



Hanford Site Integration Project Expert Panel

CLOSEOUT BRIEFING Ninth Meeting of the IPEP

Dr. Edgar Berkey, Chairman

April 27, 2001

Context of the Meeting

- ✓ This meeting took place within the context of uncertainty . . .**
 - FY02 Budget for EM**
 - Ability to maintain momentum on Integration Project (IP) tasks and vision**
 - Transfer of IP responsibility to Fluor in July 2002**
 - Future of “Integration” at Hanford**

- ✓ This reminds us that Hanford and DOE success is dependent on the nation’s political agenda and changing priorities**

The Meeting Agenda Was Designed To

✓ Focus On:

- IP progress and plans
- System Assessment Capability (SAC) history matching
- Tank Farm Vadose Zone Project
- Science & Technology (S&T) activities relevant to Tank Farms

✓ Facilitate:

- Tribal Nation, stakeholder, and regulator input
- Roundtable discussion on topics of interest

Congratulations . . .

✓ IPEP concludes that:

- Progress has been made on many fronts in the past 2-1/2 years at Hanford**
- “Integration” valuable as a stimulus to progress**
- Commitment and perseverance of IP management and staff are yielding benefits**
- DOE-RL is demonstrating increased ownership of the concept of “Integration” and its benefits**

✓ IPEP commends IP and related core projects for their accomplishments

Observations about Integration Project

- ✓ **IP has accelerated its rate of progress in several areas . . .**
 - Definition of inventory
 - Easier access to site data
 - Subsurface characterization data
 - Integration of S&T into IP
 - SAC history matching
 - ✓ **IP has strengthened its linkages**
 - Internally (through co-location)
 - Externally (through change in culture)
- . . . leading to better coordination and more effective use of resources**

Observations about Integration Project (Continued)

- ✓ IP “Tool Box” is now more robust but not yet complete**
- ✓ IPEP continues to be concerned that key dimensions and endpoints (e.g. biological, ecological, and cultural) relevant to integration are not receiving adequate attention**

Conclusions about Integration Project

✓ **Benefits of integration are evident:**

- **Shared goals and objectives**
- **Staff and institutional attitudes, enthusiasm, and activities**
- **Improved communication, coordination, and implementation**
- **Availability of data; information**
- **Interaction with regulators**
- **Increased productivity and accomplishment**
- **Better methodology for priority setting**
- **Better connection with science and technology**
- **Enhanced transparency**
- **Commitment to continuous improvement**

Conclusions about Integration Project (Continued)

- ✓ Decision-making at DOE-RL comes in various sizes and shapes**
 - IP has contributed to better decision-making -- but mostly on a smaller scale**
 - Goal is to also operate on a site-wide scale**
- ✓ IPEP is pleased that DOE-RL plans to continue the IP**
 - Most BHI scope to move to Fluor with coordination by DOE-RL**
- ✓ Transition poses unique challenges because “Integration” is not yet a site-wide reality**

Recommendations on Integration Project

- ✓ **As budget discussions proceed**
 - Ability of the IP to assist in priority setting and efficiencies must be recognized
 - Opportunities for additional integration should be pursued
- ✓ **Transition plans for the IP need to assure that “Integration” benefits to date are not lost**



Hanford Site Integration Project Expert Panel

FIELD TRIP

Dr. Peter Wierenga

April 27, 2001

Observations

- ✓ **The experiments at the Sisson and Lu, Hanford barrier, Mock Tank, and Burial Waste Facility are well conceived, and results should be useful for characterization and model testing**
- ✓ **The ERDF disposal facility appears to perform as planned -- Due to extensive use of water for compaction and dust control, large volumes of effluent water are collected from above the upper plastic liner**

Areas of Concern

- ✓ **The lack of vadose zone monitoring below ERDF and other active disposal sites at the Hanford Site is of concern**

Recommendations

- ✓ **Strongly recommend that all waste disposal facilities in the 200 Area have plastic and metal tubes installed to provide access below the facilities for vadose zone monitoring, using presently available and future monitoring devices**
- ✓ **The above mentioned system is not unlike the laterals and vertical boreholes below and around the tank, installed a long time ago, but still used for monitoring**



Hanford Site Integration Project Expert Panel

SYSTEM ASSESSMENT CAPABILITY HISTORY MATCHING

Dr. Randy Bassett

April 27, 2001

Observations

- ✓ **We commend the SAC Team on clear evidence of progress, concise and well-done presentations in the Focus Session, and beneficial exchange of ideas in the Round Table Sessions.**
- ✓ **Pre-meeting discussions with presenters were useful in focusing the Session.**
- ✓ **The contractor transition period is a particularly sensitive time and care should be taken not to lose the momentum.**
- ✓ **September IPEP meeting will be a useful timeframe for a detailed SAC Focus Session.**

Observations (Continued)

- ✓ **Terms such as “History Matching,” “Calibration,” “Testing,” and “Validation,” are commonly misused and unevenly applied across disciplines.**
- ✓ **SAC is both a “Tool” and a “Project;” inter-project coordination is crucial for success, especially in the transition period.**

