May 26, 1988

Docket Nos. 50-369
and 50-370

LICENSEE: Duke Power Company

FACILITY: McGuire Nuclear Station, Units 1 and 2

SUBJECT: SUMMARY OF SITE VISIT AND MEETING ON GROUNDWATER LEVEL MONITORING AND CONTROL (TACS 56472 AND 56473)

On April 12, 1988, the NRR staff visited the McGuire Nuclear Station, Units 1 and 2, to review the Groundwater Monitoring and Control System. The review is associated with a request by the licensee, dated October 31, 1984 and revised January 27, 1988, to change the associated Technical Specification 3/4.7.13 "Groundwater Level" to reflect a revised groundwater level control strategy.

Enclosure 1 provides a summary of this visit. In support of the licensee's proposed technical specification changes, copies of the existing procedures and draft copies of proposed procedures regarding actions in response to annunciator alarms for increased groundwater levels were provided to the NRC (Enclosure 2). The staff also received copies of the Problem Investigation Report (Enclosure 3) for the January 1988 alert alarm condition for groundwater monitor MK.GWA-2 located at the exterior of the Unit 2 Reactor Building, and copies of drawing MC-1220-73 (Enclosure 4) showing details for the exterior groundwater monitors within the underground filtering medium.

Original signed by:

Darl S. Hood, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II

Enclosures:
As stated

cc:
See next page

DSH
PM:PDII-3 D:PDII-3
DHood:pw DMatthews
5/26/88 5/26/88

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 26, 1988

Docket Nos. 50-369
and 50-370

LICENSEE: Duke Power Company

FACILITY: McGuire Nuclear Station, Units 1 and 2

SUBJECT: SUMMARY OF SITE VISIT AND MEETING ON GROUNDWATER LEVEL MONITORING AND CONTROL (TACS 56472 AND 56473)

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DARL HOOD

Darl S. Hood, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II

Enclosures:
As stated

cc:
See next page

cc:

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County Manager of Mecklenburg County
720 East Fourth Street
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Charlotte, North Carolina 28242

50-369

DISTRIBUTION FOR MEETING SUMMARY DATED: May 26, 1988

Facility: McGuire Nuclear Station, Units 1 and 2*

Docket File
NRC PDR
Local PDR
PDII-3 Reading
D. Matthews
M. Rood
D. Hood
OGC-WF 15B-18
E. Jordan MNBB-3302
J. Partlow 9A-2
ACRS (10)

*Copies sent persons on facility service list

ENCLOSURE 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 6, 1988

Docket No. 50-369/370

MEMORANDUM FOR: Goutam Bagchi, Chief
Structural and Geosciences Branch
Division of Engineering and Systems Technology

THRU: Leon Reiter, Section Chief
Geosciences Section, Structural and Geosciences Branch
Division of Engineering and Systems Technology

FROM: Gary B. Staley, Hydraulic Engineer
Sai P. Chan, Civil Engineer
Geosciences Section, Structural and Geosciences Branch
Division of Engineering and Systems Technology

SUBJECT: SITE VISIT TO MCGUIRE NUCLEAR STATION AND MEETING WITH DUKE POWER COMPANY REGARDING THE TECHNICAL SPECIFICATION FOR THE PERMANENT DEWATERING SYSTEM

Messers Gary Staley (Hydraulic Engineer), Sai Chan (Civil Engineer) and Darl Hood (McGuire Project Manager) arrived at the McGuire site on the morning of April 12, 1988. We met briefly with Bill Orders, the resident inspector, and then completed our site access processing. We were joined by Steve Leroy and David Johnson of Duke Power Co. for a tour of the monitoring wells, gages and the Auxiliary Building which was the subject for the structural review. We also looked at one of the Auxiliary Building sumps where the groundwater is collected and pumped to either the yard drain system or the Turbine Building sumps. We met briefly at the end of the day to review the following day's items for discussion.

On Wednesday April 13th we met with Steve Leroy, David Johnson and Bob Dulin at the Duke Power Co. headquarters offices in Charlotte, N.C. We initially discussed Duke Power's proposed modification to Technical Specification 3/4.7.13, Groundwater Level. This modification reduces the number of monitors from eleven to the five that surround the north end of the Auxiliary Building. The six deleted monitors would be retained in the plant operating procedures. Plant shutdown would be required when 3 of the 5 monitors exceed elevation 731 ft. msl rather than the previous requirement for shutdown when one of the monitors exceeded the alarm level. The staff has some reservations on deleting six of the monitors from the specification since the auxiliary purpose of these monitors is to provide early warning of underdrain system malfunction and/or early indications of other than the normal source of water into the system.

We talked to one of the plant instrument technicians by conference call and he explained the operation of the gage systems for the exterior and interior monitors. We also discussed the fact that the interior monitors are set at least 2 feet above the normal controlled groundwater level and therefore do not have a positive reading which would serve as a check and verification that the equipment is working properly. They couldn't refute this logic and also couldn't provide any annual test procedure that would provide assurances that the pipe through the wall was not blocked. Their test procedures only apply to the interior gages and sensors.

They did state that they thought that one or more of these interior monitors had alarmed on more than one occasion. It is the staff's opinion that these monitors shouldn't alarm unless the underdrain system is malfunctioning since most of the surface area between the Auxillary Building and Lake Norman is paved, which will preclude significant direct infiltration into the groundwater system, and the underdrain system theoretically should be able to accommodate moderate amounts of surface infiltration without exceeding the monitor alarm levels. The quality of the groundwater monitoring system and its operation will need further review before making a decision on the requested Technical Specification change.

Sai Chan reviewed the structural evaluations pertinent to the uplift, overturning, and stability of the Reactor, Diesel and Auxiliary Buildings in the presence of high groundwater levels. The licensee's analyses were apparently conservative with respect to building weight since they did not consider the weight of piping and equipment.

Gary B. Staley, Hydraulic Engineer

Sai P. Chan, Civil Engineer
Geosciences Section
Structural and Geosciences Branch
Division of Engineering and Systems
Technology

cc: J. Richardson
D. Hood

DUKE POWER COMPANY

ENCLOSURE 2

Fo. 00181 (6-81)

Div./Station Unit File No.

