FUDS Overview and Perspective on DoD Research & Development Needs for Environmental Restoration

Charles Coyle, P.E.
Environmental & Munitions Center of Expertise
US Army Engineering and Support Center, Huntsville

November 2011
**FUDS Overview and Perspective on DoD Research & Development Needs for Environmental Restoration**

The Formerly Used Defense Site (FUDS) program is a unique program that consolidates eligible, formerly used, DoD sites from any of the 3 services under a single program for environmental restoration purposes. FUDS properties are no longer owned by DoD. Ownership of FUDS properties has been transferred to either private entities; or other federal, state, or local government entities. The scale of the program is indicated by the total cost to complete estimate from FY 2011 ($2.8B). The goal for FUDS IRP is to achieve RC at 90% of the projects by the end of FY 2018. Response complete has been achieved on approximately 59% of all projects. Projects within the FUDS program generally have similar environmental restoration needs and challenges as that of the IRP projects from the 3 DoD services. Persistent chloroethenes plumes are prevalent. Ex-situ groundwater treatment systems are in operation on some of the sites, but progress towards achieving RC appears be very slow on many of the sites with operational groundwater treatment systems. Renewed emphasis on LTMO, and optimization of remedies already in place (with emphasis on green and sustainable methods) are among the important R&D needs that have been identified.

**SUPPLEMENTARY NOTES**
Presented at the Partners in Environmental Technology Technical Symposium & Workshop, 29 Nov ? 1 Dec 2011, Washington, DC. Sponsored by SERDP and ESTCP.
FUDS OVERVIEW AND PERSPECTIVE ON DO D RESEARCH AND DEVELOPMENT NEEDS FOR ENVIRONMENTAL RESTORATION

CHARLES G. COYLE, P.E.
U.S. Army Corps of Engineers – Environmental and Munitions Center of Expertise
1616 Capitol Avenue, Suite 9200
Omaha, NE  68102-9200
(402) 697-2578
Charles.G.Coyle@usace.army.mil

The Formerly Used Defense Site (FUDS) program is a unique program that consolidates eligible, formerly used, DoD sites from any of the 3 services under a single program for environmental restoration purposes. FUDS properties are no longer owned by DoD. Ownership of FUDS properties has been transferred to either private entities; or other federal, state, or local government entities. The scale of the program is indicated by the total cost to complete estimate from FY 2011 ($2.8B). The goal for FUDS IRP is to achieve RC at 90% of the projects by the end of FY 2018. Response complete has been achieved on approximately 59% of all projects.

Projects within the FUDS program generally have similar environmental restoration needs and challenges as that of the IRP projects from the 3 DoD services. Persistent chloroethenes plumes are prevalent. Ex-situ groundwater treatment systems are in operation on some of the sites, but progress towards achieving RC appears be very slow on many of the sites with operational groundwater treatment systems. Renewed emphasis on LTMO, and optimization of remedies already in place (with emphasis on green and sustainable methods) are among the important R&D needs that have been identified.
FUDS Overview & Perspective

- **Purpose:**
  - Overview of FUDS Program & Goals
  - Offer FUDS Perspective on Environmental Restoration (ER) R&D Needs

- **Objective:**
  - To ensure that FUDS ER R&D needs are taken into consideration
FUDS is a Different Animal

- The FUDS Program is separate from the Army IRP Program
- The Department of Defense does not own the property that FUDS is cleaning up
- The FUDS Program cleans up only DoD generated pollution which occurred before transfer of property to private owners, or federal, state or local government owners
- We do not certify that the property is clean
- We rarely have a project office on site
- We work hand in hand with current property owners and regulators on cleanup efforts
FUDS Property Eligibility

- For a Property to be FUDS eligible:
  - Under the jurisdiction of the Secretary, **AND**
  - One of the following:
    - Owned by;
    - Leased to; or
    - Otherwise possessed by.

