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Waterford 3

W3F1-96-0157
A4.05
PR

December 20, 1996

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Basemat Monitoring Program Report Number 7 and
Request For Programmatic Reporting Change Pursuant To
Operating License Condition 17

Gentlemen:

The Waterford 3 Steam Electric Station - Basemat Monitoring Program Report Number 7 is being provided for your information.

The report documents the continued integrity of the basemat as verified by the program for the period from June 1995 through July 1996. The monitoring program is required by Technical Specification 6.8.4.e.

Waterford 3 license condition 17 requires that any significant change to the basemat monitoring program be reviewed and approved by the NRC staff prior to its implementation. Waterford 3 is hereby requesting NRC review and approval of a proposed change to the basemat monitoring program which would discontinue preparation of the 18 month Reports. The actual surveillance program would remain unchanged. Data would continue to be collected and analyzed as currently being performed. Consistent with our existing commitment, an Interim Special Report would be generated if a violation of the acceptance criteria were to occur.

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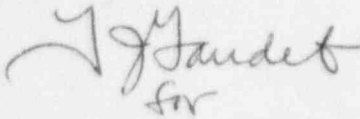
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The justification for this change is provided in the attachment. This proposed change is in line with current NRC philosophy supporting appropriate reductions in regulatory burdens. Waterford 3 would appreciate a response to this request by July 30, 1997.

If you have any questions regarding the attached report or require additional information, please contact me at (504) 739-6242 or Tim Gaudet at (504) 739-6666.

Very truly yours,

Handwritten signature of J.J. Fisicaro, with the initials "JF" written below the signature.

J.J. Fisicaro
Director
Nuclear Safety

JJF/OPP/ssf
Attachment

cc: (w/Attachment)
E.W. Merschoff, NRC Region IV
C.P. Patel, NRC-NRR
R.B. McGehee
N.S. Reynolds
NRC Resident Inspectors Office

ENERGY OPERATIONS, INC.
WATERFORD STEAM ELECTRIC STATION
UNIT NO. 3

BASEMAT MONITORING PROGRAM
REPORT NO. 7

July 1996

Prepared By: M. R. Gutierrez
Reviewed By: J. P. Burke

SCOPE

This is the seventh Basemat Monitoring Program Report prepared for the U.S. Nuclear Regulatory Commission. This report documents the results of the surveillances for the period of June 1995 to July 1996. During this period, one basemat survey and crack width surveillance was performed in April 1996 and five groundwater chloride content and elevation measurements were taken.

The basemat surveillances are performed in order to monitor the settlement of the basemat, changes in crack width, changes in ground water chemistry that could effect corrosion of reinforcing steel, and seasonal variation in ground water levels.

The measurements taken and the calculations performed comply with the Technical Specifications 6.8.4.e and are compared with the action limits stated in the Basemat Surveillance Program Plan (Letter W3P87-1123). The action limits are stated below.

- a. an action limit of one inch for the difference between the baseline differential settlement and the calculated differential settlement for a surveillance;
- b. an action limit of 250 ppm for the measurement of chloride content in the groundwater; and
- c. an action limit of 15 mils (0.015 inch) for the difference between the baseline and measured crack widths.

SCOPE (CONTINUED)

No action limit is associated with seasonal variation in groundwater levels. It is tracked to determine if there is a correlation with this level and the basemat settlement and crack width.

CONCLUSION

The differential settlements, the changes in crack width, and the chloride content for this reporting period are all below the action limits. The data obtained for the basemat elevations, crack width measurements, chloride content in groundwater, and groundwater elevations can be found in the Work Authorizations listed in the Reference section.

DISCUSSION

Differential Settlement

The eight sets of points that are monitored on the Nuclear Plant Island Structure (NPIS) that are used to calculate the differential settlement and the calculated differential settlement for these points for this past surveillance are listed in the table below.

| Location of Monitoring Points | Monitoring Points | 4/96 Differential Settlement (inches) |
|-------------------------------|-------------------|---------------------------------------|
| East Side | E5-F | 0.600 |
| | E5-M9 | 0.468 |
| | E5-E13 | 0.348 |
| | E5-E14 | 0.324 |
| West Side | M11A-M10 | 0.396 |
| | M11A-M13 | 0.168 |
| | M11A-A | 0.072 |
| | M11A-D | 0.060 |

The largest differential settlement of the eight sets of points for this surveillance period was calculated between points E5 and F. The differential settlement calculated was 0.6 inches. This number represents the difference between the difference in elevation of the two points surveyed in 1984 (baseline) and the difference in elevation of the exact two points surveyed in April of 1996. $[(E5-F)_{1984} - (E5-F)_{1996}]$ The largest increase in differential settlement from the April 1996 survey to the last survey (9/94) also occurred between points E5 and F where the differential settlement increased from 0.276 inches (9/94) to 0.6 inches (4/96).

