WESTINGHOUSE OWNERS GROUP POSITION ON THE DAVIS-BESSE EVENT

FEBRUARY 1986

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I. INTRODUCTION

The findings and conclusions of the NRC's Davis-Besse investigation documented in NUREG-1154 indicate clearly that the Davis-Besse event was significant, involving both human error and equipment failures. Given the Davis-Besse event's significance, the Westinghouse Owners Group (WOG) undertook a program which evaluated the NUREG's findings for their relevance and applicability to Westinghouse plants. The primary focus of the program was to determine the potential for a Davis-Besse type event occurring at a WOG plant and to recommend future WOG actions which would proactively address specific issues which emerged from this event.

It is apparent that the fundamental design differences between Davis-Besse and WOG plants make it inappropriate to apply the Davis-Besse event directly to WOG plants. However, the nature of the human errors, and type of equipment failures do not strictly pertain to Davis-Besse, and could in fact apply to any plant. Hence, this WOG effort focused on eleven potential issues stemming from the event. The WOG reviewed each issue to determine its relevance to WOG plant designs and, where appropriate, made recommendations for future action. The results of this review are described in Sections II and III.

This report has two major sections. First, the fundamental design differences between Davis-Besse and WOG plants are discussed in order to provide a framework within which the Davis-Besse issues can be reviewed. Secondly, the eleven potential issues are discussed in more detail along with the resultant WOG position, conclusions, and recommendations.

II. MAJOR DESIGN DIFFERENCES BETWEEN WOG PLANTS AND DAVIS-BESSE

This section discusses the major design differences between a typical WOG plant and the Davis-Besse plant focusing on each respective design's response to a loss-of-all-feedwater event such as occurred June 9, 1985 at the Davis-Besse plant. This discussion is important to the WOG evaluation, since the application of any Davis-Besse related issue to a WOG plant must be done in light of these design differences.

The design differences between WOG plants and Davis-Besse are substantial and the specific Davis-Besse sequence of events is not possible at a WOG plant because WOG plants do not have a Steam and Feed Rupture Control System or similar "smart" control system.

Additionally, a number of other design differences also have an impact on the application of Davis-Besse issues to WOG plants. A discussion of the four major design differences follows.

1. Steam Generator Design
   Westinghouse U-tube recirculating steam generators operate with substantially more secondary side water inventory than do once-through steam generators. This greater water inventory extends the time required to boil dry (steam generator dryout) a Westinghouse steam generator. Therefore, a secondary side heat sink will exist for a longer time period during a loss of feedwater transient. This gives equipment operators more time to recover equipment (such as tripped AFW pump turbines) or make available alternate sources of feedwater before steam generator dryout occurs. Additionally, the greater response time has the tendency of reducing the immediate stress on operators and thus minimizing the likelihood of an operator error during a loss-of-feedwater event. Minimum SG dryout time for WOG Plants (documented in WCAP-9744 and NUREG-0611) is 22 minutes as compared with a substantially shorter dry-out time for B&W steam generators.

2. Secondary Side Reactor Trip
   WOG plants have reactor scram from steam generator secondary side conditions (steam generator low-low level) which for a loss-of-all-feedwater event allows the reactor to trip when RCS fluid conditions are still within pressure and temperature setpoints. The advantage is that the Westinghouse reactor is tripped earlier, while there is still a significant amount of steam generator secondary water inventory available. This allows the Westinghouse design to initiate cooling earlier in the RCS heatup transient (when compared to Davis-Besse) and in the longer term reduces challenges to the pressurizer PORV.

3. Auxiliary Feedwater System Diversity
   WOG plants have AFW systems powered by diverse sources (generally steam and electricity). This increases the reliability of the AFW system by reducing the potential for a common mode failure defeating the AFW System. Generally, auxiliary feedwater systems consist of turbine driven and motor driven pumps powered by independent electrical sources. It should be recognized that auxiliary feedwater system designs are plant specific and do vary from the generic arrangement described above.

