



AERTA Issues Meeting to Discuss

Develop Long-term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques [1.1.i]

14-16 JAN 2003

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Develop Long-term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques [1.1.i]

Jan 14-16 Meeting Objectives:

- Obtain direct input/discussion of all environmental technology needs related to long-term monitoring, standard analytical and groundwater monitoring.
- Prioritize the environmental technology needs referenced above (especially contaminants list).
- Compose the draft performance metrics and document costs for living with the problem.
- Review Existing LTM Technologies and RDT&E.
- Develop Technical Program.

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Develop Long-term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques [1.1.i]

Jan 14-16 Meeting Ground Rules Include:

- Support facilitator to maintain schedule and agenda, and
- Parking Lot for issues requiring further discussion.
- NO CLASSIFIED INFORMATION WILL BE DISCUSSED AT THIS MEETING.

General:

- Remember the Spirit of Cooperation and Teamwork.

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Develop Long-term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques [1.1.i] Workshop

14 JAN Agenda:

- 8:00 AM *Welcome and Introductions:* John Cullinane, Jim Daniel
- 8:15 AM *Roundtable Discussion:* Site-Specific Long Term Monitoring Practices
- 9:30 AM Break
- 9:45 AM DOE Scientific and Technical Long Term Stewardship Committee
- 10:15 AM Understanding AERTA Long Term Monitoring Requirements/User Needs
- 11:30 AM Lunch
- 12:30 PM Air Force Long Term Monitoring
- 1:00 PM TBD
- 1:30 PM *Promising Technologies:* Innovative Technology Perspectives
- 2:00 PM *Promising Technologies:* Selected Promising Technologies
- 2:30 PM Break
- 2:45 PM *SERDP/ESTCP Projects*
- 3:15 PM *Matching Requirements to Technologies:* QA and Data Usability
- 3:45 PM *Matching Requirements to Technologies:* Sampling Considerations
- 4:15 PM *Matching Requirements to Technologies:* Ecological Indicators
- 4:45 PM Adjourn
- 6:00 PM Workshop Social

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Develop Long-term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques [1.1.i] Workshop

15 JAN Agenda:

- > 8:00 AM *Matching RQs to Techs*: Direct Sampling Ion Trap Mass Spec
- > 8:20 AM *Matching RQs to Techs*: SCAPS
- > 8:50 AM *Matching RQs to Techs*: Monitoring Techniques and Sensors
- > 9:20 AM *Matching RQs to Techs*: Research Perspectives
- > 9:40 AM Break
- > 10:00 AM *Matching RQs to Techs*: Research Perspectives
- > 10:30 AM *Matching RQs to Techs*: Real-Time Monitoring
- > 11:00 AM *Matching RQs to Techs*: Data Handling
- > 11:30 AM Lunch
- > 12:30 PM *Roundtable Discussion*: LTM Requirements Review and Update
- > 1:00 PM *Roundtable Discussion*: Technical Program Development
- > 2:30 PM Break
- > 2:45 PM *Roundtable Discussion*: Technical Program Development
- > 5:00 PM Adjourn

16 JAN Agenda:

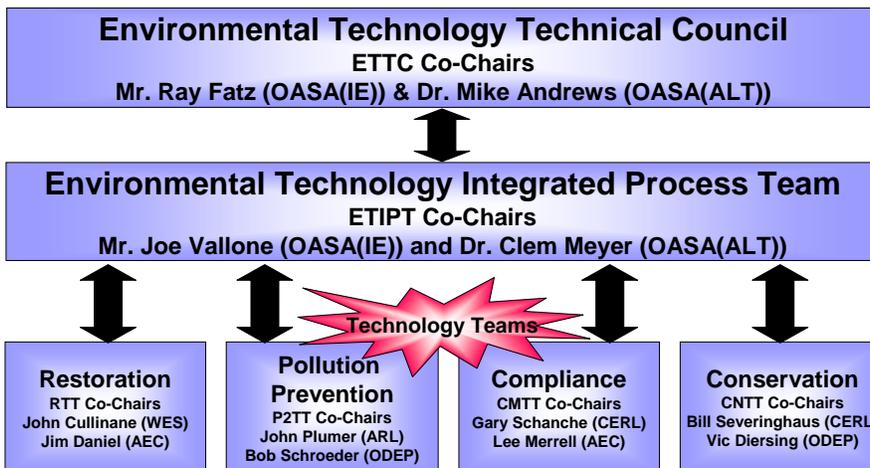
- > 8:00 AM *Roundtable Discussion*: Technical Program Development
- > 10:00 AM Break
- > 10:15 AM *Roundtable Discussion*: Technical Program Development
- > 12:00 PM Program Summary
- > 12:30 PM Adjourn

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Army Environmental Quality Technology (EQT) Program Organizational Chart

