Hanford Waste Treatment and Immobilization Plant – Rebaseline and Contract Modification Proposal Process

2017 Project Management Workshop

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Presentation Outline

- Introduction to Direct-Feed Low-Activity Waste (DFLAW)
- Rebaseline and Contract Modification for DFLAW
  - Backdrop and Challenges
  - Process and Timeline
  - Revised Contract Incentives
- Lessons Learned
- Path Forward
Direct-Feed Low-Activity Waste
The DFLAW approach sends pretreated tank liquids directly to the LAW Facility, enabling treatment operations as early as 2022.
Low-Activity Waste Facility

Statistics

LAW Process Metrics:
- Two 300-ton melters (20 ft × 30 ft × 16 ft tall)
- 21 metric tons of glass per day
- Produce 1,100 immobilized glass containers/year

Size: 330 ft × 240 ft × 90 ft tall
Concrete: 28,500 cu yds
Structural Steel: 6,200 tons

HVAC Ductwork: 943,500 lbs
Piping: 103,000 linear ft
Electrical Cable: 843,000 ft
Rebaseline and Contract Modification – Backdrop

- Ongoing design-build nuclear construction project
- No valid project Performance Baseline since early 2012
- Consent Decree proceedings ongoing
  - Amended Consent Decree ruling issued in March 2016
- Ongoing external reviews from U.S. Government Accounting Office, Office of Inspector General, Defense Nuclear Facilities Safety Board, etc.
- Ongoing emphasis and priority on resolving WTP technical issues
- Alignment of DFLAW interfaces and waste feed/design criteria between WTP and Tank Farms
Rebaseline and Contract Modification – Challenges

- Incorporate new scope for DFLAW into existing work plans
- Integration with Tank Farms to establish DFLAW operational and interface specifications
- Rebaseline existing scope for LAW, BOF\(^1\), and LAB\(^1\)
- Contract negotiations overlapped with BCP reviews
- Mandate to complete BCP and contract in parallel – “signature ready” on the same day
- Compressed traditional time frames for DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*

\(^1\) Partial baseline.
Established new contract line item number (CLIN) structure aligned with sequenced mission completion strategy

Obtained contract modification proposals in pieces
- DFLAW Design (CLIN 2.1)
- LBL completion through hot commissioning (CLIN 1.0)
- DFLAW procurement, construction, and commissioning (CLINs 2.2, 2.3, and 2.4)

Conducted Federal Acquisition Regulation-required reviews for each proposal
- Independent Government cost estimates
- Cost and technical evaluations

Independent attribution review conducted by A.R. Biddle

Contract negotiations preceded but overlapped with DOE O 413.3B required external reviews and Energy Systems Acquisitions Advisory Board (ESAAB) preparations
Rebaseline Cost Proposal Process

- **Incremental rebaseline** aligned with sequenced mission approach – starting with DFLAW
- Integrated BCP – incorporated all contract proposal scope into a single BCP
- Integrated BCP completion schedule with Independent Cost Estimate/External Independent Review
- Early, iterative briefings to the Office of Environmental Management Leadership, DOE Project Management Risk Committee, and ESAAB members
- Pre-ESAAB and ESAAB briefings

Result: BCP and contract modification approved and executed on same day.
## “As-built” Timeline of the DFLAW/LBL Contract Modification and Rebaseline Process

<table>
<thead>
<tr>
<th>Description of Action</th>
<th>Timeline of Months</th>
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<tbody>
<tr>
<td><strong>Rebaseline</strong></td>
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<tr>
<td>A ORP - FPD directs BNI to develop Plan for BCP</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>B ORP - FPD directs BNI to develop 60-Day BCP</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>C BNI - Develop BCP/SRA for CLIN 1/2 work scope</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>D ORP - Review BCP, Develop Fed BCP</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>E PM - ICE/ICR</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>F PM - EIR</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>G PMRC/EMAAB/ESAAB Briefings; CE Approval</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td><strong>Contract Update</strong></td>
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<tr>
<td>H ORP - CO directs BNI to prepare CMP for CLIN 1/2.1</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>I BNI - Prepares CMP for CLIN 1 and CLIN 2.1</td>
<td>J F M A M J J A S O N D</td>
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<td>K ORP - FPD/CO direct BNI to revise CMP for CLIN 1/2</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>L BNI - Prepare revised CMP for CLIN 1 and CLIN 2.1</td>
<td>J F M A M J J A S O N D</td>
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<td>M EMCBC - Revise IGCE</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>O ORP - Pre-Neg. Plan (PNP) / Business Clear.; CLIN 1</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>P ORP - Req CMP for CLIN 2.2/2.3; BNI develop CMP</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>Q ORP - Tech &amp; Cost Eval and PNP for CLIN 2.2/2.3</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>R ORP/BNI - CLIN 1/2 Negotiations, AIP</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>S ORP - Contract Mod Prep/Finalization / Execution</td>
<td>J F M A M J J A S O N D</td>
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<tr>
<td>T BNI - Prepares certified cost and pricing data</td>
<td>J F M A M J J A S O N D</td>
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### Key Dates and Events
- BCP Development
- ORP and External Reviews
- ESAAB
- Proposal Development
- Proposal Evaluation
- Contract Negotiation and Finalization
WTP 2016 Performance BCP

