PMBelCOL PEmails

From: Spink, Thomas E [tespink@tva.gov]
Sent: Friday, March 27, 2009 2:07 PM
To: Joseph Sebrosky
Subject: Hydrology Meeting Slides
Attachments: Hydrology PMF Presentation_final.pdf

Joe,

Please find attached the slides for Monday's Hydrology Meeting.

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Hearing Identifier: Bellefonte_COL_Public_EX
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Subject: Hydrology Meeting Slides
Sent Date: 3/27/2009 2:07:17 PM
Received Date: 3/27/2009 2:07:23 PM
From: Spink, Thomas E

Created By: tespink@tva.gov

Recipients:
"Joseph Sebrosky" <Joseph.Sebrosky@nrc.gov>
Tracking Status: None

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Files	**Size**	**Date & Time**
MESSAGE	253	3/27/2009 2:07:23 PM
Hydrology PMF Presentation_final.pdf	206973	

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Expiration Date:
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Bellefonte Units 3&4
Hydrology
Probable Maximum Flood (PMF)

March 30, 2009

Two White Flint North, T-7A4

Rockville, MD

Agenda

- TVA Meeting Objectives
- Background
- Project Organization
- Project Schedule
- Project Status
- Summary

TVA's Objectives

- Provide the NRC with information needed to allow Staff review resources to be rescheduled for FSAR 2.4.
- Status TVA's progress to:
  - Confirm the acceptability of the TVA SOCH code and its sub-codes by verification and validation per the TVA software QA requirements .
  - Confirm, regenerate, and/or revise Tennessee River system input data.
  - Confirm the PMF levels at the Bellefonte site.
- Discuss TVA confidence in meeting its schedule for remaining actions.