Subj:

By Date

Sheet No of Probl. No. Checked By Date

Current Unit 1 Response Procedure

DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
ANNUNCIATOR RESPONSE FOR PANEL 1AD-8

1.0 Purpose

The purpose of this procedure is to give the setpoint, origin, probable cause and actions necessary for identifying and clearing alarms received.

2.0 Limits and Precautions

2.1 All information and indications shall be used in responding and correcting an alarm condition.

3.0 Procedure

3.1 Annunciator Panel 1AD-8 Alarms.

GROUNDWATER ALERT

Setpoint:	1WZLS-5060 Unit 1 Reactor Bldg Outside Wall (725' Elev) 1WZLS-5070 Aux Bldg Westside Outside Wall (716' Elev) 1WZPS-5080 Diesel Rm 1B Internal Wall (738' 6" Elev) 1WZPS-5090 Diesel Rm 1A Internal Wall (738' 6" Elev) 1WZPS-5100 Aux Bldg NW Stairwell (718' Elev) 0WZPS-5110 Recycle Evaporator Feed Room (718' Elev)
Origin:	Groundwater Monitor Panel Alert is set for 2 feet above floor of instrument.
Probable Cause:	Heavy rain.
Automatic Action:	None
Immediate Action:	Dispatch an operator to check the Groundwater Monitor Panel to determine the station in alarm.

Supplementary Action:

1. With alarm in, refer to Tech Spec 3.7.13 to determine the correct action to take. When alarm clears, refer to Tech Spec Surveillance Requirement 4.7.13(b) and verify by recording level in the RO Logbook.
2. Inform Shift Supervisor.
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

GROUNDWATER HI LEVEL

Setpoint:	1WZLS-5060 Unit 1 Reactor Bldg Outside Wall (730' Elev) 1WZLS-5070 Aux Bldg Westside Outside Wall (721' Elev) 1WZPS-5081 Diesel Rm 1B Internal Wall (741' 6" Elev) 1WZPS-5091 Diesel Rm 1A Internal Wall (741' 6" Elev) 1WZPS-5101 Aux Bldg NW Stairwell (721' Elev) 0WZPS-5111 Recycle Evaporator Feed Rm (721' Elev)
Origin:	Groundwater Monitor Panel Hi Level is set for 5 feet above floor of instrument.
Probable Cause:	Heavy rain.
Automatic Action:	None
Immediate Action:	Dispatch an operator to check the Groundwater Monitor Panel to determine the station in alarm.

Supplementary Action:

1. Refer to Tech Spec 3.7.13 to determine the correct action to take.
2. Inform Shift Supervisor
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

GROUNDWATER HI-HI LEVEL

Setpoint:

1WZLS-5060 Unit 1 Reactor Bldg Outside Wall (740' Elev)
1WZLS-5070 Aux Bldg Westside Outside Wall (731' Elev)
1WZPS-5082 Diesel Rm 1B Internal Wall (751' 6" Elev)
1WZPS-5092 Diesel Rm 1A Internal Wall (751' 6" Elev)
1WZPS-5102 Aux Bldg NW Stairwell (731' Elev)
0WZPS-5112 Recycle Evaporator Feed Rm (731' Elev)

Probable Cause:

Heavy rain.

Automatic Action:

None

Immediate Action:

Dispatch an operator to check the Groundwater Monitor Panel to determine the station in alarm.

PANEL 1AD8 - E3

Supplementary Action:

1. Refer to Tech Spec 3.7.13 to determine the correct action to take.
2. Inform Shift Supervisor
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

DUKE POWER COMPANY

Form 00131 (8-81)

Dev./Subj. Unit File No.

Subj.

By Date

Sheet No. of Build. No. Checked By Date

Current Unit 2 Response Procedure

PANEL 2AD8 - E1

GROUNDWATER ALERT

Setpoint:	2WZLS-5060 Unit 2 Reactor Bldg Outside Wall (725' Elev) 2WZLS-5070 Aux Bldg Eastside Outside Wall (716' Elev) 2WZPS-5080 Diesel Rm 2B Internal Wall (738'6" Elev) 2WZPS-5090 Diesel Rm 2A Internal Wall (738'6" Elev) 2WZPS-5100 Aux Bldg NE Stairwell (718' Elev)
Origin:	Groundwater Monitor Panel Alert is set for 2 feet above floor of instrument.
Probable Cause:	Heavy rain.
Automatic Action:	None
Immediate Action:	Dispatch an operator to check the groundwater monitor panel to determine the station in alarm.
Supplementary Action:	1. With alarm in, refer to Tech Spec 3.7.13 to determine the correct action to take. When alarm clears, refer to Tech Spec Surveillance Requirement 4.7.13(b) and verify by recording level in the RO Logbook. 2. Inform Shift Supervisor. 3. If alarm was caused by instrument malfunction, contact I&E.

PANEL 2AD8 - E1

References: Mechanical Instrumentation and Control List.

GROUNDWATER HI LEVEL

Setpoint:	2WZLS-5060 Unit 2 Reactor Bldg Outside Wall (730' Elev) 2WZLS-5070 Aux Bldg Eastside Outside Wall (721' Elev) 2WZPS-5081 Diesel Rm 2B Internal Wall (741'6" Elev) 1WZPS-5091 Diesel Rm 2A Internal Wall (741'6" Elev) 2WZPS-5101 Aux Bldg E Stairwell (721' Elev)
Origin:	Groundwater Monitor Panel Hi Level is set for 5 feet above floor of instrument.
Probable Cause:	Heavy rain.
Automatic Action:	None
Immediate Action:	Dispatch an operator to check the groundwater monitor panel to determine the station in alarm.
Supplementary Action:	1. Refer to Tech Spec 3.7.13 to determine the correct action to take. 2. Inform Shift Supervisor. 3. If alarm was caused by instrument malfunction, contact I&E.
References:	Mechanical Instrumentation and Control List.

