

17 Feb 2010 HAB Presentation



Hanford Tank Closure & Waste Management [TC&WM] EIS

External Independent Review Team Preliminary Assessment Report

AGENDA

- Introductions
 - ❖ Overview of KD Auclair & Associates, LLC
- Background
 - ❖ Scope of Work
 - ❖ Method and Approach
 - ❖ Current Status – Work Remaining
- Preliminary Observations and Conclusions
- Recommendations
- EIS Review - Methodologies, Practices, and Adherence to Reasonable Standards of Practice
- Break
- Q&A

**Providing Management, Operations, Business Intelligence,
Engineering, Sustainable Development, Security,
and Technology Integration Solutions**



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KD Auclair & Associates, LLC

COMPANY OVERVIEW

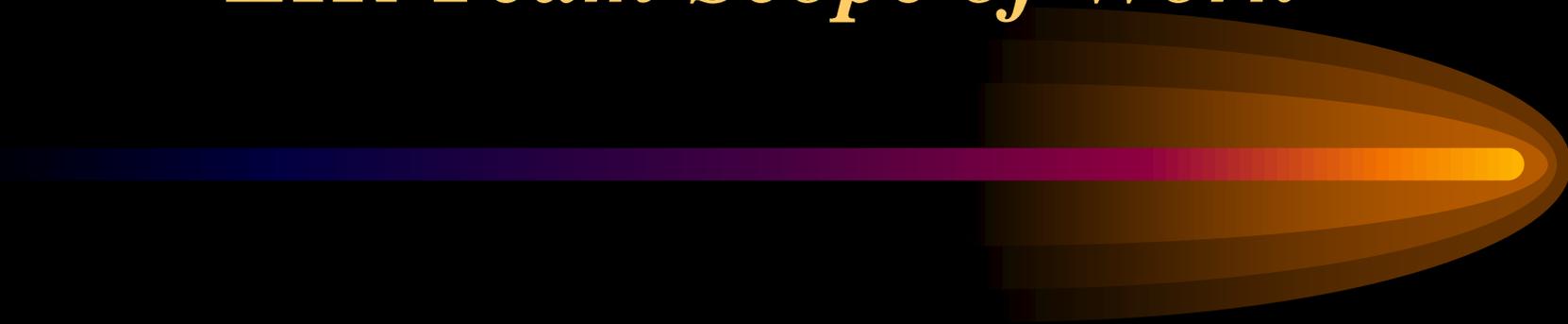


- Veteran Owned Small Business concern providing Management, Operations, Business Improvement [MOBIS], Business Intelligence, Security and Technology Improvement and Integration Solutions and support
- Can provide more than 1000 man-years of experience and expertise in direct support of Project, Engineering, Procurement, Construction, Quality, Risk, Process Improvement, and Security Management for a wide range of operations

Exculpatory Language

- Presentation Material and Views Expressed may not reflect the views of DOE, the prime contractors that support them, nor regulatory and standards bodies cited in examples as they have not been reviewed and approved by the same.
- Bottom Line: Personal Views based on past experience and prima facia review of the EIS materials as provided in publicly available documents and electronic resources.

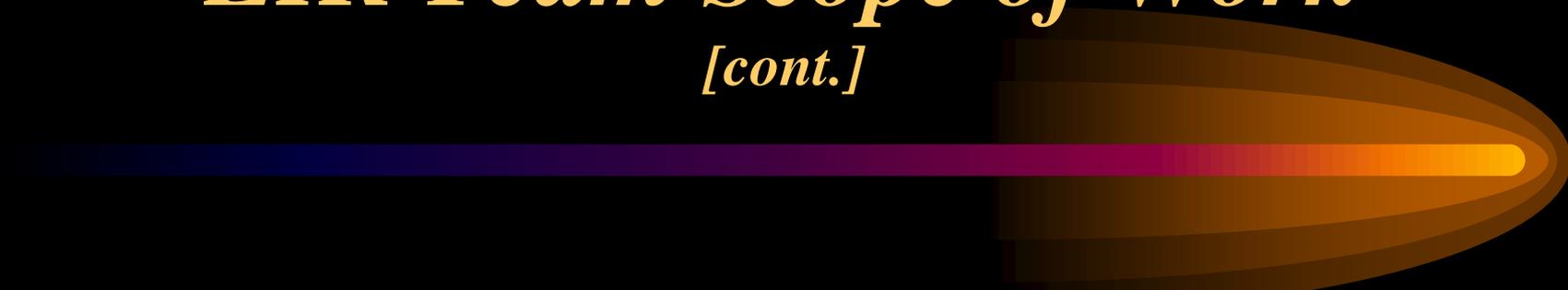
EIR Team Scope of Work



- **What our review and assessment effort is NOT:**
 - ❖ **NOT** a full and independent detailed technical review of the full EIS.
- **What our review and assessment effort IS:**
 - ❖ Our review and assessment effort **IS** a limited and targeted review of select aspects and perspectives of the EIS

EIR Team Scope of Work

[cont.]