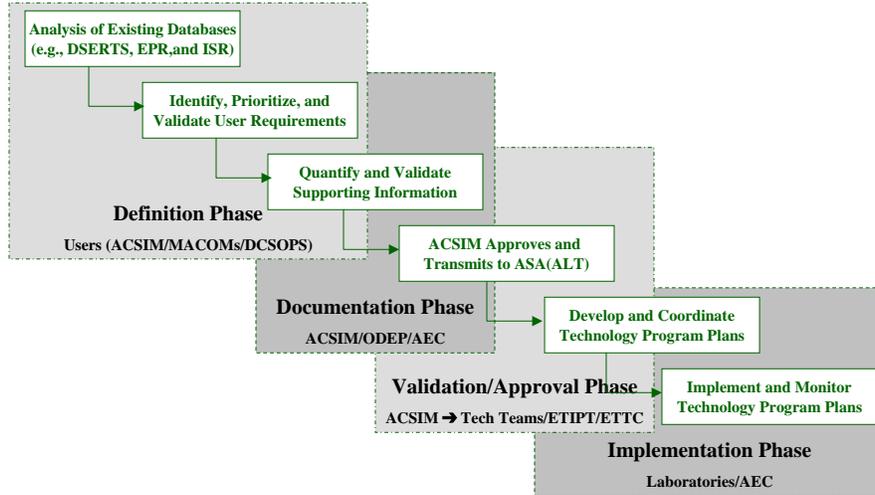


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Army EQT Planning Process



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Develop Long-Term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques for Military-Unique Compounds [1.1.i]

Need Description Summary:

Explosives-contaminated areas at Army industrial facilities represent the significant portion of the contamination problems, followed to a lesser degree by chemical warfare materiel (CWM) contamination. The characterization, cleanup, and long-term groundwater monitoring of Army installations typically require extensive chemical analyses as required by Federal, state, and local regulators.

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Develop Long-Term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques for Military-Unique Compounds [1.1.i]

Need Description Summary (cont.):

However, criteria for EPA acceptance of methods developed for the analysis of military-unique compounds do not exist for some compounds (i.e., HMX, 1,3-DNB, NB, 3NT, and 4NT). Standardized analytical methods and techniques that are applicable to long-term groundwater monitoring and site characterization programs can be readily accepted by regulators, be performed with greater efficiency and accuracy, prevent unnecessary laboratory analysis, reduce project costs, and expedite remediation at many Army sites.

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Develop Long-Term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques for Military-Unique Compounds [1.1.i]

Need Description Summary (cont.):

Long-term groundwater monitoring is a lengthy process, often requiring up to 30 years of monitoring. There are several factors involved in long-term groundwater monitoring which pose significant liability and cost to the Army. Drilling associated with monitoring well installation and site characterization produces large volumes of contaminated soil and water that must be treated and/or disposed of as hazardous waste. Sample collection and laboratory analysis can take weeks to complete and can constitute up to seventy percent of the total cost of long-term groundwater monitoring and fifty percent of the total cost of a site investigation.

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Develop Long-Term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques for Military-Unique Compounds
[1.1.i]

Need Description Summary (cont.):

Additionally, the transfer of samples from the field to a fixed laboratory may result in an unacceptably high degree of quantitative uncertainty due to contaminant loss or cross-contamination. The development of the Site Characterization and Penetrometer System (SCAPS) has increased the speed and reduced the cost of traditional site characterization techniques for explosives such as RDX, TNB, TNT, Tetryl, 2,4-DNT, 2,6-DNT, and 2NT.

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Develop Long-Term Monitoring, Standard Analytical, and Groundwater Monitoring Techniques for Military-Unique Compounds
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Need Description Summary (cont.):

Innovative, cost effective, and reliable techniques are needed to enable the Army to utilize long-term groundwater monitoring devices, subsurface characterization techniques (geologic and chemical characterization); and/or rapid field analyses that are "real-time", reproducible, and regulatory acceptable for military-unique compounds (3NT, 4NT, HMX, 1,3-DNB, and NB), chemical agents, pyrotechnics, propellants, and their degradation products.

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Need Description Summary (cont.):

The application of new approved standard analytical methods/techniques would reduce/avoid the need for laboratory operation and maintenance, reduce the cost for long-term groundwater monitoring, and potentially enable site investigations to proceed in potential UXO areas and chemical weapon burial sites where invasive procedures pose serious safety concerns.