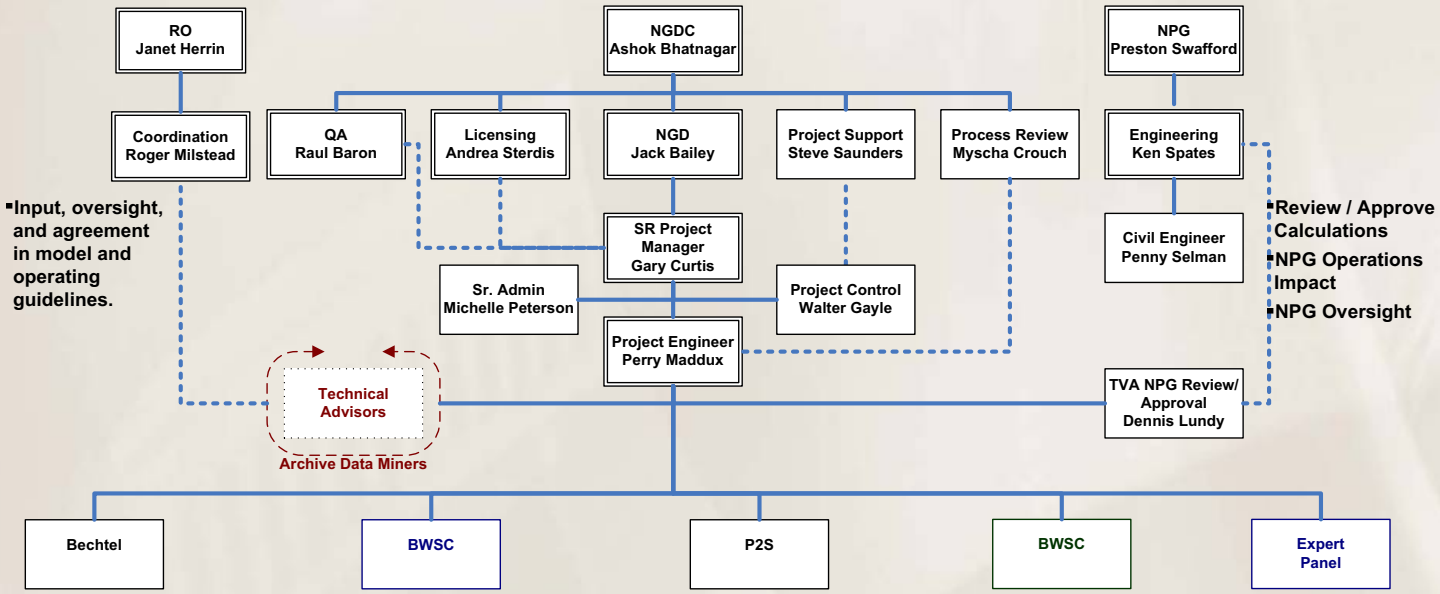
Background

- Feb 2008 - NRC QA Inspection of TVA hydrology documentation / 3 NOVs
- April 2008 – TVA Response to NOVs
- April – Oct 2008 – TVA began data recovery and validation.
- Oct 2008 – TVA requested the NRC delay its review of FSAR 2.4.
- March 2009 – Discuss TVA performance to date and confidence that TVA will complete the remaining scope within our schedule.

TVA Actions

- Assigned TVA dedicated Senior Project Manager and Project Engineer, who:
  - Defined the full scope of work to be completed.
  - Assure application of the TVA QA program.
  - Organized an integrated organization with stakeholder involvement.
  - Contracted for the sufficient, technically capable resources.
  - Produced a resource loaded schedule.
  - Manage the day-to-day project activities.
- Provide Senior TVA Management oversight and involvement to ensure sound project management and accountability.
- Convened a panel of industry and academic experts to review the processes and techniques used to model the river system and compute PMF level.

Project Organization



Bechtel

- Industry Practice Consultants
- 1 Precipitation Data Calc (97-08 NWS)
- 17 UH Calculations (47 UHs)
- Guntersville Geometry Calc
- 1 Geometry Calc
- 1 Dam Rating Calc - checking
- 16 V&V Documents
- UH Peaking Methodology

BWSC

- 1 Precipitation Data Processing Calc (73 Storm)
- 19 Dam Rating Curves Calc (check/verify)
- 6 SOCH Model Calibration Calcs
- Rain Runoff Index Calc
- 5 Geometry Calcs

P2S

- 20 Dam Rating Curves Calcs prepare/finalize)
- PMF Inflow Determination Calc – draft
- Reservoir Storage Tables Calc
- Operating Guidelines Calc

BWSC

- SOCH Set-up Runs
- 5 UH Calcs (main reservoir confirmation)
- PMF Inflow Calc (complete)
- PMF Calc
- Seismic Dam Failure Calc
- Sensitivity Calc

Expert Panel

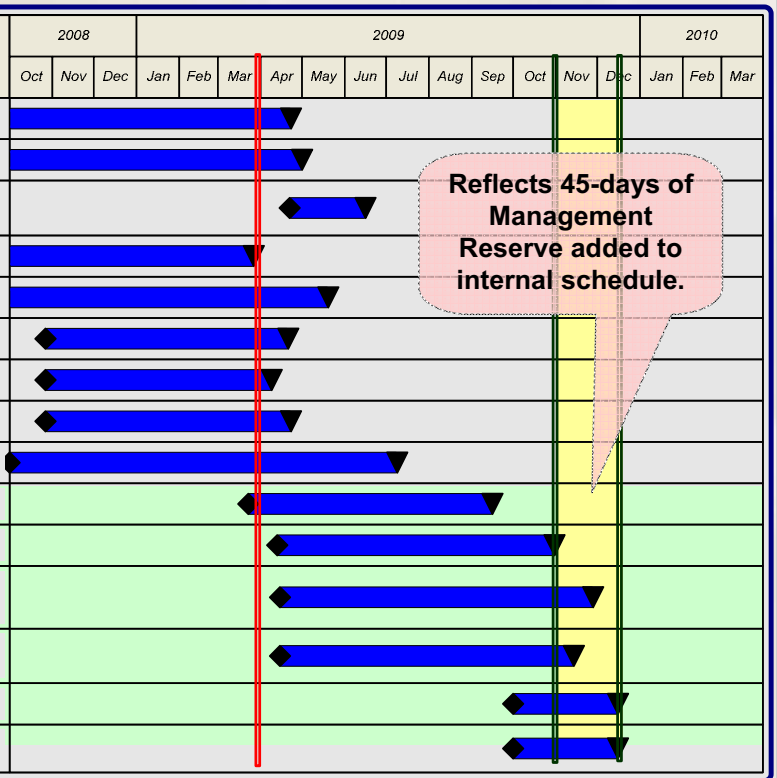
Review and advise TVA on:

