

# **Waste Isolation Pilot Plant Ten-Year Site Plan FY 2011 – FY 2020**

**Revision 5**

**May 2010**



**U.S. Department of Energy  
Carlsbad Field Office**

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**Waste Isolation Pilot Plant  
Ten-Year Site Plan  
FY 2011– FY 2020**

**Revision 5**

**May 2010**

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## EXECUTIVE SUMMARY

The Waste Isolation Pilot Plant (WIPP) is a U.S. Department of Energy (DOE) facility designed and constructed to perform one primary mission - to safely and permanently dispose of the nation's defense-related transuranic (TRU) waste inventories. TRU waste is, and will continue to be, permanently disposed of in the WIPP repository 2,150 feet below the surface of the earth in the geologically stable Salado Formation. WIPP is located 26 miles east of Carlsbad, New Mexico, and is the only facility in the United States specifically designed for the permanent disposal of TRU waste that has been generated by defense activities at other DOE facilities. WIPP was constructed in the 1980s, and received the first shipment of contact-handled (CH) TRU waste on March 26, 1999. WIPP received the first shipment of remote-handled (RH) TRU waste on January 23, 2007.

Washington TRU Solutions LLC, the WIPP management and operating contractor (MOC), is committed to providing good stewardship for the capital assets under its operational and physical control. This Ten-Year Site Plan (TYSP) was developed in accordance with DOE Order 430.1B, Change 1, *Real Property Asset Management*, for the DOE Carlsbad Field Office (CBFO) and the DOE Office of Environmental Management (EM). This WIPP TYSP has been reviewed by a Certified Realty Specialist (CRS) in accordance with DOE Order 430.1B and EM FY 2010 Guidance for FY 2020 Ten-Year Site Plans. Based on the current mission and planned waste receipt schedules, there are no issues or projects in this TYSP that will alter the boundary footprint of the WIPP site.

Current plans reflect that TRU waste will be received and emplaced at WIPP through fiscal year (FY) 2030. In FY 2009, emplacement of waste in panel 4 (of ten planned waste disposal panels) was completed and waste emplacement began in panel 5. The mining of panel 6, which began in FY 2008, continues. Emplacement of RH waste in panel 5 began in March 2009. By the end of the next ten years, some 3.6 million cubic feet of CH waste and 56 thousand cubic feet of RH waste are expected to have been disposed in panels 1 through 8. A detailed waste shipment schedule is discussed in Section 1.2. Just-in-time mining of panels 7 through 8 will continue during this period to accommodate scheduled emplacement activities. Upon completion of the waste emplacement, it is estimated that five years will be required for decontamination (if necessary, decommissioning, and closure activities at WIPP).

The Condition Assessment Survey (CAS) program and annual system walk-downs by the Cognizant System Engineers are used to identify required maintenance to ensure that the facility remains capable of sustaining the WIPP mission.

## FUTURE STATE

Over the next ten years, several restoration and site capability maintenance projects are planned and detailed. These and other facility work scopes are detailed in Attachment A-3, EM Facilities and Infrastructure Cost Projection Spreadsheet - Operating Facilities.

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An effective maintenance program has kept the WIPP facilities in good condition even though some systems and facilities are over 20 years old. The site restoration and site capability maintenance projects included in the planning and budget for the TYSP will require implementation to ensure sustainment.

There are no areas of concern regarding potential gaps in capability or capacity, disproportionate operations costs, or legacy facility problems at WIPP.

No mission reassignments are anticipated or planned in the next ten years.

This report contains a narrative discussion describing WIPP maintenance needs and several spreadsheets/tables that reflect projected funding levels. Also discussed are the workforce profile and its impact on future planning and programmatic responsibilities regarding security. The site forecast for facilities and infrastructure projects is described, as well as associated cost profiles for the ten-year planning horizon (see Attachments A and F).

Currently there are no "run to failure" plans for any site buildings or structures over the next ten years.

The following chart gives a brief projection summary of gross square footage (GSF), deferred maintenance, and replacement plant value (RPV) of site buildings. Deferred maintenance and RPV information includes buildings, trailers and other structures and facilities (OSFs).

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
GSF	333.8k	337.4k									
Number of Buildings	50	50	50	50	50	50	50	50	50	50	50
Deferred Maintenance	6,429k	6,301k	6,175k	6,052k	5,931k	5,813k	5,697k	5,583k	5,471k	5,362k	5,255k
RPV	145,188	145,246	145,286	145,323	145,360	145,398	145,434	145,469	145,511	145,538	145,591

Deferred maintenance reduction estimated at 2% per year.

No buildings are to be inactivated, out-granted/out-leased, or transferred.

The WIPP underground houses facilities for science experiments in progress or preparation. The CBFO provides assistance for the experiments, such as logistics and infrastructure, but no funding except as specifically authorized by Congress. Typically, funding is provided by the experimenter and/or other sources. See Sections 3.1, 3.4, and 3.5 for discussion of science experiments at WIPP.

In addition to its long-standing safety record, the MOC has a history of continually achieving productivity and throughput efficiencies. Key supporting activities by WIPP management include an excellent training program and effective independent oversight. It is expected that workforce numbers will fluctuate as a result of normal attrition as well as unplanned changes in the mission and capacity requirements of WIPP. Workforce needs will be managed and offset as appropriate by increases in productivity and

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effective management practices. Based on the current mission and planned waste receipt schedules, there are no issues or projects in this TYSP that will alter the footprint of the WIPP site boundary.

## **1.0 INTRODUCTION**

### **1.1 Overview**

The TYSP is the foundation for the strategic planning for the facility and infrastructure program at WIPP, incorporating both WIPP and the DOE EM program technical requirements, performance measures, budget, and cost projections within a ten-year window of the EM program. This TYSP covers both direct and indirect EM-funded facilities and infrastructure activities, general infrastructure areas such as maintenance, General Plant Projects (GPPs), and space management. This TYSP includes a prioritized list of facilities and infrastructure projects for use by the CBFO and EM leadership in support of budget and resource decision-making, and the provision of information to Congress and the Office of Management and Budget (OMB).

This TYSP allows the site to fully document the details of the Real Property Asset (RPA) plans as they have been envisioned in the site life-cycle baseline. This TYSP provides WIPP site leadership (federal and MOC) with the tools and processes to (1) propose how facilities and infrastructures will be managed; (2) describe near and mid-term activities; and (3) manage the resources allocated for RPA management.

This TYSP includes facilities and detailed infrastructure budget and performance information that is consistent with the site life-cycle baseline. The WIPP TYSP conveys the totality of the site's facilities and infrastructure activities, including:

- Key programmatic, budget, and planning assumptions/constraints used to develop the TYSP.
- Current state of WIPP facilities and infrastructure.
- Facility and infrastructure needs (mission-critical and non-mission-critical) to support programmatic requirements.
- A summary of the comparison between projected requirements/needs and fiscal constraints.
- A plan for altering current conditions to meet changing mission and programmatic requirements.
- Details of the WIPP facilities and infrastructure planning activities, in accordance with DOE Order 430.1B. This includes essential information on the site's facilities and infrastructure conditions, current and future needs, and excess facilities.

## 1.2 Assumptions

The following assumptions were used in the development of this TYSP and are consistent with the assumption that, at a minimum, the certified baseline funding will be provided.

- WIPP operations will be conducted in compliance with the WIPP Land Withdrawal Act (Pub. L. 102-579) (i.e., certifications, permits, and regulations), the New Mexico Environment Department (NMED) permits relative to the WIPP facility, applicable DOE orders, and applicable contracts.
- TRU waste transportation to WIPP will be by truck only.
- The entire WIPP mission is directly or indirectly supported by approximately 800 personnel. Facility Operations, Emergency Services, operate 24 hours a day, seven days per week, on rotating shifts, as does the security subcontractor. Other WIPP personnel work either nine-hour days with alternating Fridays off or alternating ten-hour shifts.
- The MOC frequently monitors workforce needs and project and budgeting requirements. The established workload dictates the number of adequately qualified personnel required to successfully and safely accomplish the mission. As the mission particulars and requirements change, the MOC makes adjustments in the workforce.
- Disposal throughput capacity for CH waste will be at a minimum (nominal annual) average of 21 shipments per week in FY 2010 through FY 2013. Shipments will decrease to an average of eighteen shipments per week beginning in FY 2014, and to nine shipments per week in FY 2019.
- Disposal throughput capacity for RH waste will be a nominal average of five shipments per week in FY 2010 through FY 2030.
- Annual WIPP site maintenance outages typically will be scheduled at the end of the calendar year, with duration driven by plant needs.
- The ten-year Renewal Application for the Hazardous Waste Facility Permit (HWFP) was submitted in FY 2009. WIPP will remain in compliance with the conditions of the renewed permit.
- The site footprint and boundaries will remain unchanged.
- No land acquisition or disposal is planned.
- Environmental, safety, and health operating conditions should remain at current levels.
- WIPP is required to submit a Compliance Recertification Application to the U.S. Environmental Protection Agency (EPA) every five years after first receipt

of TRU waste. This application demonstrates continued compliance with the standards in Title 40 *Code of Federal Regulations* (CFR) Part 191, "Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Wastes"; the criteria in 40 CFR Part 194, "Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations"; and conditions of the certification. The second Compliance Recertification Application has been submitted to the EPA. WIPP will remain in compliance with the conditions of the renewed certification.

- Disposal of Transuranic Package transporter Model III (TRUPACT-III) Standard Large Box 2 (SLB2) containers is planned to start in late FY 2011 (if adequate funding is provided).
- The WIPP site operates under at the security condition approved by the DOE for normal operations and has taken steps to implement appropriate security measures to meet the design basis threat. Required security modifications have been identified and captured in the WIPP Site Security Plan (SSP). The WIPP SSP and associated funding requirements are coordinated with site federal security staff, EM-3.1, and are approved by the CBFO Manager.
- Funding will be provided to meet shipment schedules.

### **1.3 Current Situation**

The current state of the facility and infrastructure is generally rated as good to excellent using the Facilities Information Management System (FIMS) criteria. Much of the equipment, such as the ventilation system (Waste Handling Building [WHB] and underground), power distribution systems (surface and underground), and fire protection systems, is required to be in continuous use whether waste is being received or not, while much of the waste handling equipment is frequently used for handling, disposal, and training.

The WIPP site has no decontamination and decommissioning (D&D) activities in progress or planned before FY 2030.

The decisions and activities related to approved mission need, conceptual design, preliminary design phase, and approval to start operations at WIPP were completed prior to the DOE Order 413.3, *Program and Project Management for the Acquisition of Capital Assets*. The current status for CDs for projects that have begun operations are as follows:

- CD-2/3 – Approval of Critical Decision-2/3, Performance Baseline for the Cleanup Projects at the Waste Isolation Pilot Plant, January 11, 2008.
- CD-4 – Project Completion. The current projected end of waste disposal operations is September 2030, followed by a deactivation and decommissioning period of approximately five years.

Over the next ten years, several significant restoration and site capability maintenance projects are planned to provide for the future state of WIPP. Other planned work scope is shown in Attachment A.

Operationally, use of the Sanitary Waste Disposal System (sewage lagoons) has been changed from two trains to one (this is a design feature). This was possible because the effluent currently being discharged to the sewage lagoons is far less than the design capacity. A liner inspection and the liner repair/replacement of Sewage Ponds 2A and 2B were completed in FY 2007. The liner repair/replacement of Sewage Ponds 1A and 1B was completed in FY 2008. Liner replacement for Evaporation Ponds A and B were completed in FY 2009. The liner replacement for Evaporation Pond C will be completed in the future.

The surface and underground infrastructure at WIPP meets the purpose intended: to support receipt and disposal in the underground of the DOE's TRU waste inventory. This includes the surface water distribution (fire and domestic), compressed air systems and electrical distribution (surface and underground), and facilities for support personnel, such as Safety and Health, Security, engineering groups, and Site Environmental Compliance. The CAS and cognizant engineer system walk-downs of the installed equipment and related areas have not identified significant current or projected facility deficiencies that impact existing or approved site missions.

Facility and infrastructure concerns/challenges are as follows:

- Deferred maintenance. The funding of deferred maintenance projects is required to adequately maintain the site material condition. The necessary funding is vital to meet EM goals for TRU waste generator site cleanup throughout the DOE Complex.
- Facility and infrastructure site capability maintenance. Some of the identified facility site capability maintenance has transitioned into the deferred maintenance category. These items need to be scheduled and completed in a timely manner to ensure the site is maintained in acceptable condition for waste receipt.
- Funding. The CBFO will request and receive adequate funding in the FY 2011 budget submittal.
- Facility asset utilization. Current utilization at WIPP is very high and no vacant space has been identified. Therefore, performance targets or plans to address underutilization of space have not been developed at this time. If the WIPP mission increases or decreases, space utilization targets and plans will be developed to address those changes.
- No footprint reduction or excessed facilities are planned.

## **1.4 Changes from Prior Year TYSP**

This section provides a summary of the key changes from the previous year's TYSP.

Changes from prior years TYSP include the following:

- Reline one sewage lagoon evaporation pond by 2010
- Submitted HWFP Renewal Application to the NMED in FY 2009
- Submitted Compliance Recertification Application to the EPA in FY 2009
- South access road acquired from Eddy County, New Mexico
- Sale of mined salt from stockpile
- Transfer of the WIPP water line to the city of Carlsbad completed in FY 2009
- Trailer 953 procured for additional office space
- Completed construction of a second salt storage evaporation basin (SSEB-11)

## **1.5 National Environmental Policy Act**

Once projects have evolved into the design and/or work control process sufficient to evaluate the environmental impacts, the appropriate National Environmental Policy Act (NEPA) documentation will be prepared.

## **2.0 SITE DESCRIPTION**

### **2.1 General Description**

The WIPP site is located 26 miles east of Carlsbad in the Chihuahuan desert in the southeast corner of New Mexico. The WIPP site encompasses a 16-square-mile area that was withdrawn from the public domain and transferred to the DOE. The actual site location is in the approximate center of the 16-square-mile area and is situated on 34.49 fenced acres (on the surface, a combination of asphalt paving and compacted caliche) and about 7.5 miles of underground excavations in the Salado Formation. The site has four shafts to the underground: the Waste Shaft, Salt Shaft, Air Intake Shaft, and Exhaust Shaft. There are several miles of paved and unpaved roads in and around the site and an 11-mile-long access road that runs north from the WIPP site to U.S. Highway 62-180. The access road used to bring TRU waste shipments to WIPP is a wide, two-lane road with paved shoulders. Railroad access to the WIPP site is in place, but not in use.

The WIPP site has 50 permanent buildings and nine temporary buildings (trailers) in operation, and various connexes (used for storage). The site buildings provide a total of 333,821 square feet of office and industrial space. Additional leased office space, the Skeen-Whitlock Building (SWB), is located in Carlsbad, New Mexico. The building is

leased from the U.S. General Services Administration (GSA) and houses the CBFO, much of the MOC, the CBFO Technical Assistance Contractor (CTAC) (Navarro), and other contractor personnel. The total leased space in the SWB is 90,850 square feet or 20 percent of the 423,821 total square feet utilized by the CBFO/WIPP mission. As a GSA full-service lease, this space is a non-add entry in FIMS. Approximately 800 workers are assigned to WIPP, representing the CBFO, the MOC, the security subcontractor (Security Walls), the warehouse and site document subcontractor (L&M Technologies), the Central Characterization Project (CCP) document services (Stoller), the information technologies subcontractor (NCI Information Systems Inc.), CTAC, Los Alamos National Laboratory-Carlsbad, Sandia National Laboratories-Carlsbad, and NMED-Carlsbad.

The WIPP site water supply originates at the city of Carlsbad's Double Eagle water system, approximately 30 miles north of the site. The gravity flow line is designed to provide water to the WIPP site at a peak flow rate of 375 gallons per minute. Transfer of ownership of the WIPP water line and right-of-way to the city of Carlsbad was completed in FY 2009. The city of Carlsbad will maintain the water line and provide the WIPP site up to 6.6 million gallons of water annually at no charge.

No facilities at WIPP have received an historic designation.

No land acquisition or disposal will take place during the next ten years.

WIPP and CBFO facilities and infrastructures are discussed in Section 4.2.

## **2.2 Site Maps**

Figures 1 through 4 show the location of the WIPP site relative to the state of New Mexico, the 34.49 acres of the property protection area, the mission-critical and excess facilities, a map depicting the surface and underground facilities.