4. "Smart" Control Systems
   WOG plants do not have Steam and Feed Rupture Control Systems (SFRCS) or similar "smart" control systems which allow one operator action to result in a common mode failure of the AFW. Consequently, the mechanism which led to a total loss of all feedwater at Davis-Besse, does not exist in WOG plants.

In summary, there are significant design differences between WOG plants and Davis-Besse. These design differences preclude the specific sequence of events which occurred at Davis-Besse from consideration at a WOG plant. These design differences also minimize the potential for a loss-of-all-feedwater event at WOG plants while providing an adequate safety margin if such an event were to occur.

III. EVALUATION OF POTENTIAL GENERIC ISSUES

Overview

The purpose of this section of the report is to summarize the WOG's evaluation of the eleven issues resulting from the Davis-Besse event. In addition, recommendations for future WOG consideration are provided.

It is tempting to dissect the Davis-Besse event and generate a list of issues, and then examine these issues as though they were independent. However, the most essential aspect of the entire event was the inter-connectedness and underlying dependence of the issues. The Davis-Besse event emphasizes the need to review plant practices in the areas of equipment maintenance, equipment operator hands-on training, equipment failure resolution, and equipment failure root cause determination.

As demonstrated in the previous section, WOG plants differ significantly in design when compared to Davis-Besse. It was the conclusion of the WOG that these design differences, being beneficial to a WOG plant's loss-of-feedwater response, lessen the safety significance of the Davis-Besse issues when applied to Westinghouse designs. It is recognized that these types of equipment failures could occur at a WOG plant. However, when one focuses on the Davis-Besse equipment failures and systems interaction that led to these failures, one concludes that the WOG plant design is more accommodating of such failures and in some cases precludes these types of failure from occurring.

In the course of reviewing the Davis-Besse potential issues, the WOG identified several issues which may warrant further consideration. For the following issues, the WOG is identifying what portions of these issues the WOG can address on a generic basis.

- Reliability of AFW Pump Turbines
- Adequacy of Safety System Testing
- Reliability of Motor-Operated Valves

The "Reliability of Motor-Operated Valves" issue has already resulted in an additional WOG program to develop a methodology to address action (a) of Bulletin 85-03 "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings".

The remaining eight issues are closed, requiring no further generic action on the part of the WOG.

1. PLANT SECURITY FEATURES

CONCERN: Plant Security Systems can deny operators access to vital equipment in their efforts to perform safety actions during an emergency.

The WOG considers this issue to be plant specific. As such, no generic WOG action will be considered. However, it is recommended that WOG utilities, when reviewing their emergency procedures, consider access to vital equipment in an emergency situation.

It should be recognized that the security issue and other occurrences during the Davis-Besse event point to the potential conflict between independent regulatory requirements, particularly during off-normal plant operating conditions. In addition to the security-versus-access issue, the motor driven start-up feedwater pump was isolated prior to the Davis-Besse event due to high energy line break concerns. This eliminated a potential diverse source of feedwater from the AFW system. It may have been prudent to evaluate the availability need of a start-up feedwater pump as a diverse source of feedwater against the requirement of pump isolation for potential high energy line break concerns.

The WOG recognizes that in recent years the NRC has established the CRGR to provide management overview of new NRC requirements. However, it may be prudent to place additional emphasis on the potential incompatibility of existing NRC requirements.

The WOG does not consider it necessary to pursue any additional generic action on this issue.

2. ADEQUACY OF EMERGENCY PROCEDURES

CONCERN: Verify that emergency procedures are sufficiently precise and clear to ensure that drastic actions are promptly implemented.

The Emergency Response Guidelines (ERGs) issued by the WOG were developed to address post-TMI requirements and provide support for Control Room Emergency Operations. The ERGs were developed on a generic basis with due consideration given to plant-specific implications, to facilitate implementation and use of the generic guidance for any Westinghouse-designed plant.

