July 27, 2007

Senate Armed Services Committee
Strategic Forces Subcommittee

Briefing for

The 2005 Design Basis Threat Report to the Congress on Implementing Analyses of Department of Energy

GAO
Introduction
DBT policy has undergone substantial changes in 2003, 2004, 2005, and 2007. To determine "how much is enough" security and, as a result, its like other agencies since September 11, 2001, DOE has struggled.

- Ongoing efforts to implement adequate compensatory measures.
- Only the Secretary, or Deputy Secretary of Energy, can accept deviations from the DBT that create substantial risk for which there are no adequate compensatory measures.
- Physical security plans and programs for Category I SNM must be based on the DBT.

Introduction (continued)
Office of Secure Transportation
Lawrence Livermore National Laboratory
Los Alamos National Laboratory
Santia National Laboratory – New Mexico
Y-12 National Security Complex
Nevada Test Site
Pentex
National Nuclear Security Administration (NNSA)
National Nuclear Security Administration (NNSA)
security of Category I SNM: associated sites currently have responsibility for the
The following DOE organizations, programs offices, and
Introduction (continued)

- Office of Environmental Management (EM)
- Savannah River Site
- Hanford Site
- Office of Nuclear Energy, Science and Technology (NE)
- Idaho National Laboratory
- Oak Ridge National Laboratory
The Office of Independent Oversight performs security inspections of DOE sites with Category I SNM about every 18 months.

The Office of Independent Oversight deployment and development opportunities.

The Office of Security Technology, technical systems support, and technical assistance program provides support for nuclear protection strategies and (z) provides technical assistance to assist field elements in planning site security expertise to assist the Department of Energy, such as the DEPT, to guide the department.

The Office of Security Policy develops and promulgates orders.

In addition, three offices within DOE's Office of Health, Safety and Security have substantial security responsibilities.

Introduction (continued)
Assessment methodology to assess DOE's DBT implementation requirements.

We also analyzed the feasibility of using a Probabilistic Risk Assessment methodology to assess DOE's DBT implementation requirements.

- Use of innovative protection force deployments to meet DBT requirements.
- Use of security technology to meet DBT requirements and from the 2003 DBT to the 2005 DBT.
- Risks associated with the increase in security requirements.
- DBT implementation costs.
- DBT implementation schedules.

Information on DBT implementation, specifically, we reviewed and analyzed as required by PL 109-163, we reviewed DOE's June 2006 report.

Objectives
Standards.

We performed our work between February and July 2007.

- Reviewed previous GAO and DOE IG reports.
- Interviewed NSA and DOE security officials and security documents.
- Reviewed NSA’s and DOE’s FY 2008 budget request.
- Analyzed DOE’s June 2006 report to Congress.

To conduct our review, we...

Scope and Methodology
Two sites are expected to implement the DBT by end of FY 2009.

Three sites are expected to implement the DBT by end of FY 2008.

Six of its 11 sites are expected to implement the DBT by end of FY 2008.

Implementation schedule:

DOE’s June 2006 report provided the following DBT.

2008, as required by DOE’s 2005 DBT.

Not all sites will fully implement the DBT by the end of fiscal year.

Summary
Later.

Four sites may not meet DBT requirements until FY 2011 or FY 2009; and

Two sites are now expected to implement the DBT by end of FY 2008.

Five sites are now expected to implement the DBT by end of FY 2007. Under this new guidance, we found that implementation.

Since the June 2006 report was issued, DOE issued guidance

Summary (continued)
Science sites.

- Fully account for annual recurring costs for Energy and
- and Energy and Science sites, and
- contain out-year funding profiles for some individual NNSA
- the way the costs were reported. Specifically, the report does not
- However, we found these costs were difficult to verify because of

- exceed $540 million in one-time and recurring costs through FY 2012.

DOE's report estimated that the costs of meeting the 2005 DBT will

Summary (continued)
security technology. DOE's report identifies additional technology that is contributing to improved security at its sites. However, the only site-specific examples cited in the report are at NNSS sites, even though we found that Energy and Science sites are also deploying additional technology.

A greater risk from this threat until the 2005 DBT is fully implemented.

Compared to the 2003 DBT, the 2005 DBT raised the threat that all DOE sites must defend against. Consequently, sites will be at

Summary (continued)
Probabilistic Risk Assessment may not be suitable to assess terrorism attack probability.