GROUNDWATER HI-HI LEVEL

Setpoint:

2WZLS-5060 Unit 2 Reactor Bldg Outside Wall (740' Elev)
2WZLS-5070 Aux Bldg Eastside Outside Wall (731' Elev)
2WZPS-5082 Diesel Rm 2B Internal Wall (751'6" Elev)
2WZPS-5092 Diesel Rm 2A Internal Wall (751'6" Elev)
2WZPS-5102 Aux Bldg NE Stairwell (731' Elev)

Origin:

Groundwater Monitor Panel
Hi-Hi Level is set for 15 feet above floor of instrument.

Probable Cause:

Heavy rain.

Automatic Action:

None

Immediate Action:

Dispatch an operator to check the groundwater monitor panel to determine the station in alarm.

Supplementary Action:

1. Refer to Tech Spec 3.7.13 to determine the correct action to take.
2. Inform Shift Supervisor.
3. If alarm was caused by instrument malfunction, contact I&E.

References:

Mechanical Instrumentation and Control List.

DUKE POWER COMPANY

Form 00181 (6-81)

Dev./Subj. Unit File No. -

Sh. :

By Date

Sh No. of Prob. No. Ch. Rd D, Date

Proposed Unit 1 Response Procedure

PANEL 1AD8 - E1

GROUNDWATER ALERT

Setpoint: 2 feet above floor of instrument

Origin: 1WZLS-5060 Unit 1 Reactor Bldg Outside Wall (Inaccessible, Elev 725')
* 1WZLS-5070 Aux Bldg West side Outside Wall (Inaccessible, Elev 716')
1WZPS-5080 Diesel Rm 1B Internal Wall (Accessible, AA-40, Elev 736')
1WZPS-5090 Diesel Rm 1A Internal Wall (Accessible, DD-42, Elev 736')
* 1WZPS-5100 Aux Bldg NW Stairwell (Accessible, PP-51, Elev 716')
* 0WZPS-5110 Recycle Evaporator Feed Rm (Inaccessible, QQ-56, Elev 716')

* Technical Specification Groundwater Monitor

Probable Cause: Heavy rain.

Automatic Action: None

Immediate Action: Dispatch an operator to check the Groundwater Monitor Panel to determine the station(s) in alarm. (There are 11 Groundwater Monitors in all. Unit 1 utilizes 6 of these 11).

PANEL 1AD8 - E1

Supplementary Action:

1. Refer to Tech Spec Table 3.7-7 Groundwater Level Monitors. If three (3) out of the five (5) monitors are in alarm (including Unit 2), contact Duke Design Engineering (Civil) for investigation and resolution of the increased groundwater level.
2. Inform Shift Supervisor.
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

GROUNDWATER HI LEVEL

Setpoint: 5 feet above floor of instrument

Origin:
1WZLS-5060 Unit 1 Reactor Bldg Outside Wall (Inaccessible, Elev 725')
* 1WZLS-5070 Aux Bldg West side Outside Wall (Inaccessible, Elev 716')
1WZPS-5081 Diesel Rm 1B Internal Wall (Accessible, AA-40, Elev 736')
1WZPS-5091 Diesel Rm 1A Internal Wall (Accessible, DD-42, Elev 736')
* 1WZPS-5101 Aux Bldg NW Stairwell (Accessible, PP-51, Elev 716')
* 0WZPS-5111 Recycle Evaporator Feed Rm (Inaccessible, QQ-56, Elev 716')

* Technical Specification Groundwater Monitor

Probable Cause: Heavy rain.

Automatic Action: None

Immediate Action: Dispatch an operator to check the Groundwater Monitor Panel to determine the station(s) in alarm. (There are 11 Groundwater monitors in all. Unit 1 utilizes 6 of these 11).

Supplementary Action:

1. Refer to Tech Spec Table 3.7-7 Groundwater Level Monitors. If three (3) out of the five (5) monitors are in alarm (including Unit 2), contact Duke Design Engineering (Civil) for investigation and resolution of the increased groundwater level.
2. Inform Shift Supervisor
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

GROUNDWATER HI-HI LEVEL

Setpoint: 15 feet above floor of instrument

Origin:
1WZLS-5060 Unit 1 Reactor Bldg Outside Wall (Inaccessible, Elev 725')
* 1WZLS-5070 Aux Bldg West side Outside Wall (Inaccessible, Elev 716')
1WZPS-5082 Diesel Rm 1B Internal Wall (Accessible, AA-40, Elev 736')
1WZPS-5092 Diesel Rm 1A Internal Wall (Accessible, DD-42, Elev 736')
* 1WZPS-5102 Aux Bldg NW Stairwell (Accessible, PP-51, Elev 716')
* OWZPS-5112 Recycle Evaporator Feed Rm (Inaccessible, QQ-56, Elev 716')

* Technical Specification Groundwater Monitor

Probable Cause: Heavy rain.

Automatic Action: None

Immediate Action: Dispatch an operator to check the Groundwater Monitor Panel to determine the station(s) in alarm. (There are 11 Groundwater monitors in all. Unit 1 utilizes 6 of these 11).

PANEL 1AD8 - E3

Change No. ____
Page 7 of 7

Supplementary Action:

1. Refer to Tech Spec 3.7.13 to determine the correct action to take.
2. Inform Shift Supervisor
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

DUKE POWER COMPANY

Form [illegible] (8-81)

Dept./Station Unit File No.

Subject

By Date

Sheet No. of Prob. No. Checked By Date

Proposed Unit 2 Response Procedure

GROUNDWATER ALERT

Setpoint: 2' Above Floor of Instrument

Origin: 2WZLS-5060 Unit 2 Reactor Bldg Outside Wall (Inaccessible, Elev 725')
* 2WZLS-5070 Aux Bldg Eastside Outside Wall (Inaccessible, Elev 729')
2WZPS-5080 Diesel Rm 2B Internal Wall (Accessible, EM-69, Elev 736')
2WZPS-5090 Diesel Rm 2A Internal Wall (Accessible, DD-69, Elev 736')
* 2WZPS-5100 Aux Bldg NE Stairwell (Accessible, PP-61, Elev 716')

* Technical Specification Groundwater Monitor

Probable Cause: Heavy rain.

Automatic Action: None

Immediate Action: Dispatch an operator to check the Groundwater Monitor Panel to determine the station(s) in alarm. (There are 11 Groundwater monitors in all. Unit 2 utilizes 5 of these 11).