The ERGs provide the operator with a well defined framework for emergency operations. The operators' role and special needs are addressed by providing a network of predefined sympton-based strategies for systematically responding to any developing emergency transient. These symptom-based strategies derive from the emergency operations concepts of Optimal Recovery and Critical Safety Function Restoration. Priorities have been established between the Optimal Recovery Guidelines (ORGs) and the Function Restoration Guidelines (FRGs) which are intended to direct operator action to the most urgent operational or safety conditions. For example, the loss of all feedwater transient is considered an extreme challenge to the plant safety state. The symptoms for loss of all feedwater and other challenges to the plant safety state are continuously monitored using the Critical Safety Function (CSF) Status Trees. When an extreme or serious challenge to any of the critical safety functions (subcriticality, core cooling, heat sink, integrity, or containment, in priority) occur, the operator is trained to immediately leave the ORG or lower priority FRG currently in use and transition to the appropriate FRG as dictated by the status trees, foldout pages, or current procedure. (Note: The inventory CSF does not represent a serious or extreme challenge to the plant safety state and the appropriate inventory FRG can be implemented at the operator's discretion).

The ERGs were written in accordance with the ERG Writers Guide using a human-factored two column format. Action steps are written so that the operator can proceed directly down the left-hand column. This column contains all the expected conditions, actions and checks to accomplish the stated purpose of the guideline. Contingency instructions are provided in the right-hand column if the expected result or response is not obtained. Steps directing operator action are written in short and precise language and define exactly the task which the operator is to perform. The equipment to be operated is specifically identified, and only those parameters presented by instrumentation available in the control room are specified. Words used in the guidelines convey precise meaning to the trained operator.

Unnecessary detail and explanatory information has been removed from the guidelines and placed in the Background Documents. A Background Document exists for each guideline and the technical basis (analytical and experiential) for each guideline step is described. The background documents also describe the analytical basis for "drastic action" steps contained in the guidelines. The background document information is available and emphasized during the operator's training cycle such that the operator can promptly implement actions, including "drastic actions", when appropriate.

Specifically, the ERG "bleed and feed" methodology was evaluated during a "loss of All Feedwater" scenario which was performed as part of the ERG Revision 1 Validation Program (Scenario No. 28, WCAP 10599). When the setpoints for the "loss of secondary heat sink" were exceeded, the operators immediately initiated "bleed and feed" cooling of the RCS and prevented steam generator dryout. The technical basis for the successful initiation of bleed and feed is described in the background documents and includes discussions of steam generator liquid mass, pressurizer PORV capacity, and steam generator dryout and core uncovery times. With this information available, operators can gain an understanding of the importance of initiating bleed and feed actions when required.

When operator actions are required, action verbs with explicit definitions are utilized to avoid misunderstanding under high-stress situations. Evaluation mechanisms containing discreet criteria are provided to direct the operator in making the correct decisions and taking the appropriate actions. All steps are assumed to be performed in sequence unless stated otherwise. Complex evolutions are broken down into composite substeps.

All response strategies utilized in the ERGs were exercised during the testing phase of the Revision 1 ERG Validation Program conducted in October 1983 at the Seabrook Station. The program tested both the technical and human factors adequacy of the guidelines with actual utility operating personnel in a real-time, full-scale simulator. The program provided the generic validation of the ERG concept and the ERG operational strategies. The Validation Final Report concluded that "the ERGs are effective in restoring the plant to a safe, stable, condition, regardless of imposed structural or equipment failures." The ERGs were effectively implemented by operators with widely varying levels of experience. The internal consistency of the ERGs facilitated usabil'ty and acted to correct operator errors.

Since issuance of the Revision 1 ERGs, WOG member utilities have been developing upgraded EOPs based on the ERGs. As part of the EOP development effort, the operational and technical correctness of the ERGs is continuously being evaluated through verification and validation programs at the WOG member utilities. This further evaluation has resulted in minimal negative feedback on the suitability of the ERGs. The feedback that has been received has been incorporated into a WOG program which evaluates the feedback and maintains the ERGs technically and operationally correct.