DOE security because of the lack of reliable estimates of vulnerability assessment practices that are also core components of established risk management.

Probabilistic Risk Assessment methodology.

DOE uses formal, well-established risk management and differently and at different rates.

Sites are implementing the tactical response force concept.

Summary (continued)
Oak Ridge National Laboratory (ORNL)

Savannah River Site (SRS)

Lawrence Livermore National Laboratory (LLNL)

Sandia National Laboratory—New Mexico (SNL)

Office of Secure Transportation (OST)

Panex (PX)

According to DOE's report, six sites are expected to implement the 2005 DBT by the end of FY 2008 as required by DOE policy.
DBT Implementation Schedule: DOE Report (continued)

- According to DOE’s report, three sites are expected to be in compliance with the DBT by end of FY 2009.

- Compliance at the Nevada Test Site (NTS) has been delayed because the site has not completed all necessary vulnerability assessments associated with potential expansion of its mission.
  - In December 2006, the Deputy Secretary formally approved slipping NTS’s compliance with the DBT until the end of fiscal year 2009.
Idaho National Laboratory (INL) requires substantial physical upgrades and deployment of advanced technology in order to meet the 2005 DBT.

- In April 2006, the Deputy Secretary granted Hanford a formal exception to the 2005 DBT.
- Through FY 2012 by not implementing the 2005 DBT, Hanford expects to avoid approximately $400 million in costs.
- Therefore, DOE is no longer requiring Hanford to meet the 2005 DBT.
- Hanford plans to transfer most of its surplus plutonium offsite by end of FY 2009.

(continued)
The Deputy Secretary formally approved Y-12's and LANL's implementation schedules in December 2006.

- Upgrades.
- Spending $50 million over several years by avoiding temporary spending $100 million over several years because it will not
- Los Alamos National Laboratory (LANL) expects to avoid related line item construction projects.

The Y-12 National Security Complex (Y-12) expects to avoid implementation of the DBT until 2011 while they complete security according to DOE's report, two NNSA sites plan to delay full

(continued)
Commonly found at DOE Category I SNM sites:

- ORNL is highly unlikely to meet 2008 deadline because the site
  fiscal year 2009.
- 2005 DBT off-site consolidation is not completed by end of
  fiscal year 2009. DBT does not have a contingency plan for meeting the
- Hanford does not have a contingency plan for meeting the
  OST estimates a shipping campaign of 3-6 years, once a site is
  receiving Hanford's SNM, and
  no site currently has the necessary approvals to begin
  receiving Hanford's SNM, and
- Specifically, issues. Specifically, end of fiscal year 2009 because of legal and transportation
  Hanford will probably not transfer all of its plutonium offsite by
  realistic. Some of the DBT implementation schedules DOE reported are not

DBT Implementation Schedule: GAO Analysis
but implementation may be delayed for several more years. 2007, but implementation may be delayed for several more years. 2008. NE will submit a revised DBT Implementation plan in August. INL received no DBT Implementation funding in FY 2007 or FY 2005, respectively. The Office of Science projects $4.9 million in potential savings over several years by not implementing the 2005 DBT. Eliminate ORNL's Category I SNM inventory. This project, currently expected to be complete by FY 2015, will: Disposition Project. Instead, shift resources to the U-233 Down-Blending and ORNL has now dropped plans to meet the 2005 DBT and will: Since the June 2006 report, DBT Implementation plans have continued. (continued)
completion of ongoing construction projects.

For example, three sites (Y-12, LANL, ORNL) depend upon

• Funding:
  All sites’ DBT implementation plans are sensitive to changes in
  recently revised DBT implementation plans.
  The Deputy Secretary has not formally approved ORNL’s and INL’s

(continued)

DBT Implementation Schedule: GAO Analyses

GAO
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>NNSA Site</th>
<th>FY Implementation Date</th>
<th>Congress - Planned</th>
<th>Office Program</th>
<th>2006 DOE Report to</th>
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<tr>
<td>2007</td>
<td>Y-12</td>
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<td>2005</td>
<td>LANT</td>
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<td>(de-inventory)</td>
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<td>Handford</td>
<td>EM</td>
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<td>2006</td>
<td>NTS</td>
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<td>2007</td>
<td>ORNL</td>
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<td>SRS</td>
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<td>PX</td>
<td>2008</td>
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</tbody>
</table>

Changes

DBT Implementation Schedule: Summary of

[Logo: GAO]
Science total cost of implementation:
Annual recurring costs were not included in the Energy and
- $186 million in one-time costs
Energy and Science:
- $162 million in recurring costs
- $197 million in one-time costs
NSA:
- $359 million:
The 2005 DBT:
Costs from fiscal year 2008 through fiscal year 2012 to fully implement
DOE estimated it will cost over $540 million in fixed and recurring

DBT Implementation Costs: DOE Report
total over $170 million between FY 2008-2012.