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WIPP FACILITY LOCATION

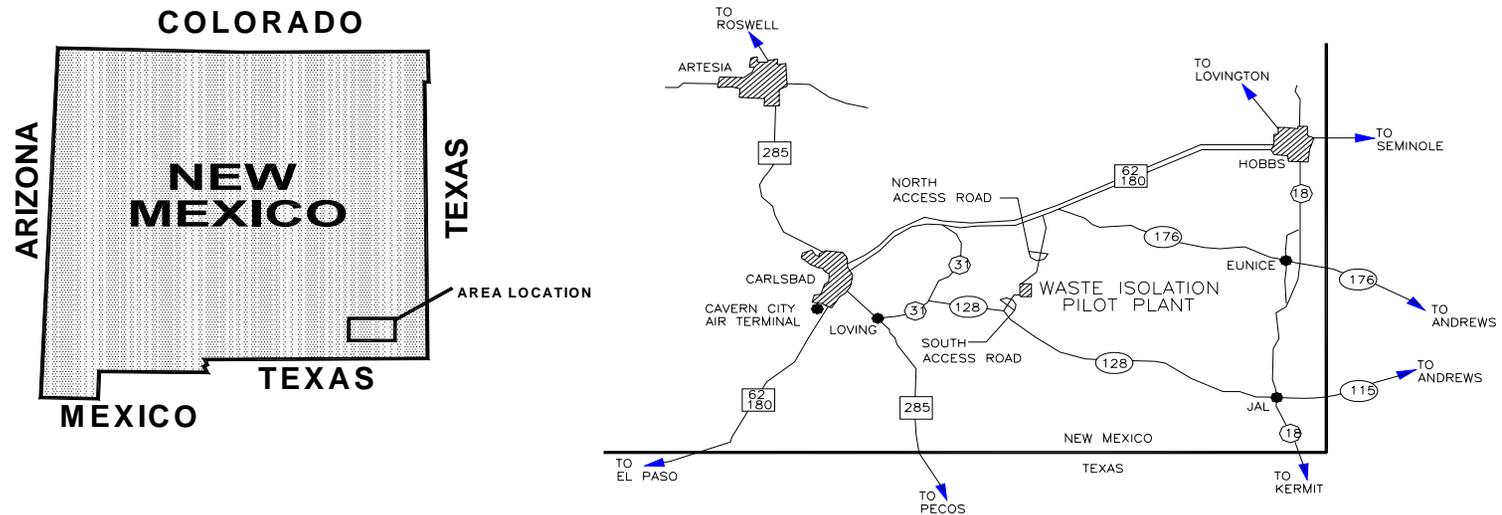
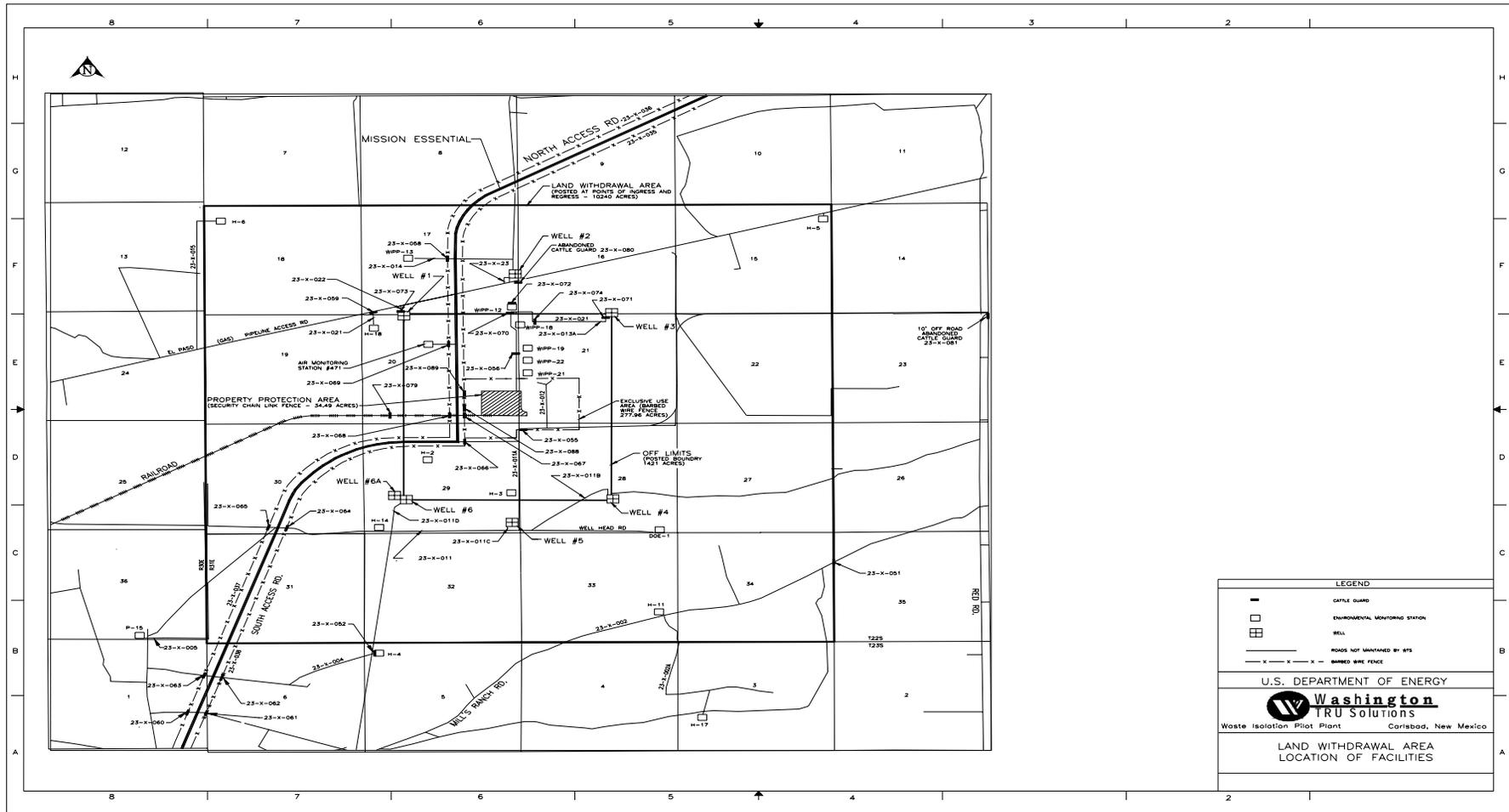


Figure 1 - WIPP Facility Location in New Mexico

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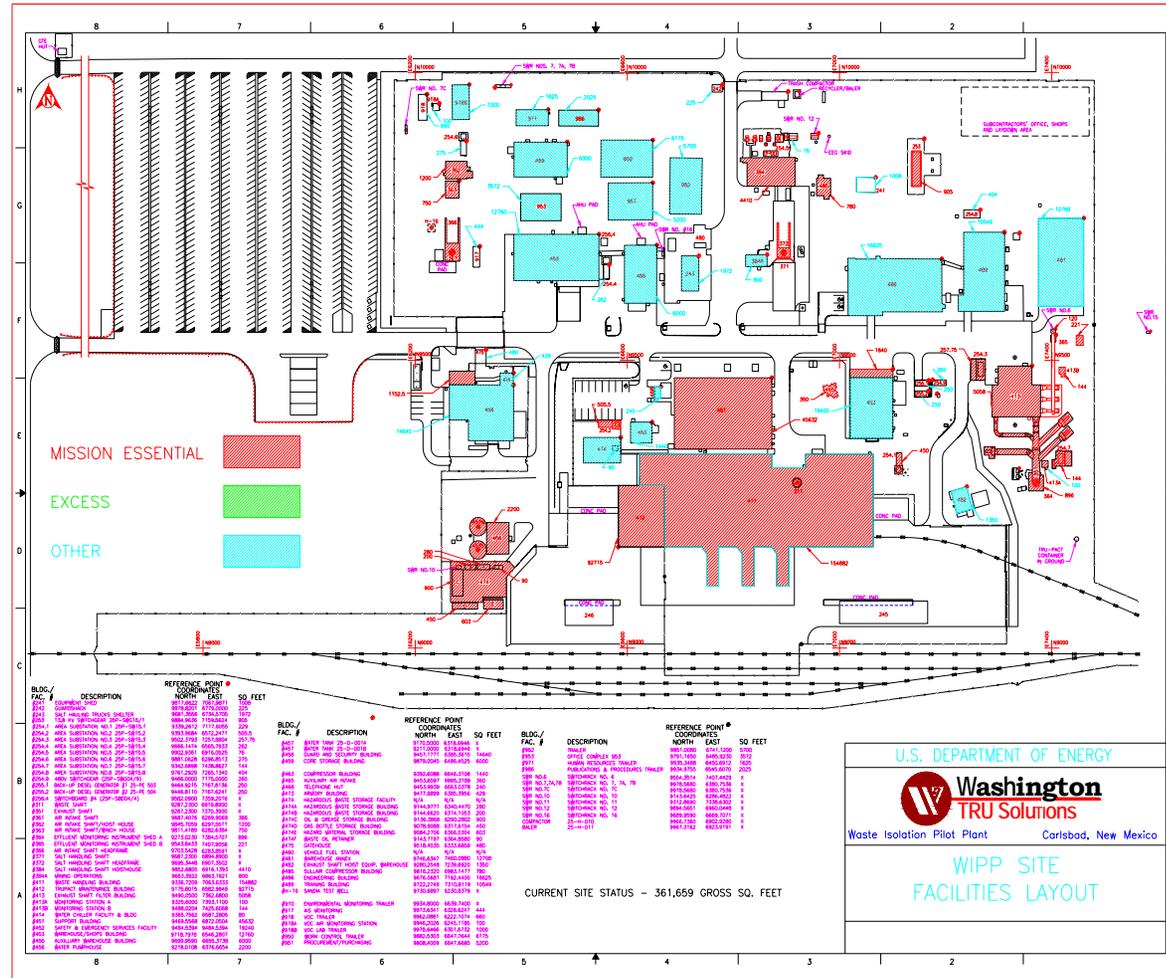


Figure 3 - WIPP Site Facility Layout

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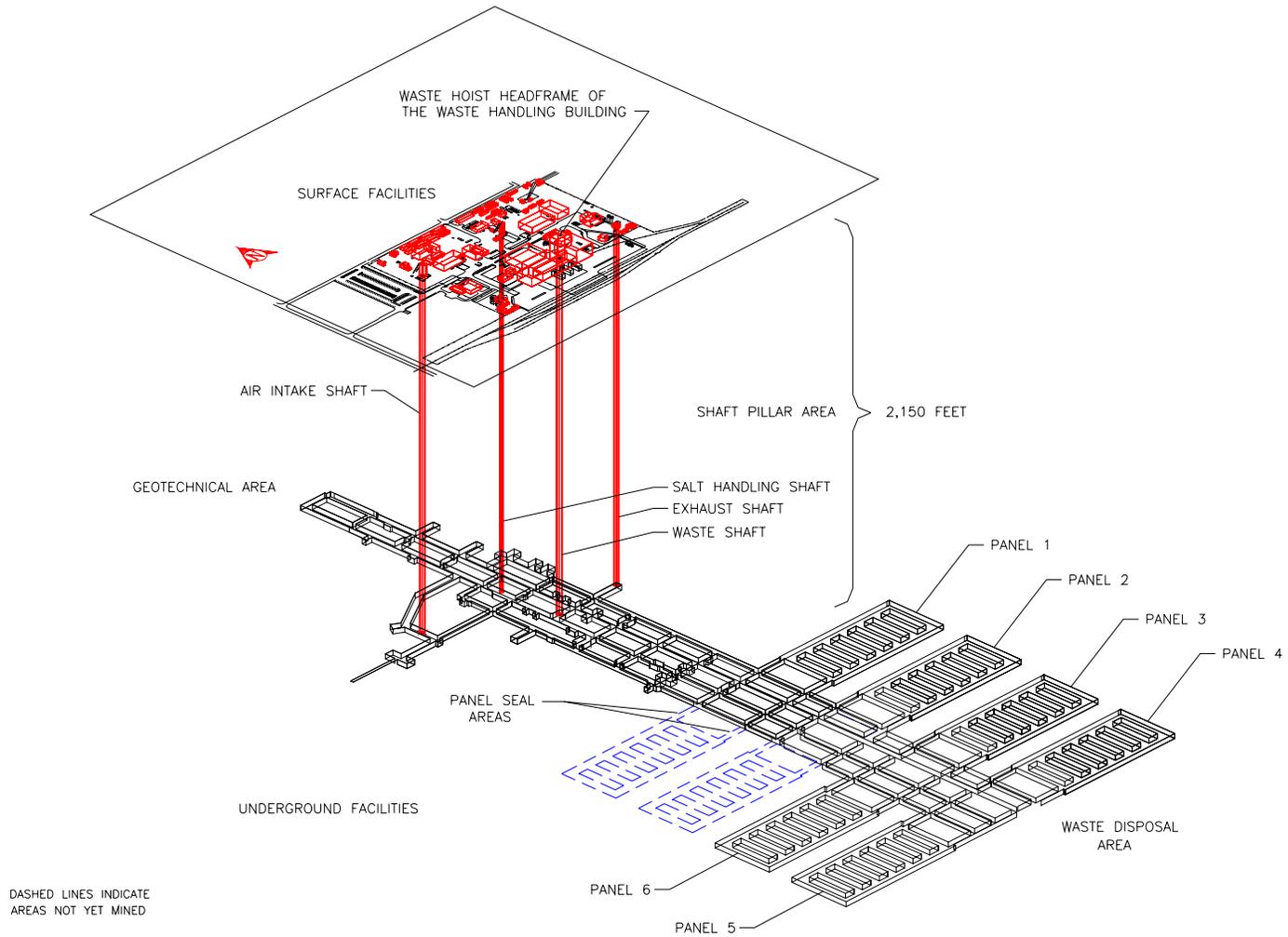


Figure 4 - WIPP Underground Facility

### 3.0 MISSIONS AND PROGRAMS

#### 3.1 Current Missions and Programs

The WIPP mission includes the safe transport and disposal of the nation's defense-generated TRU waste in support of CBFO and DOE goals.

The WIPP site mission-critical facilities and infrastructure function to support the EM mission as stated on the EM web site:

*The mission of the Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research.*

The CBFO/WIPP/MOC mission, as stated by the CBFO Project Execution Plan, is to:

*Protect human health and the environment by operating the [Waste Isolation Pilot Plant] WIPP for safe disposal of defense-related transuranic (TRU) waste and by establishing an effective system for the management of TRU waste from generation to permanent disposal.*

The WIPP site provides the facilities, infrastructure, security, and regulatory compliance necessary to safely receive, process, and dispose TRU waste from generator sites in the underground. As the world's first fully licensed TRU waste repository, WIPP is committed to the protection of human health and the environment by operating safely and upholding its proven standard of excellence. The Voluntary Protection Program and the Integrated Safety Management System exemplify the safety culture present at WIPP.

Planning and budgeting programs are in place to provide continuous facility and infrastructure maintenance over the projected life of the project (FY 2035). As staffing requirements vary according to increased shipments of CH-TRU and RH-TRU wastes, management flexibility accommodates the additional personnel and use of existing work space. The WIPP MOC frequently monitors the workload and adjusts the workforce accordingly.

The entire WIPP mission workload is directly supported by approximately 800 personnel. Facility Operations and Emergency Services operate 24 hours per day, seven days per week, on rotating shifts, as does the Security subcontractor. Other WIPP personnel work either nine-hour days with alternating Fridays off or alternating ten-hour shifts.

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The WIPP site was designed and constructed to perform one primary mission - to safely and permanently dispose of the nation's defense-related TRU waste. As listed below, WIPP has many systems that directly support its mission and perform safety class (SC), safety significant (SS), or defense-in-depth functions.

- **Waste Handling Building.** This structure provides a confinement barrier. Ventilation is operated to maintain a negative pressure with high-efficiency particulate air (HEPA) filtration. Certain structures, systems, and components (SSCs) of this facility are designated SC and SS.
- **Waste Hoist.** Certain components and equipment in the Waste Hoist system are designated SC or SS since they are load-bearing or prevent uncontrolled movement.
- **Radiation Monitoring.** Continuous air monitoring and fixed air samplers must be operational. From a nuclear safety standpoint, this system provides a mitigating function.
- **Central Monitoring Room (CMR).** The CMR provides a mitigating function and must be staffed and operational, with the ability to shift underground ventilation to filtration.
- **Underground Ventilation.** The underground ventilation fans must be operable. The underground ventilation system must be capable of a shift to HEPA filtration. Selected SSCs of the underground ventilation are designated SS.
- **Fire water system.** Designated SSCs of the site fire water system are SS. The system must be operational and specified pressure and quantity of water must be maintained in the system.
- **Waste Handling Equipment.** The waste handling equipment must be operable or operating. Selected items are designated SC or SS.
- **North Access Road.** The North Access Road must be maintained in good repair as it provides the only approved, local access route to the WIPP site.

Non-EM programs at WIPP include the Energy Management Program (see DOE Order 430.2B, *Utilities and Transportation Management*), the Safeguards and Security Program, and the Experimental Programs described below.

- **Energy Management Program.** This program, funded by DOE Headquarters (HQ) and not EM, but supported by WIPP, requires a fraction of one Full-Time Equivalent in the MOC. This program educates WIPP and community personnel regarding energy management practices and how to implement practical approaches to reducing energy consumption. In conjunction with the CBFO, the DOE, and the state of New Mexico, this program also implements funded or partially funded projects at the WIPP site to reduce energy consumption. Projects include installation of environmentally friendly

refrigeration and chiller equipment; low-flow shower heads and other water conservation practices; digital electrical metering for monitoring performance and usage; recirculation versus once-through air in the heating, ventilation, and air-conditioning (HVAC) system in the WHB; and replacement of inefficient lighting (such as high pressure sodium lighting) with newer, efficient lighting and fixtures.

- **Safeguards and Security Program.** This program is required by DOE Order 470.4, *Safeguards and Security Program*, for security at non-reactor nuclear sites. The WIPP security force provides site and perimeter security 24 hours per day, seven days per week. Security controls access to/from the site and monitors activities in and around the site.
- **Experimental Programs (science-based experiments).** The North Experimental Area located in the north end of the WIPP underground houses facilities for science experiments in progress or preparation. In the Room Q alcove, the segmented enriched germanium array (SEGA) and multi-element germanium array (MEGA) experiments are in progress, and will run for several years. The Enriched Xenon Observatory (EXO) is constructed in East 300 drift between North 1100 and 1400 and should begin acquiring data in 2010. Future experiments may be planned. WIPP/CBFO provides assistance for the experiments, such as logistics and infrastructure, but no funding except as specifically authorized by the Congress. Typically, funding is provided by the experimenter and/or other sources.

### **3.2 Mission-Critical Facilities and Mission-Dependent Facilities and Infrastructure/Linkages Between Facilities and Infrastructure and Mission Needs**

The *Waste Isolation Pilot Plant Documented Safety Analysis (DSA)* (DOE/WIPP-07-3372) and *Waste Isolation Pilot Plant Technical Safety Requirements* (DOE/WIPP-07-3373) establish and evaluate the adequacy of the WIPP CH- and RH-TRU safety basis in response to normal and abnormal operations and postulated accident conditions. The WIPP safety bases analyzes include (1) the adequacy of the design basis of WIPP SSCs, and the application of appropriate engineering codes, standards, and quality assurance requirements; (2) the selection of principal design and safety criteria; (3) the assignment of Technical Safety Requirements; and (4) the management, conduct of operations, and institutional programs for safety assurance. Based upon safety analysis in the DSA, the SSCs identified as SC, SS, or balance-of-plant are designated as such in the site maintenance database. Facility and infrastructure SSCs that are designated as SC or SS have a specific safety function and are given a higher priority during planned and unplanned maintenance activities.

Based on the EM definition of critical facilities and the WIPP mission, the mission-critical facilities have been identified and are detailed in Attachment D. No current mission-critical assets are planned to be phased out. Currently, no new mission-critical or mission-dependent facilities or infrastructure will be acquired to support existing or

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future missions. The list of mission-critical facilities is consistent with the EM definition. A summary of these facilities and how they relate to the EM mission follows.

- WHB. The requirement is that the structure is normal (intact and functional tornado doors and dampers [i.e., confinement]), ventilation is operational and maintaining a negative pressure, and HEPA filtration is normal (the building and ventilation system perform a defense-in-depth function). After TRU waste is received in the vehicle trap at the WIPP security gate, the waste packages are transported and parked behind the WHB. CH packages are unloaded from the trailer and moved through an airlock into the WHB for processing. The CH package lids are removed and checked for contamination. The payload is unloaded onto facility pallets, which are taken to storage areas in the CH Bay or to the Waste Hoist. RH casks are moved into the RH Bay, unloaded from the trailer, placed on a transfer car, and positioned into the cask preparation stand. The casks are checked for contamination as they are prepared for the applicable handling process. The RH canisters are placed into the facility cask and stored or transported to the waste conveyance.
- Waste Hoist. The facility pallets, containing CH waste or facility casks containing RH waste, are loaded onto the Waste Conveyance and transported 2,150 feet to the underground. Waste handling personnel move the waste to the permanent disposal area. CH waste in seven-packs of drums, 14-drum packs, 85-gallon drum packs, large and standard waste boxes, shielded containers, three-packs of 100-gallon drums, or ten-drum overpacks are stacked in the active disposal room. Magnesium oxide (MgO) is then emplaced on top of each waste column to meet EPA compliance requirements. RH waste canisters are placed horizontally into boreholes in the salt walls (ribs) prior to emplacement of the shield plugs.
- WHB Ventilation. The WHB ventilation system includes HEPA filtration to ensure that any airborne contamination that may result from a waste handling incident is not released to the environment.
- Radiation Monitoring. Continuous air monitors (CAMs) are installed in the exhaust drift of the active waste disposal panel. At least one alpha CAM must be operational for underground waste handling activities to provide defense-in-depth. There are also CAMs installed on the CH TRUDOCKs and various locations of the RH complex in the WHB that are in operation during waste processing activities. In the event of a contamination release, the underground CAM alarms are activated and the underground ventilation system is shifted to HEPA filtration. Area radiation monitors are installed in designated areas where RH waste handling and processing may occur.
- CMR. The CMR in the Support Building must be staffed and operational, with the ability to shift underground ventilation to HEPA filtration. The Central Monitoring System (CMS) shift-to-filtration capability performs a mitigating function in relation to providing active confinement. The shift-to-filtration

function is performed by the CMS automatically or manually by the CMR Operator in response to a waste handling accident underground or an alarm from an underground alpha CAM. The CMR duties also include monitoring on-the-road TRU waste shipments via satellite.