In summary, with proper training on the ERG concept and response strategies, operators can effectively and efficiently respond to any emergency transient, simple or complex, by using and following the information presentation and evaluation mechanisms as provided in the ERGs.

The WOG does not consider it necessary to pursue any additional generic actions on this issue.

3. RELIABILITY OF MOTOR OPERATED VALVES

CONCERN: Motor-operated valves can fail on demand due to improper switch settings when large differential pressures exist across the valves.

The issue is already being addressed with the issuance of IE Bulletin No. 85-03 "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings". WOG member utilities are currently in the process of responding to this bulletin.

To assist the individual utilities in their responses, a WOG program has been approved to develop a methodology to determine the MOV differential pressures for action a. of the subject bulletin. Key elements of this effort include:

a) Generic methodology will be developed on the SNUPPS plant for both EFW and HPI.

b) Methodology will consider any design basis event.

c) Methodology will be demonstrated on HPI and EFW system.

d) WOG Program scheduled to be completed during 2nd quarter of 1986.

This issue will continue to be followed by the WOG until completion of the subject program.

4. SAFETY SYSTEM TESTING

CONCERN: Assess whether safety systems are tested in all configurations required by the design basis. Assess whether safety system tests are representative of the real demand situation.

Inadequacies with safety system testing are being partially addressed via IE Bulletin 85-03. The bulletin requires utilities to address the testing of motor-operated valves in the high pressure coolant injection and emergency feedwater systems.

There are several potential issues associated with safety system testing. The WOG has identified optimization of surveillance testing frequency as one area for future work. Surveillance testing at least in the Reactor Protection System is being addressed by the Technical Specification Subcommittee. The entire area of Tech. Spec. improvement and the current effort within the industry are also being closely followed by that subcommittee of the WOG. No other generic work is planned at this time by the WOG.

5. ACCEPTABILITY OF CURRENT SAFETY ASSESSMENT METHODS

CONCERN: Assess whether current Probabilistic Risk Assessment (PRA) methods address multiple independent and common mode failures similar in nature to those failures which occurred during the Davis-Besse event.

A concern has been expressed as to the ability of PRA to address human error and common cause issues. These failures associated with this event are well within the modeling and quantification capabilities of current PRA's. Specifically, Human Reliability Analysis (HRA) techniques clearly can model the susceptability for errors when high stress or poor design (control board configurations) conditions exist. For every decision and action required during accident mitigation, quantification models are available and used in most PRA's. The second key factor is the modeling of common cause effects. Significant progress has been made quantifying these effects since WASH-1400. The techniques for assessing these factors and also for implementing designs and procedures to minimize the vulnerability to common cause are well understood. Thus, if there is a concern, this concern exists with respect to the analysts and reviewers utilizing the PRA technology to the appropriate level.

The relatively high level of common cause failures and resultant violation of FSAR single failure assumptions led to specific probabilistic assessment requirements for the Auxiliary Feedwater Systems in NUREG-0737 and NUREG-0611. The intent of this program was to provide a basis for comparing auxiliary feedwater designs based on their unavailabilities with respect to mitigation capability for loss of Feedwater, Offsite Power and Onsite AC power accidents. A shortcoming of these methods was that plant specific operating performance and common cause were not included in the assessments. In addition, the AFWS was viewed as a single system instead of as one of numerous interactive systems which require support from other systems and which is also backed up with a diverse means of decay heat removal. Detailed Probabilistic Safety Studies have been performed which incorporated all of the above issues. In no case study to date has the AFWS been found to be a dominant risk contributor.

In summary, PRA technology has been, and continues to be, a useful tool in identifying systems interactions, common cause vulnerabilities and dominant risk contributors for those systems assessed. Therefore, the WOG does not consider it necessary to pursue any additional generic action on this issue.

6. ADEQUACY OF EMERGENCY NOTIFICATIONS

CONCERN: Assess the adequacy of current emergency notifications.