- The External Independent Review (EIR) Team contracted to conduct an independent review and analyses of the proposed remediation alternatives presented in the draft Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS)
- Effort is focused on the following select perspectives:

EIR Team Scope of Work

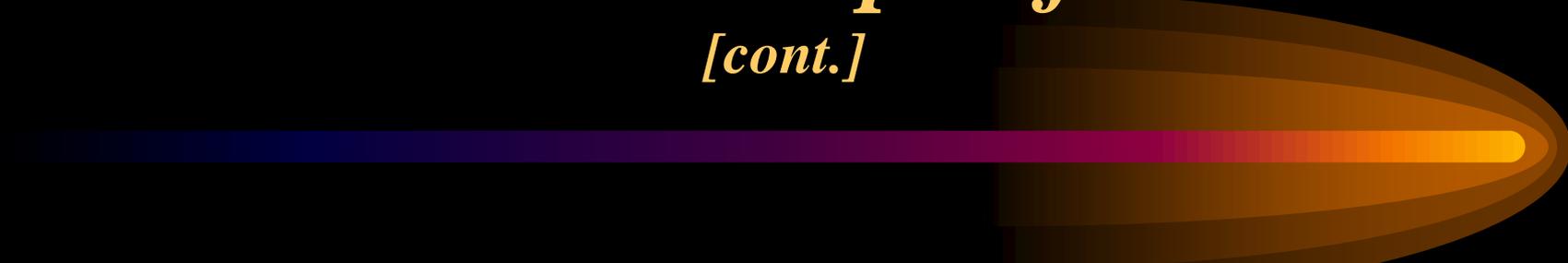
[cont.]



- Transparency
- Consistency and evenhandedness in applying the results of the technical analyses of contaminant transport in soils and groundwater to the various remediation alternatives considered in the draft EIS
- Use of a risk-based approach

EIR Team Scope of Work

[cont.]



- Evaluation to determine if evidence exists that the EIS provides an adequate analysis of cumulative risk and mass balance
- How well the proposed remediation alternatives comply with the guidance provided by the [Hanford Advisory] Board in their Decision Analysis Flowcharts for surface, soil, and groundwater remediation, as well as past *relevant* advice

EIR Team Scope of Work

[cont.]



- In summary, the EIR Team effort focused our independent review to identify:
 - ❖ Did the EIS analyses adhere to reasonable standards of practice
 - ❖ Did the EIS analyses adhere to the methodologies and practices as defined in the scope of the EIS, inclusive of Risk
 - ❖ Did the EIS analyses address or incorporate recommendations from the Hanford Advisory Board

Method & Approach



- First evaluated the fundamental reliability of the EIS analytical basis
- The need for a sound under pinning, hinged on a documented quality program, and documented approach to how data is qualified and used, is necessary for a successful evaluation of any [remediation] alternative.

Method & Approach

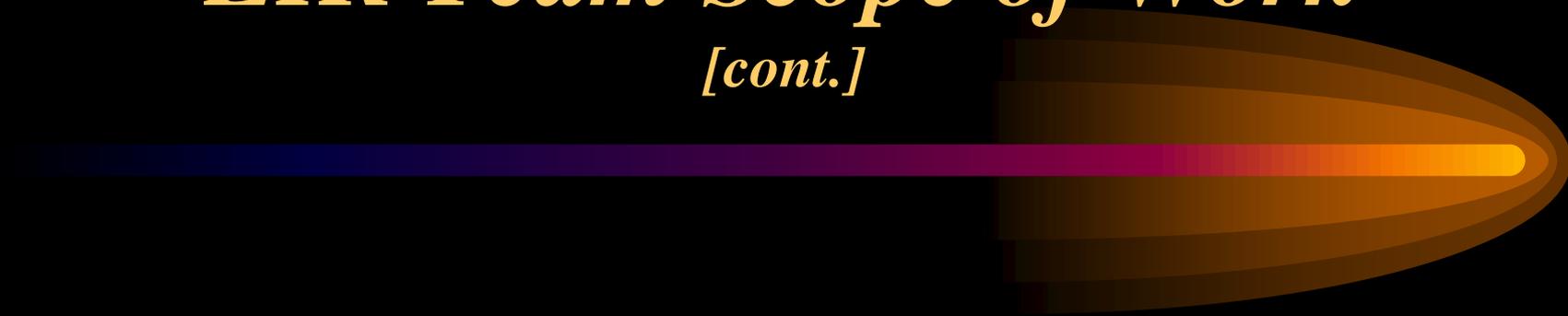
[cont.]