DISCUSSION (CONTINUED)

The largest differential settlement calculated on the west side of the NPIS between the four sets of points for the April 1996 survey was between points M11A and M10. The differential settlement was 0.396 inches which is comparable to the previous differential settlement of 0.348 inches in 9/94.

Overall the behavior of the differential settlement between the eight sets of points have been cyclical as they increase and decrease. This concurs with the statement made in the Basemat Surveillance Program Plan (Letter W3P87-1123) that short period (e.g., seasonal) cyclical movements of the basemat can be expected.

Crack Width Measurements

Of the 15 cracks that are surveyed, the largest crack width changes relative to the baselines for this surveillance were noted in Crack 1 (west side), Crack 2 (west side), Crack 5 (west side) and Crack 13 (east side). The changes were 3.40 mils, 3.90 mils, 3.45 mils, and 3.40 mils, respectively. All of these changes are well below the acceptance criteria of 15 mils.

Evaluation of the Differential Settlement Between E5 and F

The largest differential settlement, i.e. 0.60 inches, was noted on the east side between points E5 and F (see above). The largest change in crack width on the east side was noted in Crack 13, but only a change of 3.40 mils - significantly below the action limit of 15 mils. Since there were no significant changes in the cracks between E5 and F, i.e. Cracks 13, 14, or 15, the increase in differential settlement between points E5 and F does not warrant concern since the differential settlement is within the action limit ± 1 inch and also for the reasons stated below.

According to the Basemat Surveillance Program Plan (Letter W3P87-1123), short period cyclical movements of the basemat can be expected. The differential settlement between these points have been cyclic varying from 0.084 inches to 0.60 inches.

The differential settlement between points E5 and F are generally higher than the other sets of monitoring points on the east side. This can be attributed to the fact that the distance between E5 and F is further than the distance between E5 and M9, E13, or E14.

DISCUSSION (CONTINUED)

Furthermore according to the Basemat Surveillance Program Plan (Letter W3P87-1123), the calculations of the basemat stress condition resulting from differential settlement indicate that a differential settlement of 2.5 inches from the center of the basemat to the north and south ends will result in a tension of 3200 psi in the top reinforcing steel. This amount of tensile stress is insignificant (less than 10%) when compared to the code allowable stresses. An action limit of one inch for the changes of differential settlement from the baseline is a conservative value.

Chloride Content and Groundwater Elevation

The chloride content in the groundwater remains far below the action limit of 250 ppm. The highest chloride content reported for this surveillance period is 29.80 ppm measured in the east well in September 1995.

The measurements taken of the groundwater elevation in the east and west wells have been similar. The maximum they varied was 1.41 feet in June 1995 and 3.1 feet in September 1995.

PROPOSED CHANGES

As of September 1994, the basemat survey and crack width surveillances associated with the Basemat Monitoring Program have been conducted every 18 months. Likewise, the Basemat Reports are prepared every 18 months as committed in the Basemat Surveillance Program Plan (Letter W3P87-1123). Consequently these reports will only contain one basemat survey and crack width surveillance. When the 18-months reports were prepared in the past, they contained data from several surveillances since the surveillances were done with more frequency.

Waterford 3 proposes to discontinue preparing the 18-month basemat report for the reason stated above. This decision is also based on the fact the measurements and calculations for all the surveillances, i.e. chloride content and differential settlement and crack width, since the beginning of the basemat program have consistently been well below the action limits. Waterford 3 will continue to be committed to prepare Interim Special Reports when an acceptance criterion is violated. Procedures NOECP 402, NPIS Common Foundation Basemat Integrity Check, LP-121, Basemat Monitoring, and Commitment P17412 will be revised to incorporate this change. In order to implement this change in a timely fashion, Waterford 3 would appreciate a response from the NRC by July 30, 1997.

DISCUSSION (CONTINUED)

Waterford 3 will continue to conduct all the surveillances associated with the basemat program as specified in Technical Specification 6.8.4.e and committed to in the Basemat Surveillance Program Plan (Letter W3P87-1123).

REFERENCES

1. Work Authorization #01145179, Survey NPIS Basemat for Settlement.
2. Work Authorization #01145177, Measure NPIS Basemat Crack Widths.
3. Work Authorization #01145180, Survey of SBM-A and SBM-B.
4. Work Authorizations #01136482, #01140244, #01142393, and #01145675, and Basemat Groundwater Monitoring Logsheet (R-Type C6.25), Verify Chlorides and Ground Water Elevation.
5. NOECP 402, NPIS Common Foundation Basemat Integrity Check.
6. Letter W3P87-1123, K.W. Cook to NRC, Basemat Surveillance Program Plan, dated June 26, 1987.