- Methodology for modeling river system.
- Licensing experiences.
- Summary Report

Project Schedule (Internal Targets)

- *Overall Project 72% complete.*
- *Work activities tracking project schedule.*

ID	Task Name	Start	Finish
1	16 - Code V&V Documents	05/27/2008	04/22/2009
2	17 - UH Calcs (47 UHs)	06/09/2008	04/30/2009
3	5 - UH Calc (Rev 01) – main reservoir UH calibration	04/22/2009	06/15/2009
4	20 - Dam Rating Curves Calcs	08/21/2008	03/26/2009
5	9 - Channel Geometry Calcs	07/07/2008	05/19/2009
6	1 – Rain Runoff Index Calc	10/27/2008	04/20/2009
7	1 – Reservoir Storage Tables Calc	10/27/2008	04/08/2009
8	1 – Operating Guidelines Calc	10/27/2008	04/22/2009
9	6 – SOCH Calibration Calcs	10/01/2008	07/08/2009
10	**1 - PMF Inflow Determination Calc**	**03/23/2009**	**09/15/2009**
11	**1 – PMF Calc**	**04/13/2009**	**10/30/2009**
12	**1 – Seismic Dam Failure Outflow Calc**	**04/15/2009**	**11/27/2009**
13	**1 – Sensitivity Runs Calc (UH Peaking and Runoff)**	**04/15/2009**	**11/13/2009**
14	**Review, Revise, submit Whitepaper**	**10/01/2009**	**12/15/2009**
15	**Review, Revise, and submit BLN FSAR**	**10/01/2009**	**12/15/2009**



Software V&V

- V&V demonstrates software can replicate known flood events.
- Test and document the SOCH suite of computer codes
  - System Requirements Specifications
  - Software Design Descriptions
  - Software Verification and Validation Reports
  - User Manuals
- Codes grouped:
  - DBREACH
  - WWIDTH, CONVEY
  - UNITGRPH, FLDHYDRO, CHANROUT, TRBROUTE
  - SOCH

Corrective Action Program

- Documenting changes, enhancements, and errors.
- Evaluating potential impact.
- 21 PERs (Problem Evaluation Reports) issued to date.
- No significant PMF level increase identified thus far.
- Can not know final composite effect until software, PMF model, and input data run together.

Input Deliverable Status

Deliverable	TVA Approved (03/31/09)	Completion
V&V Docs	12/16 docs	April 2009
UH Calcs - Rev 0	7/17 calcs	April 2009
UH Calcs - Rev 1	0/5 calcs	June 2009
Dam Rating Curves	20/20 calcs	March 2009
Channel Geometry	1/9 calcs	May 2009
SOCH Calibrations	1/6 calcs	July 2009
Other Input Calcs	1/3 calcs	April 2009

Output Deliverable Schedule

Deliverable	Start	Complete (with 45-days reserve)
PMF Inflow calc	Mar 2009	Sept 2009
PMF calc	April 2009	Oct 2009
Seismic Dam Failure calc	April 2009	Nov 2009
Sensitivity calc (Peak UHs and 100% Rain Runoff)	April 2009	Nov 2009
Whitepaper Revision	Sept 2009	Dec 2009
FSAR Revision	Sept 2009	Dec 2009

Summary

- TVA integrated project organization is ensuring timely and technically sound performance.
- TVA QA program is in full effect, maximizing use of corrective action process.
- SOCH codes are supported by V&V test cases.
- Producing QA documentation for inputs, PMF analysis, seismic induced dam failures, and sensitivity runs.
- TVA demonstrating that project meets schedules.
- TVA is confident in remaining completion schedules.
- TVA will be ready to support an NRC review by January 2010.