

Duke Power Company  
McGuire Nuclear Generation Department  
12700 Hagers Ferry Road (MG01VP)  
Huntersville, NC 28078-9340

H. B. BARRON  
Vice President  
(704) 875-4800  
(704) 875-4809 Fax



DUKE POWER

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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Unit 1 and 2  
Docket No. 50-369  
Special Report Number 96-04, Rev. 2  
Problem Investigation Process No.: 2-M96-2898

Gentlemen:

Attached is Revision 2 of Special Report 96-04, concerning selected Licensee Commitment 16.9-8. The groundwater level at well Mk. GWA-2, monitored by 2WZLS5060, was in alarm for 7 days. This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

*For*   
H.B. Barron

JWP/bcb

Attachment

cc: Mr. L. A. Reyes  
U.S. Nuclear Regulatory Commission  
Region II  
Atlanta Federal Center  
61 Forsyth St., SW, Suite 23T85  
Atlanta, GA 30323

INPO Records Center  
Suite 1500  
1100 Circle 75 Parkway  
Atlanta, GA 30339

Mr. Victor Nerses  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Washington, D.C. 20555

Mr. Scott Shaeffer  
NRC Resident Inspector  
McGuire Nuclear Station

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PDR ADOCK 05000369  
S PDR



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bxc: B. L. Walsh (EC11C)  
M. S. Kitlan (CNS)  
G. A. Copp (EC050)  
J. I. Glenn (MG02ME)  
P. R. Herran (MG01VP)  
L. S. Davis (MG05SE)  
J. E. Burchfield (ONS Reg Compliance)  
G. H. Savage (EC06E)  
G. B. Swindlehurst (EC11-0842)  
C. M. Misenheimer (EC08I)  
R. F. Cole (EC05N)  
J. M. Frye (EC05N)  
T. G. Becker (PB02L)  
P. M. Abraham (EC08I)  
R. B. White (MG01VP)  
R. T. Bond (ON03SR)  
D. P. Kimball (CN05SR)  
K. L. Crane (MG01RC)  
R. N. Casler (EC05N)  
NSRB Support Staff (EC05N)

Duke Power Company  
McGuire Nuclear Station  
System Engineering Group Special Report

This Special Report is being submitted as required by Selected Licensee Commitment (SLC) 16.9-8. Groundwater well Mk. GWA-2 (a Reactor Building well monitored by 2WZLS5060) was above the Alert level of 731' for 7 days.

Report No.: 96-04 Rev. 2      Date of Report: 4/29/97

Description of Incident

Unit Status: Unit 1 was in a refueling outage in No-Mode (De-fueled) and Unit 2 was in Mode 1 (Power Operation) at 100% power at the time the Groundwater Alarm that prompted this addendum was received.

The Groundwater Alarm (730'11<sup>1/2</sup>") at this location was initially received on 10/06/96 and entered in the Technical Specification Action Item List (TSAIL) for tracking, even though it is not a Technical Specification related well. This alarm was checked by the IAE group and appeared to be valid. This alarm subsequently cleared in less than 7 days. The alarm returned and was again entered in the TSAIL on 10/11/96. The alarm cleared on 11/2/96 at 2230, ~22 days. SLC 16.9-8 prompts this report when groundwater level at this location is above 731' for 7 days. For conservatism, we have assumed that if instrument is in alarm we are above 731'. While the report documenting this investigation was being prepared, the alarm returned on 11/7/96. This was not unexpected due to precipitation the previous week and the level was already near the setpoint. Level Switch 2WZLS5060 is still in alarm at the time this report is being submitted. The alarm is for the same reasons, and corrective actions are the same; therefore, this report covers both events.

Well Mk. GWA-2 monitors groundwater at the Unit 2 Reactor Building wall. The Reactor Buildings at McGuire have been analyzed for groundwater hydrostatic loading up to grade elevation (760'). Therefore, there is no concern with the safety and health of the public or the safety of the station. After the analysis confirmed the Reactor and Diesel Buildings at McGuire were capable of withstanding hydrostatic loads up to grade elevation, the monitoring wells associated with these structures were removed from the McGuire Tech Specs. They were kept in the McGuire SLC's to be used as a tool in identifying piping leaks or breaks in the yard and as an indication of a problem with the underground drainage grid system.