- If this analysis ‘engine’ or ‘machine’ is not sound, then any results derived from the same are questionable.

EIR Team Scope of Work

[cont.]



- EIR Team conducted an assessment which evaluated the following aspects:
 - ❖ Analysis of the process used
 - ❖ Analysis of the data used
 - ❖ Analysis of the data and risk analysis approach

Method & Approach [cont.]

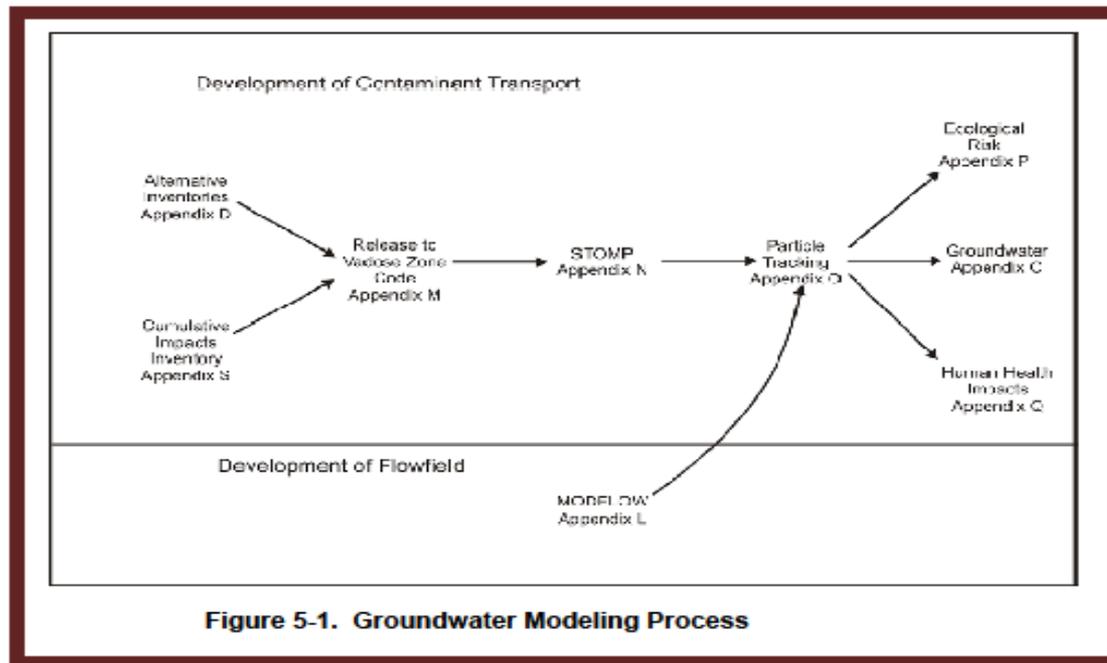


Figure 5-1. Groundwater Modeling Process

EIR Team Scope of Work

[cont.]



- Analysis of the process used; the data used; and the data and risk analysis approach:
 - ❖ Transparency
 - ❖ Consistency and evenhandedness
 - ❖ Risk, cumulative risk and mass balance
 - ❖ HAB advice and recommendation considerations

Terms and Definitions



➤ **Transparency**

The EIR Team views “transparency” as a simple litmus test: a technically competent reviewer must be able to understand the draft EIS without recourse to the author.

Terms and Definitions

[cont.]



- Consistency and evenhandedness :
 - ❖ Was there evidence of undue bias against or for a particular alternative
 - ❖ Documented and Rational approach
 - ❖ Key to these are the aspects of contaminant transport in soils and groundwater
 - ❖ Of particular importance is the rigor of the QA/QC methods

Terms and Definitions

[cont.]



- Consistency and evenhandedness [cont.]:
 - ❖ The EIR Team evaluated the basis, approach, methods, controls, assumptions, and configuration management associated with the modeling and data sampling and analysis efforts documented in the draft EIS.
 - ❖ These were assessed against industry norms for similar criteria.

EIR Team Scope of Work

[cont.]