- **Underground Ventilation.** Underground ventilation requirements are driven by the Mine Safety and Health Administration and the HWFP. The underground ventilation fans must be operable or operating and capable of a shift to HEPA filtration. Three main fans are available for underground ventilation. The shift-to-filtration function can also be performed locally at the Exhaust Filter Building. The requirement to shift to filtration mitigates the possibility of airborne contamination being released to the environment in the unlikely event of an underground release.
- **Waste Handling Equipment.** Selected waste handling equipment must be operable or operating. This equipment is not reflected in the attachments because the CH and RH waste handling forklifts and other equipment are not considered real property in accordance with DOE Order 430.1B.
- **North Access Road.** The North Access Road must be maintained in good repair as it provides the only approved, local access route for waste shipments to the WIPP site.
- **South Access Road.** This road is used by WIPP personnel, vendors, and subcontractors. The road was previously owned by Eddy County, New Mexico. On January 27, 2010, the right-of-way grant for the South Access Road was issued by the United States Department of Interior Bureau of Land Management (BLM) to the DOE.

Performing a vital role in the facility operation are other mission-critical facilities, such as the Emergency Services Bay (housing ambulance, rescue truck, and fire engine); the electrical distribution system (supplying electrical power to the other mission-critical facilities); the air intake, exhaust, and salt handling hoists/shafts; the water storage and distribution system for fire suppression; the hazardous waste storage facility; Armory; Chiller Building; and the hardened area for security in the Guard and Security Building (housing the security monitoring and alarm systems).

### **3.3 Future EM Mission, Programs, Workload, and Impacts**

The current EM mission for the WIPP facility will remain constant throughout the life of the facility. No future EM missions are planned for the WIPP facility.

#### **3.3.1 Facilities, Maintenance, and Workforce**

As the WIPP facilities age, an increase in major maintenance projects and a decrease in GPP-size projects will be realized. There are no plans to phase out any of the current mission critical assets over the next ten years.

The maintenance needs identified in this plan address facility requirements over the next ten years. In order to continue supporting the EM mission, WIPP must fund and implement the restoration and replacement projects that have been identified. The change in workload to support the EM mission in the out-years has been identified by the MOC and the CBFO.

To support receipt and disposal activities, the MOC has added a second 10-hour rotating shift at the WIPP site consisting of underground services, hoisting and maintenance personnel to support underground waste handling activities and waste handling personnel in emplacing CH- and RH-TRU waste underground and/or handling the additional MgO required for super-compacted TRU waste. Assuming a nominal average of 21 CH waste shipments and five RH waste shipments per week, it is believed that the existing facilities are adequate for the additional personnel. The MOC conducts annual evaluations of facility utilization and staffing needs.

### **3.3.2 Safety Basis Requirement**

The WIPP facility is currently receiving CH- and RH-TRU waste under an approved DSA. Facility and process modifications are reviewed against the DSA in accordance with 10 CFR Part 830, Subpart B, "Safety Basis Requirements," for impact on the approved safety basis.

One proposed process modification has been identified during this reporting period.

- The proposed process modification includes the receipt and disposal of CH waste in SLB2s transported to WIPP in a TRUPACT-III shipping container. This will require the addition of the lifting equipment to unload the TRUPACT-III from the highway trailer for transfer into Room 108 of the WHB, where the SLB2 will be removed. Modifications will include replacement of the existing overhead crane and installation of a bolting/detensioning device to remove the TRUPACT-III outer cover and closure lid, and installation of a payload transfer station that will extract the payload from the TRUPACT-III and transfer it to a facility pallet. Automated guided vehicles will be used to transport the TRUPACT-III into the building and move the loaded facility pallet to the Waste Hoist. Support equipment, such as cover and lid storage stands, facility pallet stands, and a vent hood system will also be installed. Unloading and placement of the SLB2 in the repository may require a new forklift. Design efforts for the equipment began in October 2005. A DSA evaluation for the TRUPACT-III will be performed in FY 2011. The planning milestone for being ready to receive and process TRUPACT-III shipments is August 2011 (if adequate funding is provided).

The CBFO is pursuing changes to its authorization basis documents to improve worker safety during characterization and waste handling, to improve operational efficiency, and to control costs. Proposed changes include, but are not limited to, the following:

- Redesign of the underground waste disposal panel closure system. The current panel closure system calls for a 12-foot-thick explosion isolation wall

followed by a monolith composed of Salado Mass concrete. A Class 2 Permit Modification Request (PMR) was approved by the NMED in 2007 to postpone closure for panels 3 through 7. The delay in panel closure, along with provisions in the PMR to monitor the gases in a closed panel, allow the collection of data on the generation of hydrogen and methane. These data will be used for future design of a structurally sound and cost-effective panel closure system. The EPA must also eventually approve any changes.

- It is anticipated that the Nuclear Regulatory Commission (NRC) will approve the amendment of the HalfPACT Certificate of Compliance for transport of shielded containers in FY 2010. Shielded container procurement activities are anticipated to begin in FY 2010.

### **3.3.3 Regulatory Issues**

An HWFP Renewal Application was submitted to the NMED in May 2009, with the final draft submitted in April 2010. The second Compliance Recertification Application to the EPA was submitted in March 2009.

Historical storm water management practices may have contributed to infiltration into the shallow subsurface water beneath the WIPP site. An infiltration control project consisting of a cover on the existing salt pile, lined salt storage cells for the storage salt, and five evaporation ponds to contain storm water runoff was developed and permitted by the NMED to eliminate infiltration. Construction of an additional lined storage pond was completed in FY 2010 to address abnormal rainfall events. Continued maintenance (including erosion control) of covered salt piles and evaporation ponds for the collection of storm water runoff will be necessary until final closure, which currently requires the removal of all stockpiled salt from the site. Activities were completed in FY 2010 to allow the sale of approximately 3,000 tons of stockpiled salt to private industries over a five-year period.

### **3.4 Future Non-EM Mission, Programs, Workload, and Impacts**

The WIPP underground currently houses scientific experiments as described in Sections 3.1 and 3.5. Future experiments may also be proposed for the north end of the mine. The CBFO will provide assistance for those experiments, such as logistics and infrastructure, while funding is provided by the experimenter, and/or other sources, and specific Congressional appropriations.

There are no foreseen impacts to the site's current EM mission, programs, and infrastructure from future non-EM programs.

### **3.5 Impacts of Non-EM Programs**

Designated areas of the WIPP underground currently house science experiments, such as the SEGA and multi-element germanium array (MEGA) experiment in the Room Q alcove. These will run for several years. The EXO experiment is being conducted in the East 300 drift between North 1100 and 1400. The CBFO provides assistance for

these experiments, such as logistics and infrastructure, while funding is provided by the experimenter and/or other sources, including specific Congressional appropriations. These projects do not impact the current EM mission.

There are no impacts to the site's current EM mission, programs and infrastructure activities from non-EM programs. WIPP provides a unique environment for these projects, which would otherwise make them prohibitively expensive for the scientific and academic community, as well as the taxpayers.

## **4.0 THE TEN-YEAR SITE PLAN**

### **4.1 Planning Process**

The *CBFO Project Execution Plan (PEP)* (DOE/CBFO-03-3293) describes the mission of the CBFO, the role of WIPP, the planning and baseline development used to meet objectives, and the division of roles and responsibilities between DOE HQ and the CBFO. The PEP provides a concise link between program objectives and implementation strategy and describes, primarily through references, the supporting infrastructure. The PEP is the top tier of the CBFO program management document hierarchy and describes in general terms the way that the CBFO manages its programs.

The current CBFO program is focused on TRU waste cleanup to reduce risk to the public and the environment by disposing of the legacy TRU waste and continuing disposal of newly generated TRU waste. To achieve the goal of disposing of the legacy TRU waste, the management of the operations of various DOE TRU waste generator and storage/disposal sites, the CBFO, and WIPP are integrated into a national TRU waste management system. The National TRU Waste Complex Corporate Board (Corporate Board) provides coordination and strategic input for the TRU waste management system. With the assistance of the Corporate Board, the CBFO has implemented a comprehensive approach for TRU waste cleanup to reduce risk to the nation.

The resources needed to perform WIPP activities are determined by a sequence of logical steps. The major steps involved in determining resource requirements are as follows.

- Develop a list of drivers and planning assumptions
- Collect the TRU waste inventories from generator/storage sites
- Develop TRU waste characterization work-off plans
- Integrate characterization work-off plans with transportation resources
- Develop transportation schedules from previous integration
- Prioritize activities and develop an integrated life-cycle baseline schedule that is consistent with life-cycle funding targets

- Develop cost estimates for the scope and schedule derived from previous information
- Identify project risks and, if necessary, mitigating actions

As part of its planning process, the CBFO validates that the inventory, characterization work-off plans, and transportation schedules are, to the extent possible given the constraints on WIPP operations, consistent with the plans of the TRU waste sites. If changes to the drivers and assumptions, inventories, work-off plans, transportation schedules, life-cycle baseline, and/or cost estimates for the scope and schedule arise, they will be managed through the CBFO or DOE HQ change control process, as appropriate. The Corporate Board is a liaison between EM, the CBFO, and the TRU waste sites, and is important in communicating changes.

As described above, the drivers and assumptions are used to define the resource requirements for the baseline scope, schedule, and cost. If these drivers and assumptions change, a decision will be required whether to modify the baseline scope, schedule, and/or cost. The drivers and assumptions will be reevaluated annually as part of the budget process and decisions on whether to modify the baseline under configuration control will be made in that context.

#### **4.2 Facilities and Infrastructure Overview**

The WIPP site has 50 permanent buildings and nine temporary buildings (trailers) in use, and various connexes (used for storage). The site buildings provide 333,821 square feet of office and industrial space (refer to Section 2.2 for the site maps). Additional office space, the SWB, is located in the city of Carlsbad. The 90,850-square-foot building is leased through the GSA and houses the CBFO, much of the MOC, and other contractor personnel. The MOC does not perform maintenance or operational activities at the SWB.

There are three basic structure types at the WIPP site: surface structures, shafts, and underground facilities. A thorough maintenance program has kept the WIPP structures and facilities in good to excellent condition even though some systems and facilities are over 20 years old. The surface structures accommodate personnel, equipment, and support services required for receipt, preparation, and transfer of waste from the surface to the underground. The primary surface structure is the WHB, which is divided into the CH-TRU waste handling area, the RH-TRU waste handling area, and support areas. The Support Building is adjacent to the WHB and is constructed to withstand a design basis earthquake (DBE). DBE structures, systems, and components are designed to withstand a free-field horizontal and vertical ground acceleration of 0.1g based on a 1,000-year recurrence period, and will retain their safety functions. The CMR, located in the Support Building, must be staffed and operational at all times. The CMS in the CMR has the ability to shift underground ventilation to HEPA filtration mode, either automatically or manually.

The CH-TRU waste handling area includes the entrance airlocks, CH Bay, a shielded holding area, and CH-TRU support facilities. The WHB, during waste handling mode,

requires that the structure is normal (confinement) and the ventilation is operational and maintaining a negative pressure, and that the HEPA filtration is normal.

The RH-TRU waste handling area includes a shipping and receiving area and a shielded cell for unloading, inspection, and loading prior to transfer underground.

Four vertical shafts extend from the surface to the underground horizon: the Waste Shaft, Salt Handling Shaft, Exhaust Shaft, and the Air Intake Shaft. The underground ventilation system and fans must be operable or operating and capable of a shift to HEPA filtration.

The Waste Hoist is used to download the TRU waste 2,150 feet to the underground disposal area.

The underground facilities consist of the waste disposal areas, shaft pillar area, experimental/geotechnical area, and associated support areas. The current plan is to mine, outfit the disposal panels, install ground control systems, conduct maintenance, and fill ten panels, including the four access drifts and the crosscuts in the WIPP repository, over the expected life of the facility.

The WIPP infrastructure supports the WIPP/EM mission and consists of the water supply system and water distribution, compressed air systems, electrical distribution, sanitary waste disposal system, and other facilities for support personnel. Water distribution is made to most of the buildings and facilities at the WIPP site. Where sprinkler systems provide fire suppression, the water is supplied by a separate fire water distribution system. Electrical distribution is provided to all WIPP site facilities. The plant substation feeds power to numerous substations around the site. Compressed air is required to operate the dampers for the underground ventilation and is fed to the underground to operate bulkhead doors. The sanitary waste disposal system is approximately one-half mile from the site and is designed for 23,000 gallons per day. The railroad access to the WIPP site is not in use.

Procurement, maintenance, and control activities for waste shipping containers (e.g., TRUPACT-II, HalfPACT, RH-TRU 72-B, and 10-160B) are administered by the WIPP MOC per procedure WP 08-PT.03, WIPP Quality Assurance Plan for Type B Packages. The TRUPACT-III container will be incorporated into the procedure after WIPP receives the Certificate of Compliance from the NRC.

All Type B Package Trailers are maintained by the Carriers themselves through the Carrier contracts administered by the CBFO. The MOC has created separate operations and maintenance manuals for each of the unique transport trailers used for transporting the Type B Packages (e.g., WP 08-PT.04, CH Package Trailers; WP 08-PT.11, RH 72B Cask Trailer; WP 08-PT.13, RH 72B Cask Uprighting Trailer; and WP 08-PT.14, 10-160B Trailer). Upon completion of the TRUPACT-III prototype transport trailer, a similar operations and maintenance manual will be developed and implemented.

### **4.3 Real Property Asset Management**

#### **4.3.1 Condition**

Much of the equipment, such as the ventilation system (WHB and underground), power distribution systems (surface and underground) and fire protection systems, is required to be in continuous use whether waste is being received or not, while much of the waste handling equipment is frequently used for handling, disposal, and training. A thorough maintenance program has kept the WIPP facilities in good condition even though some systems and facilities are over 20 years old.

Over the next ten years, several restoration and site capability maintenance projects are planned, including Salt Hoist and Waste Hoist controls upgrades. This and other facility work scope is detailed in Attachments A and F.

The WIPP infrastructure meets the intended purpose, which is to support receipt and disposal of the TRU waste inventory from throughout the DOE Complex. This includes the water distribution (fire and domestic), compressed air systems, electrical distribution (surface and underground), and facilities for support personnel, such as Safety and Health, Security, engineering groups, and Site Environmental Compliance. The CAS and cognizant engineer system walk-downs of the installed equipment and related areas have not found deficiencies that currently impact the support of existing or approved department missions.

The MOC is committed to providing good stewardship for the capital assets under its operational and physical control at WIPP. Annual walk-downs are conducted on each site system by the Cognizant System Engineer to determine system operability, availability, and reliability. In addition, safety systems walk-downs are performed by the cognizant engineer with the corresponding DOE counterpart invited to participate.

Using FIMS criteria, WIPP site facilities and equipment condition are generally rated as good to excellent. The FIMS/Facility Condition Index (FCI) rating is based on a formula that uses the deferred maintenance cost versus RPV to determine the overall rating of the facility. Site FCI information is included in Attachment C. An effective maintenance program has kept WIPP facilities in good to excellent condition for over 20 years, and will continue to do so for the life of the plant.

The CAS data support the FIMS and the Life-Cycle Asset Management planning processes at WIPP. The ongoing CAS condition assessment surveys for mission-critical facilities and infrastructure use a tailored approach based on facility status, mission importance, and the magnitude of any associated hazards. Inspection methodology is consistent with DOE Order 430.1B and industry practice, and includes identification of safety and health hazards. The CAS coordinator, Facility Operations, Quality Assurance, the area landlord, and the Cognizant Systems Engineer conduct the assessments using a team approach. Deferred maintenance estimates are based on nationally recognized cost estimating systems. Annual systems walk-downs by Cognizant System Engineers provide additional data to evaluate facility conditions. The

DOE/CBFO receives periodic updates on deferred maintenance and FIMS database validation/reconciliation.

All CAS inspection data are entered into the Condition Assessment Information System (CAIS) database. A CAIS report is produced for each facility and provides a detail costing for each CAS finding. In addition, the CAS inspections are a source for multiple fields in the FIMS database (i.e., Status Field, Utilization, Inspection Date, and Overall Condition).

Buildings and facilities located on the WIPP site are inspected following the CAS guidelines. The WIPP site is on a three-year cycle, meaning each building or facility is scheduled for inspection once every three years. All inspections are nonintrusive and findings are noted in the CAS report. CAS reports are reviewed by the CAS Inspector before the report is distributed to the cognizant section manager for review. Each cognizant manager reviews the report and decides what actions are necessary to correct each finding. If an action request is warranted, a work order is created and this deficiency, along with the work order, is tracked in the Computerized History and Maintenance Planning System (CHAMPS). After management review and applicable corrective actions have been performed, the report is returned to the CAS Inspector for final closeout.

The CAS team performed 20 inspections in FY 2009. The overall condition for the facilities, buildings, and infrastructure was rated as good based on CAS guidelines. There are 39 CAS inspections scheduled for FY 2010. As stewards of a national resource, the WIPP site uses FIMS as a tool to assist in managing corporate physical assets. FIMS is the DOE corporate real property database required by DOE Order 430.1B. Real property includes land and anything permanently affixed to it, such as buildings, fences, and building fixtures (lights, plumbing, heating and air conditioning, etc). Complete and accurate information on real property holdings is critical to the site for managing facilities and reporting to the GSA, the OMB, Congress, and the taxpayers.

#### **4.3.2 Utilization**

The site facilities are used to accomplish EM mission requirements. The sitewide Asset Utilization Index (AUI) on operating buildings and trailers owned by the DOE is 100 percent. This measure is based on 333,821 total operating square footage, consisting of 50 operating buildings and nine operating trailers. This information is reflected in FIMS Report #093 (Attachment B). The FIMS database reflects the current status of utilization and the condition of facility and infrastructure. Responsibility for space utilization at the WIPP site lies with the Facility Restoration group. Space requirements vary greatly among various departments, so several criteria are applied:

- Unique needs of individuals or groups relative to work scope
- Availability of space for consolidation
- Handicap or ergonomic needs

- Density of worker population
- Condition of facility

Department managers request and approve plans for relocation, reconfiguration, and use of facility space. A plan is developed considering the criteria above as well as infrastructure and life safety issues. When changes to existing configurations are completed, the Facility Restoration configuration drawings and the FIMS database are updated accordingly.

