

Meeting with the NRC

Date – April 1, 2003

*Place – NRC Headquarters
Rockville, MD*

*Attendees – D.K. Atkinson, Vice President, Technical
Services*

M.C. Humphreys, Manager, Engineering

*D.W. Coleman, Manager, Performance
Assessment and Regulatory Programs*

Agenda

- *Introductions - Davis-Besse (DKA)*
- *Station Challenges (DKA)*
- *Alternate Source Term Re-Submittal (MCH)*
- *Accuracy and Completeness of Submittals to the NRC (DKA)*
- *Preliminary Findings of Team Evaluating Accuracy and Completeness Issue (DKA)*
- *Columbia Oversight Board (DKA)*
- *Planned Energy Northwest Submittals to the NRC (DWC)*
- *Station Successes (DKA)*

How Are We Addressing Davis-Besse Issue

Recommendation 1

Discuss Davis-Besse Case Study

Response

- 1. All-Hands Briefing to Energy Northwest personnel (Complete)*
- 2. TAGs review SOER and incorporate lessons learned in continuing training programs (5/2003)*
- 3. Core Davis-Besse lesson plan for use in all accredited training programs(7/2003)*
- 4. Provide formal training to all managers and supervisors (12/2003)*
- 5. Incorporate a review of Issue in initial manager/supervisor training(7/2003)*

How Are We Addressing Davis-Besse Issue

Recommendation 2

Perform Self-Assessment to Determine Columbia Vulnerability

Response

- 1. Perform USA sponsored Round Robin Assessment (7/2003)*
- 2. Evaluate identified problems or areas for improvement and incorporate into Corrective Action Program (7/2003)*
- 3. Integrate INPO guidance into existing Audit and Self-Assessment programs with focus on healthy "Safety Culture" (7/2003)*

How Are We Addressing Davis-Besse Issue

Recommendation 3

Identify and Document Abnormal Plant Conditions That Cannot be Readily Explained – Focus on Long-Term Issues

Response

- 1. Establish a review team to identify, review, screen, and evaluate any abnormal conditions (4/2003)*
- 2. Evaluate potential effects of identified items for aggregate and worst case conditions; prioritize actions (8/2003)*
- 3. Ensure senior management is aware of significant abnormal conditions (8/2003)*
- 4. Enter significant abnormal conditions into the Corrective Action Program and perform root causes (8/2003)*

How Are We Addressing Davis-Besse Issue

Recommendation 3 (cont.)

Identify and Document Abnormal Plant Conditions That Cannot be Readily Explained – Focus on Long-Term Issues

Response

- 5. Present identified conditions and their status to Columbia Oversight Board (ongoing)*
- 6. Perform Quality Review of the results of the Review Team (12/2003)*

Station Challenges

Fuel Concerns

Security

Budget

Outage

Equipment Reliability

AST Re-submittal Agenda

- *Review of Submittal Issues*
- *Root Cause Evaluation Summary*
- *Scope of Re-Analysis*
- *Project Schedule*
- *Closing Remarks*

AST Submittal Issues

■ *Meteorological Data*

Errors related to data preparation and input to ARCON96

- *Incorrect coding of missing or invalid data with 9s*
- *Not recognizing orientation of delta T measurement*
- *Incorrect wind speed unit selection*
- *Conversion to degrees centigrade per 100 meters*

■ *Communication with NRC*

- *Control Room In-leakage Flow (Ingress/Egress)*
- *Status of secondary containment drawdown analysis*

AST Submittal Root Cause Evaluation Summary

- *Three root causes identified*
 - *Energy Northwest supplied meteorological data to vendor that was inadequately documented (units, polarity not clear)*
 - *In this instance, Energy Northwest's personnel did not assure (and program controls did not require) the vendor to provide documentation of input received from Energy Northwest, data manipulations, and data application in analysis*
 - *The vendor's Appendix B calculation program failed, i.e., it allowed the transmittal of inaccurate ARCON96 analysis results to Energy Northwest*