The WOG recognizes the importance of having knowledgeable personnel on shift to implement the emergency plan and assist the shift supervisor in classifying the emergency. The WOG also recognizes the importance of timely notifications to the NRC Operations Center and State authorities (additional supplemental information is IE INFO Notice 85-80 "Timely Declaration of an Emergency Class, Implementation of An Emergency Plan, and Emergency Notification).

Emergency Notification is already addressed in each WOG utility's emergency plan and the procedures to implement that plan.

The WOG does not consider any additional generic action to be necessary on this issue.

7. AVAILABILITY OF THE SHIFT TECHNICAL ADVISOR

CONCERN: The STA may be unavailable to the control room for complicated plant transients/events when his technical expertise is required.

Each WOG utility has addressed the STA issue in response to the requirements of 10CFR50.54(m)(2) and the requirements of NUREG-0737, Item 1.A.1.1. (additional supplemental information is the NRC "Policy Statement on Engineering Expertise on Shift", published in the federal Register on October 28, 1985).

The WOG does not consider any additional generic action to be necessary on this issue.

8. RESOLUTION OF EQUIPMENT DEFICIENCIES

CONCERN: Assess whether equipment failure root causes are effectively determined and equipment problems resolved.

The WOG recognizes the importance of equipment maintenance and specifically the importance of effective troubleshooting to determine equipment failure root causes. As part of the WOG Trip Reduction Assessment Program (TRAP), a root cause checklist was developed primarily based on the root cause work performed by INPO. The checklist is a means of categorizing root causes, and is not a means of troubleshooting failures. However, to properly complete the form, one must have a thorough knowledge of the root cause. Hence, the checklist is a good gauge of whether the current level of understanding of the root cause is adequate.

The WOG Reactor Trip Breaker Maintenance/Surveillance Optimization Program also touches upon this maintenance issue. The program is to optimize technical specification testing requirements and repair times using past reactor trip breaker failure experience to establish the breaker reliability.

However, the equipment deficiencies resolution issue is generally a plant specific issue. Each WOG utility maintenance department has its own means of troubleshooting root causes. This is the most efficient means of addressing this issue since each utility is most familiar with its specific equipment/systems. A generic troubleshooting methodology, which adequately addresses the great variety of equipment at the various WOG plants, would be a cumbersome document and would not provide an effective means to address this concern. Therefore, the WOG does not consider any further generic action to be necessary to address this concern.

9. RELIABILITY OF AFW PUMP TURBINES

CONCERN: Identify whether there are general reliability concerns with AFW Pump Turbines, specifically in the area of turbine overspeed trips.

The reliability of Auxiliary Feed Water Systems (AFWS) has been an area of NRC concern since 1978. As part of NUREG-0737, the NRC required a probabilistic assessment of all AFWS designs at all plants. The NRC performed the assessment for all operating plants. All non-operating plants performed their own assessments. The intent was to compare all designs by utilizing NRC mandated assumptions (NUREG-0611). The results of these assessments are shown in Table 1. Based on these analyses, the AFW systems utilized at most WOG plants demonstrated high reliabilities with unavailability estimates of $< 10^{-4}$ per demand. Subsequently, more extensive analysis of AFWS designs in PRA studies have verified similar high reliabilities. There is no need for detailed reanalysis except when adverse plant operating data, very subtle design deficiencies or new failure phenomena are found. In addition, all PRA studies performed by Westinghouse to date show that the AFWS is not the weak link in the protective chain for WOG plants. This is due to the relatively long periods of time available following loss of main and auxiliary feedwater before core damage can occur. Thus, significant time is available to recover the failed system, correct the inappropriate operation action or initiate a diverse cooling mode, such as Bleed and Feed cooling. Generally, all WOG plant designs provide for diversity at AFWS pump power. Thus, the vulnerability of the AFWS during loss of support functions such as emergency AC power, instrument air, service water, etc. has been minimized. The Davis-Besse design, response and support configuration is atypical of WOG plant designs and thus it is anticipated that the high reliabilities previously demonstrated are essentially unaffected by the issues caused by the Davis-Besse event.

