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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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MEMORANDUM FOR: Darrell G. Eisenhut, Director
Division of Licensing

FROM: Frank J. Miraglia, Assistant Director
for Safety Assessment
Division of Licensing

SUBJECT: GRAND GULF OPERATING EXPERIENCE UPDATE

Reference: NRC Memorandum from Frank J. Miraglia to
Thomas Novak, February 27, 1984

In response to your request for information to support the upcoming Commission Meeting on Grand Gulf we have updated our previous review (Reference 1) of the plant's low power operating experience (reference 1, copy enclosed). As in the previous review the updated review has included surveys of prompt licensee event reports filed per 10 CFR 50.72, Licensee Event Reports (LER) and reports of significant events given at operating reactor events briefings. The period covered in the updated review runs from September 1, 1983 (endpoint of original review) through May of 1984. The results of the review are discussed in the enclosed report and summarized below.

Reportable events at Grand Gulf have continued to occur at a high rate, although the rate appears to be decreasing steadily. About 50% of the prompt reportable events in the last nine months are attributable in equal numbers, to two specific problems. They include inadvertent isolations of the reactor water clean-up system and tripping of RPS power supply breakers causing de-energization of RPS logic and isolation of shutdown cooling. The first of these problems does not appear to be serious; but nevertheless, should be corrected during the low power license period. Corrective actions have been implemented to reduce spurious isolations of shutdown cooling and appear to be working effectively. While elimination of these two problems will reduce the overall event rate to a value which is near that expected for a new plant, additional measures will be required to reduce the incidence of miscellaneous equipment malfunctions and personnel errors. Region II is continuing to work with the licensee in an effort to achieve an improvement in their performance in this area.

Frank J. Miraglia, Assistant Director
for Safety Assessment
Division of Licensing

Enclosures:

- 1. Update of Operating Experience
- 2. Copy of Reference 1

cc: T. Novak D. Houston
A. Schwencer D. Verrilli

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ENCLOSURE 1

UPDATE OF OPERATING EXPERIENCE DURING LOW POWER OPERATION

AT GRAND GULF UNIT 1

SURVEY OF EVENT REPORTS

The review of event reports includes surveys of prompt licensee event reports filed per 10 CFR 50.72, Licensee Event Reports (LER) and reports of significant events given at operating reactor events briefings. The period covered in this updated review runs from September 1, 1983 (endpoint of original review) through May 1984. The numerical results of the survey of event reports are provided in Table 1. The data from 50.72 reports seems to indicate that the frequency of problems at the plant has been decreasing slowly. The LER data shows a fairly uniform rate of events up until the beginning of 1984 and then a significant drop in the rate in the first two months of 1984. We believe the dramatic drop in LERs in 1984 is due to changes in the reporting requirements brought about with the new LER rule which took effect January 1, 1984.

Table 2 provides a brief description of the types of problems that have been experienced at Grand Gulf over the past nine months. As shown in Table 2, problems experienced in the past have continued to occur, i.e. isolations and actuations of ESF systems. It is important to note that most of the isolations of shutdown cooling have occurred in January and February of 1984 and only two such events have occurred since the end of February. Corrective actions implemented by the licensee appear to have been successful. We have confirmed this with Region II personnel.

REVIEW OF SIGNIFICANT EVENTS

Three events of relatively higher significance have occurred at Grand Gulf during the past nine months. These events have been identified through a review of issues raised at the regularly scheduled briefings of NRR management on operating reactor experience (Operating Reactors Event Briefings). The events include: Diesel Generator Room Fire (9/4/83); Inoperable Delaval Diesel Generator (10/28/83); and RHR System Pipe Rupture and Pipe Support Damage (4/30/84). The first two events were discussed in the original study of Grand Gulf operating experience (Reference 1). The event involving damage in the RHR piping system is summarized below.

RHR System Pipe Crack April 30, 1984

On April 30, 1984 a small leak from an elbow of a 3" RHR system branch line was discovered. The reactor was operating at 3% power and the RHR system was in operation in the suppression pool cooling mode. A subsequent walkdown of the RHR system revealed that pipe support brackets in both the A and B RHR loops were pulled loose from the wall. Both RHR loops were declared inoperable and the plant was shutdown. Cooling of the reactor was continued via the Reactor Water Clean Up system. The cause of the broken pipe supports has been attributed to large short term transient piping system vibrations on RHR pump startup. The break in the 3" line is attributed to fatigue caused by steady vibration at a low RHR system flow rate. Corrective actions include removal of 3" branch line, re-design of support brackets, and modifications to procedures for throttling RHR flow.