Supplementary Action:

1. Refer to Tech Spec Table 3.7-7 Groundwater Level Monitors. If three (3) out of the five (5) monitors are in alarm (including Unit 1), contact Duke Design Engineering (Civil) for investigation and resolution of the increased groundwater level.
2. Inform Shift Supervisor.
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

PANEL 2AD8 - E2

GROUNDWATER HI LEVEL

Setpoint:	5 Feet Above Floor of Instrument
Origin:	2WZLS-5060 Unit 2 Reactor Bldg Outside Wall (Inaccessible, Elev 725') * 2WZLS-5070 Aux Bldg Eastside Outside Wall (Inaccessible, Elev 729') 2WZPS-5081 Diesel Rm 2B Internal Wall (Accessible, BB-72, Elev 736') 1WZPS-5091 Diesel Rm 2A Internal Wall (Accessible, DD-69, Elev 736') * 2WZPS-5101 Aux Bldg E Stairwell (Accessible, PP-61, Elev 716') * Technical Specification Groundwater Monitor
Probable Cause:	Heavy rain.
Automatic Action:	None
Immediate Action:	Dispatch an operator to check the Groundwater Monitor Panel to determine the station(s) in alarm. (There are 11 Groundwater monitors in all. Unit 2 utilizes 5 of these 11).

Supplementary Action:

1. Refer to Tech Spec Table 3.7-7 Groundwater Level Monitors. If three (3) out of the five (5) monitors are in alarm (including Unit 1), contact Duke Design Engineering (Civil) for investigation and resolution of the increased groundwater level.
2. Inform Shift Supervisor.
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

PANEL 2A08 - E3

Change No. ____
Page 6 of 7

GROUNDWATER HI-HI LEVEL

Setpoint: 15 Feet Above Floor of Instrument

Origin: 2WZLS-5060 Unit 2 Reactor Bldg Outside Wall (Inaccessible, Elev 725')
* 2WZLS-5070 Aux Bldg Eastside Outside Wall (Inaccessible, Elev 729')
2WZPS-5082 Diesel Rm 2B Internal Wall (Accessible, BB-72, Elev 736')
2WZPS-5092 Diesel Rm 2A Internal Wall (Accessible, DD-69, Elev 736')
* 2WZPS-5102 Aux Bldg NE Stairwell (Accessible, PP-61, Elev 716')

* Technical Specification Groundwater Monitor

Probable Cause: Heavy rain.

Automatic Action: None

Immediate Action: Dispatch an operator to check the Groundwater Monitor Panel to determine the station(s) in alarm. (There are 11 Groundwater monitors in all. Unit 2 utilizes 5 of these 11).

Supplementary Action:

1. Refer to Tech Spec 3.7.13 to determine the correct action to take.
2. Inform Shift Supervisor.
3. If alarm was caused by instrument malfunction, contact I&E.

References: Mechanical Instrumentation and Control List.

ENCLOSURE 3

RECEIVED
MAR 01 1988
DUKE POWER COMPANY
PIR REVIEW REQUEST

REV. DATE JAN 20 1988

Form 203.1
Revision 0

DATE: 1-19-88 REF PIR 2-M88-0007
(COPY ATTACHED)

THROUGH: COORDINATOR, PROJECT MANAGEMENT DIVISION

TO: CSPH/JEB (TO BE FILLED IN BY PMD)
DESIGN ENGINEERING DEPARTMENT

DESIGN ENGINEERING IS REQUESTED TO PROVIDE ASSISTANCE AS SPECIFIED BELOW FOR THE ATTACHED PIR.

- ✓ OPERABILITY EVALUATION
- ✓ PROPOSED RESOLUTION
- ___ CRITERION XVI [10CFR 50.APP B] EVALUATION (REQUEST ONLY AFTER STATION QA APPROVAL OF RESOLUTION)

OPERABILITY REPLY IS NEEDED BY: 1-19-88

RESOLUTION REPLY IS NEEDED BY: 2-19-88

STATION CONTACT IS: Becky Hasty EXT. 4662

PNG (PSE:202) APPLICABLE (BY DESIGN ENGINEERING) ___ YES ✓ NO

DETERMINED BY JE Brewer DATE 2/12/88
(DESIGNATED INDIVIDUAL)

DATE: 2/12/88

THROUGH: COORDINATOR, PMD

TO: TL McConnell, ATTN: Becky Hasty
(GROUP MANAGER OR PLANT MANAGER)

THE REQUESTED INFORMATION IS ENCLOSED

FROM: COORDINATOR, PMD

cc w/att: JE BREWER

PR 202

Form 35372 (R10-87)

COMPLETE FORM BY PRINTING WITH BLACK BALL POINT PEN OR TYPE

DUKE POWER COMPANY
NUCLEAR STATION

Problem Investigation Report Serial No. 2-MN88-0007
Station McGuire
Investigation Report No. N/A

I. Problem Occurred-Time/Date: 0230 1-13-88 Discovered-Time/Date: 0230 1-13-88
Unit(s): 2 Unit Status At Time Problem Occurred/Discovered: defueled / defueled
Description of Problem: The alarm for the exterior groundwater monitor (MNS GWA-2) adjacent to the Unit 2 Rx. Bldg. has been actuated. There are three (3) alarm levels on this monitor at elevations 725, 730, and 740. The alarm at elevation 730 was activated.

Location of Problem: outside Unit 2 Rx. Bldg.
Method Used to Identify Problem: alarm indication
Immediate Corrective Actions Taken/To Be Taken: work request 133806 was initiated by OPS.