## Corrective Action

### Immediate

- It was verified that no other groundwater monitoring instruments were in alarm.
- A field survey of the surrounding areas was performed to verify there was no water percolating to the surface that would indicate a pipe leak/rupture.
- An interview was conducted with the steam generator replacement teammate overseeing construction regarding recent excavation work on the Unit 2 side of the site.
- Environmental Engineering was requested to support this evaluation. Their evaluation concludes that this is a natural groundwater phenomenon vs. a leak induced rise in groundwater level. They have seen rises in groundwater at other sites on the Duke Power system recently. They also feel that the underground drainage grid is still functioning adequately due to the lack of alarms at other locations. In particular, the adjacent Auxiliary Building well (Mk. GWB-2) that is monitored by instrument 2WZLS5070 has not alarmed. Groundwater levels at the site are driven by the level of Lake Norman and precipitation. Both have been above average for the last few years. Based on SAR documents related to construction at the McGuire site, the level at which this alarm (2WZLS5060) has been received does not appear abnormally high. The documents also indicate that groundwater would drain toward the Reactor Building. Recent construction projects associated with the Unit 2 side of the site may have contributed to soil changes that have affected this well. These projects have also altered the topography in this area, allowing more precipitation to soak into the soil as opposed to draining to the yard drain system. All of these factors could affect the local groundwater level. However, they are not jeopardizing the safety of the station or the public, as evidenced by the lack of alarms at any of the Technical Specification wells.

### Planned

- Continue to monitor well Mk. GWA-2. This well (monitored by 2WZLS5060) is located at the Unit 2 Reactor Building exterior wall. The Reactor Building has been qualified for hydrostatic pressures up to grade elevation (760'). The alarm was received at ~731' and is a float switch type instrument. We will monitor this well with direct reading instrumentation in order to obtain better data on water level fluctuations.

- Monitor the nearest Technical Specification related well (Mk. GWA-2, monitored by 2WZLS5070) in order to verify that this phenomenon is localized in the area of well Mk. GWA-2 and does not raise concerns with the Auxiliary Building groundwater levels. As mentioned previously, we have not received any alarms associated with the Auxiliary Building. The Auxiliary Building monitors are associated with Technical Specification 3/4.7.13. Should any three of the five indicate above elevation 731', the plant would be required to lower the groundwater level to less than 731' within one hour or shutdown within the following six hours.
- After confirming that the rise in groundwater is localized to the area of Mk. GWA-2 and there is no problem that could affect the Auxiliary Building, Duke Power may seek a change to the SLC to more closely reflect the expected seasonal high groundwater elevation at this well site. This should eliminate a nuisance alarm in the control room. No requests for changes to any of the Auxiliary Building (Technical Specification related) setpoints are anticipated.

Addendum to Special Report 96-04

Due to continued rainfall and higher than seasonal levels in Lake Norman, the subject Groundwater Monitoring Well continued to alarm, clear, and return. The alarm last returned on 12/5/96 and remained in alarm greater than 7 days. Therefore, this addenda to Special Report 96-04 is being submitted. All of the information supplied in the initial report still applies. No safety concern exists and actions are being pursued in order to gather additional information before pursuing changes to the setpoints. As reported previously, this well is SLC related. No Technical Specification wells have been in alarm during this event. Continued clearing/returning of this alarm is probable until the level of Lake Norman decreases long enough to allow groundwater levels to subside.

During installation of additional monitoring instruments on 12/18/96, it was observed that the water level in well Mk. GWA-2 was ~1-1/2" above the alarm setpoint. There was no water in the adjacent Technical Specification well (Mk. GWB-2). This substantiates our initial hypothesis that the high groundwater level is localized in the area of Mk. GWA-2 and is not affecting the Auxiliary Building.

The level of Lake Norman began decreasing in mid-December. The alarm cleared about 12/31/96 and has remained clear. Monitoring of well Mk. GWA-2 (SLC) and Mk. GWB-2 (TS) is continuing.



Additional Information for Groundwater Alarm received  
3/27/97:

The groundwater alarm received on 3/27/97 is the same instrument that alarmed and prompted the initial Special Report 96-04 and the subsequent Revision 1 to that report. This alarm had cleared and remained clear for extended periods coinciding with the annual winter draw down of Lake Norman. Due to substantial precipitation and subsequent rapid rise in Lake Norman, the alarm returned. It was entered in TSAIL for tracking purposes. The 7 day tracking period expired on 4/3/97, with this report due 30 days later. The alarm cleared and returned several times, indicating that the level was hovering about the setpoint.

As noted previously, the Reactor Buildings have been evaluated and determine structurally sound for groundwater levels up to grade (760'). Therefore, the water levels observed by this well are not considered a threat to the safe operation of the facility.

As outlined in the planned corrective actions section of this report, we have been trending and observing this well. It follows the rise and fall of Lake Norman. We also compiled information regarding the operation of Lake Norman. For the past four or five years, Lake Norman has not been drawn down during the winter months as far or for as long as it had traditionally been. This would result in an increase in groundwater level around the McGuire site. However, as evidenced by no other groundwater alarms having been received, we do not believe it is a challenge to the underdrain system or safety of the station. The location of the well, the groundwater flow patterns on the McGuire Site, and the changes in operation of Lake Norman can all contribute to the groundwater level at this location. Therefore, not all wells on site would be affected the same due to changes in the level of Lake Norman.

Barring any indication of a groundwater rise at other instrument locations, we plan to pursue a SLC change during the next few months that would allow a setpoint change at this well that takes into consideration the changes in groundwater level at this location.