- Transferred from DoD prior to 17 October 1986

- Meeting eligibility criteria makes the property eligible for DERA funding
FUDS Properties

Prevalent Property Categories

- Former Nike Missile Sites ~ 270
- Former Army Airfields ~ 240
- Former AFBs ~ 100
- Former Atlas Missile sites (D, E & F) ~ 100
- Former Titan Missile sites ~ 29
- Others
  - Former Ammunition Depots, Ordnance Plants, Radar Stations, etc
FUDS HTRW and MMRP Projects Follow CERCLA

FUDS Response Progress

- **Identify**
  - Determination of FUDS Eligibility
  - Preliminary Assessment

- **Investigate**
  - Project Approval
  - Site Inspection
  - Remedial Investigation/Feasibility Study

- **Cleanup**
  - Remedial Design
  - Remedial Action-Construction
  - Remedial Action-Operation

- **LTM**
  - Long-Term Management

Removal Actions may occur at any time during the CERCLA process.

Remedy in Place (RIP) is an important milestone in the CERCLA process. At this point, cleanup systems are constructed and operational.

If the investigation determines cleanup is not required, or when cleanup work is complete, a FUDS project achieves the Response Complete (RC) milestone (a project does not have to go through every phase to achieve RC).

Project Closeout (PCO) indicates that all environmental restoration requirements are complete.
FUDS Perspective for Meeting New DERP Goals

- New DERP Goals on Response Complete
  - 90% of IRP* sites achieving RC by end of FY 2018, and
  - 95% of IRP* sites achieving RC by end of FY2021

*FUDS HTRW and CON/HTRW sites are referred to as IRP although they are no longer owned by DoD & do not function as installations.
FUDS Perspective for Meeting New DERP Goals

- FUDS Program Perspective Projection Based on FY12-16 POM, CTC12, and MMRP Annual Cap at $82M

  -- If no reduction in future Program Objective Memorandums for FY13-21 and no increase in IRP cost requirements, we may be able to achieve:

  ▶ 91.7% of IRP site RCs by end of FY 2018, and
  ▶ 96.5% of IRP site RCs by end of FY2021
Scope of FUDS Program
(Data Source: 2010 Report To Congress)

Properties (Installations)

4,296 Eligible Properties without Projects
2,689 Eligible Properties with Projects

6,987 Properties Determined as “Eligible” out of 10,027 Properties in Inventory

Projects (Sites)

1,871 Projects Yet to Achieve Response Complete
2,753 Projects Achieved Response Complete

4,624 Eligible Projects at 2,689 Eligible Properties

BUILDING STRONG®
FUDS Cost-to-Complete ($M) Profile
(Total CTC, FY11 and Beyond = $14.1B)

*Source: draft 2010 ARC*
CTC Downward Trend (FY* and Beyond)

Fiscal Year

2007 | 2008 | 2009 | 2010 | 2011 | 2012
--- | --- | --- | --- | --- | ---
$18.7 | $18.2 | $17.9 | $16.7 | $14.1 | $13.8

$B

M&S

IRP

MMRP

*Dollars shown reflect ARC reported amounts (not adjusted for inflation)
PBC Goals

- FUDS funding goal for PBC
  - 25% of FY Program
  - exceeded by > 2x for FY 2011

- Use of innovative technologies within PBCs continues to be encouraged, but can pose challenges
  - Consider FUDS as host sites for SERDP / ESTCP demonstrations.
FUDS ER Issues / Challenges

- MMRP
- IRP
## Real World Munitions Constituents Results for Your Research Consideration

**Deborah Dixon Walker, PMP, CHMM, RHSP**

Environmental & Munitions Center of Expertise, US Army Engineering & Support Center, Huntsville

### Overall Data Set Metadata
- **Site Types**: Formerly Used Defense Sites in the Military Munitions Response Site Program
- **FUOS - Properties used by the Military Prior to October 1986 to Train and Support Soldiers, Airmen, Sailors, and Marines, as well as to Test New Weapons and Warfare Capabilities**
- **Number of sites**: 467
- **Soil and sediment samples**: 5514
- **Surface water and groundwater samples**: 501
- **Total sites above do not include quality control samples**
- **Samples were collected between April 2006 and May 2009**

