RESTART CHECKLIST ITEM 5B: SYSTEMS READINESS FOR RESTART

The licensee established a System Health Assurance Plan which consisted of operational readiness reviews, in-depth system health readiness reviews, and latent issue reviews. The licensee completed activities under this plan, in addition to a safety function validation project and collective significance review, to review systems' readiness for restart. The NRC conducted several inspections to assess the licensee's activities in these areas. These inspections included system health assurance inspections, a backlog inspection, a biennial maintenance rule inspection, a corrective action team inspection, and restart readiness assessment team inspections. A summary of the scope and results of each of these inspections is discussed below.

Throughout the extended shutdown the NRC identified a number of discrepancies which affected past operability of safety systems. For conditions affecting operability, the NRC has confirmed that adequate corrective actions have been taken to restore the operability of those safety systems. To provide added assurance following restart of the continued effectiveness of the corrective actions, the Panel is preparing to issue an Order requiring independent assessments following restart to be conducted annually for five years, or until the licensee has demonstrated good cause that these requirements could be relaxed.

Taken collectively, the results of NRC inspections and evaluations provide reasonable assurance that the licensee has taken appropriate actions to ensure that plant systems can perform their design basis functions and are ready to support safe restart and operation of Davis-Besse.

System Health Assurance Inspections - These inspections were documented in IRs 02-13, 02-14, and 03-03 and examined system design issues. The initial inspection identified several issues related to engineering design concerns, including engineering calculations, licensee event report resolution, modification implementation, and resolution of issues. The final inspection, IR 03-03, concluded that the licensee's system health assurance plan met its intent to review plant systems prior to restart to ensure that the systems were in a condition that would support safe and reliable plant operation and that the discovery phase of the program was conducted in a thorough and methodical manner in accordance with the procedures established for these reviews. The program for resolution of open design questions involved determining extent of condition of the deficiencies identified during the discovery phase. NRC inspectors examined this area and concluded that the extent of condition reviews were conducted in an appropriate manner with acceptable results.

Backlog Inspection - This inspection was documented in IR 03-24 and focused on the backlog of engineering and maintenance work that would not be performed until after restart of the plant. The inspection focused on a review of the licensee's process for tracking open backlog items, a review of the effectiveness of the process in justifying deferral of activities, an evaluation of the licensee's use of probabilistic risk assessment insights in deferring items to a post-restart status, and an evaluation of the potential risk implications of deferred items. The inspectors concluded that the restart scoping process was satisfactory and that the deferred actions did not individually or collectively have a risk significant impact on plant restart. However, the inspection did conclude that continued management attention is needed to assure

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resources are committed to the post-restart backlog. No findings of significance were identified during this inspection.

Biennial Maintenance Rule Inspection - This inspection was documented in IR 03-22 and had no findings. The inspectors reviewed the maintenance rule periodic evaluation report per 10 CFR 50.65 (a)(3). The periodic evaluation report for Cycle 13, which included the time frame of May 2000 through April 2002, evaluated the effectiveness of 10 CFR 50.65 (a)(1) and 10 CFR 50.65 (a)(2) activities. Licensees monitor safety-related structures, systems, and components (SSCs) under (a)(1) to ensure appropriate attention is paid to correct deficiencies. Licensees monitor reliability and/or availability of SSCs under (a)(2) to ensure that SSCs will be able to perform their intended function. The inspectors examined (a)(1) action plans, justifications for returning safety related structures, systems, and components from (a)(1) to (a)(2), and a number of condition reports (CRs) to evaluate functional failure determinations. In addition, CRs were reviewed to verify that the threshold for identification of problems was at an appropriate level and the associated corrective actions were appropriate. The inspectors focused the inspection on the following systems:

- Auxiliary Feedwater;
- Component Cooling Water;
- Containment;
- Control Room Emergency Ventilation;
- Service Water; and
- 480 Vac [volt alternating current].

Corrective Action Team Inspection - This inspection was documented in IR 03-10 and evaluated the adequacy of the licensee's corrective actions implemented to assess and resolve the numerous plant design deficiencies identified during system reviews conducted under the Davis-Besse System Health Assurance Plan, and during NRC follow-up inspections.

In review of the implementation of the program, the CATI team initially identified numerous weaknesses which collectively revealed ineffective implementation of the corrective action program. The weaknesses were categorized into three primary areas of concern: (1) a fundamental weakness in the ability of the Davis-Besse engineering organization and management to identify and evaluate intricate system design issues; (2) ineffective implementation of corrective actions associated with these design issues revealing a general lack of engineering scrutiny, or technical curiosity, in the development of analyses and calculations to ensure problems are thoroughly understood and resolved; and (3) an overall weakness in the implementation of various foundation elements of the corrective program. Furthermore, the team identified program implementation weaknesses in the areas of adequacy of apparent cause evaluations, trending and self evaluation activities to identify potential equipment, human performance and programmatic adverse trends; adherence to procedures, and adequacy of closure for corrective action items.

The licensee developed program implementation improvements since the commencement of the inspection, and the team concluded that program implementation was acceptable for restart. To provide added assurance post-restart of the continued effectiveness of the

corrective actions, the Panel is preparing the issuance of an Order requiring post-restart independent assessments to be conducted annually for five years, or until the licensee has demonstrated good cause that these requirements could be relaxed.

Restart Readiness Assessment Team Inspection - The initial inspection was documented in IR 03-11 for inspection conducted in early December 2003. At the time the team concluded that the licensee was not ready to start up the plant because of failures to consistently implement licensee management expectations and standards for conduct of operations. The team found several examples of operators' lack of preparation for plant activities and awareness of plant equipment status, a lack of project oversight to ensure proper rigor in the work control process, concerns regarding the traceability of test equipment, examples of procedure quality and adherence inadequacies, and some corrective actions resulting from operational performance issues in September 2003 were neither tracked nor effective. The Operations Department implemented additional corrective actions and performed internal assessments to gauge the effectiveness of those actions.

A followup restart assessment team inspection was conducted during the week of February 2, 2004. The results from the follow-up inspection , documented in IR 04-04, indicated a substantial improvement in performance as compared to the performance observed in December 2003. The team noted more consistent implementation of their standards and expectations. Although a few examples were noted where expectations were not met, it was not widespread as observed in December 2003. It appears that recent changes in Operations Department Management has increased the accountability of the operators. The team noted an increased involvement of their management in the observations and assessment of the Operations Department's performance. The team noted improved work scheduling. The team noted a significant improvement in the quality of pre-job briefs, although a few items were noted when test leads were not completely aware of the status of the system being tested. In general material condition was considered acceptable. The team leader indicated in his quick-look memo that there were no impediments to restart based on the results of the follow-up inspection.