- Risk, cumulative risk and mass balance
- HAB advice and recommendation considerations

EIR Team Summary of PRELIMINARY Observations and Conclusions

- **The general methodology of the EIS was consistent with the regulatory requirements of an EIS and served to evaluate the protectiveness of the various closure alternatives at the Hanford Site. {Section 2.3.1.2 }**
- As a further comment about QA/QC, the reports on the evaluations of their QA/QC said they had to meet DOE Order 414.1.C requirements. It is not documented that they did so. So there is a possible deficiency with regard to meeting QA/QC requirements set out by DOE itself.

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

- **The details of the EIS were sufficient to evaluate the protectiveness of the alternatives presented.** {Sections 2.2.1, 2.3.1.4, 2.3.3.3}
- **This EIS was a result of less than satisfactory QA/QC carried out in the previous Solid Waste EIS.** As such, it would have been expected that the QA/QC efforts of this EIS would have been documented. They were not documented in the EIS. A review team's report of the QA/QC procedures for this EIS appeared in November 2008 and is separate from the EIS, but **no final QA/QC report seems to have been produced.** {Sections 2.2.2, 2.2.4, 2.3.1.1, 2.3.2.2}

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

- **The modeling for the EIS seems to have been satisfactory**, although some inherent limitations of MODFLOW were noted. The vadose zone models were rigorous, but they used the saturated values from the calibration of MODFLOW as a starting point and coupled their independent calculations through source term boundary conditions to MODFLOW.
- The approach to deciding which features, events, or processes (FEPs) were important in developing the **model did not take advantage of the accepted industry standard FEPs process for nuclear waste.**

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

- As noted in the *Report of the Review of the Hanford Tank Closure & Waste Management Environmental Impact Statement (EIS) Quality Assurance Follow Up*, the QA/QC for the modeling was not sufficiently documented as of November 2008 – this still appears to be the case.
{Sections 2.2.3, 2.3.1.1, 2.3.1.2, mainly 2.3.1.4, 2.3.2.2, 2.3.2.3, 2.3.3.1, 2.3.3.2, 2.3.3.3}

EIR Team

PRELIMINARY

Observations and Conclusions

[cont.]

- **The risk calculations performed were of a deterministic nature.** This results, as described in Appendix L, from the use of flow parameters in the flow modeling being based on those from only one of the runs. The EIS paid particular attention to the details of the cumulative risk calculations. **The limitations of the modeling prevented a more rigorous probabilistic risk approach taking into account the uncertainties in the modeling.** As a result a conservative approach was taken to the risk evaluations. The risk from the CERCLA sites turned out to be more significant than earlier believed in comparison to the risks from the Tank Farm waste. {Sections 2.2.3, 2.2.4, 2.3.3, 2.3.2.1, 2.4.1.3}

EIR Team

PRELIMINARY

Observations and Conclusions

[cont.]

- **Although the EIS purports to attempt to quantify uncertainties, they were not able to do so in a rigorous way.** The EIS dealt with only two uncertainties for the groundwater flow, one was providing two alternative flow scenarios through the Gable Mountain Gap, and the other was a demonstration of the effect of uncertainty of the flux for technetium-99 from the BY and TY Crib Areas. These uncertainties were judged to result “in large variations in the near field.”
- **The Best Basis Inventory (BBI) contains more rigorous evaluations of uncertainty. The level of uncertainty presented in the BBI is sufficient for evaluating source uncertainties.** {Sections 2.2.3, 2.3.1.1, 2.3.1.4, 2.3.2.1, 2.3.2.2, 2.3.3.2, mainly 2.3.3.3 on Uncertainty }

EIR Team

PRELIMINARY

Observations and Conclusions

[cont.]

- **The EIS is largely consistent with the HAB Advisory 197 – Groundwater Values Flowchart.** Five of the six steps in that chart were considered in the groundwater evaluations conducted in the EIS, the exception being the decision (item 6 in the chart) as to whether to launch further technology development. The EIS focuses on the Alternatives that are currently under consideration, which are based on current technologies.
- Where there were questions about how well certain features were characterized, the EIS takes into account the associated uncertainties (see above). {Section 2.4 and 2.5.2}

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

- **The EIS is consistent with the HAB Advisory 173 – Central Plateau Remedial Action Values Flow Chart.** Where there were questions about how well certain features were characterized, the EIS takes into account the associated uncertainties (see above). Five of the six steps in that chart were considered, but the alternative flow paths involving the development of new technologies were not considered. The EIS focuses on the Alternatives that are currently under consideration, which are based on current technologies. {Section 2.4 and 2.5.2}

EIR Team

PRELIMINARY

Observations and Conclusions

[cont.]