Concerns

- ✓ **Documentation of progress made by SAC on Rev. 0 is needed; however, extensive documentation requires diversion of resources and delay in testing.**
- ✓ **We are concerned that transition activities could interfere with the testing, and demonstration of capabilities.**
- ✓ **Expectations for the use of SAC are not yet clearly stated, and its use in the various decision-making processes may be overstated. There appears to be a gap between what is wanted and what SAC sees as near term capability.**

Recommendations

- ✓ **Clearly state what likely can and cannot be done with the SAC (e.g., limitations, uncertainty), and how it is different from other modeling activities on site.**
- ✓ **Define and clarify with examples terms such as “History Matching,” “Calibration,” “Testing,” and “Validation”.**

Recommendations (Continued)

- ✓ Sufficient documentation of Rev. 0 is needed for Peer Review and communication of achievements**
 - Document rules, assumptions, criteria, principles, standards, etc.**
- ✓ Peer Review Team should provide feedback on:**
 - Adequacy of calibration**
 - How to evaluate or test SAC for site-wide capabilities**

Recommendations (Continued)

- ✓ Seize the opportunity to integrate with the River Protection Project activities to build confidence in the modeling.**
- ✓ Incorporate biological endpoints and measurements of ecological health into modeling efforts.**
- ✓ Ensure close interaction among scientists during the transfer of SAC**
 - SAC success depends on a team of scientists in physical, chemical, and biological disciplines to assure the meaningful framing and use of the SAC analysis.**

Recommendations (Continued)

- ✓ The “Home” or “Ownership” of SAC should be the site DOE Integration Office. Even though actual calculations are done at PNNL, or by contractors, the SAC function needs to be given significant exposure and be readily available to a wide variety of users**



Hanford Site Integration Project Expert Panel

VADOSE ZONE CHARACTERIZATION PROJECT

Dr. John Conaway

April 27, 2001

General Observations

- ✓ **Vadose Zone Characterization Project progressing very well on several fronts**
- ✓ **Well integrated with S&T**
- ✓ **Interim actions to protect groundwater -- great benefit in short time frame**

Characterization

- ✓ **Phased approach**
- ✓ **Many recent changes, technical advances**
- ✓ **Air rotary drilling**
- ✓ **Slant hole under SX-108**
- ✓ **Sidewall sampling**
- ✓ **Shallow push investigations**
- ✓ **Moisture measurement**
- ✓ **Re-enter laterals**

Inventory

- ✓ **Essential as source term for various models -- transport and risk**
- ✓ **Data are being systematically reworked**
- ✓ **Difficult to evaluate**
- ✓ **Re-evaluating all historical data (e.g. operational, gamma) regarding risk**

Modeling

- ✓ **2-D modeling on 3 cross sections in S-SX**
- ✓ **Calculated breakthrough curves for ^{99}Tc at water table and Waste Management Area boundary**
- ✓ **Breakthrough curves converted to dose estimates**
- ✓ **Long-term (1,000 years) contamination curves at various locations**

Concerns

- ✓ **THM: Impressive Work!**
- ✓ **“Sense of predictive confidence?”**
- ✓ **Calibration and validation of models: Creative thinking needed**
- ✓ **Do we have optimum integration plan for modeling?**
- ✓ **How much characterization is needed?**

Recommendations

- ✓ **Develop a plan for calibrating and testing the models**
- ✓ **Pursue opportunities for integrating modeling efforts with those of other programs**
- ✓ **Develop a plan for determining how much characterization is necessary and sufficient**



Hanford Site Integration Project Expert Panel

S&T CONTRIBUTIONS TO S-SX FIELD INVESTIGATIONS

Dr. John Matuszek

April 27, 2001

Observations

- ✓ **Reported on 3 Environmental Management Science Program (EMSP) funded projects and \$400K of S&T budget for S-SX Tank Farm**
- ✓ **Did not present other areas (comprehensive report coming)**
- ✓ **Successful cooperation with ORP and Environmental Restoration**
- ✓ **SAC discussion during Roundtable #2 exemplified cooperative effort**

Issues

- ✓ **What happens when EMSP funds end?**
- ✓ **Funding for research (EMSP or S&T ?) for other areas**
- ✓ **Degree to which other organizations will incorporate S&T concepts**

Conclusions

- ✓ **S&T effort regarding S-SX highly successful**
- ✓ **Concepts developed by S&T important for SAC and core projects**

Recommendations

- ✓ **Continue close relationships with Office of River Protection and Environmental Restoration**
- ✓ **Seek additional EMSP, as well as S&T, funds**
- ✓ **Work closely with SAC to ensure incorporation of new concepts**
- ✓ **Extend S&T research to other areas on site**



Hanford Site Integration Project Expert Panel

WRAP UP

Ed Berkey, Chairman

April 27, 2001

So Where Do We Go From Here?

- ✓ Over the next two months, IPEP will contribute thoughts on IP priorities for FY02 as requested**
- ✓ Next scheduled IPEP meeting:**
 - September 26-28, 2001**
- ✓ We look forward to seeing you!**