Current utilization at WIPP is at an acceptable level and no vacant space has been identified. Therefore, performance targets or plans to address underutilization of space have not been developed at this time. If the WIPP mission increases or decreases, space utilization targets and plans will be developed to address those changes.

WIPP does not use a chargeback system as all site facilities support the assigned EM mission.

Space at WIPP is categorized either as office use or operational. Office use is dictated by departmental personnel and task requirements. Groups whose personnel numbers and job tasks decrease may be candidates for downsizing to a smaller area to make room for other groups with increasing personnel numbers and task requirements. Operational areas are engineered for specific mission tasks and specific equipment layouts, which do not typically change.

### **Existing Site Surface Facilities**

Within the security fence, there are 50 permanent buildings and nine trailers in operation, totaling 333,821 square feet of permanent structures and trailer facilities. This 34.49-acre area comprises the WIPP property protection area.

Based on the current WIPP site mission, waste receipt and emplacement schedule, and waste handling capacity, additional office space is being considered to house personnel for short-term projects and is being funded through existing base operating funds.

### **Existing Underground Facilities**

The underground facility is comprised of support equipment, drifts and alcoves used for administrative and technical support areas, waste emplacement activities, and waste disposal panels and rooms located 2,150 feet below ground level. Four vertical shafts connect the surface with the underground and provide ventilation, exhaust, and personnel access, as well as waste handling and mining support functions. Panels that have been filled with waste and approved backfill material are then closed using approved methods. The underground area will continue to expand as new panels are mined to accommodate waste.

Work to provide an alternative waste transport route is in progress. This activity will ensure that waste can be emplaced continuously when the primary underground

haulage route requires major maintenance. Tentative plans include widening underground drifts, mining/cutting floors, reworking ventilation bulkheads, installing overcasts and supplemental ground support, and modification of ventilation flow paths. The tentative schedule for completion of field work is FY 2011. Regulator approval will be required prior to using an alternative route.

Since underground mining began, more than ten and one-half horizontal miles have been excavated. Currently, CH- and RH-TRU waste is being emplaced in the underground facility.

### **Excess Facilities Elimination/Disposition and New Construction**

No facilities are planned to be excessed during the FY 2011 through FY 2020 planning cycle. One trailer is being commissioned to provide additional office space.

#### **4.3.3 Land-Use Planning**

Land use and planning at the WIPP site are administered through the *WIPP Land Management Plan (LMP)* (DOE/WIPP-93-004). The LMP was developed in accordance with the Land Withdrawal Act in consultation with the Department of Interior, the state of New Mexico, and affected stakeholders. The LMP identified the roles and responsibilities of the Land Use Coordinator and the CBFO NEPA Compliance Officer. The LMP, which is currently being updated, addresses land-use issues, capabilities, opportunities, and limitations of the WIPP site as described in this section.

Issues addressed by the LMP include management protocols for administration of the plan, environmental compliance, wildlife, cultural resources, grazing, recreation, energy and mineral resources, lands/realty, reclamation, security, industrial safety, emergency management, maintenance, and work control. Capabilities addressed by the LMP include identifying means to maintain site integrity and environmental quality, and to sustain multiple-land use objectives. Opportunities identified in the LMP include those for participation in the WIPP land use planning process by the public as well as state and federal agencies. Additional opportunities identified in the LMP include public access to areas within the WIPP Land Withdrawal Area for recreational use of vehicles, hunting, trapping, horseback-riding, hiking, and camping. In addition to public access, rangelands at the WIPP site provide forage for livestock and valuable wildlife habitats.

The LMP imposes certain restrictions on public access at the WIPP site, including restrictions on vehicles to the use of existing roads with the exception of those related to WIPP-specific projects. The LMP also specifies limitations at the WIPP site pertaining to oil and gas exploration. No surface or subsurface mining unrelated to WIPP, or oil or gas production, including slant drilling from outside the boundaries of the WIPP Land Withdrawal Area, are permitted at any time (including after decommissioning) on lands on or under the WIPP Land Withdrawal Area, with two exceptions. These exceptions are two 320-acre (eight-unit) leases within the WIPP Land Withdrawal Area, below 6,000 feet, which are leased for oil and gas development (Federal Oil and Gas Leases NMNM 02953 and NMNM 02953C). Both tracts, located in T.22 S., R. 31 E., Section 31, prohibit drilling within the first 6,000 feet of the surface.

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The WIPP Land Withdrawal Area includes a total of 10,240 acres. Rights-of-way within this area include those for service roads, a water service pipeline, electric transmission lines, high pressure gas lines, and monitoring wells.

The LMP identifies the responsibilities of the DOE to monitor any land use proposal affecting the withdrawal area. In part, the DOE has agreed to consult with the BLM regarding future DOE right-of-way actions needed outside the withdrawal area and to review and comment on applications and proposals received by the BLM for any land uses affecting, but not solely contained, within the WIPP withdrawal boundary.

Land use planning and management is administered by the Land Use Coordinator, and the CBFO NEPA Compliance Officer, as applicable. Individuals obtain proper authorization for use of lands contained within the WIPP Land Withdrawal Area or lands outside the WIPP Land Withdrawal Area used for the operation of WIPP, through the auspices of the LMP and Land Use Requests. Authorization is received from the Land Use Coordinator in conjunction with the CBFO NEPA Compliance Officer when environmental concerns have been addressed appropriately and required permits have been obtained or modified as necessary. Addressing environmental concerns includes ensuring compliance with applicable regulations. Environmental considerations for lands within the interior Property Protection Area are addressed by a site NEPA and environmental review procedure.

In addition to the LMP, the DOE has issued three site-wide environmental impact statements for WIPP. Land Use Requests are screened by the CBFO NEPA Compliance Officer to determine whether or not additional NEPA documentation would be required for the proposed activity to proceed. Projects fall into three categories: those that directly support the WIPP mission and are bounded by existing NEPA documentation, those supporting the WIPP mission but not directly bounded by existing NEPA documentation, and those not directly supporting the WIPP mission. The CBFO NEPA Compliance Officer has the sole authority to make decisions regarding the level of NEPA documentation that is in place for a project or is yet required.

During the operational phase, the affected environment at and surrounding WIPP is monitored in compliance with DOE Order 450.1A, *Environmental Protection Program*, to assure that there are no deleterious effects from WIPP operations. DOE Order 450.1A describes the DOE commitment to environmental protection and pledges to implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources. The provisions of DOE Order 450.1A are implemented by the WIPP environmental policy and the environmental management system (EMS).

The LMP is consistent with and incorporates elements of the site environmental impact statements, EPA certification decision, and the HWFP issued by the NMED pursuant to the States' authorization to implement the Resource Conservation and Recovery Act (RCRA) program. In this manner, the LMP provides guidance for managing the land withdrawn for WIPP through project decommissioning. Any hazardous material spills are promptly cleaned up and if applicable, reported to the appropriate authorities pursuant to the provisions of the Comprehensive Environmental Response,

Compensation, and Liability Act (CERCLA) (40 CFR Parts 300-372) and other applicable state and federal regulations. The HWFP identified 15 solid waste management units (SWMUs) and eight areas of concern (AOCs) associated with natural resource exploration activities prior to the development of WIPP or geologic studies conducted during early site characterization. These SWMUs and AOCs have been determined to need no further action by the NMED and have been removed from the HWFP. No release sites have been identified at WIPP that would require cleanup under the provisions of the CERCLA.

The LMP, HWFP, EPA certification decision, and NEPA documents also describe long-term stewardship at WIPP that will be addressed by planned active institutional controls (for 100 years after final closure) and, thereafter, by passive institutional controls. Planned active institutional controls will be initiated with the restoration of the WIPP site including demobilization, decontamination, and decommissioning. This activity will include closing the waste disposal area and sealing the shafts. All surface structures, except for the concrete hot cell structure and a sufficient quantity of salt tailings to support construction of a permanent marker berm, will be removed and the site regraded and revegetated to as near its original condition as practicable.

During the active institutional controls period, the DOE will implement monitoring systems suitable for assessing disposal system performance. Planned activities also include minimizing features that would attract future development of the site, warning of potential hazards through signage, controlling site access, performing site maintenance, addressing current standards, and preventing development.

Based on EM requirements and the WIPP mission (see Section 3.1), all WIPP facilities and infrastructure projects that support ongoing and planned waste management, environmental remediation and long-term stewardship, real property assets/facilities, and associated funding sources are identified in Attachments A, C, and F.

#### **4.3.4 Site Footprint Management**

The site footprint may be expanded to include temporary office space for personnel implementing the American Recovery and Reinvestment Act. WIPP is considered a new facility and no major reductions in footprint are anticipated until the WIPP mission nears completion. A future TYSP or Closure Plan will address identified footprint reductions at that time.

#### **4.3.5 Future Space Needs**

Temporary office space is being considered to accommodate personnel for the American Recovery and Reinvestment Act.

#### **4.3.6 Leased Space**

The use of leased space is necessary to the support of the WIPP mission, especially to house management and support functions located in the city of Carlsbad (26 miles west of the WIPP site). The SWB facility of some 90,850 square feet, which is leased

through the GSA, is used for this purpose. As the lease has been in place for some eleven years and is long-term in nature, there is no intention to build a facility that would be DOE owned. The use of a GSA full-service, leased facility precludes issues of ownership and disposal for a mission which has a finite life. There is significantly inadequate office space at the WIPP site to consider relocating the over 300 people housed in the SWB. The SWB comprises some 27 percent of the total amount of space on or supporting the WIPP site. This lease is not maintained by WIPP MOC personnel or funding.

#### **4.4 Deferred Maintenance Reduction/Facility Condition Index**

The WIPP site maintenance program, in accordance with DOE Order 430.1B, Change 1, establishes an integrated corporate-level, performance-based approach to the life-cycle management of WIPP site RPAs. It links RPA planning, programming, budgeting, and evaluation to the WIPP and EM missions.

The MOC maintains RPAs in a manner that promotes operational safety, worker health, environmental compliance, property preservation, and cost-effectiveness while meeting

WIPP and EM mission requirements. This balanced approach not only sustains assets, but also provides for their recapitalization and includes the following:

- A maintenance management program that includes condition assessments of RPAs, a work control system, management of deferred maintenance, prioritization methods, and a budget and expenditure tracking system.
- Identification of ten-year maintenance and repair (M&R) requirements (sustainment) and funding for deferred maintenance reduction.
- Identification of ten-year recapitalization requirements to replace or modernize existing facilities.
- Annual condition assessments for mission-critical facilities and infrastructure. The assessments use a tailored approach based on facility status, mission importance and magnitude of any associated hazards. Inspection methodology is consistent with industry practice, and includes identification of safety and health hazards. The CAS coordinator, Facility Operations, Quality Assurance, the area landlord, and the Cognizant System Engineer conduct the assessments using a team approach. Deferred maintenance estimates are based on nationally recognized cost estimating systems.

The management of RPAs at WIPP takes a corporate, holistic, and performance-based approach to life-cycle asset management that links RPA planning, programming, budgeting, and evaluation to program mission projections and performance outcomes. Acquisitions, sustainment, recapitalization, and disposal are balanced to ensure RPAs are available, utilized, and in a suitable condition to accomplish the WIPP and EM missions.

Sustainment consists of M&R activities necessary to keep the inventory of facilities in good working order. Sustainment includes regularly scheduled maintenance and anticipated major repairs or replacement of components that occur periodically over the expected service life of the facilities. Insufficient levels of sustainment can result in a reduction in service life. Facilities that have deteriorated or become outdated and incapable of supporting mission needs will be replaced, recapitalized, or deactivated.

Recapitalization extends the service life of facilities or restores lost service life and consists of alterations and improvements to keep existing facilities modern and relevant in a changing environment. WIPP site management uses preventive, predictive, and corrective maintenance to ensure RPA availability for planned use and/or proper disposition.

The maintenance program includes condition assessments of RPAs, a work control system, management of deferred maintenance, a method to prioritize maintenance projects, and cost accounting systems to budget and track maintenance expenditures. Configuration management of all assets in the maintenance program will be consistent with the intent of DOE-STD-1073-2003, *Configuration Management*.

The WIPP site maintenance program ensures that maintenance needs are identified and prioritized in the facility planning and budgeting cycle every year. Revisions may be made during the year, as needed. For the FY 2011 to FY 2020 planning cycle, WIPP has provided a reliability designation to the line items in the budget and planning data to better indicate those budget line items that could impact the EM mission. This designation ensures that the proper priority is assigned to new and deferred maintenance tasks in the integrated facilities and infrastructure crosscut budget.

Several projects at WIPP have been delayed over the last few years as project priorities changed, creating WIPP budget shortfalls. As priorities change, the reduction on deferred maintenance has taken place as planned. Deferred maintenance costs indicate a significant increase in the FY 2011 through FY2020 time frame. This is due to a change in the calculation of deferred maintenance. In previous TYSPs, deferred maintenance was attributed to projects associated with mission-critical facilities. In the FY 2011 through FY 2020 TYSP deferred maintenance was calculated using the deferred maintenance for all mission-critical, mission-dependent and non-mission-dependent facilities. Insufficient funding for maintenance may result in mission-critical issues and a significant increase in deferred maintenance.

WIPP site management has taken steps to ensure that deferred maintenance line items are targeted for completion, which will keep this issue within acceptable levels.

In the long term, the WIPP site maintenance program, as it is integrated into the planning and budgeting process, ensures that efficient and effective maintenance of the site's facilities and infrastructure is performed.

WIPP develops recapitalization requirements structured to keep existing facilities modern and relevant in an environment of changing standards and missions. Recapitalization requirements are in addition to sustainment activities (e.g., M&R) and

consist of alterations and improvements to, or replacement of, existing facilities. Recapitalization activities will be funded within the current "project" approach using Project Baseline Summaries.

#### **4.5 Maintenance**

The maintenance goal at WIPP is to maintain DOE assets in a safe and reliable condition. This goal is achieved by conducting activities in a manner that ensures preservation, availability, and reliability of SSCs required for safe and reliable operation of the plant.

WIPP maintenance efficiency is attained through use of a zone maintenance concept. This integrated maintenance management and performance system provides each zone the resources to complete each job from initiation and preparation of work packages to completion of work (including maintenance engineering, job planning, safety issues, and performance). All maintenance activities are vertically integrated within each zone.

Zone maintenance activities at WIPP are monitored using benchmarking and tracking systems to identify potential problems and opportunities for continuous improvement, which is a central feature of the WIPP maintenance philosophy. Careful monitoring also helps to minimize maintenance rescheduling due to unavailability of craft personnel.

Based on RPV information in FIMS on operating facilities, funding for maintenance activities is within the 3 to 4 percent range. In order to continue supporting the EM mission, WIPP maintenance funding must remain at present levels or possibly increase.

A maintenance priority system has been instituted in the WIPP maintenance program. The priority system is outlined in WP 10-WC3011, Maintenance Process. Any maintenance activities involving potential hazards to personnel or the environment are assigned an appropriate priority by work order to ensure timely completion.

Maintenance history on each SSC is maintained in the CHAMPS, including resources and cost data. Required maintenance cost and actual maintenance costs are input to the DOE FIMS.

Ensuring that the proper balance of corrective and preventive maintenance provides a high degree of confidence that facility equipment degradation is identified and corrected, equipment life is optimized, and the maintenance program is cost-effective. The maintenance program includes preventive, modification, predictive, and corrective maintenance.

A graded approach is used to determine the level of effort and resources required to effectively and efficiently accomplish each element of the maintenance program. A master equipment list of SSCs included in the maintenance program is developed, maintained current, and prioritized using this approach. Therefore, equipment defined as Safety Class and Safety Significant, whose failure can impact safe and reliable operation, is given appropriate priority.

A corrective maintenance program is implemented to repair and restore equipment or components that have failed or malfunctioned. To minimize or avoid corrective maintenance, preventive maintenance (including predictive maintenance) is performed at appropriate intervals to maximize equipment availability. Preventive maintenance tasks and schedules are based on considerations such as operating experience, vendor recommendations, engineering, and cost/benefit analysis. Once selected and scheduled, preventive maintenance is waived or deferred only with management approval.

#### **4.6 Utilities**

The current condition of all WIPP site utilities was rated as good in the last CAS and is rated as good to excellent per FIMS guidance. Listed below is an overview of the current and future conditions of the utilities at the WIPP facility:

- The WIPP water supply system currently consists of a water storage tank used for domestic water, a domestic water distribution system, one water storage tank for the fire water system, and the fire water distribution system.
- The site domestic water and fire suppression water tanks (two 180,000-gallon aboveground storage tanks) must be periodically inspected, cleaned, repaired as necessary, and repainted with approved epoxy paint. The capacity of the water supply system is determined adequate for the next ten years and no increase in system demand is anticipated. Minor upgrades are determined and performed on an as-needed basis as part of normal site operations.
- The sanitary waste disposal system (Sewage Lagoon) is approximately one-half mile from the site and is designed for 23,000 gallons per day. Operationally, use of the sewage lagoons has been changed temporarily from two trains to one, because the effluent being discharged is far less than the design capacity. This change facilitated cleaning and inspection of the liners. One pond is scheduled for relining in 2010.
- The electrical distribution system supplies electrical power to both surface and underground facilities and is designed and configured to provide WIPP with adequate power for the next ten years. No significant issues are foreseen in the near future, unless work scope changes dramatically. Minor upgrades will be performed on an as-needed basis as part of daily site operations.
- Chilled water is supplied locally at several buildings by medium-sized chillers. Other facilities are cooled by refrigerated air or direct air wash units (swamp coolers).
- There are no natural gas utilities at WIPP.
- There are no steam systems at WIPP.

## 4.7 Energy Management/Executive Order 13423 Initiatives

WIPP has been actively monitoring DOE progress in establishing its implementation standards for Executive Order (EO) 13423, Strengthening Federal Environmental, Energy, and Transportation Management, via its Transformational Energy Action Management (TEAM) initiative and revisions to DOE Orders 450.1A and 430.2B.

Concurrent to DOE development of its implementation standards after the EO was issued in January 2007, the following were taken to implementing new requirements:

- A goal was established to prepare an FY 2007 EMS goal to prepare a gap analysis of WIPP environmental policy, EMS, and environmental performance compared to the EO 13423 and its associated implementation instructions. This was set as a goal to help position WIPP for addressing EO and DOE requirements when orders are finalized.
- The completed gap analysis was used to compare WIPP's current status to the sixty plus specific actions identified in the EO with its mandatory implementing instructions, the TEAM initiative, and the draft DOE orders.
- Modifications to the WIPP Environmental Management System Description document were finalized. These incorporate achievement of the EO sustainability goals, including transportation and energy, through the EMS framework.
- Development of a WIPP plan for sustainability is currently in progress. The plan will address gaps through appropriate short- and long-term goals, which will provide the basis for requesting funding to achieve the goals, and establish owners for sustainability categories.

