

Session 50
Panel Reducing Technical Risks In EM Projects

Panel Reporter: John Longenecker, Longenecker & Associates, Inc. USA

The following individuals participated in the panel;

- Terry Spears, DOE-SR
- Walter Tamosaitis, Washington Group International
- Jack Devine, Polestar
- Harry Harmon, PNNL
- Kurt Gerdes, DOE EM
- John Longenecker, Longenecker & Associates, Inc.

The panel addressed the process of conducting independent technical reviews (ITR) of DOE Office of Environmental Management (EM) projects, and the results and lessons learned from the reviews conducted to date.

Kurt Gerdes of DOE described the independent technical review process used by EM and how the results were being used by DOE management.

Terry Spears of DOE SRS then provided an overview of the reviews done to date. He noted that all the projects reviewed were one-of-a-kind, technically complex, expensive, and highly visible. These include:

- Hanford Waste Vitrification Plant
- Hanford Demonstration Bulk Vitrification System
- Savannah River Tank 48 Recovery
- Savannah River Salt Waste Processing Facility

Spears also described the typical planning and preparation for an ITR including the preparation of the review charter, scope, methodology, schedule, lines of inquiry, and the identification of team candidates.

Spears then reviewed overall lessons learned to date including the need for a detailed charter, the selection of an independent & strong team leader, the need for a diverse review team, good configuration control of the review, careful planning and scheduling of report review and production, and management of recommendation resolution.

Spears concluded that an ITR can be a valuable tool that reduces project risk if scoped and planned appropriately, executed in a timely manner and if the findings are followed through on expeditiously

Jack Devine then described the review that he chaired of SRS Tank 48. Devine began by describing the key problems that led to the review, including significant TPB contamination in Tank 48, leading to a hazardous in-tank condition (benzene), He noted that the tank was needed to support the SRS HLW processing campaign, that the problem was more than ten years old, and that its resolution had been elusive.

The ITR was initiated to bring a broader base of available experience and expertise to take a fresh look at the problem, offer constructive help (not criticism), and identify and illuminate a success path to resolution. Devine described the ITR planning and preparation including a charter that was approved jointly by WSRC and DOE that set forth objectives and expectations, participants and their qualifications, the review schedule, and the lines of inquiry.

The review involved an eleven-person team that represented a balance of industry and academic expertise who were independent, but not isolated from the problem and potential solutions. The review had an aggressive schedule (ten weeks) that involved open and interactive discussions with WSRC staff, vendors, DOE, and the DNFSB. The review addressed key issues including the selection of the primary treatment process (Fluidized Bed Steam Reforming (FBSR), Wet Air Oxidation), feed stream pre-concentration, heel removal, criteria for tank release, and the process sequence and timing. The conclusions and recommendations of the review were to select the processing technology ASAP, since both options were deemed to be viable, and to put a high priority on resolving heel removal and management and establishing the release criteria.

Devine then summarized the lessons learned including that prior planning and agreement was very valuable; that a small team size enhances effectiveness; that an aggressive, well planned and managed schedule yields a better product, faster and at lower cost; that LOIs need to be meaningful and flexible; that real-time assembly of the report provides a structures and helps to focus the review, produces clearer output, and simplifies the review and concurrence processes; and that an open process yields benefits at the end.

Devine summarized by indicating that the SRS review process built on prior ITR successes, produced constructive input that validated the main elements of the WSRC approach, but that pointed out areas warranting attention. Overall, he concluded that the process was very successful, efficient, effective and merits consideration in other applications

Next Harry Harmon addressed the review that he chaired on the Salt Waste Processing Facility. Harmon summarized the lessons learned from the review, including the timing of the review, the need for access to Engineering, Procurement and Contractor staff and documents, the availability of adequate facilities for the team, the time required for internal discussion and report writing, the need for adequate fire protection expertise on the team, a clear focus on safety issues, quality assurance training, and the need for clear decontamination and decommissioning guidance.

Harmon noted that the ITR report was transmitted to Parsons, the contractor for the project, on November 22, 2006. The DOE-SR SWPF Integrated Project Team performed an impact assessment, developed a closure strategy and closure plan that included a prioritization of issues, a schedule, and follow-up with ITR Team. DOE-SR is monitoring the issue resolution process.

John Longenecker then described the review he chaired of the Demonstration Bulk Vitrification System (DBVS) at Hanford. The review panel approach was to evaluate if the DBVS system, as designed will meet the requirements defined in the DBVS Justification of Mission Need and the System Specification, will produce a waste product that meets Integrated Disposal Facility (IDF) disposal requirements, and will meet DOE Authorization Basis and safety management requirements. Longenecker noted that the review did not compare DBVS to other technologies nor review project cost and schedule, as this was being done by DOE separately.

The review team initially developed a hierarchy of issues that guided the team in binning the issues identified as fatal flaws (issues that would cause failure of the DBVS, and cannot be resolved), technical issues (those that would result in a failure of the DBVS demonstration system to meet established DBVS system performance requirements unless addressed prior to start of hot operations of the DBVS facility), areas of concern (issues that might result in a change to design, or may require additional testing to determine if the design is adequate), and suggested improvements (actions which the project should consider to improve safety, cost, schedule, or efficiency during the test operations).

Longenecker next described the lessons learned regarding the review process including:

- Begin an external review process early enough to impact the project
- Tailor the review to match the stage of the project design/construction
- Seek the most capable review team members available
- Allow an adequate time frame to conduct the review
- The effort should be chartered by the senior management of the sponsoring organization
- The sponsoring organization should assign a senior executive to manage the review
- Bin the issues carefully-avoid overlap.
- Develop detailed charter for review – get it approved by all parties prior to review
- Spend time organizing the technical and design information prior to review team starting
- Establish working and meeting schedules early that respect the project team's work load. Develop work-arounds for when inevitable schedule conflicts develop with review team or project team.
- Prepare concise report that answers the questions posed in the charter simply and directly.
- State the context of the findings.

Walter Tomasaitis next described the ITR that he chaired of the Waste Treatment Plant at Hanford. The TWP is EM's largest project, and has encountered a series of significant cost increases and schedule delays over the past five years.

Key lessons learned from the review were:

- Get the best people for the review team. They are always busy, but you need the best.

- Assure that all key technical areas are covered.
- Assume that you will have to work around the busy schedules of both the review team and the organization being reviewed.
- Plan the report preparation process carefully. It is a challenging part of the process
- Get all team members to concur and sign the report.

The attendance at Session 50 was sparse, with no more than 20 attending at any time. However, the relatively small audience remained there for the duration of the session.

It is clear that the session provided useful information to those planning future ITRs.