Work Stoppage Notification (Form QCK-2A) Written ☐ Yes ☒ No; Serial No
Information Sources/References (Work Requests, Document Violated, etc.): T.S. 3/4.7.13

Originated By: Becky Hasty Date 1-19-88 Dept./Group/Section: NPO/TS/Compli

II. Compliance Evaluation-Item/System Operable ☒ Yes ☐ No
Item Reportable ☐ Yes ☒ No Reportable Pursuant To: ☐ 50.73 Section
☐ 50.72 Section ☐ T.S. Section ☐ Lic. Cond. Section ☐ Part 21
☐ Other
Evaluated By/Date: Becky Hasty 1-19-88
Comments: Operability determined by Design Engr. 1-19-88. See attached letter

III. Telecon/ENS Report to NRC Time/Date: N/A
NRC Contactee(s): DPC Contactor(s)
Telegraph/Mailgram/Facsimile Transmission to NRC-Date:
Date Notified: NRC Res. Inspector
General Office Station Manager
Comments:

IV. Investigation Report Assigned To: N/A NRC Report Due Date:
Date Due to Compliance after Evaluation:
PIR Review (Compliance): Date:
PIR Station Manager Approval Date:

V. Further Action/Evaluation Required ☒ Yes ☐ No (Explain Below):
Page 2 Assigned To: Design
Comments: Design to answer why alarm is being activated

Compliance Review: Becky Hasty Date 1-19-88 QA Review Date

Distribution

Initial	Originator	RAT	DTP	NMS	EHH	R.P. Ruth	L. Davison
		B. Anders	T. Ruth	S. LeRay			
Final	Originator						

January 21, 1988

T. L. McConnell, Station Manager
McGuire Nuclear Station

Re: McGuire Nuclear Station
Unit 2 Reactor Building
Exterior Groundwater Monitor
Follow-up to Handwritten letter
of January 19, 1988
File No.: MC-1124.07

The Civil Support Section (CSPH) has been informed that the alarm for the exterior groundwater monitor (Mk.GWA-2) adjacent to the Unit 2 Reactor Building has been activated. There are three (3) alarm levels on this monitor - at elevations 725+0, 730+0, and 740+0. The alarm at elevation 725+0 was activated.

This groundwater monitor has alarmed several times in the past year. On these same occasions, an adjacent Auxiliary Building groundwater monitor (located at Col. lines PP-61) with an initial alarm level of El. 718+8, has not alarmed. This occurrence leads us to believe that the subject groundwater monitor and associated well are malfunctioning.

In the event that the subject alarmed monitor is a true indication of the groundwater level, the higher groundwater levels against the Reactor Building walls will not present a problem since these walls are designed for groundwater levels up to El. 750+0. McGuire calculation MCC-1134.03-00-0003 contains the Reactor Building Shell Wall design.

The present McGuire Technical Specification for Groundwater Level (3/4.7.13) requires Plant Shutdown if the groundwater level cannot be reduced to below the adjacent floor slab elevation (El. 725+0 for the subject Reactor Bldg. monitor) within seven (7) days.

In order to avoid an unnecessary Plant Shutdown, the Civil Support Section (CSPH) recommends that the subject monitor be deleted from the current McGuire Technical Specification. The remaining monitors in the McGuire Technical Specification will be sufficient to indicate an increase in groundwater.

It should be noted that a proposed revision to the McGuire Technical Specification for Groundwater Level is currently being finalized by the Licensing Group in the Nuclear Production Department. This proposed revision will delete the subject monitor from the Technical Specification, since the Reactor Building is specifically designed for a maximum groundwater level of 750+0 in combination with other loading conditions.

If there are any questions, please contact David B. Johnson at extension 3-7167.

S. B. Hager, Chief Engineer
Civil/Environmental Division

By: D. L. Rehn
Principal Engineer

DBJ/cnm

cc: N. A. Rutherford
Central Records

Form 28337 (4-88)

PROBLEM INVESTIGATION REPORT

PIR No. _____

VI. Proposed Resolution of Problem See ATTACHMENT 1

Other Approved _____ Date 3/12/88 Approved _____
QA Date

Approved _____ Date _____
Significant Corrective Action Evaluation Assigned To: _____
Serial No. _____

VII. QA Verification Requirements _____

Assigned To _____ Date _____

VIII. Corrective Action Completed _____

Approved _____
Date

IX. QA Verification Results _____

Completed By _____ QA Approval _____
Date Date

Remarks _____

QA Review _____ Date _____

FIR 2-M88-0007

ATTACHMENT 1

Proposed Resolution of Problem

On January 19, 1988, the Civil Engineering Section, CENB (formerly the Civil Support Section, CSPH) was informed that the first alarm (the "Alert" alarm at Elevation 725+0) for groundwater monitor MK.GWA-2 had been activated.

This same monitor has alarmed several times in the past year. On these same occasions, an adjacent Auxiliary Building groundwater monitor (located at Column Lines PP-61) with an initial alarm level of El. 718+8 has not alarmed. This occurrence leads us to believe that the subject monitor is not reflecting a true indication of the groundwater levels in this area.

Although, we cannot be sure what is causing the "Alert" alarm to activate, we will make the following hypotheses:

The original Unit 2 Reactor Building Tower Crane Base is located in close proximity to the subject groundwater monitor (see Attachment 2). This base consists of a 23' x 23' x 10' deep reinforced concrete slab with the top of the slab being at approximately Elevation 744+0. The bottom section of the crane was embedded in the slab as shown on construction drawing No. MCFO-43 (see attachment 3 and 4). A corrugated metal pipe, approximately 18 feet in diameter, was placed around the bottom portion of the crane tower and extended from the base to several feet above the base (see Attachment 5). This pipe served as a barrier for the tower crane against soil and groundwater while fill material was being placed and compacted in the area around the crane base.

ATTACHMENT 1

After the completion of the Unit 2 Reactor Building, the Tower Crane was torched off near the base. It is reasonable to assume that some portion of the corrugated pipe was left intact and was filled in with "fill" material.

This man-made "basin" would help explain the alarming of Groundwater Monitor MK.GWA-2. The crane base and associated corrugated pipe probably collect rainwater. This water could eventually migrate to the nearby groundwater monitor and enter the groundwater well, with the result being an activation of the alarm for this monitor. This type of scenario would obviously not reflect a true indication of the groundwater levels in the area.

In addition, the Tower Crane Base may be a source of disruption for the Zoned Wall Filter, which extends around the Reactor Building between the east side of the Unit 2 Auxiliary Building wall and the Unit 2 Outside Doghouse. The Zoned Wall Filter drains the surrounding groundwater levels down to the Underdrain System, which eventually collects the water into three sumps contained in the Auxiliary Building. Any disruption of the Zoned Wall Filter could affect the flow of the groundwater to the Underdrain System, possibly causing a buildup of water around the disrupted Zoned Wall Filter (or crane base). In our specific case, it is evident that the crane base at least partially penetrates the Zoned Wall Filter.