WIPP has previously made significant accomplishments in each of the eight sustainability performance categories established in the TEAM initiatives and EO 13423. A summary of this progress and general approach to the new requirements for each of these areas is included in Sections 4.7.1 through 4.7.8.

### 4.7.1 Energy Efficiency

The WIPP energy management program has been in place for sixteen years. The program initiative strategy is to avoid "like-for-like" component replacement on maintenance-related failures and create a system such that lighting, motor, HVAC, pumps, or compressed air components receive efficiency upgrades as a byproduct of repair.

#### 4.7.1.1 Lighting

Offices. T-12 lamps and ballasts are no longer stocked in the warehouse. Replacing four T-12 lamps and two ballasts with two T-8 lamps and a single high-performance T-8 ballast reduces energy consumption from 196 watts/fixture to 76 watts/fixture, provides

better light, reduces frequency of maintenance, and cuts the fixture waste stream in half.

High/Low Bays. All HPS or mercury vapor-style fixtures are replaced with "induction coupled electrodeless" (ICE) fluorescent technology, which provides a significant improvement in lighting quality and reduced maintenance cycle time (100,000-hour operating life versus 20,000-hour life). ICE offers the added benefit of instant start, allowing the system to be turned off when the space is vacant, resulting in additional energy savings.

Reductions in lighting energy consumption resulting from ICE retrofits include Building 362 (92 percent reduction), Building 413 (93 percent reduction), Building 456 (97 percent reduction), and Building 485 (93 percent reduction).

A significant byproduct for both new lighting technologies is cooling load reduction for the HVAC system and load reduction on the electrical distribution system.

Perimeter. As they fail, Cobra head fixtures are replaced with ICE technology, which reduces energy consumption, minimizes maintenance, and enhances safety by minimizing the time employees operate elevated lifts during fixture replacement.

#### **4.7.1.2 Motors**

Most motors are now installed with variable frequency drives.

Whenever possible, systems that were running in a 24/7 mode are now scheduled to run as needed.

#### **4.7.1.3 Energy Source**

The WIPP site receives power via two 115kV AC power feeds from Xcel Energy's Potash Junction Interchange and the Whitten-Ochoa-Sand Dunes Station. Both are fed from the Xcel Cunningham and Maddox power plants. The Hobbs Generating Station, a new, independent, combined-cycle power plant located between the existing Xcel plants, has been brought online. The Hobbs Generating Station is owned by Lea Power Partners, and is contracted to Xcel Energy. The sources are brought to a ring-bus configured substation adjacent to the site, and then stepped down from 115kV AC to 13.8kV AC at two independent taps from the ring bus to the site distribution system via step-down transformers. The utility transformers providing stepped down power (North and South) are each rated at a maximum of 20MVA; therefore, the maximum redundant power capacity to the site is currently 20MVA. The connected load has been maintained slightly under 4MW, even through the TRU waste receipt ramp-up activities. This has been largely achieved through conservation practices of scheduling, retrofits, and upgrades.

Annual usage has been approximately 20,000,000 KWH/yr, even while disposal activities are steadily increasing for the site. In FY 2010, the Utility Data Management

System (UDMS), which will allow automated transfer of energy consumption data files directly to DOE HQ, was implemented.

#### **4.7.1.4 Energy Savings Initiatives**

Recirculation Project. The WHB HVAC system has been modified from a "once through" system to provide recirculation of air and reduce the energy needed to heat or cool outside air. In conjunction with this, a TRUPACT shelter was constructed behind the WHB to provide shaded parking for the TRUPACT trailers. This significantly reduces the heat load introduced when TRUPACTs are moved into the WHB. The recirculation project will be complete in FY 2010.

Domestic Water Pumps. WIPP has three 15-horsepower water pumps that pressurize the domestic water supply 24 hours a day. If these pumps are controlled to be on only when the water pressure begins to drop, or if the motors are replaced by variable speed motors or a direct connection to the off-site high pressure water supply pipeline, the savings from reduced electrical consumption could be as much as \$10,000 per year. This project has been funded, but not completed.

#### **4.7.1.5 Energy Savings Performance Contracts**

The site initially had a leadership role in establishing an Energy Savings Performance Contract (ESPC) to fund and achieve energy savings projects and had developed a Preliminary Proposal with an ESPC company (NORESO) in February 1999. This ESPC was not completed due to the relative size of energy savings projects at WIPP compared to those necessary for a commercial venture. However, projects identified through and subsequent to this work were performed as funding became available (see Sections 4.7.1.1 through 4.7.1.4).

In FY 2008, WIPP began evaluating the potential for an ESPC with the intent to use this means to accomplish energy efficiency. An assessment of WIPP by NORESO has been conducted to identify potential projects. NORESO informed WIPP that they do not intend to pursue an ESPC because WIPP is a very well maintained facility with modest utility rates. WIPP's proactive approach since 1999 has resulted in significant energy conservation, which makes it a challenge for them to find energy conservation measures that are financially viable in an ESPC. WIPP will continue to evaluate and implement viable energy conservation measures accordingly and as funding allows.

#### **4.7.2 Renewable Energy**

Since FY 2001, wind-generated electricity has provided 7 percent of WIPP site energy needs. WIPP will evaluate increasing this percentage to support the DOE's goal during FY 2010 and will incorporate such an increase into our sustainability plan as appropriate.

WIPP is working with vendors on the cost to apply Building Integrated Photovoltaic Solar (BIPV) technology to buildings at the site. The use of BIPV will enhance sustainability of facilities that were originally constructed with a short life span, thereby

significantly enhancing the buildings features and lifespan. The plan is to start with one building as a demonstration and complete up to three more as an initial investment.

WIPP is also working on a small utility scale solar farm. The project is still in early planning stages due to earlier legal hurdles. The technology planned is thin film tracking modules. Funding for this project has not been finalized to date.

#### **4.7.3 Petroleum Reduction/Alternative Fuel Use**

Commuter buses are available to WIPP workers, who live an average of 30 miles from the site, to reduce individual gasoline consumption. In FY 2007, WIPP partnered with the commuter bus company to test the use of biodiesel fuel. While the test was successful technically, limited access to biodiesel infrastructure has precluded its continued use for the short term. The WIPP vehicle replacement program began to incorporate the purchase of vehicles capable of using alternative fuels in FY 2007. WIPP received the DOE Best in Class Award for fuel reduction during the new evaporation pond construction. WIPP's sustainability planning process will evaluate and pursue access to cost-effective alternative fueling infrastructure.

#### **4.7.4 Sustainable Building Standards**

No buildings at the site are certified under the Leadership in Energy and Environmental Design (LEED) criteria. WIPP does not anticipate new construction or major renovation opportunities for certification to the LEED standards. However, the site is working to the High Performance Sustainability Building (HPSB) Standards and pursuing funding to achieve the goals set by those standards. The first buildings have been identified for improvements in lighting, HVAC, and the entire building envelope as a system. WIPP's sustainability planning in FY 2010 will evaluate and plan for further progress as appropriate.

#### **4.7.5 Water Conservation**

WIPP has achieved a 39 percent reduction in fresh water use between FY 2003 (six million gallons used) and FY 2004 (under four million gallons used). This decrease was achieved as a result of process changes for maintenance of the sewage lagoon ponds. Smaller but steady declines have been achieved since FY 2004, mainly through opportunities in personal versus process use. Achieving an additional 16 percent reduction in water usage before FY 2015 is not likely due to an increase in employees and waste emplacement.

#### **4.7.6 Sustainable Environmental Practices in Acquisitions**

WIPP has incorporated more environmentally friendly products into its acquisition system. In FY 2010, WIPP will continue to evaluate and target purchase of these products as they meet cost, availability and performance criteria. Areas that will be evaluated for inclusion in WIPP's sustainability goals include increasing the use of recycled content lubricants and using bio-based fuel in selected on-site equipment.

#### **4.7.7 Toxic and Hazardous Material Use and Waste Reduction and Recycling**

WIPP has reduced the toxicity and number of hazardous materials used at the site, and continues to control the introduction of new materials into site operations. Sustainability planning will evaluate potential for further improvements. One possible area of focus may be to create a means for improving sharing of opened materials between functional areas.

WIPP has consistently conducted pollution prevention opportunity assessments over its operational history to identify and implement opportunities for reducing waste generated. As a result, WIPP has been able to limit the rate of increase of waste generated as TRU waste emplacement has increased. WIPP's focus in FY 2010 and beyond will be to limit the rate of increase as emplacement volume continues to grow through use of pollution prevention opportunity assessments, awareness efforts, and training.

WIPP recycles spent oil, hydraulic fluid, lubricants and solvents as well as batteries, paper, plastics, metals, cardboard, toner cartridges, and electronics. The project's recycling rate has averaged above 50 percent since FY 2002. WIPP's continuation of its current recycling program and emphasis on employee awareness and participation will contribute to meeting EO requirements and team goals.

#### **4.7.8 Electronics Stewardship**

WIPP specifies the purchase of Electronic Product Environmental Assessment Tool (EPEAT)-certified computers as the site standard for desktop computers, notebooks and monitors. Excess and reuse opportunities are used where possible and, when not possible, WIPP recycles electronics in accordance with the Promoting Sustainable Environmental Stewardship of Federal Electronic Assets memorandum of understanding. WIPP has been recognized by the DOE for participation in the Federal Electronics Challenge (FEC) in the past and will coordinate future recycling shipments so that FEC participation is maintained. Areas for potential inclusion in the WIPP sustainability plan will be assuring that when nonstandard electronic equipment is purchased, energy efficiency is incorporated; assuring Energy Star features on computers, printers, copiers and other electronic equipment are enabled; and evaluating data center and server operations for energy efficiency opportunities.

#### **4.8 Security**

The WIPP facility is currently operated at the security condition approved by the DOE for normal operations and has taken steps to implement security measures required to meet the design basis threat. Required security modifications have been identified and captured in the WIPP SSP. Currently, those modifications consist of strategic placement of mobile barriers. The WIPP SSP and associated funding requirements are coordinated with site federal security staff, EM-3.1, and approved by the CBFO Manager.

An ongoing effort assesses the adequacy of how WIPP security systems meet continuously changing security conditions. Because of the dynamic nature of security, ongoing required modifications are expected in the upcoming years. Security anticipates replacing and upgrading several closed-circuit television system components during FY 2010. There are presently no specific work plans, but cost estimates have been obtained from the projected equipment suppliers.

## **5.0 FACILITIES AND INFRASTRUCTURE PROJECTS/ACTIVITIES AND COST PROFILE**

### **5.1 Overview of Site Project Prioritization and Cost Profile**

The site prioritization process takes into account:

- Health and safety concerns
- The ability to comply with state and federal regulations
- Operational needs of the site to perform assigned mission
- Environment requirements as they apply to the site

Using the above criteria, MOC Operations, in consultation with CBFO representatives, will determine the appropriate priority to assign each project (see Attachment A). This will support the EM goal of reducing deferred maintenance items, while maintaining the material condition of the site as good to excellent. The system upgrades will ensure that the facility will maintain the material condition of excellent.

### **5.2 Significant Project Deletions and Additions**

Significant Project Deletions and Additions from the previous TYSP include the following:

- American Recovery and Reinvestment Act (ARRA) funding provided for an additional trailer to house security and procurement personnel
- ARRA funding provided to refurbish the south access road

In Attachment A-3, asterisks indicate changes in priority from the previous TYSP.

### **5.3 Facilities and Infrastructure Cost Projection Spreadsheets**

See the Cost Projection Spreadsheets included as Attachments A and F.

## **6.0 REFERENCES**

President's Management Agenda, Federal Real Property Asset Management Initiative  
President's Budget – Fiscal Year 2008 – 2012 Program and Fiscal Guidance

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
DOE/WIPP-04-3327, Rev. 5

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Executive Order 13327, *Federal Real Property Asset Management*, February 4, 2007

Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, January 26, 2007

Public Law 102-579, *WIPP Land Withdrawal Act of 1992* (106 Stat. 4777), as amended by Public Law 104-201, 100 Stat. 2422 (1966)

Public Law 108-137, *Energy and Water Development Appropriations Act for Fiscal Year 2004*

42 U.S.C. §§4321-4345. *National Environmental Policy Act. United States Code.* U.S. Government Printing Office, Washington, D.C.

10 CFR Part 830, Subpart B, "Safety Basis Requirements." *Code of Federal Regulations.* Office of the Federal Register, National Archives and Records Administration, Washington, D.C.

40 CFR Part 191, "Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Wastes." *Code of Federal Regulations.* Office of the Federal Register, National Archives and Records Administration, Washington, D.C.

40 CFR Part 194, "Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations." *Code of Federal Regulations.* Office of the Federal Register, National Archives and Records Administration, Washington, D.C.

40 CFR Parts 300-372, *Comprehensive Environmental Response, Compensation, and Liability Act*

DOE Guide 450.4-1B, *Integrated Safety Management System Guide for Use with Safety Management System Policies*

DOE Guide 454.1-1, *Institutional Controls Implementation Guide for Use with DOE P 454.1, Use of Institutional Controls*

DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*

DOE Order 430.1B, Change 1, *Real Property Asset Management*

DOE Order 430.P, *Land and Facility Use Planning*

DOE Order 430.2B, *Departmental Energy, Renewable Energy and Transportation Management*

DOE Order 470.4A, *Safeguards and Security Program*

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
DOE/WIPP-04-3327, Rev. 5

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DOE Order 481.1C, *Work for Others (Non-Department of Energy Funded Work)*

DOE Order 482.1, *DOE Facilities Technology Partnering Programs*

DOE Order 483.1, *DOE Cooperative Research and Development Agreements*

DOE Order 484.1, *Reimbursable Work for Department of Homeland Security*

DOE Order 450.1A, *Environmental Protection Program*

DOE Policy 430.1, *Land and Facility Use Planning*

DOE Life-Cycle Asset Management Good Practice Guide, GPG-FM-030, *Prioritization*,  
March 1996

DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for  
Compliance with DOE Order 5480.23*, Nuclear Safety Analysis Reports

DOE-STD-1073-2003, *Configuration Management*

DOE Strategic Plan (2006)

DOE EM Planning Guidance (June 2004)

DOE EM Five-Year Plan (March 2006)

DOE EM Engineering and Technology Program Plan (2007 Draft Pre-decisional)

Hazardous Waste Facility Permit No. NM4890139088-TSDF, issued by the New Mexico  
Environment Department on October 27, 1999 (as amended)

DOE/WIPP-93-004, *Waste Isolation Pilot Plant Land Management Plan*

DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*

DOE/WIPP-07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*

Fiscal Year 2008-2012 Program and Fiscal Guidance

Attachments A-1 Through A-4 - Cost Projection Spreadsheets and Instructions

**Attachments A-1 Through A-4  
Facilities and Infrastructure  
Cost Projection Spreadsheets**

**OVERVIEW**

The Facilities and Infrastructure Cost Projection Spreadsheets provide prioritized lists of the site's projected EM facilities and infrastructure projects/activities and burdened costs for FY 2010 - FY 2020 and actual costs for FY 2009.

The site's prioritization process baseline for facility and infrastructure projects ties to the priorities established in the EM life-cycle baseline. Projects are prioritized to provide the most beneficial infrastructure revitalization opportunities consistent with EM mission requirements.

Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2011 – FY 2020)  
 DOE/WIPP-04-3327, Rev. 5

Attachment A-1 – EM Facilities and Infrastructure Cost Projection Spreadsheet - Line Item Projects

**Attachment A-1 – EM Facilities and Infrastructure Cost Projection Spreadsheet - Line Item Projects**  
 (\$000s)

* Denotes Change From Prior Year TYS	Priority (1)	Project Name (2)	Project Number (3)	Deferred Maintenance & Identifier (3a)	Mission Dependency (4)	Mission Dependency Program (4a)	Deferred Maintenance Reduction (5)	GSF Added or Eliminated (6)	Funding Type (7)	Total (8)	Prior Year Funding (Actual) FY 2006 - 2008 (9)	PY 2009 (10)	CY FY 2010 (11)	BY 01 FY 2011 (12)	BY 02 FY 2012 (13)	BY 03 FY 2013 (14)	BY 04 FY 2014 (15)	BY 05 FY 2015 (16)	BY 06 FY 2016 (17)	BY 07 FY 2017 (18)	BY 08 FY 2018 (19)	BY 09 FY 2019 (20)	BY10 FY 2020 (21)
		N/A							LI														
		N/A							PE&D														
		N/A							OPC														
		N/A							ARRA														
		N/A							Total (TPC)		0	0	0	0	0	0	0	0	0	0	0	0	0

There are no existing or planned line items for the WIPP Project.

Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2011 – FY 2020)  
 DOE/WIPP-04-3327, Rev. 5

Attachment A-2 – EM Facilities and Infrastructure Cost Projection Spreadsheet - Line Item (Proposed) Projects

**Attachment A-2 – EM Facilities and Infrastructure Cost Projection Spreadsheet - Line Item (Proposed) Projects**  
 (\$000s)

* Denotes Change From Prior Year TYSP	Priority (1)	Project Name (2)	Project Number (3)	Deferred Maintenance & Identifier (3a)	Mission Dependency (4)	Mission Dependency Program (4a)	Deferred Maintenance Reduction (5)	GSF Added or Eliminated (6)	Funding Type (7)	Total (8)	Prior Year Funding (Actual) FY 2006 - 2008 (9)	PY 2009 (10)	CY FY 2010 (11)	BY 01 FY 2011 (12)	BY 02 FY 2012 (13)	BY 03 FY 2013 (14)	BY 04 FY 2014 (15)	BY 05 FY 2015 (16)	BY 06 FY 2016 (17)	BY 07 FY 2017 (18)	BY 08 FY 2018 (19)	BY 09 FY 2019 (20)	BY10 FY 2020 (21)
			N/A						LI	0													
			N/A						PE&D	0													
			N/A						OPC	0													
									ARRA														
			N/A						<b>Total (TPC)</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0

There are no existing or planned line items for the WIPP Project.