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[1.1.i]

Exit Criteria/Performance Metrics:

Resolution of this need would result in the development/identification of technology that meets the following criteria:

Threshold-Level (Primary) Performance Metrics:

Groundwater monitoring, site characterization, and rapid field analysis techniques by FY05, which:

- Provide a quick-turnaround time (i.e., response within four hours);
- Include analytical techniques that evaluate the comparability of field data to laboratory data in the field;

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Exit Criteria/Performance Metrics (cont.):

- Result in a 25 to 50 percent cost reduction over performing traditional laboratory analysis, thereby reducing long term monitoring costs;
- Are applicable to a variety of military-unique contaminants (i.e., HMX, RDX, TNB, 1,3-DNB, Tetryl, NB, TNT, 2,4-DNT, 2,6-DNT, 2NT, 3NT, 4NT, total lead, ammonium perchlorate, depleted uranium (DU), chemical agents, pyrotechnics, propellants, and their degradation products);
- Can analyze from different sources (e.g., soil, groundwater, surface water, sediment);
- Capable of performing non-intrusive investigations;
- Are man-portable and user-friendly; and
- Acceptable to applicable Federal, state, and local regulatory agencies.

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Exit Criteria/Performance Metrics (cont.):

Objective-Level (Secondary) Performance Metrics

- Analytical method(s) approval and acceptance by FY05;
- Is applicable to the following compounds: HMX, 1,3-DNB, NB, 3NT, and 4NT, total lead, ammonium perchlorate, depleted uranium (DU); and
- Meets SW-846 requirements and is accepted by EPA for inclusion in SW-846.

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Army Sampling Data

- 1992 – 2000 Sampling Data
 - ↳ 2,539,169 Sampling Results.
 - ↳ 254,029 were no detects.
 - ↳ Represents 31,314 Sampling Events from 9,659 Wells at 68 Installations.
 - ↳ 1,392 Contaminants Listed.

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Army Sampling Data (Military Unique Contaminants)

Contaminant	No. Samples	Maximum Concentration (UGL)
2,4-Dinitrotoluene	20,339	100,000
2,6-Dinitrotoluene	20,198	33,000
Nitrobenzene	19,737	2,000
2-Nitrophenol	10,595	2,000
4-Nitrophenol	10,574	10,000
2,4-Dinitrophenol	10,445	10,000
Trinitroaniline	9,971	10,000
Trinitrotoluene	9,630	37,000
1,3,5-Trinitrobenzene	9,579	6,950
RDX	9,576	19,800
HMX	9,573	3,600
1,3-Dinitrobenzene	9,570	580
Tetryl	8,881	630
Nitrates	8,707	1,600,000

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Army Sampling Data (All Contaminants)

Contaminant	No.Samples	Maximum Concentration (UGL)	MCL (Mg/L)
Chromium	24,220	56,100	0.1
Trichloroethylene	22,553	13,500,000	0.005
Trichloromethane	22,118	50,000	
Lead	22,011	84,100	0
Carbon tetrachloride	21,972	56,000	0.005
1,1,1-Trichloroethane	21,089	200,000	0.2
Vinyl chloride	20,552	100,000	0.002
Selenium	20,512	5,600	0.05
Cadmium	20,445	350,000	0.005
Mercury	20,422	130	0.002
2,4-Dinitrotoluene	20,339	100,000	0.07
1,1-Dichloroethene	20,307	50,000	0.007
Arsenic	20,214	7,000	0
2,6-Dinitrotoluene	20,198	33,000	

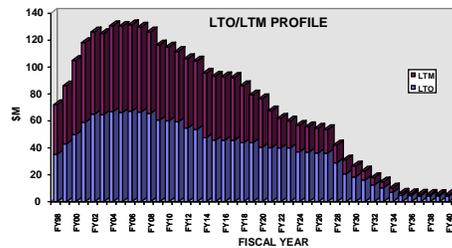
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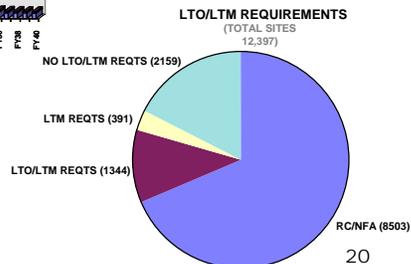
COMBINED IR/BRAC LTO/LTM PROGRAM



• APPROXIMATELY \$3.3B LTO/LTM COST-TO-COMPLETE

* BASED ON NOV 97 COST-TO-COMPLETE

• LTO/LTM COSTS ASSOCIATED WITH ONLY 14% OF TOTAL SITES



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Concern



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Army Cost and Extensiveness Data

- DSERTS Data (LTM)
 - ↳ 73 Unique Installations
 - ↳ 343 Unique Sites
 - ↳ \$202M Total Cost

- EPR Data (Groundwater Monitoring)
 - ↳ 148 Unique Installations
 - ↳ 300 Unique Projects
 - ↳ \$36M Total Cost

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Meeting Logistics

- Telephone Number: (601) 634-
- Fax Number: (601) 634-
- Please turn cell phones and beepers to vibrate mode.
- Messages Board
- Dinner Social – 14 JAN at 6pm

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