AST Submittal Root Cause Evaluation Summary

- *Three significant contributing causes were identified*
 - *In this instance, Energy Northwest's review of the vendor deliverable was inadequate, and the governing procedure for submittal reviews provided inadequate guidance on the level of technical review required for vendor calculations using data provided by Energy Northwest*
 - *The level of Engineering supervision involvement was not appropriate for the level of experience and competence of the staff involved (1999 timeframe)*
 - *Energy Northwest management did not ensure continuity of Licensing involvement and adequate programmatic controls to preclude failures in communication with the NRC*

AST Submittal Root Cause Evaluation Summary

- *Corrective Actions for root causes*

- *Establish guidance on retrieval, review, documentation, and coordination of historical digitally archived data records (approximately 350 records)*
- *Require vendors submit plant data for Energy Northwest approval prior to use of data*
- *Vendor's qualification status has been suspended pending re-evaluation to ensure their acceptability for QC1 work*

AST Submittal Root Cause Evaluation Summary

- *Corrective actions for contributing causes*
 - *Clarify procedural requirements for review of vendor submittals including adequate review of input data*
 - *Ensure project controls, structure, and staffing are followed for complex projects such as AST*
 - *Address communications with outside agencies as part of station top priority issue on “Accuracy and Completeness of Staff Work”*

(Note: Additional issues concerning accuracy and completeness of staff work will be addressed as part of the associated station top priority corrective actions.)

AST Re-submittal Scope of Re-Analysis

- *Meteorological data*
 - *Use data from 1993 – 1998 (greater recovery rate than 1980s data used previously)*
 - *Re-analyze using ARCON96*
- *Drawdown analysis*
 - *Previously submitted 1996 Gothic model of the building*
 - *Updating to version 7.1 of Gothic*
 - *Re-validating model prior to re-submittal*

AST Re-submittal Scope of Re-Analysis

- *MSLB Analysis*
 - *Submittal will continue to be based on the bubble model currently used corrected by the following:*
 - *Gravity term added to force equation*
 - *Drag coefficient revised*
 - *Sensitivity case will be performed based on DG-1111*



AST Re-submittal Scope of Re-Analysis

■ *Dose Analysis*

- *Use revised meteorological data and updated ARCON96 analysis*
- *New PAVAN offsite X/Q values for 1990s meteorological data*
- *Take no credit for Reactor Building mixing (40% previously)*
- *Use AEB 98-03 approach with the 10% sedimentation velocity values (between MS isolation valves)*
- *Remove unfiltered inleakage uncertainty after 30 minutes (go to single train and less than 100 cfm inleakage at 30 minutes)*
- *Include 10 cfm ingress/egress*
- *Re-submit based on revised dose analysis for each accident (LOCA, FHA, CRDA, and MSLB)*

AST Re-submittal Schedule

<u><i>Activity</i></u>	<u><i>Date</i></u>
<i>Process Meteorological Data</i>	<i>8/2003</i>
<i>ARCON96 and PAVAN Analysis</i>	<i>10/2003</i>
<i>Dose Analysis</i>	<i>12/2003</i>
<i>Licensing Documentation Preparation</i>	<i>3/2004</i>
<i>Review and Approvals</i>	<i>4/2004</i>
<i>Submittal</i>	<i>4/2004</i>

Accuracy and Completeness of Submittals to the NRC

- *Over the past several months, some communications from Columbia Generating Station to the NRC contained errors, omissions, and misleading statements, most notably the AST submittal.*
- *Some of the communication problems were identified from follow-up after the NRC asked questions.*
- *NRC personnel have responded to these problems by communicating to Energy Northwest management that they have concerns regarding the accuracy and completeness of our communications.*
- *This is a situation that must be corrected.*

Accuracy and Completeness of Submittals to the NRC (Cont)

- *Long-term measures are being developed to improve the quality of communications between Energy Northwest and the NRC.*
- *Until these measures are implemented, management expectations and guidelines for communicating with the NRC have been developed and communicated to Energy Northwest employees.*
- *We will be implementing a graded review process for written communications that contains expectations for preparers and technical reviewers, and facilitates early management comment and direction. This process is under development as we are currently benchmarking other utilities.*

Accuracy and Completeness of Submittals to the NRC (Cont)

- *Two recent Problem Evaluation Requests (PERs) have been initiated to address accuracy and completeness of submittals to the NRC.*
- *PER 203-0790 documents an adverse trend of providing information to outside regulatory agencies that contained errors or was otherwise incomplete*
- *PER 203-0877 documents that the adverse trend noted in PER 203-0790 had not been identified by the corrective action program's performance monitoring and trending.*

