundwater levels up to the 735' elevation. For these cases there would be no safety concerns

Justification and Safety Analysis (continued)

for even a 15' groundwater level rise, therefore a 2'-8" relaxation of the Technical Specifications has an insignificant impact. The Diesel Building is not expressly designed for the hydrostatic loads, however it has been determined that the hydrostatic loads due to groundwater rise are negligible compared to the design loads and resulting stresses for the Diesel Building. Therefore, we conclude that the proposed changes have no safety implications.

Analysis of Significant Hazards Consideration

The rise of the groundwater is alarmed in three stages:

- 1) 'Alert' for Maximum Allowable Groundwater Level or more,
- 2) 'Hi' for 5' or more above the top of the adjacent slab, and
- 3) 'Hi-Hi' for 15' or more above the top of the adjacent slab.

The proposed changes are concerned only with stage 1 for alarming the groundwater level. The probability or consequences of any accidents are not increased by the proposed changes. The diesel building is the only structure involved which is not expressly designed for the hydrostatic loads resulting from the groundwater rise. The hydrostatic loads due to groundwater rise have been determined to be insignificant compared to the design loads for the Diesel Building. Thus there is no significant reduction in the margin of safety for the structures involved.

The current Technical Specifications already take into consideration the groundwater level rise over a wide range and prescribe remedial action to be taken for groundwater level rise above the floor level, 5' or more above the floor level and 15' or more above the floor level. The proposed changes provide for similar remedial action for groundwater level rise 2'-8" above the floor level, 5' or more above the floor level and 15' or more above the floor level.

There is no possibility of occurrence of new accidents or accident mechanisms due to raising the setpoint for alarming the exterior groundwater level rise for interior monitors by 2'-8". No changes will be made on the exterior groundwater monitors or the setpoints for these monitors.

The proposed amendments 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.

Based upon the preceding analysis, Duke Power Company concludes that the proposed amendments do not involve a significant hazards consideration.