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
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Attachment A-3 – EM Facilities and Infrastructure Cost Projection Spreadsheet – Operating Facilities

**Attachment A-3 – EM Facilities and Infrastructure Cost Projection Spreadsheet - Operating Facilities  
(\$000s)**

* Denotes Change From Prior Year TYSP	Priority (1)	Project Name (2)	Project Number (3)	Deferred Maintenance & Identifier (3a)	Mission Dependency (4)	Mission Dependency Program (4a)	Deferred Maintenance Reduction (5)	GSF Added or Eliminated (6)	Funding Type (7)	Total (8)	Prior Year Funding (Actual) FY 2006 - 2008 (9)	PY 2010 (10)	CY FY 2011 (11)	BY 01 FY 2012 (12)	BY 02 FY 2013 (13)	BY 03 FY 2014 (14)	BY 04 FY 2015 (15)	BY 05 FY 2016 (16)	BY 06 FY 2017 (17)	BY 07 FY 2018 (18)	BY 08 FY 2019 (19)	BY 09 FY 2020 (20)	BY 10 FY 2021 (21)
<b>Institutional General Plant Projects (IGPP)</b>																							
	1	Hoist Control Upgrades	1260704		MC		560	0	OPC	1,440.00	-	560		1,440	-	-	-	-	-	-	-	-	-
	2	Resurface North Access road	1220118		NMD		0	0	OPC	3,018.00	-	-		-	3,018	-	-	-	-	-	-	-	-
	3	Fire Water Extension and Repair	1220199		MC		0	0	OPC	343.00	-	-		-	343	-	-	-	-	-	-	-	-
	4	Replace 38P-MCC04-2	1220222		NMD		0	0	OPC	137.00	-	-		-	137	-	-	-	-	-	-	-	-
	5	Replace 45P-MCC04-2	1220227		NMD		0	0	OPC	137.00	-	-		-	137	-	-	-	-	-	-	-	-
	6	Skylights in Bld. 481	1220164		NMD		110	0	OPC	110.00	-	110		-	-	-	-	-	-	-	-	-	-
	7	Refurbish Bld. 486	1220188		NMD		0	0	OPC	143.00	-	-		143	-	-	-	-	-	-	-	-	-
	8	Replace 45P-MCC04-3	1220228		NMD		0	0	OPC	137.00	-	-		137	-	-	-	-	-	-	-	-	-
	9	Replace 45P-MCC04-4	1220229		NMD		0	0	OPC	137.00	-	-		137	-	-	-	-	-	-	-	-	-
	10	Refurbish Bld. 456	1220190		NMD		0	0	OPC	70.00	-	-		-	70.00	-	-	-	-	-	-	-	-
	11	Bld. 413 exhaust and AHU replacement	1220191		NMD		0	0	OPC	123.00	-	-		-	123.00	-	-	-	-	-	-	-	-
	12	Replace 45P-MCC04/5	1220230		NMD		0	0	OPC	137.00	-	-		-	137.00	-	-	-	-	-	-	-	-
	13	Replace 41P-MCC04-1	1220223		NMD		0	0	OPC	137.00	-	-		-	-	137.00	-	-	-	-	-	-	-
	14	Replace 41P-MCC04-2	1220224		NMD		0	0	OPC	137.00	-	-		-	-	137.00	-	-	-	-	-	-	-
	15	Upgrade Bld 411 CH Bay Lighting	1220235		NMD		0	0	OPC	44.00	-	-		-	-	40.00	-	-	-	-	-	-	-
	16	Replace 41P-MCC04-5	1220225		NMD		0	0	OPC	137.00	-	-		-	-	-	137.00	-	-	-	-	-	-
	17	Replace 41P-MCC04-6	1220226		NMD		0	0	OPC	137.00	-	-		-	-	-	-	137.00	-	-	-	-	-
	18	Replace 45P-MCC04/1	1220237		NMD		0	0	OPC	137.00	-	-		-	-	-	-	-	137.00	-	-	-	-
									Total	6,661.00	-	670.00	5,185.00	417.00	330.00	314.00	137.00	137.00	137.00	-	-	-	-
<b>General Plant Projects (GPP)</b>																							
										-													
										-													
									Total	-													

Projects and dollars taken from Re-baseline planning for FY09-53 FY08 Constant Year Dollars Sept. 2008

Waste Isolation Pilot Plant  
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Attachment A-4 – Non-EM Facilities and Infrastructure Cost Projection Spreadsheet

**Attachment A-4 – Non-EM Facilities and Infrastructure Cost Projection Spreadsheet  
 (\$000s)**

* Denotes Change From Prior Year TYSP	Priority (1)	Project Name (2)	Project Number (3)	Deferred Maintenance & Identifier (3a)	Mission Dependency (4)	Mission Dependency Program (4a)	Deferred Maintenance Reduction (5)	GSF Added or Eliminated (6)	Funding Type (7)	Total (8)	Prior Year Funding (Actual) FY 2006 - 2008 (9)	PY 2009 (10)	CY FY 2010 (11)	BY 01 FY 2011 (12)	BY 02 FY 2012 (13)	BY 03 FY 2013 (14)	BY 04 FY 2014 (15)	BY 05 FY 2015 (16)	BY 06 FY 2016 (17)	BY 07 FY 2017 (18)	BY 08 FY 2018 (19)	BY 09 FY 2019 (20)	BY10 FY 2020 (21)
<b>EM Facilities and Infrastructure Cost Projection Spreadsheet (IGPP)</b>																							
		N/A																					
		N/A																					
		N/A																					
		N/A																					
<b>EM Facilities and Infrastructure Cost Projection Spreadsheet (GPP)</b>																							
		N/A																					
		N/A																					
		N/A																					
		N/A																					

There is no non-EM construction scheduled for the WIPP site.

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 Ten-Year Site Plan (FY 2011 – FY 2020)  
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Attachment B – Site's Asset Utilization Index

**Attachment B – Site's Asset Utilization Index**  
 (taken from FIMS Database Report #093)

#	PGRM	Property Type (FIMS: Measures)	AUI**	FRPC Guidelines	OECM Guidelines	Operating Gross Square Foot (GSF)*	Operating No. of Bldgs**
1	EM	Office	100.00%	70-95%	95%	97,563	6
2	EM	Laboratory	0.00%	60-85%	90%	0	0
3	EM	Warehouse	100.00%	50-85%	89%	42,128	19
4	EM	All other Categories	100.00%	N/A	N/A	194,130	25
					<b>Site Totals*</b>	<b>333,821</b>	
					<b>EM Program Totals*</b>	<b>333,821</b>	

\*These numbers do not reflect the total gross square footage and number of buildings. They represent operating buildings only.

\*\*Sitewide AUI includes all DOE Owned Building assets.

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**U. S. Department of Energy  
 Facilities Information Management System  
 Asset Utilization Index by FRPC Categories**

Program Office:   
 Site:

Site Wide AUI: **100.00%** \*\*

Measures	AUI	FRPC Guidelines	OECM Guidelines	Operating Gross Sqft*	Operating No of Bldgs*
Office	100.00%	70 - 95%	95%	97,563	6
Laboratory	0.00%	60 - 85%	90%	0	0
Warehouse	100.00%	50 - 85%	89%	42,128	19
All Other Categories	100.00%	N/A	N/A	194,130	25
<b>Waste Isolation Pilot Plant Site Totals*</b>				<b>333,821</b>	<b>50</b>
<b>EM Program Totals*</b>				<b>333,821</b>	<b>50</b>

\* These numbers do not reflect the total gross square footage and number of buildings. They represent operating buildings only.  
 \*\* Site Wide AUI includes all DOE Owned Building assets

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2010 – 2020)  
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Attachment C-1 – EM Total Deferred Maintenance and Facilities Condition Index

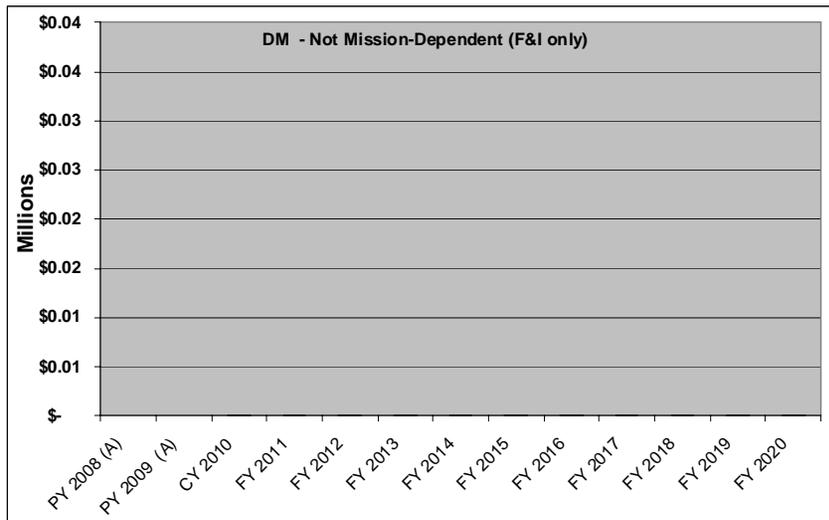
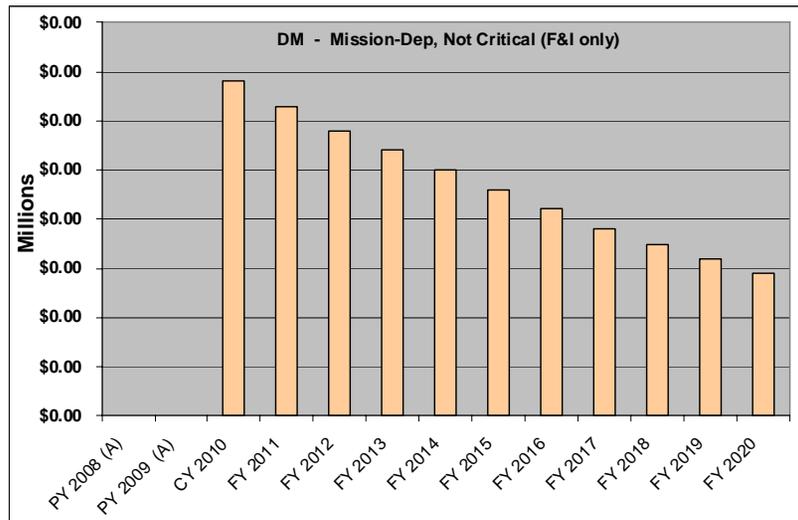
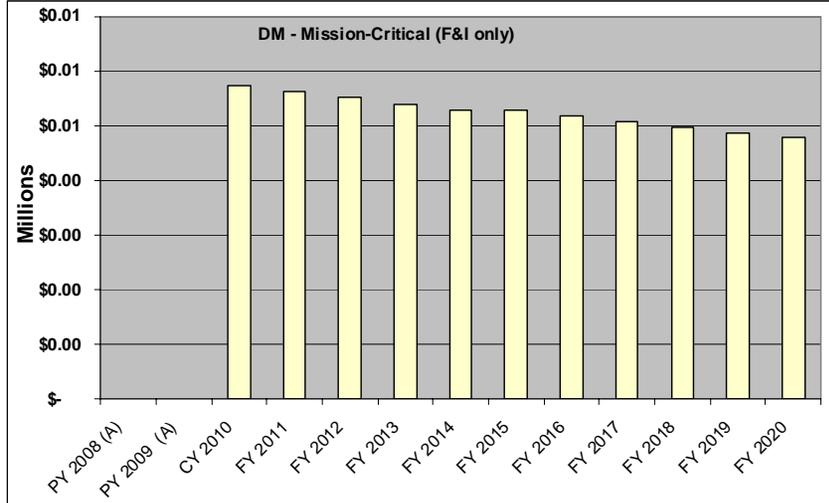
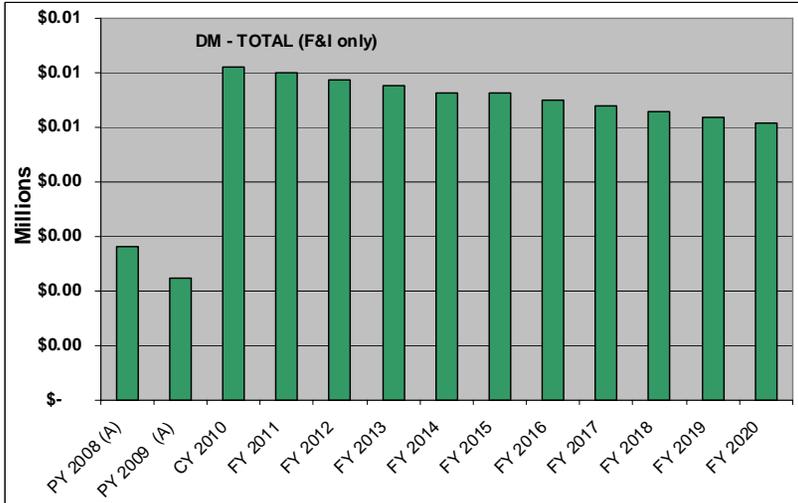
**Attachment C-1 – EM Total Deferred Maintenance and Facilities Condition Index**

(\$000s)

Category of Maintenance		PY 2006 (A)	PY 2007 (A)	PY 2008 (A)	PY 2009 8(A)	CY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
<b>REQUIRED MAINTENANCE</b>																
(1)	<b>ANNUAL REQUIRED MAINTENANCE TOTAL</b>	10,334	11,089	10,459	16,189	14,483	14,465	15,291	16,848	13,198	13,511	13,991	14,489	15,004	16,245	
<b>PLANNED MAINTENANCE</b>																
(2a)	a. Annual Direct	10,334	11,089	10,459	16,189	14,483	14,465	15,291	16,848	13,198	13,511	13,991	14,489	15,004	16,245	30,000
(2b)	b. Annual Indirect	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,000
(2)	<b>ANNUAL PLANNED MAINTENANCE TOTAL</b>	10,334	11,089	10,459	0	14,483	14,465	15,291	16,848	13,198	13,511	13,991	14,489	15,004	16,245	44,000
<b>TOTAL DEFERRED MAINTENANCE</b>																
(3a)	i. Backlog Inflation Rate (%)			2.6%	2.6%	4.0%	2.8%	2.5%	2.6%	2.6%	2.5%	2.4%	2.9%	2.6%	2.6%	2.6%
(3b)	ii. DM Inflation			76	73	89	171	150	153	149	141	135	160	140	138	135
(3c)	iii. DM NEW															-
(3d)	iv. DM REDUCTION TOT (from row (5) below)			-	110	121	119	116	114	111	111	109	106	105	103	100
(3)	<b>DEFERRED MAINTENANCE (DM) - TOTAL</b>	3,749	2,904	2,815	2,236	6,109	5,988	5,869	5,747	5,633	5,622	5,511	5,402	5,296	5,191	5,088
<b>DEFERRED MAINTENANCE BY MISSION DEP</b>																
(4a)	DM - Mission-Critical (F&I only)				0	5,742	5,628	5,516	5,400	5,292	5,287	5,182	5,079	4,978	4,878	4,780
(4b)	DM - Mission-Dependent, Not Critical (F&I only)				0	278	273	268	264	260	256	252	248	245	242	239
(4c)	DM - Not Mission-Dependent (F&I only)				0	89	87	85	83	81	79	77	75	73	71	69
(4)	<b>TOTAL DM</b>			0	0	6,109	5,988	5,869	5,747	5,633	5,622	5,511	5,402	5,296	5,191	5,088
<b>DEFERRED MAINTENANCE REDUCTION</b>																
(5a)	A. Reduction in DM, Mission-Critical F&I ONLY				0	114	112	110	108	105	105	103	101	100	98	95
(5b)	B. Reduction in DM, Mission-Dependent, Not Critical F&I ONLY			0	110	5	5	4	4	4	4	4	3	3	3	3
(5c)	C. Reduction in DM, Not Mission-Dependent F&I ONLY				0	2	2	2	2	2	2	2	2	2	2	2
(5)	<b>DEFERRED MAINTENANCE (DM) REDUCTION TOTAL</b>	1,072	885	885	110	121	119	116	114	111	111	109	105	105	103	100
<b>REPLACEMENT PLANT VALUE (RPV)</b>																
(6a)	RPV - Mission-Critical (F&I only)	120,127	123,250	126,455	123,939	123,939	123,939	123,939	123,939	123,939	123,939	123,939	123,939	123,939	123,939	123,939
(6b)	RPV - Mission-Dependent, Not Critical (F&I only)	12,308	12,628	12,956	17,974	17,974	17,974	17,974	17,974	17,974	17,974	17,974	17,974	17,974	17,974	17,974
(6c)	RPV - Not Mission-Dependent (F&I only)	2,165	2,221	2,279	3,275	3,275	3,275	3,275	3,275	3,275	3,275	3,275	3,275	3,275	3,275	3,275
(6)	<b>TOTAL RPV</b>	134,600	138,099	141,690	145,188	145,188	145,188	145,188	145,188	145,188	145,188	145,188	145,188	145,188	145,188	145,188
(4d)	RPV - Increase from prior year attributed to inflation			37,749	37,749	58,075	40,653	36,297	37,749	37,749	36,297	34,845	42,105	37,749	37,749	37,749
(4e)	RPV Increase/decrease attributed to causes other than inflation (provide separate supporting narrative behind this exhibit)															
<b>FCI Analysis</b>																
		PY 2004 (A)	PY 2005 (A)	PY 2006 (A)	PY 2007 (A)	CY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
	<b>FCI TOTAL</b>			2.0%	1.5%	4.2%	4.1%	4.0%	4.0%	3.9%	3.9%	3.8%	3.7%	3.6%	3.6%	3.5%
	<b>FCI Mission Critical</b>			0.0%	0.0%	4.6%	4.6%	4.5%	4.4%	4.3%	4.3%	4.2%	4.1%	4.0%	3.9%	3.9%
	<b>FCI Mission Dependent, Not Critical</b>			0.0%	0.0%	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%
	<b>FCI Not Mission Dependent</b>			0.0%	0.0%	2.7%	2.7%	2.6%	2.5%	2.5%	2.4%	2.4%	2.3%	2.2%	2.2%	2.1%
Footnotes																

