

Headquarters U.S. Air Force

Integrity - Service - Excellence



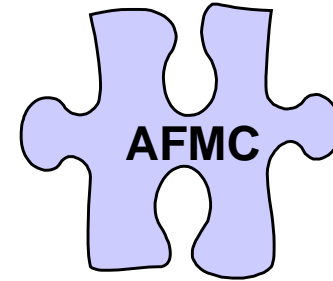
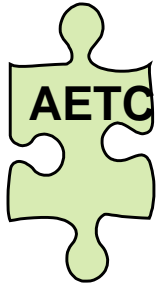
The Air Force & Remedial Process Optimization (RPO)

**Mr. John Gillespie
HQ AFCEE/TDE**

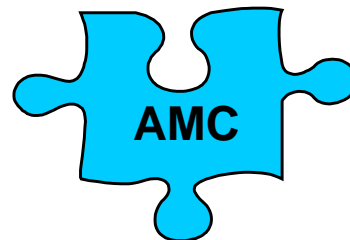
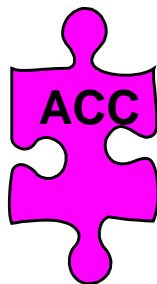
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Air Force Optimization Challenge



**How do we integrate optimization into the
Air Force environmental program?**





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Integrating RPO

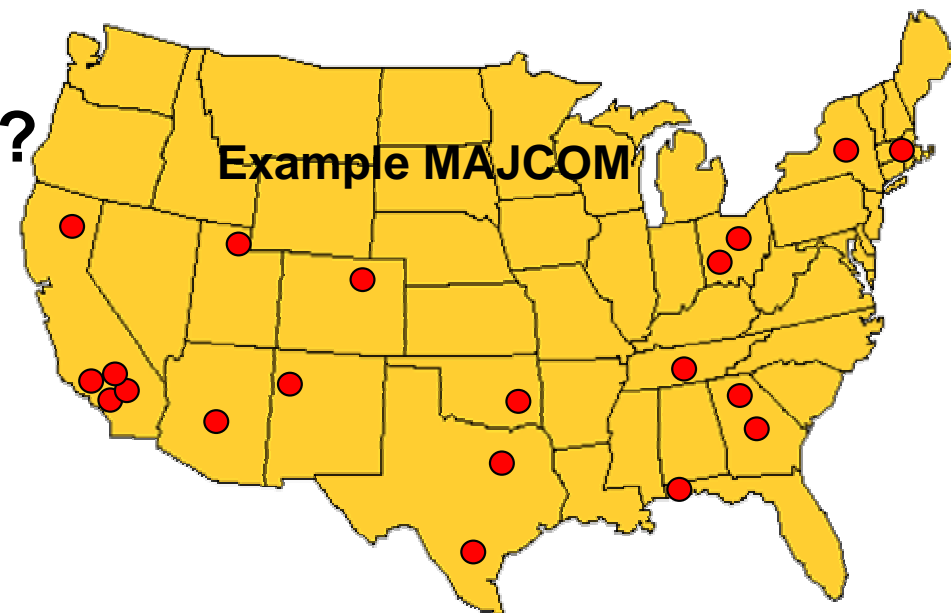
■ There is guidance...

- “At sites that have achieved the remedy-in-place milestone, installations *shall* conduct and document an optimization review at least *annually*.” (AF ERP, Jan 03, Section 16.3)

■ Where is the center of gravity?

■ Unlike the EPA...

- Air Force is set up by function vs. geographically
- MAJCOM vs. EPA Region



**Great for warfighting, but
A challenge for addressing environmental issues**



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RPO Business Model

- **Air Staff created RPO Outreach Office at AFCEE to assist MAJCOMs with their optimization programs**
 - **Outreach Office Objectives:**
 - ◎ **Provide a standardized approach across Air Force**
 - ◎ **Help MAJCOMs build an inventory, create an optimization baseline, track trends, & integrate optimization decision making process**
 - ◎ **Used EPA web-based questionnaire as building block to develop RPO Inventory & Prioritization Software (RIPS)**
 - ◎ **Emphasize performance & results**



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RPO Inventory & Prioritization Software (RIPS)

■ **RIPS Goals**

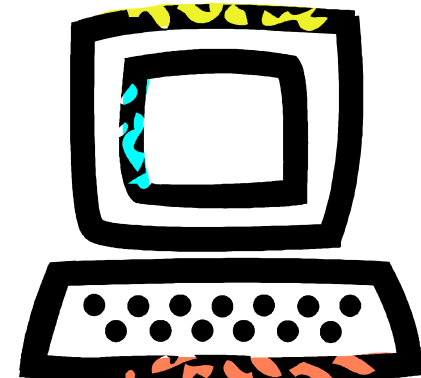
- **Systematic Approach to Identifying Remediation Systems and Long Term Monitoring (LTM) Programs for RPO**
- **Better allocation of RPO funds**
- **Track performance over time**