The typical AFWS configuration available on WOG plants is a combination of electric motor and turbine driven pumps. Turbine drives have typically performed with higher start and continue to run failure probabilities than the motor driven systems. This is inherent to the physical processes and control functions associated with turbines. The effect of this higher failure rate is negligible on safety. The turbine pump's main function is to provide diversity for defense against common cause failures in the motor driven pump system or defense against common cause failures in the emergency AC power or service water systems. The net result is a significant safety improvement over an all motor driven system.

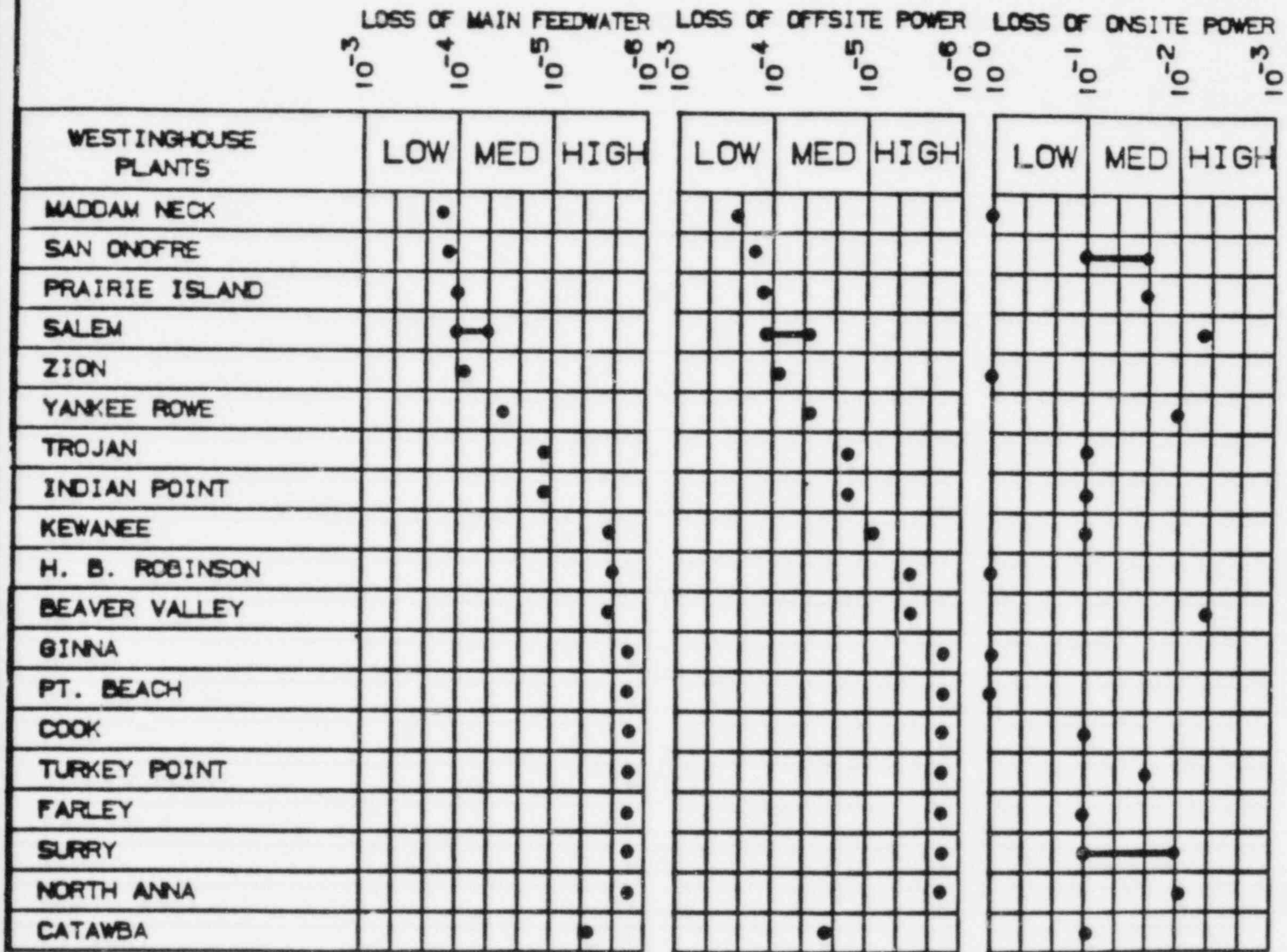
Although the impact of AFW turbine driven pump reliability on overall plant safety is minimal, the WOG recognizes the benefit of increased turbine driven pump reliability. As such, the WOG feels that an information exchange on turbine overspeeds between WOG member utilities would be beneficial. This information exchange would identify not only the various turbine overspeed problems, but more importantly, the resolution to the problems.