- excludes some annual recurring costs, which could potentially
  year on by site; and
  does not provide a DBT implementation funding profile by fiscal
  report's description of Energy and Science DBT implementation
  reported one-time and recurring costs.

- profiles for individual NASA sites which makes it difficult to verify
  report does not provide detailed (FY 2008-2012) out-year funding

Analysis

DBT Implementation Costs: GAO

| GAO | 23 | 23 |

| Accountability | Integrity | Reliability |
number of assets contained in the 2005 DBT.
increased risk associated with the need to detect the greater

Report does not include any other statement on the

Report only provides classified tables showing number of

DBT RISK: DOE Report
Response:
- Increased defenses in depth, and rapid protective force
- Implementing a denial strategy requires earlier detection
  - Not all sites are at a denial posture
  - Completing tasks within short, classified timelines
  - Moving from Category I to Category II
  - Adversaries must be denied access

Issue:
The 2003 DBT, until mitigating actions are completed to address two issues:
- 2005 DBT increases risk for all DOE sites, when compared to DBT Risk: GAO Analyses
DOE adversary capabilities list. That terrorists may employ contained in the classified greater exploitation of the potential weapons and tactics.

- more attack options (diversions, multiple attacks)
- lead to:
  - Larger numbers
  - Increased adversary numbers in the 2005 DDT.

DBT Risk: GAO Analysis (continued)
advanced command, control, and communication systems, including unattended airborne vehicles, lethal denial systems, and Report also lists a number of technologies under development,

- survivability of protective forces,
- neutralizing adversaries by increasing the lethality and protective forces increased time to respond to attacks, and
- delaying adversaries from reaching SNI and allowing
detection of adversaries at longer ranges;
- barriers to complex sensor and alarm systems—used for DOE's report lists deployed technologies—ranging from simple

Security Technology: DOE Report

GAO
Security Technology Analysis: GAO Analyses
 DOE's report provides only a single paragraph, with virtually no detail on improvements to DOE's protective force deployments.
Recently renegotiated collective bargaining agreement. As phasing in new physical fitness requirements gradually, in its Hanford included aspects of the Tactical Response Force, such as physical fitness for several years. SRS has focused on additional tactical training and improved differently and at different rates. Sites are implementing the Tactical Response Force concept. Sites to begin to establish Tactical Response Forces.

DOE issued new policies and guidance in 2005 and 2006 to enable forces to move, shoot, and communicate in a combat environment. By introducing military-like, small unit tactics to allow protec-tive forces to move, shoot, coordinate, and communicate in a combat environment. The goal of the concept is to counter the adversary force in the DTS. DOE introduced its “Elite Force Initiative” now known as the Tactical Response Force - in 2004.
According to DOE's Office of Independent Oversight, new protective force tactics are generally lagging behind DOE sites' efforts to obtain new weapons and security technology.

- Implemented.

Determine if the Tactical Response Force concept has been determined to the recently-ended strike at the site.

- Planned implementation of the initiative at PX contributed activities budgeted until FY 2009.

- NNSA sites have no directly related Tactical Response Force

(continued)
Unlike most Probabilistic Risk Assessment methodologies, DOE's combination

estimation of the consequences associated with each

estimation of the probability of occurrence for each combination

leads to an accident (or other undesired event); identification and definition of events that, if they occur, could

Risk Assessment methodology, which includes:

Some of DOE's practices are also core components of Probabilistic

Vulnerability assessment practices to assess its sites, security.

DOE uses formal and well-established risk management and

Assess DOE's DBT Implementation Plans

Using Probabilistic Risk Assessment to
Therefore, Probabilistic Risk Assessment methodology may not be suitable to assess DOE security because of

- The very high worst-case consequences of a terrorist attack.
- No clear national guidance on what constitutes acceptable interests.
- Only general intelligence data on terrorist goals and

To date, GAO has found:

Assess DOE's DBT Implementation Plans Using Probabilistic Risk Assessment to...