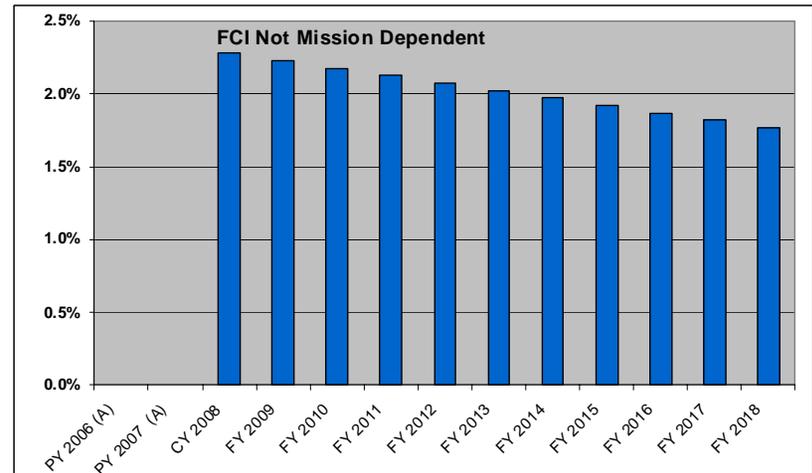
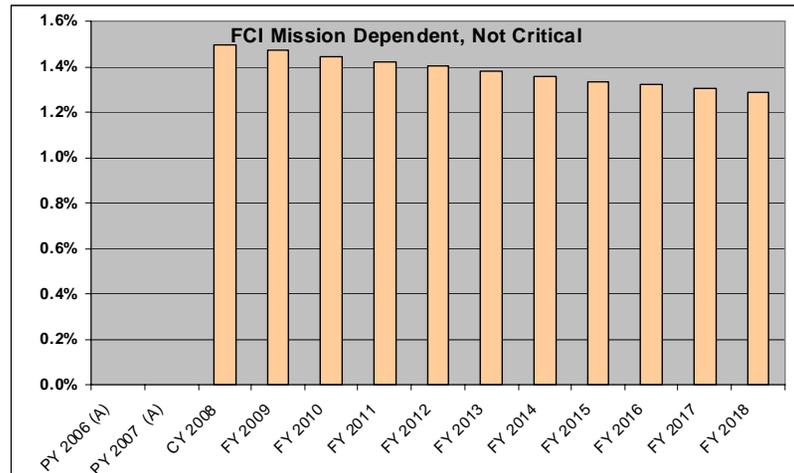
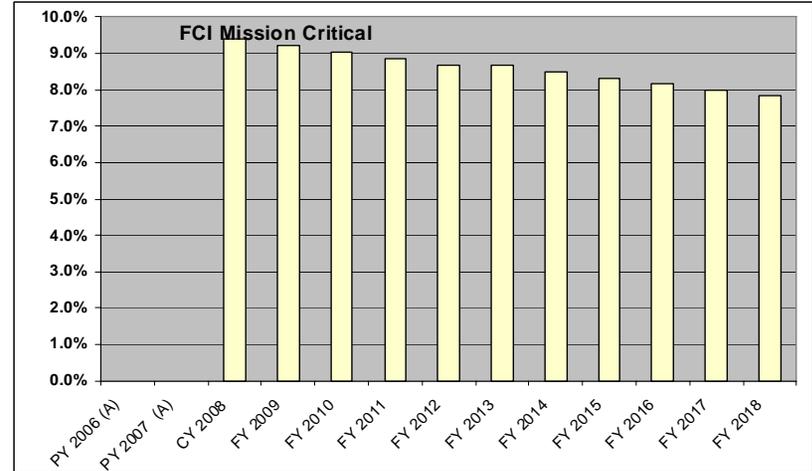
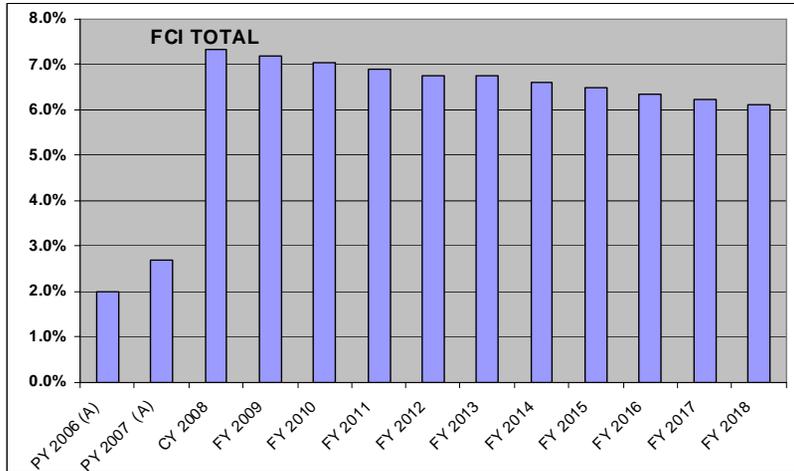
Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2010 – 2020)  
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Attachment C-2 – EM Total Deferred Maintenance and Facilities Condition Index



Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2010 – 2020)  
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Attachment C-3 – EM Total Deferred Maintenance and Facilities Condition Index



Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
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## Attachment D - FY 2008 List of Site's Mission-Critical Facilities and Infrastructure

**Attachment D – FY 2010 List of Site's Mission Critical Facilities and Infrastructure**

(taken from FIMS Database Report #092)

#	Property ID (FIMS)	Mission Dependency	Building RPV	Deferred Maintenance	Summary Condition	MD Program Office	Gross Square Ft	Utilization %
1	254.1	Mission Critical	\$63,581.00	\$521.00	Excellent	WIPP	229	100%
2	254.3	Mission Critical	\$108,837.00	\$546.00	Excellent	WIPP	392	100%
3	254.4	Mission Critical	\$72,743.00	\$91.00	Excellent	WIPP	262	100%
4	254.7	Mission Critical	\$97,176.00	\$124.00	Excellent	WIPP	350	100%
5	474A	Mission Critical	\$64,010.00	\$92.00	Excellent	WIPP	202	100%
6	474B	Mission Critical	\$48,800.00	\$32.00	Excellent	WIPP	154	100%
7	474C	Mission Critical	\$76,336.00	\$279.00	Excellent	WIPP	900	100%
8	474E	Mission Critical	\$48,346.00	\$0.00	Excellent	WIPP	570	100%
9	C010739	Mission Critical	\$6,943,138.00	\$27,944.00	Excellent	WIPP	45,632	100%
10	C011297	Mission Critical	\$3,330,922.00	\$26,542.00	Excellent	WIPP	11,997	100%
11	C011298001	Mission Critical	\$99,470.00	\$0.00	Excellent	WIPP	360	100%
12	C011298002	Mission Critical	\$61,063.00	\$307.00	Excellent	WIPP	221	100%
13	C011298004	Mission Critical	\$109,492.00	\$0.00	Excellent	WIPP	136	100%
14	C011298006	Mission Critical	\$109,492.00	\$0.00	Excellent	WIPP	136	100%
15	C011310	Mission Critical	\$34,340,238.00	\$207,172.00	Excellent	WIPP	154,882	100%
16	C015481	Mission Critical	\$249,919.00	\$0.00	Excellent	WIPP	402	100%
17	C015482	Mission Critical	\$192,196.00	\$1,253.00	Excellent	WIPP	780	100%
18	C016393	Mission Critical	\$186,507.00	\$419.00	Excellent	WIPP	300	100%
19	C016410	Mission Critical	\$1,108,822.00	\$1,073,202.00	Fair	WIPP	4,500	100%
20	CO11303	Mission Critical	\$1,311,074.00	\$166,511.00	Fair	WIPP	1,747	100%
21	254.2	Mission Critical	\$78,019.00	\$1,646.00	Good	WIPP	281	100%
22	C011298	Mission Critical	\$1,661,754.00	\$58,557.00	Good	WIPP	6,744	100%

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
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## Attachment D - FY 2008 List of Site's Mission-Critical Facilities and Infrastructure

**Attachment D – FY 2010 List of Site's Mission Critical Facilities and Infrastructure**  
(taken from FIMS Database Report #092)

#	Property ID (FIMS)	Mission Dependency	Building RPV	Deferred Maintenance	Summary Condition	MD Program Office	Gross Square Ft	Utilization %
23	C011301	Mission Critical	\$1,907,604.00	\$51,371.00	Good	WIPP	11,088	100%
24	CO15629	Mission Critical	\$2,760,092.00	\$109,223.00	Good	WIPP	18,140	100%
25	CO16398	Mission Critical	\$19,712.00	\$701.00	Good	WIPP	80	100%
26	254.5	Mission Dependent, Not Critical	\$21,101.00	\$1,197.00	Adequate	WIPP	76	100%
27	C010591	Mission Dependent, Not Critical	\$1,085,500.00	\$70,673.00	Adequate	WIPP	12798	100%
28	254.8	Mission Dependent, Not Critical	\$112,169.00	\$1,664.00	Excellent	WIPP	404	100%
29	254.9	Mission Dependent, Not Critical	\$51,087.00	\$462.00	Excellent	WIPP	184	100%
30	255.1	Mission Dependent, Not Critical	\$61,601.00	\$100.00	Excellent	WIPP	250	100%
31	255.2	Mission Dependent, Not Critical	\$61,601.00	\$593.00	Excellent	WIPP	250	100%
32	C010381	Mission Dependent, Not Critical	\$35,367.00	\$0.00	Excellent	WIPP	128	100%
33	C010612	Mission Dependent, Not Critical	\$1,665,878.00	\$0.00	Excellent	WIPP	6,000	100%
34	C011274	Mission Dependent, Not Critical	\$127,039.52	\$1,378.00	Excellent	WIPP	800	100%
35	C011296	Mission Dependent, Not Critical	\$46,696.00	\$175.00	Excellent	WIPP	169	100%
36	C011311	Mission Dependent, Not Critical	\$37,805.00	\$564.00	Excellent	WIPP	240	100%
37	C011919	Mission Dependent, Not Critical	\$354,823.00	\$2,308.00	Excellent	WIPP	1,440	100%
38	C014151	Mission Dependent, Not Critical	\$1,577,239.00	\$7,031.00	Excellent	WIPP	10,366	100%
39	C015626	Mission Dependent, Not Critical	\$2,529,577.00	\$6,125.00	Excellent	WIPP	16,625	100%
40	C016412	Mission Dependent, Not Critical	\$27,630.00	\$104.00	Excellent	WIPP	100	100%
41	C016413	Mission Dependent, Not Critical	\$295,686.00	\$154.00	Excellent	WIPP	1,200	100%
42	C016414	Mission Dependent, Not Critical	\$178,644.00	\$0.00	Excellent	WIPP	725	100%
43	CO19758	Mission Dependent, Not Critical	\$1,051,742.00	\$203.00	Excellent	WIPP	12,400	100%
44	253	Mission Dependent, Not Critical	\$251,270.00	\$7,636.00	Good	WIPP	905	100%

Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2011 – FY 2020)  
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Attachment D - FY 2008 List of Site's Mission-Critical Facilities and Infrastructure

**Attachment D – FY 2010 List of Site's Mission Critical Facilities and Infrastructure**  
 (taken from FIMS Database Report #092)

#	Property ID (FIMS)	Mission Dependency	Building RPV	Deferred Maintenance	Summary Condition	MD Program Office	Gross Square Ft	Utilization %
45	254.6	Mission Dependent, Not Critical	\$76,353.00	\$2,407.00	Good	WIPP	275	100%
46	C011308	Mission Dependent, Not Critical	\$82,580.00	\$2,085.00	Good	WIPP	480480	100%
47	C016397	Mission Dependent, Not Critical	\$199,978.00	\$7,268.00	Good	WIPP	1,200	100%
48	S018956003	Mission Dependent, Not Critical	\$38,709.00	\$2,149.00	Excellent	WIPP	225	100%
49	CO10601	Mission Dependent, Not Critical	\$912,930.00	\$38,813.00	Excellent	WIPP	6,000	100%
50	477	Not Mission Dependent	\$26,525.00	\$0.00	Excellent	WIPP	96	100%

<b>Mission Critical Totals</b>	\$55,049,343.00	\$1,726,533.00
<b>Site Totals</b>	\$10,909,530.52	\$153,089.00
<b>EM Program Totals</b>	\$65,958,873.52	\$1,879,622.00

260,485
338,721
338,721

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Attachment E-1 – Facilities Disposition Plan

**Attachment E-1 – Facilities Disposition Plan**

*Denotes Change From Previous Year TYSP	Fiscal Year	Funding Source (1)	Facility Identification Number (FIMS) (2)	Facility Name (2a)	Mission Dependency (3)	Gross Square Footage (gsf) (4)	FIMS Excess Indicator (5)	FIMS D&D Status Code (6)	Excess Year (6a)	Planned Disposition Year (7)	Replacement Plant Value (\$000) (8)	Total Estimated Cost (TEC) to Disposition (\$000s) (9)	FY03 DM Baseline Reduction (10)	Annual S&M Costs (11)	Candidate for Transfer - Program Name (12)	Contaminated Facility (Y or N) (13)	Notes (14)
<b>FY 2008 Total</b>						0					0	0	0	0			
	2009	EM	SO16217	Radiochemistry Trailer	NMD	560	DOE		2007		213,532	42	560	2	NO	NO	
<b>FY 2009 Total</b>						560					213,532	42	560	2			
<b>FY 2010 Total</b>						0					0	0	0	0			
<b>Total</b>						560					213,532	42	560	2			

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Attachment E-2 – New Construction Footprint Added

**Attachment E-2 – New Construction Footprint Added**

*Denotes Change from Previous Year TYSP	Fiscal Year	Funding Source Program Name (1)	Project Number (2)	Facility Name (3)	Funding Type (LI, GPP, IGPP) (4)	Project Area (GSF) (5)	Year of Beneficial Occupancy (6)	LEED Certification (7)	Notes (8)
	2006								
	2007								
	2008								
	2009								
*	2010	EM	N/A	Trailer 953	ARRA	3,572	2010	N/A	Project funded through American Resource and Recovery Act
	2011								
	2012								
	2013								
	2014								
	2015								
	2016								
	2017								
	2018								
	2019								
	2020								
	<b>Total</b>					3,572			

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Attachment E-3 – Grandfathered Footprint Added

**Attachment E-3 – Grandfathered Footprint Added**

*Denotes Change From Previous Year TYSP	Funding Source Program Name (1)	Project Number (2)	Facility Name (3)	Funding Type (LI, GPP, IGPP) (4)	Project Area (GSF) (5)	Year of Beneficial Occupancy (6)	Notes (7)
*	EM	N/A	Trailer 953	See note	3,572	2010	Project funded through American Resource and Recovery Act
Total					3,572		

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Attachment E-4(a) – Footprint Summary Spreadsheet

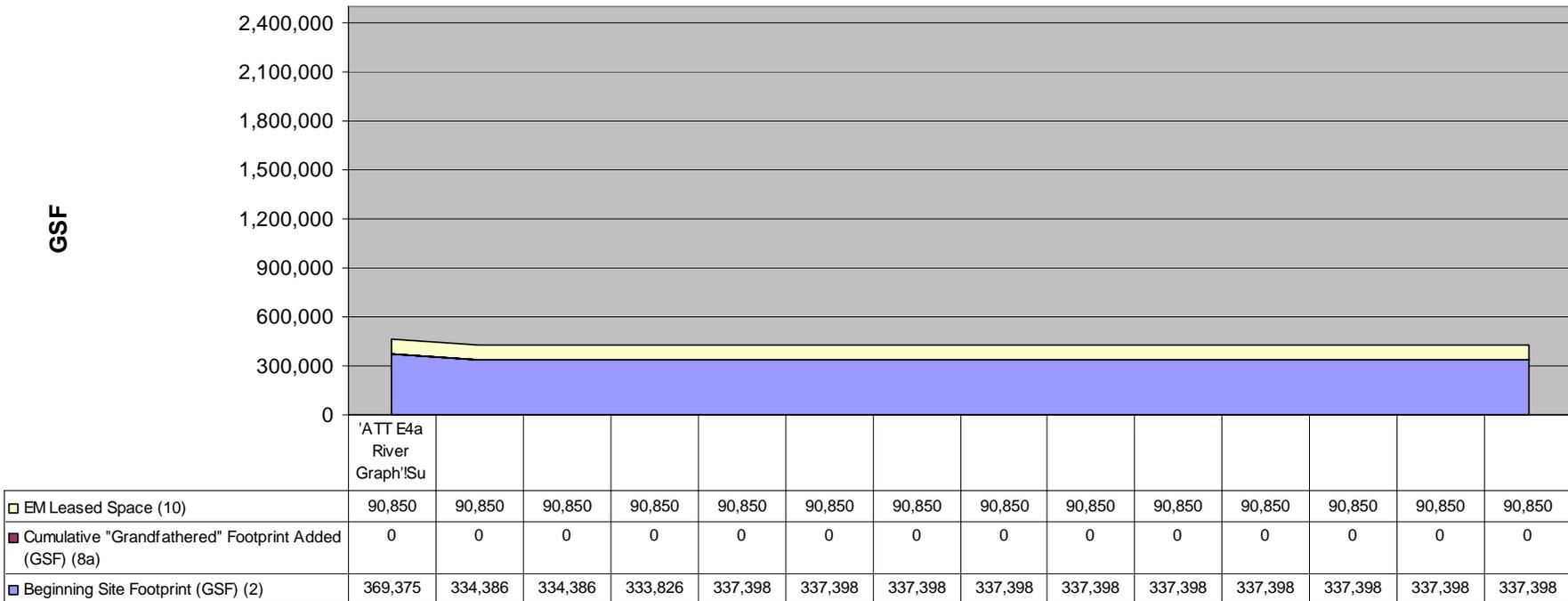
**Attachment E-4(a) – Footprint Summary Spreadsheet**

Fiscal Year (1)	Beginning Site Footprint (gsf) (2)	Excess Facilities Footprint Elimination (gsf) (3)	New Construction/ Footprint Added (gsf) (4)	Site Footprint Reduction by FY (gsf) (5)	Footprint "Banked" (gsf) (6)	Waiver/ Transfer (gsf) (7)	"Grandfathered" Footprint Added (gsf) (8)	Cumulative "Grandfathered" Footprint A99888888888dd ed (gsf) (8a)	EM Site Total Footprint (gsf) (9)	EM Leased Space (10)
PY 2007 (A)	369,375	34,989	0	334,386	34,989	0	0	0	334,386	90,850
PY 2008 (A)	334,386	0	0	334,386	34,989	0	0	0	334,386	90,850
PY 2009 (A)	334,386	560	0	333,826	35,549	0	0	0	333,826	90,850
CY 2010	333,826	0	3,572	337,398	31,977	0	0	0	337,398	90,850
FY 2011	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2012	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2013	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2014	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2015	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2016	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2017	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2018	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2019	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850
FY 2020	333,826	0	0	337,398	31,977	0	0	0	337,398	90,850

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Attachment E-4(a) – Footprint Summary Spreadsheet

**Attachment E-4(a)**  
**Footprint Summary River Graph - EM**



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Attachment E-4(b) – Footprint Tracking Summary Spreadsheet