**Screening Levels used throughout are the “Regional Screening Levels for Chemical Contaminants at Superfund Sites”, which reflect risk to human receptors specifically**

**The version used was uploaded 19 May 2009, http://www.epa.gov/owash/ohms/human-site/basic_munitions.htm**

### Other Data Considerations
- **Most Conceptual Site Models at this phase are based only on historical documentation and surface observations; they are not refined by geophysical methods to identify Munitions of Explosive Concern (MEC) or Munitions Debris (MD)**
- **Data have not been collected from any intrusive locations at any conventional Site Munitions Response Sites (MSRs)**
- **Surface soil sampling has not been exhaustive**
- **Based on stakeholder agreement, collection of environmental media other than surface soil has been omitted at some MSRs**
- **Groundwater has been collected primarily from available sources and has not been benzene, trichloroethylene or perchloroethylene (PCE)**
- **MRSP path forward (based on land use) and Munitions Response Site Prioritization Protocol (MRSPPP) must consider human and ecological receptors, which this comparison didn’t**

### Summary - Energetics (Soil)

#### Summary - Energetics (Soil)

| Analyte Name | Maximum Conc. (ppm) | Total # of Analytes | # of Analyses | Total # of Analyses | Residential Soil Screening Level (ppm) | Industrial Soil Screening Level (ppm) | # of MCL Exceedences | Soil Phosphorus |
|--------------|---------------------|---------------------|--------------|---------------------|---------------------------------------|---------------------------------------|---------------------|----------------|----------------|
| Heptachlor   | 0.00 1 11 1 2 20 2 26 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 |
| Atrazine     | 0.00 1 11 1 2 20 2 26 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 |
| Dichlorobenzene | 0.00 1 11 1 2 20 2 26 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 |
| 2,4-Dinitrophenol | 0.00 1 11 1 2 20 2 26 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 |
Support Center, Huntsville

Summary – Metals (Soil)