As noted in the letter of January 21, 1988 from D. L. Rehn to T. L. McConnell, a proposed revision to the McGuire Technical Specification for Groundwater Level

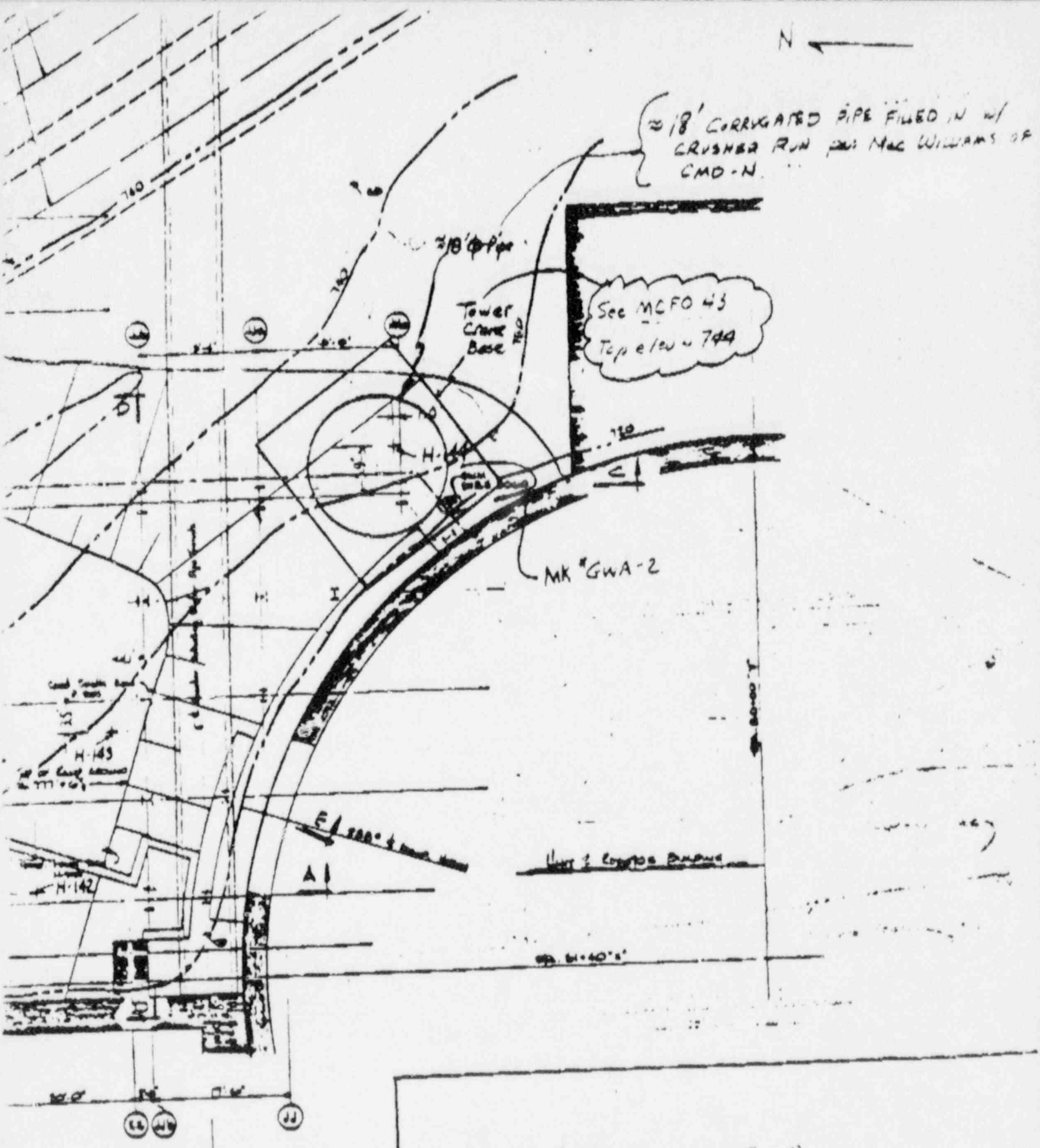
is currently being finalized by the Licensing Group in the Nuclear Production Department. This proposed revision will delete the subject monitor from the

Technical Specification, since the Reactor Building is specifically designed for a maximum groundwater level of 750+0 in combination with the loading conditions.

In the above referenced letter, the Civil Engineering Section (CENB) recommended that the subject monitor be deleted from the current McGuire Technical Specification. This recommendation was made in order to avoid an unnecessary plant shutdown, which is called for in the present McGuire Technical Specification if the groundwater level cannot be reduced to below the alarm level within seven days.

