

**Air Force Civil Engineer Center**  
*Integrity - Service - Excellence*



Overview of the  
Air Force  
Complex Sites  
Initiative

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SME Toxicology /Risk Assessment  
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**Air Force  
Complex Sites Initiative**

- Air Force Complex Sites Initiative (CSI) focuses on five percent of AF sites
  - Approximately 1000 sites not expected to close by 2020
  - Sites not closed by 2020 are Complex
  - ID sites we can close by 2041 & manage differently
  - Implement a process to identify sites and contract strategy
  - Contract based on technical complexity
- Enterprise View of Technical Performance
- Integrate surveillance with legacy guidance and tools
- Optimized Exit Strategy (OES)

*We need adequate, though often imperfect, answers to difficult and expensive questions  
Modified from Daniel Kahneman*

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**Paradigm Shift in AF Restoration  
Beginning in FY11**

**“Fence-to-Fence” Performance-Based Remediation**

- Emphasis on *innovation*, and leverages *technology*
- What does the marketplace offer?
- Emphasis on SC (*unrestricted*, Residential Levels)
- *Lifecycle cost* considerations
- Anticipated Outcomes
  - Reach site closeout faster
  - Minimize life-cycle costs
- *Current PBRs continue through 2020 or later*
- **CURRENT Focus is Response Complete (RC)**



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## AFCEC Complex Sites - Current Challenges

Budget	Technology Limitations	Alternative Endpoint Report	New Contaminants & Low Standards
<ul style="list-style-type: none"> <li>Current contract policy emphasizes site completion</li> <li>Identify lower cost technologies</li> <li>Slower cleanup schedule</li> <li>Stop ineffective systems</li> </ul>	<ul style="list-style-type: none"> <li>Cannot close all sites</li> <li>Performance models</li> <li>Use available technology effectively</li> <li>Change technology when appropriate</li> </ul>	<ul style="list-style-type: none"> <li>CERCLA – site specific decisions</li> <li>Protectiveness required when technical solution is inadequate</li> <li>Protectiveness requires alternative endpoints</li> </ul>	<ul style="list-style-type: none"> <li>New regulatory standards</li> <li>Screening-level revised lower</li> <li>New remediation technology</li> <li>New analytical methods</li> </ul>

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## Elements of Technical Performance

- **Pre-Award**
  - OES **Baseline Performance** Development
    - Performance goals required to achieve Contract Objective
- **Post-Award**
  - **Integrated approach to track overall PBR performance**
    - Surveillance to Assess Quality and Performance
    - **Critical Process Analysis (CPA)**
      - Validate remedy/meets performance model
      - Determine Contingency Response
    - **Complex Site Initiative (CSI)**
      - Evaluate systems + Monitoring Network + Conceptual Model

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## Technical Quality - OES Baseline

### OES Baseline - Technical Performance Monitoring I

EX: Geomean ΣCVOCs (µM)	
Well # 1	425
Well # 2	362
Well # 3	155
Well # 4	105
<i>Median</i>	

○ = Monitoring well

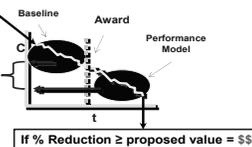


**Post-Award**

- Contractor must meet or beat proposed performance goals/standards to approve milestone payments
- FY11/FY12 PBRs – No established framework for performance

**Pre-Award**

- Establish *baseline* of conditions at high cost, complexity, risk (CCR) sites with OES as MPO starting in FY13 to support Technical Evaluation
- Require contractor to propose performance goals/standards to meet or beat the initial baseline



If % Reduction ≥ proposed value = \$\$

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## Critical Process Analysis (CPA)

A CPA is an extensive technical evaluation of an active environmental *remediation system* at sites with high cost, complexity and risk (CCR) to:

- **Validate technology and design specifications**
- **Verify construction and operation according to design requirements**
- **Validate whether the system is on track to meet performance objectives**


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*Independent Verification*

Questions regarding CPA: [afccc.cfoe.af.mil](http://afccc.cfoe.af.mil)

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## Complex Sites Initiative (CSI)

**Complex Sites Initiative (CSI)** Eligible sites – high cost complex sites where technical analysis is required to determine if possible to achieve SCRC, or alternative strategies such as TI waiver, where no real progress is deemed technically feasible.

**Data Collection** Air Force identify and assemble critical information for each site

**Critical Review** Air Force perform multi-day critical review of site data to identify requirements, utilizing EPA’s DQO process

**CSI Report** Outcome of critical review that identifies appropriate goals, establishes path forward, and identifies appropriate technologies.

**Fill Data Gap(s)** Air Force contract to conduct fieldwork to fill any data gaps

**Determine Contract Strategy** Air Force determine path forward and suitable contract mechanism to achieve appropriate endpoint

**BENEFITS**

- Standardized process to assess complex sites
- Buys-down uncertainty of follow-on contract
- Conceptual basis and decision logic to design optimal systems
- Independent (unconstrained) review of site
- Independent verification of contractor(s) remediation strategy
- Opportunity to scope a better contract and objectives
- Basis for decision whether or not to award a follow-on SubCLIN
- Data will be available to follow-on contractor

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## Other Elements of Complex Sites Initiative

- **Base-wide Conceptual Site Model**
- **PBR Chemistry Performance Evaluation**
- **5-Year Review**
- **ROD Review**
- **Integrate surveillance with legacy guidance and tools**
  - Long-term Monitoring Optimization Tools
  - Geostatistical Temporal-Spatial (GTS) optimization software
  - Monitoring and Remediation Optimization System (MAROS) software
  - 3TMO (3-Tiered Monitoring Optimization tool)
  - ITRC Using Remediation Risk Management to Address Groundwater Cleanup Challenges at Complex Sites, January 2012

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## Air Force CSI

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### Air Force Needs:

- Guidance/criteria and procedures to determine whether progress is “likely” to achieve RAOs
- Guidance describing procedures to determine progress and triggering criteria to change remedial alternatives
- Guidance/criteria and procedures to determine whether restoration is achievable at reasonable cost “within a reasonable time frame” such as 20 to 30 years
- Guidance on development and streamlining Record of Decisions that accommodate “adaptive site management” and sequential technologies without requiring a ROD amendment.

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## Air Force CSI

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### ■ Questions?

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