This issue is currently under review for a possible future WOG effort.

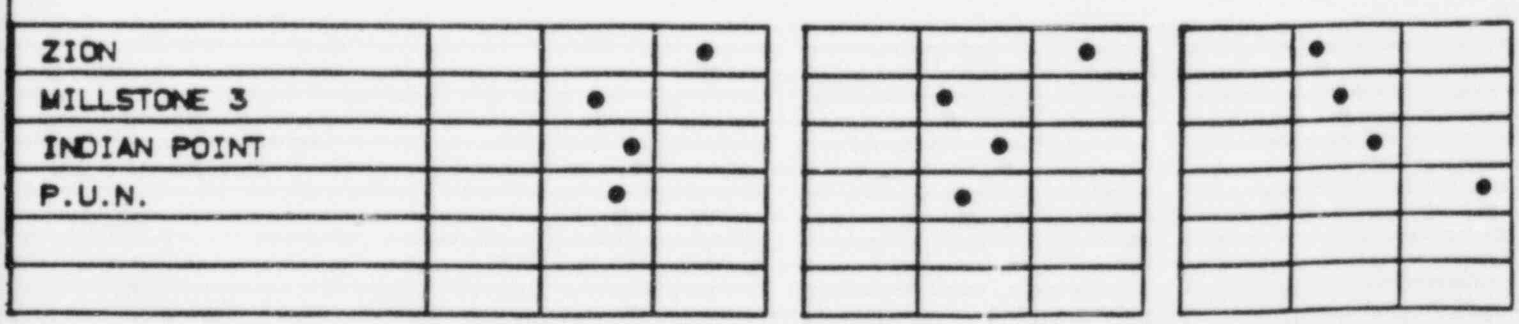
TABLE I

AUXILIARY FEEDWATER RELIABILITY ASSESSMENT FOR WESTINGHOUSE DESIGNS

NUREG-0611 ASSESSMENTS



PRA ASSESSMENTS



10. ADEQUACY OF CONTROL ROOM INSTRUMENTATION

CONCERN: Assess whether control room instrumentation can support emergency procedure actions.

In order to implement the WOG ERGs, the operator must have available key plant instrumentation to effectively detect, diagnose, and mitigate postulated accidents. The operator also relies on backup instrumentation which supplements the key instrumentation and supports operator actions to recover the plant. Member utilities of the WOG have already addressed control room instrumentation to support emergency operator actions in Reg. Guide 1.97 and NUREG-0700 (Control Room Design Review).

The Executive Volume of the ERG Background Documents describes a generic set of instrumentation based on the Westinghouse Reference Plant. This description includes a discussion of both key and backup instrumentation required to support the ERGs. Where plant specific instrumentation is required which is beyond the scope of the reference plant, guidance is provided for selecting appropriate parameters and instrumentation for utilization in plant specific EOP applications. Alternatives are provided for plants which may not have all of the recommended instrumentation. Directions are provided for applying accuracies and errors to setpoints and to values which require operator actions. Additional instrumentation errors are incorporated into setpoints and values where adverse containment conditions are anticipated. These values have dual footnote values to account for both adverse and normal containment conditions.