Accuracy and Completeness of Submittals to the NRC (Cont)

- *Energy Northwest hired an outside team to evaluate the issue of completeness and accuracy of Energy Northwest staff work.*
- *The team focused on standards of performance and accountability, processes and procedures, customer and vendor relationships, application of resources, and relevant organization/human performance observations.*

Team Findings Basis

- **Accuracy** – values, dates, commitments, equipment status and other material information are factually correct.
- **Completeness** – content of documents, discussions, presentations and other forms of communication that contain all of the following: (1) are based on what is fully known at the time, (2) are sufficiently detailed such that a peer or other technically capable reviewer could confidently reach the same or similar conclusion(s) based on information presented and, (3) meet the needs of the recipient without requiring substantive revision to fulfill intended application and acceptance.
- **Quality** – Attribute of work products that includes both accuracy and completeness, i.e., high quality work products are both accurate and complete. This includes both station specific work products and work products transmitted to external agencies.
- **Validation** – the process of ensuring information is both accurate and complete.

Preliminary Overall Team Conclusions

At ALL levels of the organization:

- *Not sufficiently employing introspection or self-checking to ensure “return on investment”*
 - Higher level of performance is expected - some surprise it has not been achieved*
- *Not leveraging the “pyramid” from all levels*
 - *It should be OK to not know everything technically (should know status)*
 - *More effective use of contact time and review boards*
 - *Demand accountability from Subject Matter Experts and Points of Contact and allow them to be the experts*

Preliminary Overall Team Conclusions

At ALL levels of the organization (cont.):

- *Too often rewarding “wrong” behaviors - priorities are misaligned with management objectives*

Activity driven, want higher quality but often not rewarded

- *Insufficient contact time*

Senior Management does not spend enough time in the field promoting its expectations

- *Issue goes beyond submittals to NRC*

Can be seen in regular staff work (e.g., completeness of work packages)

Preliminary Team Recommendations

Some short-term actions to consider:

- *Connect with the organization more frequently - communicate expectations, follow-up, enable desired behaviors, emphasize quality—not schedule, accept risk (on informal basis and through review boards - both how and when)*
- *Use Subject Matter Experts and Points of Contact more effectively (e.g., establish clear ground rules)*
- *Inject independent “fresh eyes” to achieve consistent desired behaviors*
- *Establish regulatory interface strategy (e.g., formalize what “certification” means and identify owner, increase site awareness to regulatory needs and processes)*



Preliminary Team Recommendations

Some long-term actions to consider:

- *Improve quality considerations for key plant processes (e.g., vendor transmittals, FAO preparation, CAP)*
- *Reflect on investments - identify and implement opportunities for further leverage*
- *Invert incentive approach - focus on quality and accountability*

Columbia Oversight Board

Purpose

Provide a Forum for Senior Management to Monitor and Challenge Key Aspects of Station Activities and Performance

Membership

V.P. Nuclear Generation

V.P. Technical Services

Plant General Manager

Frequency

Bi-Weekly



**ENERGY
NORTHWEST**
People · Vision · Solutions

Columbia Oversight Board

Sample Topics

Safety

Security

Outage Readiness

Equipment Reliability

Effective Maintenance Planning and Execution

Emergency Plan

Planned Energy Northwest Submittals to NRC

- *Voluntary update on SW-A wall thinning*
- *LOCA Analysis Methodology Changes*
- *Submit Results of the Root Cause Analysis on AST Errors*
- *LER to report completion of a plant shutdown that was required by Technical Specifications and to report that a NOED was required to avoid exceeding the completion time of Technical Specification condition 3.8.1.B – April, 17, 2003*
- *ISFSI Security Order Response – April 24, 2003*

Planned Energy Northwest Submittals to NRC (Cont)

- *TSTF-359, Flexible Mode Restraints – September 2003*
- *License Amendment to extend DG AOT to 14 days – March 2004*
- *Licensing Renewal – Expect to start budgeting for license renewal in FY-05*
- *Projected submittal 20XX*
- *Projected approval 20XX*
- *Current license expiration 2023*