- Most of the HAB's advice has been covered in the draft EIS. The most outstanding continuing issue, which is mentioned above in the last two summary points discussing the HAB flow charts, is the issue of characterization. The EIS does not make recommendations about further characterization nor about additional treatment technology. Although the EIS could clearly benefit from better characterization, they were tasked with providing the best calculations that could be made with the data available during the time frame of the production of the EIS. Also, as noted above, the EIS produced the evaluation based on technologies currently available or anticipated to be available by the time it was needed. They did not provide a mechanism for deciding where new technologies needed to be developed. {Section 2.4 and 2.5.2}

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

- The EIS does not appear to have updated the input data / data sources for, save those associated with the BBI and MODFLOW models. Information salient to the alternatives under review do not appear to [there is no documented evidence that] take into account updates from across the complex [e.g. saltstone, etc.].

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

In regard to the individual treatment alternatives

- Approaches are largely conservative
 - ❖ Inventories appear to be stated at the upper bounds
 - ❖ Releases in the Technical Guidance document are also conservative [upper bounds]
- Transport mechanisms / modeling is deterministic
 - ❖ Through Vadose – middle of the road values
 - ❖ Through Ground water – middle of the road values
 - ❖ Dose / exposure to the populace uses standard numbers but again appear to be conservative

EIR Team
PRELIMINARY
Observations and Conclusions
[cont.]

In regard to the individual treatment alternatives

HOWEVER:

- Between release and contact to receptors:
 - ❖ Transport basis for vadose zone and for ground water are NOT conservative
- A number of uncertainties are identified throughout the document
- Statements of conservative approach / values being applied – but no documented evidence of what or how
- Use of conservative approach may diminish the ability to determine which treatment alternative is most effective

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Hanford Tank Closure & Waste Management
[TC&WM] EIS

External Independent Review Team Preliminary
Assessment Report

QUESTIONS ??????

KD Auclair & Associates, LLC

COMPANY OVERVIEW

- **EXPERTISE** in more than 25 fields of discipline, science, and functional operations
- **SUPPORT** for select R&D programs, Market Research, Infrastructure Needs and Requirements Assessments, and Program and Policy development and definition studies for both Government and Private Sector organizations
- **FLEXIBILITY** to help your organization make a rapid transition from the abstract elements of planning to practical and fully implemented programs with appropriate performance monitoring metrics in place to help continually monitor performance and profitability

KD Auclair & Associates, LLC

COMPANY OVERVIEW



- **EXPERIENCE** -- our corporate culture is that of Strategic Teaming Agreements, Collaborative Agreements, Sub-contracts, direct hire / labor agreements, and VAR [value added re-seller] Agreements with Technical Specialists, Subject Matter Experts, Scientists, and Equipment, Technology, and Services Providers to achieve our capability in depth and flexibility to respond and support our client's needs

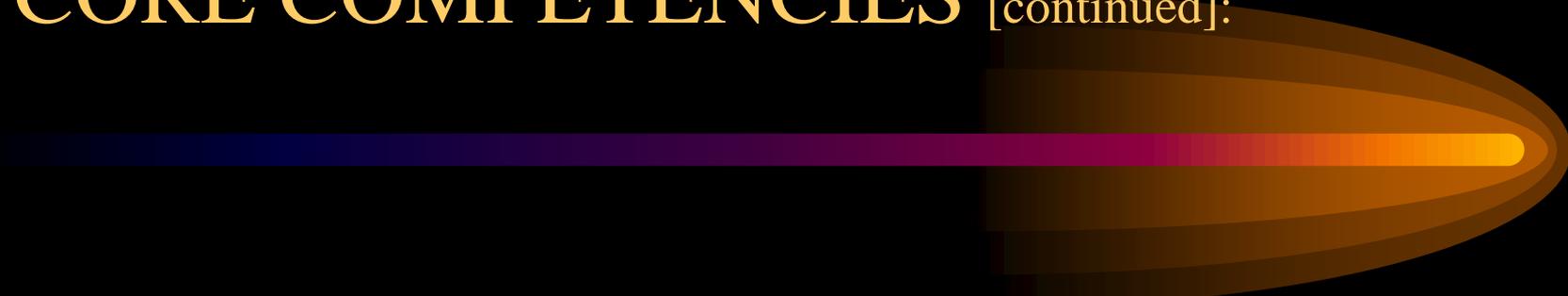
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CORE COMPETENCIES

- Project, Engineering, Construction, Risk, and Quality Programs Management
- Business Intelligence and Process Improvement Systems and Practices
- Sustainable Design and Development
- Security and Vulnerability Assessments, and Security Technology Integration & Deployment

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CORE COMPETENCIES [continued]:



- Project Financing and Investment Initiatives
- Advanced Technology Selection, Development, and Implementation for Extreme Environments
- Technology and Systems Integration Initiatives