■ **Benefits of RIPS**

- **Overall inventory of remediation systems and LTM programs**
- **A tool to prioritize systems in terms of optimization potential**
- **Annual update capability to monitor system performance**
 - ◆ **i.e., Command & Control tool**

















■ **Future of RIPS**






- **Web-based by FY05**
- **Tied to AF database system**



Microsoft Access - []

File Edit View Insert Format Records Tools Window Help





Favorites

Go

Remediation System Inventory Data

1. Major Command:

Air Force Materiel Command

2. Facility:

Hanscom AFB

3. Site:

NPL OU1 (IRP Site 1)

4. Remediation System:

Site 1 Vacuum Enhanced Recovery System

5. Click to Edit/Add Contacts for the Remediation System

6. Date the questionnaire was completed (mm/yyyy)?

7. Type of Remediation System?

Dual-Phase (Groundwater & Soil Gas) Extraction

8. Legal Driver for Remediation?

9. Legal Status of Remedy?

10. LNAPL known to be present?

11. DNAPL known to be present?

12. Approximate (+/-10%) Average Annual Operation and Maintenance Costs (\$/year)?

\$0

13. Portion of Average Annual Operation and Maintenance Costs (\$/year) Used Only for Groundwater/Soil Vapor Monitoring?

\$0

14. Approximate (+/-10%) Operation and Maintenance Costs (\$) Over the Past 12 Months?

\$0

15. Highlight the Primary COC(s) for the Remediation System

Chlorinated Hydrocarbons (e.g., TCE, TCA, DCE, vinyl chloride)

Petroleum Hydrocarbons (e.g., BTEX)

Other Volatile Organic Compounds

Semivolatile Organic Compounds

Polynuclear Aromatic Hydrocarbons (PAHs)

Pesticides/Herbicides

Polychlorinated Biphenyls (PCBs)

Dioxins/Furans

Perchlorates




Please provide below any general comments or a brief explanation for any of the above questions that were not answered or were answered "Other"

Click to Edit/Add Remediation System Optimization Data

Click to View Inventory Report

Form View

Start



C:\RPO Evaluation ...

FinalDraftVersion_U...

C:\RPO Evaluation ...

Microsoft Access ...

2:33 PM



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Example MAJCOM Baseline

Remediation Systems

System Type	Number of Systems	Cost Savings	Percent Savings
Pump & Treat	45	\$784,000	8%
Soil-Vapor Extraction	8	\$5,000	0%
Dual-Phase Extraction	18	\$285,000	7%
Air Sparging/SVE	16	\$32,000	2%
Bioventing	13	\$59,000	6%
Nutrient Enh. – Multiple	2	\$0	0%
Nutrient Enh.–Continuous	1	\$0	0%
Wall/Barrier	3	\$0	0%
LNAPL Recovery	1	\$0	0%
Thermal Technology	1	\$0	0%
Monitored Natural Atten	3	\$0	0%
Other	9	-\$50,000	-16%
Totals	120	\$1,115,000	5%

LTM Programs

Monitoring Programs	Number of Systems	Cost Savings	Percent Savings
Totals	28	\$1,502,100	13%



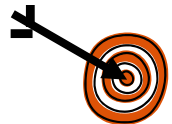
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The Result

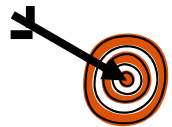
Results:



Full Cost Visibility



A Baseline



The ability to track performance year to year

■ **By following the business model, the Air Force will have a complete inventory of systems**

■ **Have proven success with one MAJCOM**

■ **Others have begun process**

■ **Optimization opportunities will be well defined**



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Issues

- **Air Force leadership must deal with:**
 - **Is saving \$ as career enhancing as spending \$?**
 - **We must tackle optimization in a standardized way**
 - **We cannot be afraid to challenge decisions we made in the past**



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Successes

Pilot optimization studies conducted by the Air Force have shown that when

**The correct information is collected
Regulators are active part of the team** } **= Significant resources are saved**

- **Air Force Material Command (AFMC) has implemented a tracking system to capture RPO cost savings and analyze the current programs for optimization potential**
- **Other MAJCOMs are following suit & hope to have similar programs in place by FY05**



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Lessons Learned & Summary

- **AFMC Inventory & Baseline Results**
 - **Two big targets to save resources:**
 - ◆ **LTM Systems**
 - ◆ **Pump & Treat Systems**
 - **We have on the shelf tools that address LTM but addressing Pump & Treat is more problematic**

- **RPO must be integrated into the Project Manager's Business Model, i.e., Must have buy-in at all levels**



RPO Outreach Office Contact Information

■ Program Manager

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■ LTM Program Manager

- Phil Hunter, AFCEE, 210.536.5281

■ Outreach Office Manager

- Amie Price, Booz Allen Hamilton, 210.536.5294

■ RIPS Program Manager

- Dave Parse, Earth Tech, 703.706.0508