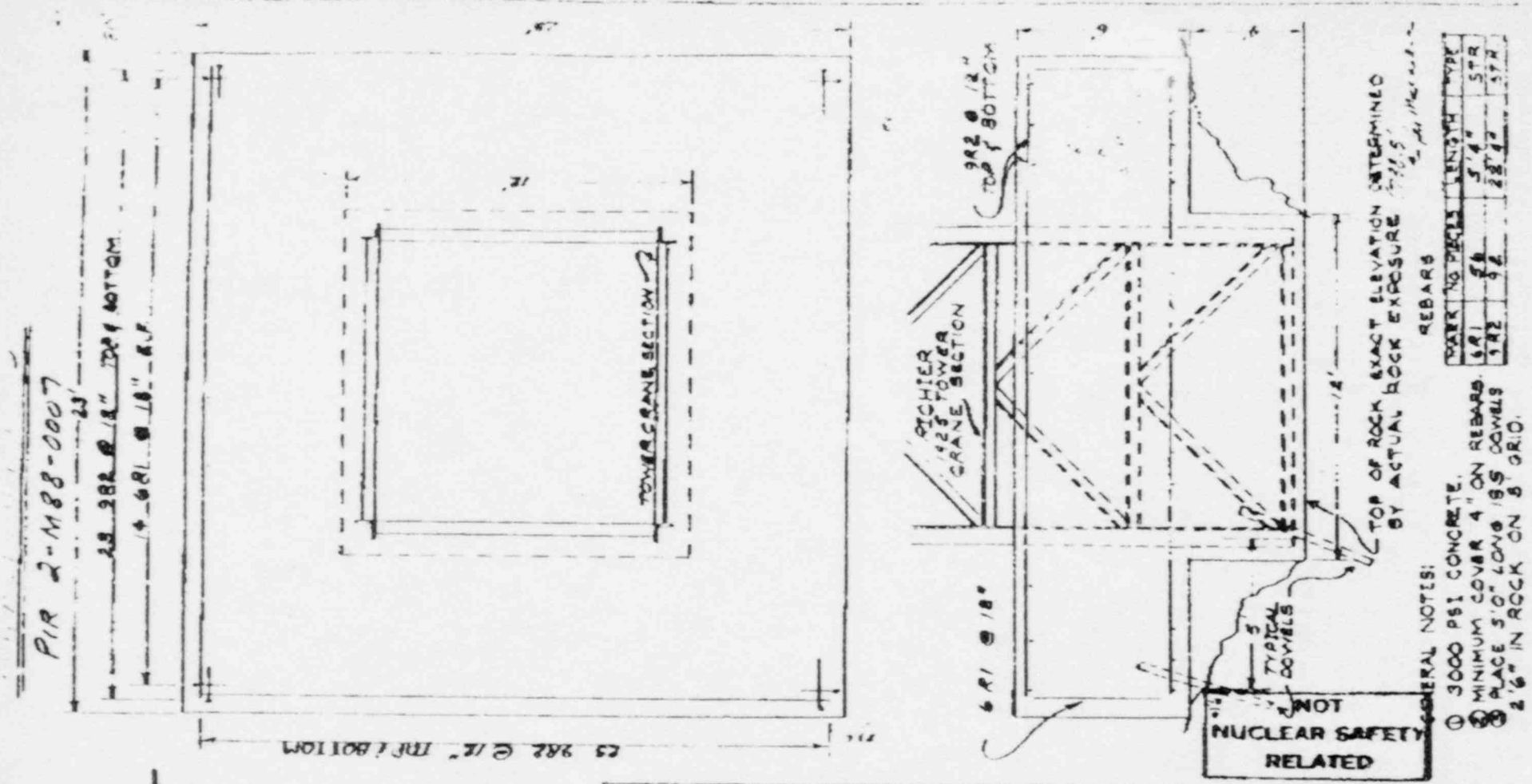
Although the Civil Engineering Section does not believe that the alarmed groundwater monitor presents a significant problem, the following steps could be taken to further investigate the groundwater in this area.

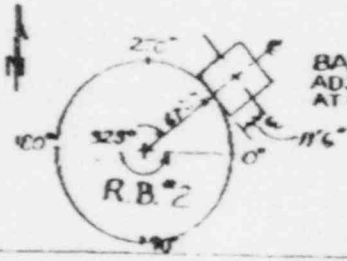
1) Water samples could be taken from the subject well. These samples could be analyzed by the Chemistry Group at the site to determine the contents of the water.
2) Additional wells could be drilled in the vicinity of Groundwater Monitor MK.GWA-2 to better determine what the true groundwater levels are in this area.



ATTACHMENT 2

PIR 2 M88-0007





NO	REVISIONS	DRAWN	CHKD	APPROVED	DATE
2	R.B.#2 LOCATION ADDED	RWR	TRT		
1	CHANGED LOCATION DIMENSIONS	RWR			
0	RELEASED FOR CONSTRUCTION	RWR			

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT
McGUIRE NUCLEAR STATION
TITLE
TOWER CRANE BASE FOR PICHIER 1425

SCALE 1/8"=1'
DESIGNER R. ROWE
DRAWING NO. MCFD-43

DUKE POWER COMPANY

-00184 (9-21)

Rev./Station McGuire Nuclear Station Unit 1&2 File No. MCC-1138.03-00

Subject Groundwater Monitor adjacent to the Unit 2 Reactor Bldg — Rev. #4
Operability Statement to use nearby monitors instead of Unit 2 Reactor Bldg monitor By D.G. Johnson Date 4/2/88

Sheet No. 235 of ____ Problem No. ____ Checked By JC Date 1/20/88

REVISION #4

The purpose of this revision is to document an "Operability Review" of the Reactor Bldg. Shell wall due to the deletion of the Unit 2 Reactor Bldg. exterior groundwater monitor.

This groundwater monitor (Mk # GWA-2) was originally erected to monitor the groundwater level in this area around the Reactor Bldg. The McGuire Technical Specifications contains procedures to shutdown the plant if the groundwater rises over El. 725+0 and remains over this elevation for 7 days (Ref. Tech. Spec. 3/4.7.13).

Per the letter from D.L. Rehn to T.C. McConnell dated Jan. 29, 1988, the Civil Support Section is recommending that groundwater monitor Mk. GWA-2 be deleted from the Tech. Spec. Our justification for this is as follows:

① This same groundwater monitor has alarmed several times in the past year. On these occasions, an adjacent Auxiliary Building groundwater monitor (located at Col. lines PP-61) with an initial alarm level of El. 718+8, has not alarmed. This occurrence leads us to believe that the subject groundwater monitor and associated well is malfunctioning.

② If this groundwater monitor actually reflected the true groundwater conditions, and if we also assumed a worst case scenario of blockage of the underdrain system, the Reactor Bldg. was not specifically designed for a maximum groundwater level of 750+0. The remaining monitors will still fall under the Tech. Spec. procedures. Since there is a Aux. Bldg. monitor located nearby with an initial alarm level at El. 718+8, any indication of groundwater in this area will be noted. Also there is a monitor located inside of the Unit 2 Equipment Staging Bldg. (East side of Unit 2 Aux. Bldg.), which has an initial alarm level of 732+0, and two monitors located inside the Unit 2 Diesel Gen. Bldg. with initial alarm levels of 739+2.

REVISION 4 (cont'd)

Therefore, there are enough monitors nearby to indicate an increased upward increase in groundwater. Other monitors do not show a general increase in the yard water table.