To ensure the usability of control room instrumentation during emergency operations, the WOG has developed task analysis documentation to identify operator instrumentation and control needs. This documentation was based on the Basic Version of the ERGs, but the methodology is also applicable to Revision 1 of the ERGs. As part of each utilities' CRDR effort, a system review and task analysis based on their plant specific EOPs has generally been developed which identifies all control room instrumentation and control requirements for emergency operations. Any deficiencies must be identified and resolved to the satisfaction of the CRDR team. Plant specific EOP verification and validation programs also test the adequacy of control room instrumentation to support emergency operations.

In summary, the NRC has issued guidelines concerning control room instrumentation which all WOG member utilities must address. The ERG Background Documents identify generic instrumentation and implementation requirements as well as guidance for using plant specific instrumentation. The adequacy of the control room instrumentation is then verified through CRDR and EOP verification and validation programs.

The WOG does not consider any additional action to be necessary on this issue.

11. RELIABILITY OF PILOT-OPERATED RELIEF VALVES

CONCERN: During the Davis-Besse event, the pressurizer PORV failed to reseat properly after the third and final lift.

Several WOG plants utilize pilot operated pressurizer relief valves. However, the pilot operated relief valves on WOG plants were manufactured by a vendor different than the Davis-Besse relief valve vendor. The pilot operated relief valves on WOG plants have undergone an extensive series of tests to demonstrate that these valves will function under their postulated design conditions. The valve body has been analyzed under ASME Code rules for Class 1 valves and the entire valve assembly has been seismically analyzed and subjected to operability (static deflection) tests.

In addition to the testing performed by Westinghouse, these pilot operated relief valves were tested as part of the EPRI Safety and Relief Valve Testing Program. As part of that program, the subject valves were cycled over 60 consecutive times at typical RCS temperatures and pressures while installed at the Marshall Steam Station. These pilot operated relief valves functioned properly during these tests.

As required by NUREG-0737, the pilot operated relief valves have positive indication of their status (open/close) in the control room. The WOG ERGs emphasize the need to constantly be aware of the relief valve position and require the operator to check the relief valve status after every valve actuation. This aspect of the ERGs is strongly emphasized during operator training.

Some WOG plants have been supplied with air-operated PORVs. The air-operated PORVs are ASME Code Class 1 valves which have been analyzed for seismic loads. These air-operated valves (or similar valves) were tested as part of the EPRI Safety and Relief Valve Testing Program.

In addition to the specific features of valve design, indication, and procedures/training, it should be recognized that relief valve lifts are infrequent in WOG plants. The WOG ERG response strategy for the loss-of-heat-sink event minimizes the cycling of PORVs. Based on information available at Westinghouse, pressurizer relief valve lifts are a very infrequent event. The relief valves do not lift during any normal condition plant functions.

In summary, the qualification of the relief valves, positive indication, emphasis on procedures/training, and the infrequent occurrence of relief valve opening provide a combined approach which minimizes the potential for adverse consequences resulting from the actuation of a relief valve in WOG plants. Based on the above, no additional WOG action will be taken.

IV. SUMMARY

To summarize, the design differences between Davis-Besse and WOG plants are significant making it inappropriate to apply the Davis-Besse sequence of events directly to a WOG plant. Additionally, these same design differences minimize the potential for a loss-of-feedwater event at WOG plants while providing adequate safety margin if such an event should occur.

This report examined eleven potential generic issues stemming from the Davis-Besse event. In the course of reviewing these issues, the WOG identified three issues which the WOG is currently evaluating to determine the appropriateness of additional generic WOG action.

- Reliability of AFW Pump Turbines
- Adequacy of Safety System Testing
- Reliability of Motor-Operated Valves

If additional generic action is considered appropriate, WOG effort will be undertaken.

The "Reliability of Motor-Operated Valves" issue has already resulted in an additional WOG program to develop a methodology to address action (a) of Bulletin 85-03 "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings".

The WOG does not consider it necessary to pursue any further generic action for the remaining eight issues.