TABLE 1
RATE OF REPORTED EVENTS
AT GRAND GULF
DURING LOW POWER LICENSE PERIOD

<u>Period</u>	<u>Rate of Reported Events</u> <u>(Avg. No. Reports/Month)</u>	
	<u>50.72</u>	<u>LER</u>
9/1/82 - 8/31/83*	10	21
9/1/83 - 12/31/83	9	18
1/1/84 - 2/29/84	9	4
3/1/84 - 5/31/84	7	**

* Period covered in Reference 1 Study

** Data incomplete due to delay between event and report dates.

TABLE 2
SUMMARY OF 10 CFR 50.72 EVENT REPORTS
FROM GRAND GULF UNIT 1*

<u>TYPE OF EVENT</u>	<u>NO. OF REPORTS</u>	<u>COMMENT</u>
Isolation of Shutdown Cooling System **	19	Due to spurious trip of EPA breakers between M-G set and RPS bus. Region II reviewing license corrective actions.
Isolation of Reactor Water Clean-up System	20	Multiple causes including high system flow due to RV level fluctuations and spurious high RWCUS heat exchanger room temperature signals.
Reactor Trips	4	During testing and maintenance from less than 5% power.
Other Equipment Problems	18	
Personnel Errors	14	Inadvertent ESF actuations and procedural errors during maintenance and testing
Significant Events	3	Ruptured RHR pipe; Diesel Generator Room fire; Delaval DG problems.
Total	78	8.5/month on avg.

* September 1, 1983 - May 31, 1984

** Problem appears to have been corrected

CONCLUSIONS

Reportable events at Grand Gulf have continued to occur at a high rate, although the rate appears to be decreasing steadily. About 50% of the prompt reportable events in the last nine months are attributable in equal numbers, to two specific problems. They include inadvertent isolations of the reactor water clean-up system and tripping of RPS power supply breakers causing de-energization of RPS logic and isolation of shutdown cooling. The first of these problems does not appear to be serious; but nevertheless, should be corrected during the low power license period. Corrective actions have been implemented to reduce spurious isolations of shutdown cooling and appear to be working effectively. While elimination of these two problems will reduce the overall event rate significantly, additional measures will be required to reduce the incidence of miscellaneous equipment malfunctions and personnel errors. Region II is continuing to work with the licensee in an effort to achieve an improvement in their performance in this area.

REFERENCES

1. NRC Memorandum from Frank J. Miraglia to Thomas Novak, February 27, 1984.

July 26, 1984

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- IE 11. The SALP for the period ending September 30, 1983 found that "...implementation of the QA program at Grand Gulf is inadequate to identify problems and/or ineffective in bringing about adequate corrective actions." What is the basis for determining that problems not identified or resolved as a result of QA shortcomings during this period have subsequently been identified and/or resolved?
- IE 12. The SALP Report for the period ending September 30, 1983 refers on page 24 to a large backlog of design changes. The report states: "... the licensee established a design change task force to specifically identify the status of approximately 2000 outstanding design changes." Does the Commission have available a list of these design changes? Is this number unusually large for a plant that had received a low power operating license?
- NRR 13. Has the Commission considered requiring conduct of an independent review to determine whether Grand Gulf is now in substantial compliance with the Commission's regulations?
- NRR 14. Has the Commission compiled a list of Technical Specification deficiencies, and the dates on which they were discovered, reported, reported as corrected, and the corrections approved?
15. Has the Commission assembled a comprehensive list of defects in design and construction for the purpose of determining what the existence of such defects might imply with respect to defects that have not yet been discovered?

New Q's from 7-25-84 Kammerer memo.

- NRR 16. Has NRC staff prepared a report describing how NRC determined that Grand Gulf operators were adequately trained?
- NRR 17. Does NRC staff have a listing of current MP&L managers describing their qualifications and the date of employment at MP&L?