Station Successes

ISFSI

- *Construction project completed on schedule and under budget*
- *Five casks loaded*
- *Ten more casks to be loaded over next two fiscal years to restore full core offload capability*
- *Awarded “Project of the Year” by Project Management Institute*

Security

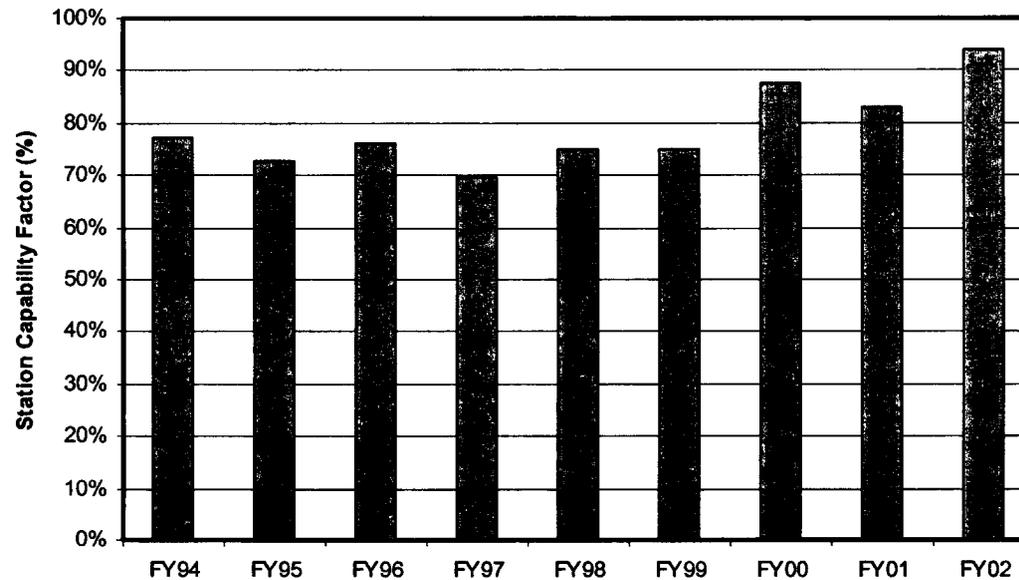
- *Implemented security order on schedule*
- *NRC inspection completed with no findings*
- *Begun implementation of Access Authorization Order*
- *Revised outage worker in-processing*

Station Successes

Station Generation

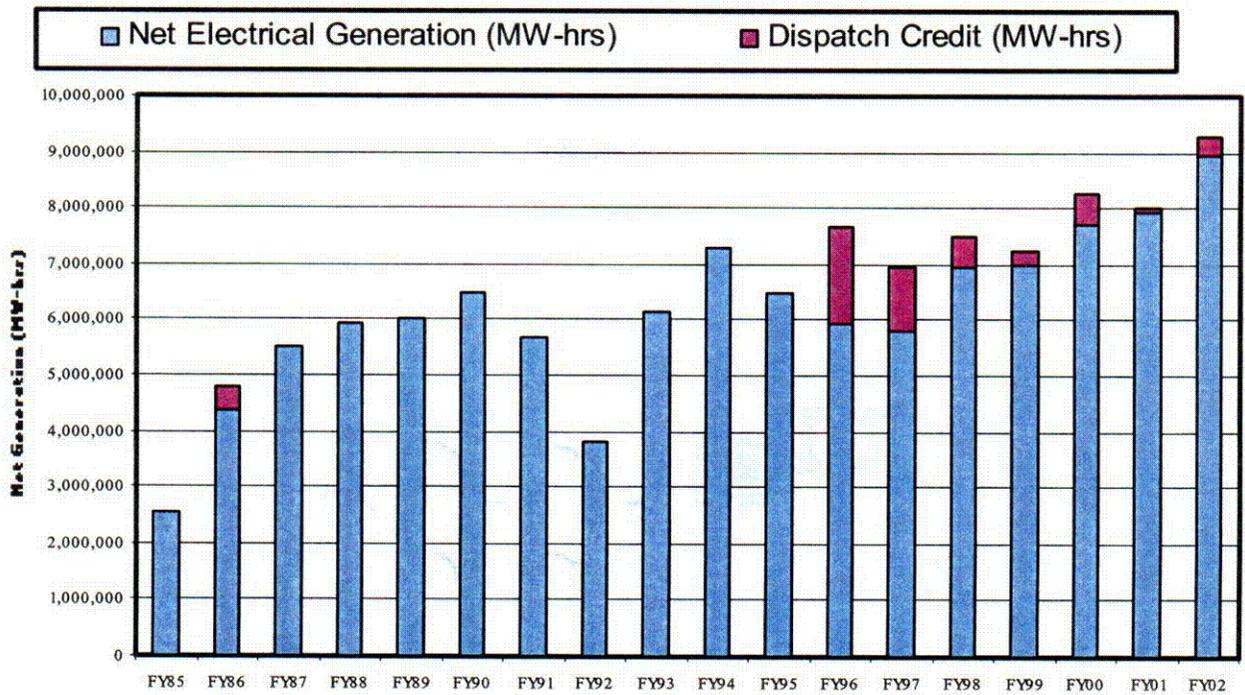
Prior to diesel outage, plant had exceeded its previous record run by over 100 days