<table>
<thead>
<tr>
<th>Analyte Name</th>
<th>Maximum Conc. (mg/kg)</th>
<th>Total # of Analyses</th>
<th># of Residential Exceedances</th>
<th>Residential Soil Screening Levels (mg/kg)</th>
<th># of Industrial Exceedances</th>
<th>Industrial Soil Screening Levels (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>160000</td>
<td>3933</td>
<td>18 (6 properties)</td>
<td>77000</td>
<td>0</td>
<td>990000</td>
</tr>
<tr>
<td>Antimony</td>
<td>14800</td>
<td>4804</td>
<td>7 (6 properties)</td>
<td>31</td>
<td>1 (1 property)</td>
<td>410</td>
</tr>
<tr>
<td>Arsenic</td>
<td>163</td>
<td>2014</td>
<td>1007 (124 properties)</td>
<td>0.39</td>
<td>137 (114 properties)</td>
<td>1.6</td>
</tr>
<tr>
<td>Barium</td>
<td>11000</td>
<td>3434</td>
<td>0</td>
<td>15000</td>
<td>0</td>
<td>180000</td>
</tr>
<tr>
<td>Beryllium</td>
<td>19.6</td>
<td>2331</td>
<td>0</td>
<td>160</td>
<td>0</td>
<td>2000</td>
</tr>
<tr>
<td>Cadmium</td>
<td>1600</td>
<td>2580</td>
<td>1 (1 property)</td>
<td>70</td>
<td>1 (1 property)</td>
<td>800</td>
</tr>
<tr>
<td>Chromium</td>
<td>2400</td>
<td>2780</td>
<td>21 (6 properties)</td>
<td>280</td>
<td>1 (1 property)</td>
<td>1400</td>
</tr>
<tr>
<td>Cobalt</td>
<td>110</td>
<td>2342</td>
<td>102 (24 properties)</td>
<td>23</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>Copper</td>
<td>95700</td>
<td>4947</td>
<td>5 (4 properties)</td>
<td>3100</td>
<td>2 (2 properties)</td>
<td>41000</td>
</tr>
<tr>
<td>Iron</td>
<td>357000</td>
<td>4005</td>
<td>110 (39 properties)</td>
<td>55000</td>
<td>0</td>
<td>720000</td>
</tr>
<tr>
<td>Lead</td>
<td>122000</td>
<td>5924</td>
<td>132 (57 properties)</td>
<td>400</td>
<td>66 (37 properties)</td>
<td>800</td>
</tr>
<tr>
<td>Manganese</td>
<td>5500</td>
<td>3103</td>
<td>72 (25 properties)</td>
<td>1800</td>
<td>0</td>
<td>23000</td>
</tr>
<tr>
<td>Mercury</td>
<td>53</td>
<td>2620</td>
<td>5 (5 properties)</td>
<td>4.3</td>
<td>2 (2 properties)</td>
<td>24</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>149</td>
<td>2249</td>
<td>0</td>
<td>390</td>
<td>0</td>
<td>5100</td>
</tr>
<tr>
<td>Nickel</td>
<td>2500</td>
<td>2976</td>
<td>3 (1 property)</td>
<td>1500</td>
<td>0</td>
<td>2000</td>
</tr>
<tr>
<td>Selenium</td>
<td>58.9</td>
<td>2378</td>
<td>0</td>
<td>390</td>
<td>0</td>
<td>5100</td>
</tr>
<tr>
<td>Silver</td>
<td>200</td>
<td>2367</td>
<td>0</td>
<td>390</td>
<td>0</td>
<td>5100</td>
</tr>
<tr>
<td>Strontium</td>
<td>6800</td>
<td>2302</td>
<td>0</td>
<td>47000</td>
<td>0</td>
<td>610000</td>
</tr>
<tr>
<td>Thallium</td>
<td>6.5</td>
<td>2321</td>
<td>3 (2 properties)</td>
<td>5.1</td>
<td>0</td>
<td>66</td>
</tr>
<tr>
<td>Titanium</td>
<td>7490</td>
<td>1889</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Vanadium</td>
<td>680</td>
<td>2321</td>
<td>1 (1 property)</td>
<td>550</td>
<td>0</td>
<td>7200</td>
</tr>
<tr>
<td>Zinc</td>
<td>10000</td>
<td>4515</td>
<td>0</td>
<td>23000</td>
<td>0</td>
<td>310000</td>
</tr>
<tr>
<td>Zirconium</td>
<td>106</td>
<td>785</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Typically, metals are compared to background prior to comparison with risk screening values. This dataset has not been screened against background. Further, it should be noted that very few conventional munitions contain arsenic.
MMRP Characterization Data Summary

- So far, Pb appears to be the most prevalent MC that has been identified in soils from FUDS MMRP properties.
- At least 42 former Small Arms Ranges (SARs) have been identified on FUDS MMRP project sites.
- A large number of the Pb exceedances in soils are believed to be associated with SARs.
- Sidenote: There is significant uncertainty regarding the timing of when former SARs on FUDS MMRP properties will move into RI/FS stage – will probably depend on scoring from Munitions Response Site Priority Protocol (MRSPP).
Common IRP Issues

- Persistent chloroethene plumes are prevalent on FUDS projects
- Some sites appear to have high-concentrations of chloroethenes that are “hung-up” in the vadose zone, & functioning as continuing sources
- Secondary sources also appear to be common (i.e., back-diffusion from low permeability zones)
- RIP has been achieved on many sites by installing ex-situ groundwater treatment systems; but progress toward RC appears to be slow (i.e., some sites appear to be “stuck” in RA-O)
Maturity of the Program

- RC achieved on approx. 59% of projects (neglecting MMRP re-alignment)
- Current cost to complete estimate for FUDS IRP projects (HTRW & CON/HTRW) : $2.6 B. FY12 funding profile for FUDS IRP projects: $152.6M
- Approx 130 FUDS IRP projects scheduled to enter RI stage after FY2011
- The list of FUDS-eligible properties may still increase, but the number of new properties coming into the program is decreasing (average of ~20/yr, over the last 3 years)
Preliminary List of R&D Needs