(3) The subject monitor is only being deleted from the Tech. Spec. The alarms on this monitor will remain activated and the site personnel will still have access to the well for the monitor. This will enable the site to monitor the groundwater levels in this well periodically.

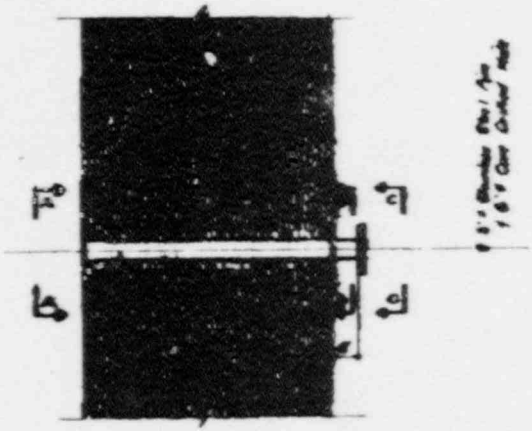
(4) It should be noted that the Licensing Group of Nuclear Production is finalizing a proposed revision to the Tech Spec for groundwater. In this proposed revision, the subject monitor is being deleted.

A. RB is designed for a 750' water level.
B. Other alarms received by other wells, which are not alarming.
C. GWA2 has spuriously alarmed in the past.
D. The tech spec water levels are unnecessarily restrictive.
E. GWA2 is currently alarming @ elev 725±0.
F. GWA2 may be influenced by the old RB tower crane foundation, which is within 10' of the well.

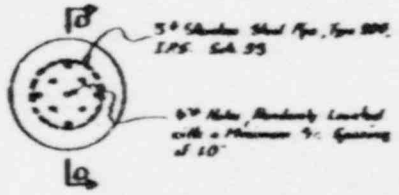
Conclusion: GWA2 alarming @ elev 725±0 does not affect Unit 2 operability.

ALTERNATE SUPPORT FOR DECONTAMINATION SINK

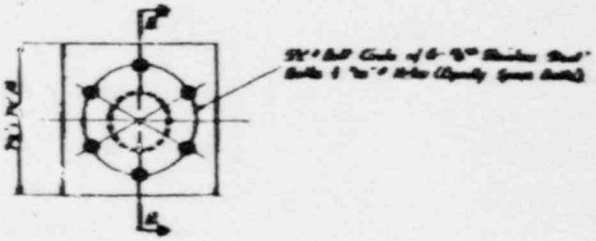
NUCLEAR SAFETY RELATED



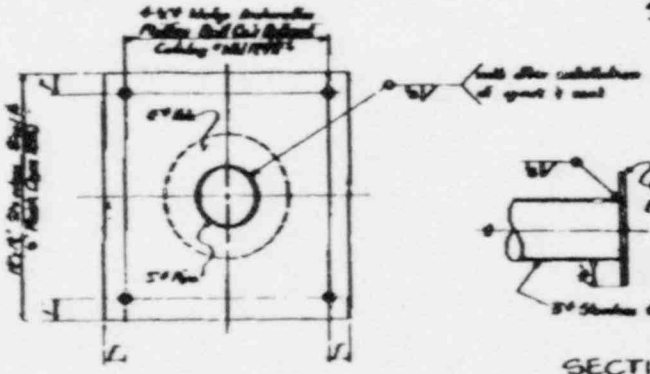
TYPICAL SECTION THRU GROUND WATER MONITORING DEVICE
Scale 1"=1'-0"



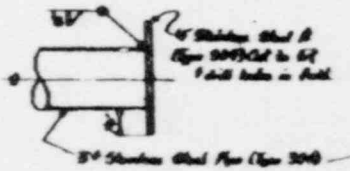
SECTION A-A
Scale 3"=1'-0"



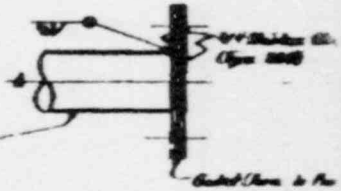
SECTION C-C
Scale 3"=1'-0"



SECTION B-B
Scale 3"=1'-0"



SECTION D-D
Scale 3"=1'-0"



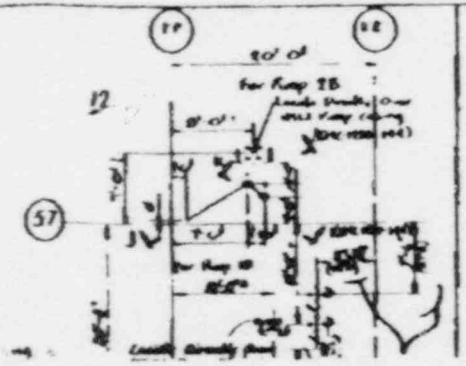
SECTION E-E
Scale 3"=1'-0"

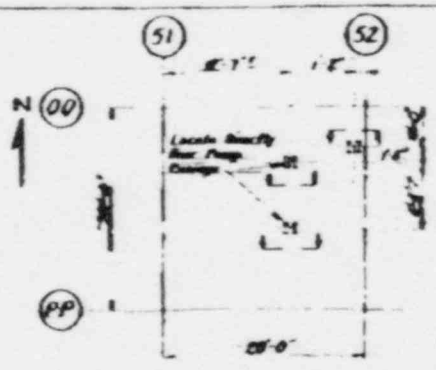
1. Welding shall be in accordance with Sheet II, A.W.S. Code, except that qualification of welder welding procedure is not required.
2. Refer to "S" of the General Notes on this sheet which apply to this device.

GENERAL NOTES:

1. All Shield fabricated steel shall conform to Duke Power Co. spec. "MCS-1175.05-0".
2. All structural steel shall conform to ASTM A36, designation except where noted otherwise.
3. All concrete anchors shall be the Phillips Embedment Type, as manufactured, furnished in the Field, and shall be installed in accordance with the Duke Power Co. spec. "MCS-1156.02-1" dated 2-17-78.
4. All welding shall conform to AWS D1.1-72 structural welding code, unless noted otherwise.
5. Welding electrodes shall have a minimum yield strength of 70 KSI.

GROUND WATER MONITORING DEVICE
(7 REQ'D.)





DRAWING
MC-1220-73

ENCLOSURE 4