Columbia Generating Station Capability Factor



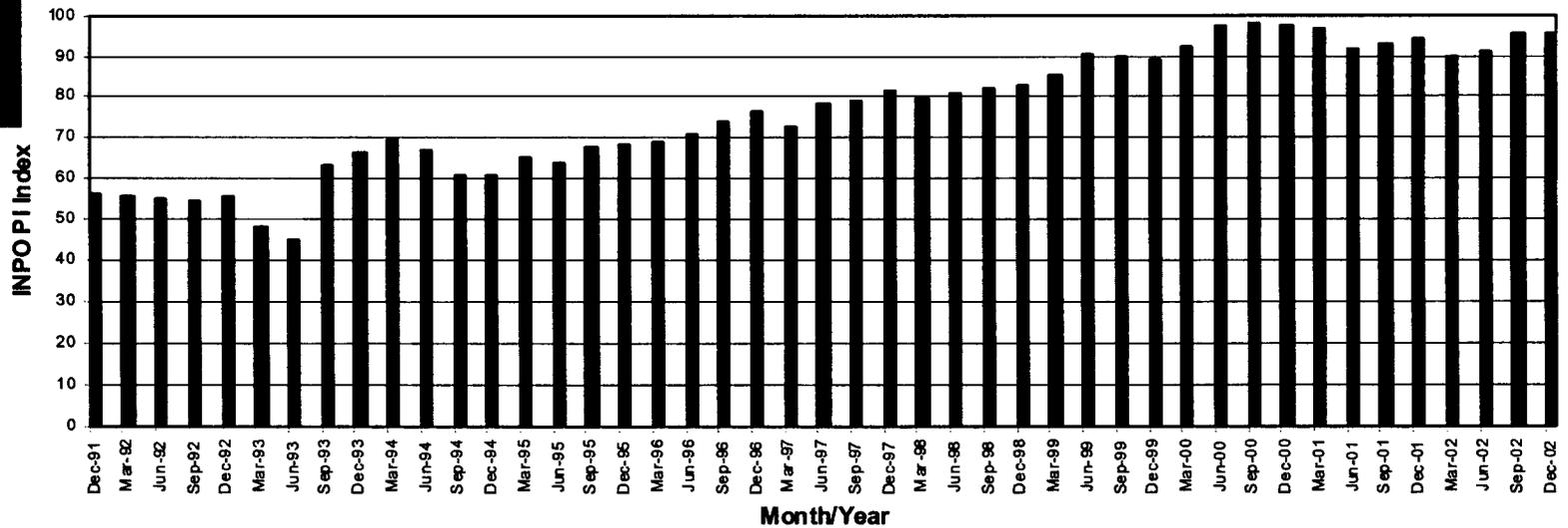
Station Successes

Columbia Generating Station Net Generation



Station Successes

**Columbia Generating Station
INPO Performance Indicator Index
4th Quarter 1991 - 4th Quarter 2002**



Station Successes

Projects Organization

- *Company taking a project orientation*
- *Manpower Loading and Project Planning received an INPO strength*
- *Other plants benchmarking process (e.g., Diablo Canyon)*
- *Providing assistance to plants adopting methodology*