- BCP value: $4.550 billion
- Adds DFLAW work scope specific to WTP
- Completes DFLAW/LBL construction, startup, and cold commissioning (Critical Decision [CD] 4a)
- Removes DFLAW/LBL hot commissioning from the WTP Project’s Performance Baseline (remains a WTP contract requirement)
- Includes $1.23 billion of risk reserve @ 90 percent confidence level
  - Management Reserve: $323 million
  - Contingency: $907 million
- BCP approved by Chief Executive for Project Management (S-2) on December 15, 2016

Incremental Total Project Cost: $12.263B → $16.813B
CD-4/4a: November 2019 → August 2023
Key Incentive Features of Revised Contract

- Incentive structure emphasizes integrated cost and schedule performance
- Fee for completion milestones declines monthly to a minimum fee after defined period
- Performance (award) fee criteria updated annually to emphasize current project phase and priorities

Contract modification value: $3.123 billion
Total available fee (maximum): $360 million
Project Based Incentives

Engineering, Procurement, and Construction:
- Install the caustic scrubber vessel
- Complete final structural assembly of melter #1
- Complete final structural assembly of melter #2
- Complete bulk wire pulls associated with the last LAW elevation (+48 feet)
- **Complete LBL construction**

Startup and Commissioning:
- DOE approval of LAW Documented Safety Analysis
- LAB startup testing complete
- LAW startup testing complete
- Effluent Management Facility startup testing complete
- LAB readiness to operate
- LAW DOE Headquarters Operational Readiness Review complete
- **Successful demonstration of LAW Facility hot commissioning**
<table>
<thead>
<tr>
<th>Project Schedule</th>
<th>Contract</th>
<th>BCP</th>
<th>Amended Consent Decree</th>
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<tbody>
<tr>
<td>LAW Construction Substantially Complete</td>
<td>Nov 2017</td>
<td>June 2018</td>
<td>*</td>
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<tr>
<td>Start LAW Cold Commissioning</td>
<td>June 2020</td>
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<td>*</td>
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<tr>
<td>Complete LAW Cold Commissioning</td>
<td>Nov 2020</td>
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<td>*</td>
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<tr>
<td>CD-4/4a&lt;sup&gt;1&lt;/sup&gt;</td>
<td>April 2021</td>
<td>Sept 2021</td>
<td>Aug 2023</td>
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<tr>
<td>Complete LAW Hot Commissioning</td>
<td>June 2021</td>
<td>Jan 2022</td>
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* Dates not specified in referenced document.

<sup>1</sup> The WTP Project defines CD-4a, “Approve Start of Initial Waste Treatment,” as the successful completion of cold commissioning, an operational readiness review, and approval to startup the LAW Facility consistent with DOE O 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities.*
Lessons Learned

- Extensive up-front planning and communication, including contract and project “summits” with DOE Headquarters and field leadership to ensure alignment
- Close coordination with DOE’s Office of Project Management Oversight and Assessments for completing independent cost review and external independent reviews
- Early engagement with DOE’s Project Management Risk Committee as part of ESAAB pre-briefings
- Contract modification and BCP concurrent approval allowed for immediate implementation of revised Performance Baseline
- Under-estimated time required to complete both development and review of baseline and contract proposals
- Used multiple sources used for development of independent government cost estimates – not ideal
Re-established PARS IIe reporting to revised Performance Baseline; added new project report for DFLAW/LBL work scope

Earned value management system review scheduled for 2017

Construction project peer review scheduled for 2017

Enhanced baseline change, schedule, and risk reviews

Complete PT Facility technical issue resolution

Begin process to rebaseline HLW and PT facilities
Safety Always Comes First!