- Development of better sensors / field instruments & methods to reduce long term monitoring (LTM) costs
- Renewed emphasis on LTMO & Optimization of Remedies already In Place, with Green & Sustainable Remediation attributes
- Research to reduce uncertainty in Risk Assessment
- Continue to fund a modest level of remediation technology development, including fractured rock applications
- Extension of Incremental Sampling & Analysis methods to metals & other organics
- Improvements in technologies for cleanup of MC (e.g., metals) from small arms ranges on MMRP sites
Huntsville Engineering & Support Center
Environmental & Munitions CX (EM CX)

- EM CX Environmental Capabilities
  - Technical Assistance on FUDS, Army IRP, Army BRAC, & Superfund Projects
  - Five-Year Review / Remedial Optimization
  - Remedial System Evaluations
  - Value Engineering Studies
  - Independent Technical Reviews
  - Long Term Monitoring Optimization
Questions ???
Definitions

Attachment 1: Response Complete (RC) Definition and RC Message

RC Definition:

The RC milestone signifies that the Department of Defense (DoD) has met the remedial action objectives for a site, documented the determination, and sought regulatory agreement. RC signifies that DoD has 1) determined at the end of the Preliminary Assessment/Site Inspection, or Remedial Investigation that no additional response action is required, 2) achieved Remedy-in-Place (RIP) and the required Remedial Action Operation (RA-O) has achieved the remedial action objectives, or 3) where there is no RA-O phase, then the Remedial Action Construction (RA-C) has achieved the remedial action objectives. Long-term management may occur after RC is achieved.
Definitions

RC Message:

DoD achieves RC when no contaminants pose a threat to human health and the environment for the current land use. DoD may establish land use restrictions and conduct long-term periodic reviews, monitoring, and maintenance at a site once it has achieved RC. These activities may last either for a specified period or indefinitely to ensure protection of human health and the environment.
MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS, ENERGY, AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY (ENERGY, INSTALLATIONS, AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE AIR FORCE (INSTALLATIONS, ENVIRONMENT, AND LOGISTICS)
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: New Goals for the Defense Environmental Restoration Program (DERP)

The Office of the Secretary of Defense (OSD) is establishing Response Complete (RC) goals for Installation Restoration Program (IRP) (which include the newly eligible sites) and Military Munitions Response Program (MMRP) sites at active installations, and for IRP sites at Formerly Used Defense Site (FUDS) properties. The timing for establishing these new goals is important because a large portion of the DERP is advancing into the final phases of the cleanup process. These RC goals will enable the Department of Defense (DoD) Components to advance sites through the final cleanup phases to site closeout. The goals will also augment OSD’s oversight of program progress.

The RC goals are:
- 90% of IRP and MMRP sites at active installations, and IRP sites at FUDS properties will achieve RC by the end of Fiscal Year (FY) 2018, and
- 95% of IRP and MMRP sites at active installations, and IRP sites at FUDS properties will achieve RC by the end of FY2021.
## FY10 Actual Expenditures

<table>
<thead>
<tr>
<th></th>
<th>IRP</th>
<th>MMRP</th>
<th>IRP &amp; MMRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUDS</td>
<td>$164.5</td>
<td>$168.8</td>
<td>$333.3</td>
</tr>
<tr>
<td>Navy</td>
<td>$247.7</td>
<td>$38.0</td>
<td>$285.7</td>
</tr>
<tr>
<td>Army</td>
<td>$327.8</td>
<td>$108.5</td>
<td>$436.3</td>
</tr>
<tr>
<td>AF</td>
<td>$393.7</td>
<td>$100.6</td>
<td>$494.3</td>
</tr>
</tbody>
</table>

All figures are in millions of dollars
Source: Appendix D from FY 2010 Annual Report to Congress
## FY11 Achievements

<table>
<thead>
<tr>
<th></th>
<th>FY11 Planned</th>
<th>FY11 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PBA Obligations</strong></td>
<td>$114.1M</td>
<td>$271.1M</td>
</tr>
<tr>
<td>(Goal = 25% of FY Program)</td>
<td></td>
<td>(238%)</td>
</tr>
<tr>
<td><strong>IRP RIP/RC</strong></td>
<td>46</td>
<td>55</td>
</tr>
<tr>
<td>(No. of Projects)</td>
<td></td>
<td>(120%)</td>
</tr>
<tr>
<td><strong>MMRP RC</strong></td>
<td>19</td>
<td>52</td>
</tr>
<tr>
<td>(No. of Projects)</td>
<td></td>
<td>(274%)</td>
</tr>
<tr>
<td><strong>Phase Completions</strong></td>
<td>419</td>
<td>463</td>
</tr>
<tr>
<td>(No. of Phases)</td>
<td></td>
<td>(111%)</td>
</tr>
<tr>
<td><strong>Program Obligation</strong></td>
<td>$456.5 M</td>
<td>$456.5M</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100%)</td>
</tr>
<tr>
<td><strong>MMRP SI</strong></td>
<td>690 (90% of 765)</td>
<td>754 (99% of 765)</td>
</tr>
</tbody>
</table>
MMRP SI completion:
FY2010 was the original DOD goal, but, in practice, USACE is awarding the last of the SI's under the Nationwide SI Program in FY11; with a 18-month tail, they won't be completed until FY13.

CONSTRUCT FROM STRATEGIC PLAN – RIP/RC Phase Completions MAJOR GOALS
FUDS Goals and Objectives:
DoD Goals for DERP:
Reduce risk to human health and the environment:

Relative Risk Site Evaluations (RRSE) used to prioritize HTRW Projects.
**Achieve Remedy in Place (RIP) or Response Complete (RC) Milestones:**
- 50% and 100% of high relative risk projects by end of FY 2002 and 2007, respectively;
- 100% of medium relative risk projects by FY2011;
- 100% of low relative risk projects by FY2020.
No cleanup goals established for BD/DR;
FUDS Outlook
DERP Goals

- Reduce relative risk at 100% of high relative risk sites by end of FY 2007
- Reduce relative risk at 100% of medium relative risk sites by end of FY 2011
- Reduce relative risk at 100% of low relative risk sites by end of FY 2014 (FY 2020 for FUDS sites)
FUDS Outlook
2020 Goal

- DoD’s goal is to achieve response complete (RC) or remedy in place (RIP) for formerly used defense sites (FUDS) by 2020.
- 52% of high relative risk FUDS sites had achieved final remedy in place or response complete status by 2002.
Definitions

- **MMRP:**
  - *Munitions and Explosives of Concern (MEC):*
    - UXO;
    - Discarded Military Munitions;
    - Munitions Constituents (in concentrations to be explosive).
  - *Munitions Constituents (MC) ...*
    - Originating from MEC
  - *Recovered Chemical Warfare Materials (RCWM).*
FUDS Program

- Formerly Used Defense Site Program

  ▶ History
  
  • SARA Amendments to CERCLA
  • Defense Environmental Restoration Program (DERP) Statute
  • Three authorized responses [10 USC 2701]:
    ▶ CERCLA hazardous substances, pollutants, or contaminants
    ▶ Other environmental damage creating an imminent and substantial endangerment
    ▶ Building Demolition/Debris Removal (BD/DR)
Scope of FUDS Program
(based on 2006 Report to Congress)

- Properties:
  - Total in Inventory: 9,908
  - Requiring Response Actions: 3,044

- FY07 Cost to Complete (CTC) - $18.7B
  - MMRP: $12,647M (1,364 projects)
  - HTRW: $3,144M (837 projects)
  - OTHER: $37M
  - CON/HTRW: $247M (900 proj)
  - BD/DR: $50M (91 proj)
  - PGM MGT: $2,628M

- FY07 Approved Workplan - $253.7M
Definitions

- FUDS – not FUDS sites
- POM – possession of MJ