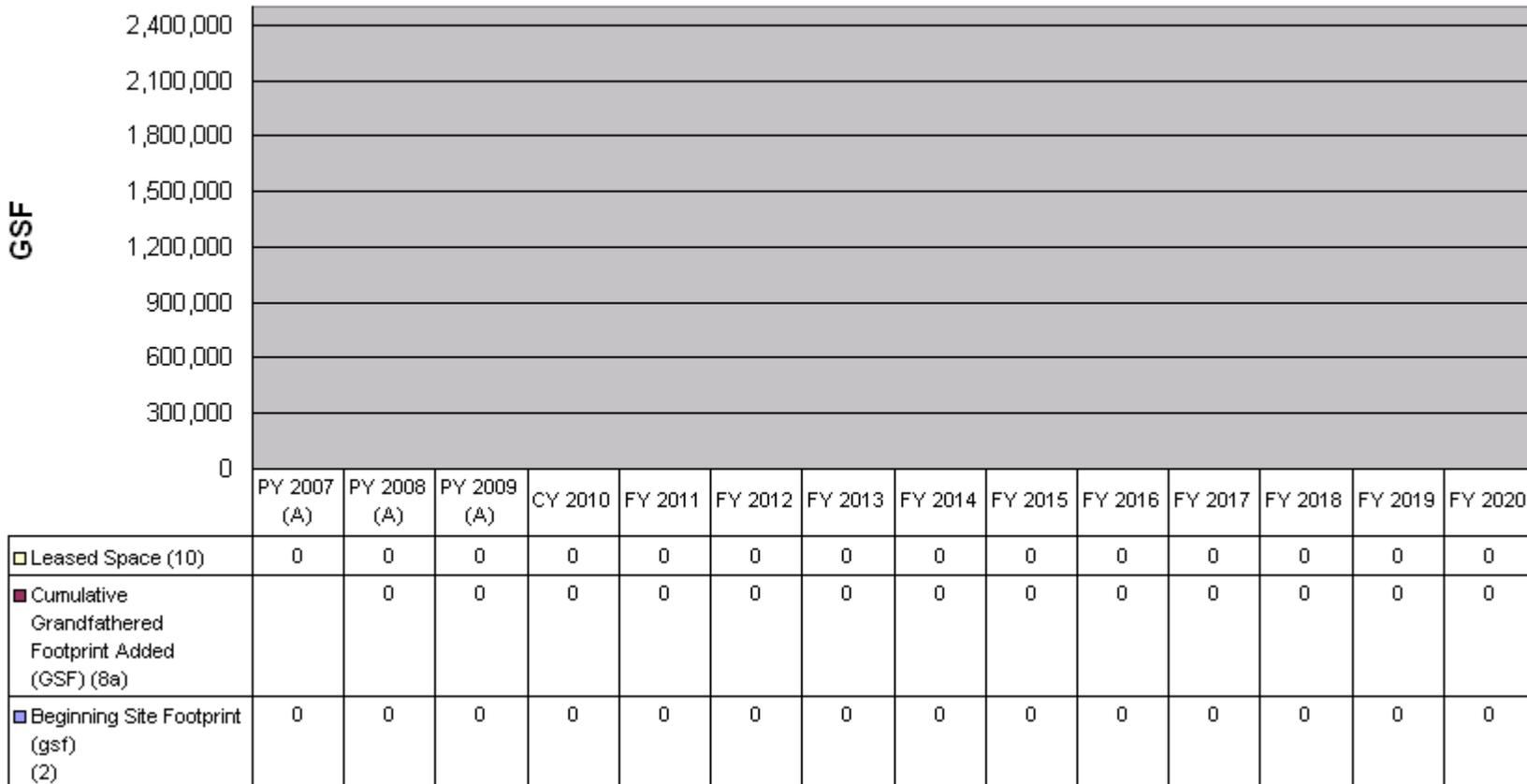
**Attachment E-4(b) – Footprint Tracking Summary Spreadsheet**  
**Footprint Tracking Summary - Sitewide (Multi-Program)**

Fiscal Year (1)	Beginning Site Footprint (gsf) (2)	Excess Facilities Footprint Elimination (gsf) (3)	New Construction Footprint Added (gsf) (4)	Site Footprint Reduction by FY (5)	Footprint "Banked" (gsf) (6)	Waiver/Transfer (gsf) (7)	"Grandfathered" Footprint Added (gsf) (8)	Cumulative Grandfathered Footprint Added (gsf) (8a)	Site Total Footprint (Multi-Program) (gsf) (9)	Leased Space (10)
PY 2007 (A)	0	0	0	0	0	0	0	0	0	0
PY 2008 (A)	0	0	0	0	0	0	0	0	0	0
PY 2009 (A)	0	0	0	0	0	0	0	0	0	0
CY 2010	0	0	0	0	0	0	0	0	0	0
FY 2011	0	0	0	0	0	0	0	0	0	0
FY 2012	0	0	0	0	0	0	0	0	0	0
FY 2013	0	0	0	0	0	0	0	0	0	0
FY 2014	0	0	0	0	0	0	0	0	0	0
FY 2015	0	0	0	0	0	0	0	0	0	0
FY 2016	0	0	0	0	0	0	0	0	0	0
FY 2017	0	0	0	0	0	0	0	0	0	0
FY 2018	0	0	0	0	0	0	0	0	0	0
FY 2019	0	0	0	0	0	0	0	0	0	0
FY 2020	0	0	0	0	0	0	0	0	0	0

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Attachment E-4(b) – Footprint Tracking Summary Spreadsheet

**Attachment E-4(b)**  
**Sitewide Footprint Tracking Summary - SITEWIDE (Multi-Program)**



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Attachment E-5 – EM Waiver/Transfer Log (Space Added or Eliminated)

**Attachment E-5 – EM Waiver/Transfer Log (Space Added or Eliminated)**

*Denotes change from prior years TYSP	Site or Program Donor (1)	Site or Program Receiver (2)	Facility Identification No (FIMS) (3)	Facility Name (4)	Waiver Banked (gsf) (5)	Transfer Banked (gsf) (6)	Request Submitted (Yes/No) (7)	Request Approved (Yes/No) (8)	Comments (9)
<b>Total</b>					0	0			
		WIPP has not submitted a request for a waiver							

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Attachment E-6 – Leased Space Profile

**Attachment E-6 – Leased Space Profile**

*Denotes Change from Prior Years TYSP	#	Facility Identification No. (FIMS) (2)	Property Name (3)	Mission Dependency (4)	# Occupants (5)	Gross Square Feet (gsf) (6)	Rental Rate (Cost per Rentable gsf) (7)	Annual Rental Cost (8)	Lease Type (9)	Lease Term - Years (10)	Lease Expiration Month/Year (11)	Renewal Options (Y or N) (12)	
<b>EM Program Sites</b>													
	2009	1	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2010	2	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2011	3	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2012	4	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2013	5	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2014	6	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2015	7	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2016	8	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2017	9	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2018	10	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2019	11	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
	2020	12	NM50166	S-W Building	MD	328	90,850	\$ 20.00	\$ 1,795,000.00	FULL	20	Aug-16	Y
			<b>Totals</b>				1,090,200						
<b>Non-EM Program Sites</b>													
	2009	1											
	2010	2											
	2011	3											
	2012	4											
	2013	5											
	2014	6											
	2015	7											
	2016	8											
	2017	9											
	2018	10											
	2019	11											
	2020	12											
			<b>Totals</b>										





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Attachment F – Integrated Facilities and Infrastructure Budget Datasheet (IFI)

Integrated Facilities and Infrastructure (IFI) Crosscut Budget Data Sheet	Project No.	GSF	Prior Year FY 2009 Actual (\$000)	Current Year FY 2010 Approp. (\$000)	FY 2011 Budget Year (\$000)	FY 2012 BY+1 (\$000)	FY 2013 BY+ 2 (\$000)	FY 2014 BY+3 (\$000)	FY 2015 BY+4 (\$000)	FY 2016 BY+5 (\$000)	FY 2017 BY+6 (\$000)	FY 2018 BY+7 (\$000)	FY 2019 BY+8 (\$000)	FY 2020 BY+9 (\$000)
Resurface South Access Road	W1220219	N/A					\$1,357							
Upgrade HVAC controls in TMF	W1220220	N/A				\$179								
<b>Subtotal</b>				\$13,674	\$15,955	\$17,782	\$16,848	\$13,198	\$13,511	\$13,991	\$14,489	\$15,004	\$16,245	\$0
<b>4.2 Indirect Funded (from Overhead or Space Charges)</b>														
<i>No indirect or overhead space charges</i>														
<b>Subtotal</b>				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>4.3 Total of Direct and Indirect Maintenance &amp; Repair (4.1 + 4.2)</b>				\$13,674	\$15,955	\$17,782	\$16,848	\$13,198	\$13,511	\$13,991	\$14,489	\$15,004	\$16,245	\$0
* Denotes change from previous year. Projects moved to out-years due to change in budget priorities.														
All numbers in current dollars, escalated and taken from the Final Budget Planning for FY09-35 (3/14/07)														

Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental,  
and Transportation Management

**FY 2009 WIPP EXECUTABLE PLAN NARRATIVE**

**1.0 EXECUTIVE SUMMARY**

- a. This document is a narrative to the existing plan to provide additional information and guidance as the site has combined the Executable Plan and Annual Energy Report as requested by DOE-HQ. The narrative explains energy conservation goals and opportunities for managing and reducing energy consumption at the Waste Isolation Pilot Plant (WIPP) in accordance with the Consolidated Energy Data Report (CEDR). Specific conditions for this site are linked directly to ramping up and increasing production.
- b. The WIPP mission is to protect the public and environment by permanently disposing of transuranic (TRU) waste in an environmentally sound and safe manner while meeting the mandate to reduce cost.
- c. The WIPP is located approximately 26 miles east of Carlsbad, New Mexico, in the northern portion of the Chihuahuan desert. The WIPP mission is supported by DOE and contractor personnel. Washington TRU Solutions LLC (WTS) is the prime contractor.
- d. The WIPP surface structures accommodate personnel, equipment, and support services required for the receipt and emplacement of TRU waste for permanent storage in the underground excavations 2,150 feet below the surface. The WIPP underground structures occupy approximately 100 acres for permanent emplacement of waste.

The site is realizing an expected increase in energy use as waste emplacement activities and associated mining activities have increased. However, the rate of increase has been substantially reduced by prudent conservation practices identified in this plan. Annual cost savings associated with the energy conservation measures discussed in the CEDR for the WIPP site include \$23,000 for lighting and control retrofits and \$17,000 for construction of a shade structure for transportation containers. The lighting and control retrofits are discussed in further detail in Section 3.0, Energy Intensity. Most of the success in energy conservation measures for the WIPP Site will not be measured by reduced operating costs, but in overall throughput efficiency, as revealed in the graphs in Section 10.0, Trends and Graphs.

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**2.0 DOE ORDER 430.2B GOAL****(a) 30% energy intensity reduction by FY 2015 from a FY 2003 baseline**

The site reported a 13% reduction in energy intensity, which by numbers alone will not meet the goals. However, when adjusted for site operational activity and the number of man hours of facility use, the data indicates a positive increase in energy efficiency as illustrated in the attached graphs.

Site intensity does not reflect additional hours a plant may work. The site now operates more than one shift/day. This has a doubling effect for the square footage, but is not reflected anywhere in intensity.

**(b) 16% water intensity reduction by FY 2015 from a FY 2007 baseline**

Water use at the site is predominately domestic use. Since personnel staffing has increased, the natural byproduct of an increase in water use is hard to overcome. Graphs 6 and 7 demonstrate water use at the site in comparison to the normalization factor of personnel. The site still implements minimization practices and installs low-flow faucets, etc., when opportunity allows. However, a large percentage of the staff are mining-related who utilize shower and laundry facilities daily, using more water than typical office staff.

One additional note, the site had a substantial water leak during this last period that skewed actual usage.

**(c) 7.5% of a site's annual electricity consumption from on-site renewable sources by FY 2010**

The WIPP facility maintains two solar systems to provide security lighting at off-site locations. The systems have performed well and were overhauled in FY 2007 with new batteries and electronics. A couple more small systems have been purchased since for convenience lighting of storage areas.

There are plans to install rooftop photovoltaic (PV) solar on several buildings at WIPP, the first to begin during FY 2010. Funding is the main obstacle for completing this initiative.

**(d) Every site to have at least one on-site renewable energy generating system**

The site has evaluated renewable sources with help from the National Renewable Energy Lab (NREL). The most likely candidate determined is

## Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

solar. NREL, with WIPP support, has been working to establish a utility scale solar array for the site. However, legal issues and grid factors have been detrimental in moving forward.

**(e) 2% annual reduction in fleet petroleum consumption relative to a FY 2005 baseline**

The WIPP site has made a 9% reduction in fuel petroleum fuel consumption for FY 2009.

**(f) 75% of light-duty vehicle purchases must consist of alternative fuel vehicles**

The WIPP fleet consists of 68% alternative fuel vehicles. The remaining fleet will be replaced with AFVs according the GSA schedule for vehicle replacement.

**(g) All new construction and major renovations greater than \$5 million to be LEED Gold certified**

There are no new construction or major renovations greater than \$5 million planned at this time.

**(h) 15% of existing buildings to be compliant with the five guiding principles of (HPSB) design**

The WIPP facility is behind schedule due to the fundamental challenge of modifying buildings that were originally and intentionally constructed as temporary facilities. Once the mission is complete, the buildings are to be removed and the soil returned to original state. Building construction consists of steel frame with exterior metal panels with minimal insulation. WIPP has identified three buildings that are targeted for achieving compliance with this goal as the best candidates for improvements from an operational and opportunity perspective.

**(i) Advanced metering to the maximum extent practicable**

The WIPP site has been able to install advanced metering in lieu of basic metering requirements as budget allows and is compliant in this effort. A knowledgeable staff has been complementary in the implementation and deployment of advanced metering that provides feedback where there may be problems in the plant or areas for improvement.

WIPP is in the final stages of implementing the Utility Data Metering System data exchange from the advanced metering of the site with the

## Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

EM Dashboard project at this time and expects the automated data exchange to be operable by the end of January 2010.

### 3.0 ENERGY INTENSITY

The WIPP site continues to make improvements in efficiency as buildings/systems or areas are renovated. The numbers by themselves may not reflect progress. The facility has gone from zero cubic meters to sixty-two thousand cubic meters of waste emplacement over the last ten years. Considering the scale of operational and facility use ramp-up while still maintaining the same relative demand and energy charge, our situation is analogous to a toy manufacturer generating a toy run for Christmas that doubles plant production without increasing energy cost. Progress is being made overall, it is just not being revealed in the bottom line due to the nature of the facility being in a ramp-up mode and using intensity calculations that do not reflect operational use normalization. Additionally, the WIPP facility is achieving a higher throughput than original design expectations. Overall, the site has been successful in maintaining the same load profile from general completion of construction to receipt of 87 waste containers/week.

The site has made progress by performing technology changes where significant impacts can be felt. Examples of significant changes for lighting retrofit and installation of controls in industrial space are:

- Building 362, achieved a 92% reduction in lighting energy consumption
- Building 413, achieved a 93% reduction in lighting energy consumption
- Building 456, achieved a 97% reduction in lighting energy consumption
- Building 485, achieved a 93% reduction in lighting energy consumption
- Building 411, site generated waste room achieved a 79% reduction in lighting energy consumption
- Building 411, Overpack/repair room achieved a 79% reduction in lighting energy consumption
- Building 311, 5<sup>th</sup> floor (WH tower) achieved a 94% reduction in lighting energy consumption
- Building 311 4th floor (WH tower) achieved a 92% reduction in lighting energy consumption
- Perimeter/security lighting is being changed as they fail providing a significant reduction in energy

## Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

The examples represent where WTS has capitalized on investing in new equipment which allows the site to maximize efficiency through operating schedules. A significant byproduct is the minimization of future lighting maintenance in these spaces.

The perimeter and security lighting changes provide additional byproducts of significant reductions in maintenance while improving control. Control strategies are zone control in lieu of individual control.

The graphs at the end will illustrate and emphasize this characteristic.

### Potential Opportunity for Improvement in Intensity Reporting

Intensity numbers based on facility square footage alone does not allow the DOE to capture a true understanding of the physical aspects that are driving the numbers. As such, energy and other resource consumption intensity numbers based only on square footage do not allow sufficient depth of analysis and evaluation. Even the addition of factors for the types of facility use will have opportunities for benefit. Obviously, the cost of complexity will need to be balanced with the potential for revelation in analysis to obtain the best value per the investment in the data acquisition and evaluation. Deployment of best practices (lessons learned) to other similar facilities within the complex that could be recognized through "apple-to-apple" facility comparisons with factors applied to square footage that compensate for population density and application/duration of a facility use, may go unrecognized since by square footage alone the intensity numbers do not compare "apples-to-apples." Consider that a 100-sq-ft facility with 100 people working one eight-hour shift using 100 gallons of water is not practicing the same conservation as a 100-sq-ft facility with 300 people working three, eight-hour shifts over a 24-hour period using 100 gallons of water. However, the intensity numbers do not reflect the difference and thus the best practice of the highly utilized facility may be overlooked. Thus, the ability to transfer that technology to other facilities may not be advertised and transferred to best advantage of the DOE.

## **4.0 WATER INTENSITY**

The WIPP has made great strides in reducing water use from the original base year of FY 2003. An audit was conducted in early FY 2003 (November 2002), and provides 100 percent completion of water assessment for the site. Water consumption for FY 2007 (the new baseline) is 3.5 million gallons. This is down 29% from the original FY 2003 baseline reporting year. Efforts to further reduce and conserve water include maintaining and fixing leaking toilets, urinals, and faucets; replacing showerheads with 2.5 GPM heads; and providing employees information and education. However, this last year was impacted by a large water leak in the fire protection line. Also, by the addition of new employees that are in the mining/waste related field. The significance is that many plant employees utilize water resources that typical office workers do not,

## Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

such as showers, etc. on a daily basis. Water intensity numbers do not reflect the increase of staff or added shifts that are worked, only water usage.

Factoring the additional employees and leak, the water usage for the site is tolerable and low for real world conditions. The site continues to install conservation measures when the opportunity allows including low-flow urinals, toilets, and faucets. Shower heads have been installed throughout and are being reviewed for change-out opportunity again.

Graphs 6 and 7 illustrate WIPP site water use with a particular focus on normalizing water use in comparison to employees.

### **5.0 RENEWABLE ENERGY**

The WIPP facility has two existing solar security lighting systems that have been in place for several years and two more small lighting systems were recently installed. In FY 2009, the site investigated a large utility scale solar array. However, the state of New Mexico had no language in place to allow renewable incentives to be passed on to third party ownership of utility systems and Xcel Energy indicated they had no driver for receiving additional power into their system at this time.

Thus, WIPP is still focusing on individual building rooftop PV systems, but has not been successful with funding for the first four buildings identified. A recent discussion with management has indicated one building may receive funding next fiscal year.

### **6.0 FLEET**

Sixty-eight percent of the fleet is currently alternative fuel capable with plans to replace the remaining vehicles with AFVs according to the GSA schedule. WIPP has applied for an exemption for the alternative fuel use goal because of the lack of availability of alternative fuels in the area, but is exploring the use of locally produced biodiesel in some of the site's industrial equipment.

### **7.0 HIGH PERFORMANCE SUSTAINABLE BUILDINGS**

WIPP was engineered as a temporary facility such that all surface structures would be removed once the mission was complete. The buildings are all steel frame with exterior metal panels having only the minimum required insulation to meet code at time of construction. Most of the opportunities to meet the high-performance sustainable building (HPSB) requirements are within the building system themselves. However, the building envelope remains the factor that limits achieving HPSB principles.

The current strategy is to make the building systems (lighting, HVAC, etc.) efficient and to offset the building inefficiency with rooftop PV to apply a net zero building approach. Addressing the building's exterior metal panels is also a long-range plan.

## Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

**8.0 METERING**

The WIPP facility continues to meet or exceed metering goals. This has been beneficial to identify opportunities for optimization of systems or areas where problems may be occurring. Management has been positive to fund this effort as the benefit continues to manifest throughout the plant. Also, WIPP is participating with DOE-HQ on the Metering Dashboard and Utility Data Management System.

**9.0 ENERGY MANAGEMENT**

WIPP has predominately used site funds for conservation measures with some seed money through the years from DOE-HQ. Xcel Energy has a current program that will reimburse the site for conservation measures installed. The site has proposed to upgrade the main underground ventilation fans with variable frequency drives, but budget (value engineering) analysis has not been favorable.

WTS was successful in receiving a rebate for light emitting diode (LED) light fixtures in the Dosimetry Laboratory. The technology was installed meeting the needs of eliminating ultraviolet radiation from traditional lighting. The retrofit made a significant load reduction to the whole building including the HVAC system.

The WIPP facility has an Emergency Energy Conservation Plan, though not formally published. It provides recommendations on buildings/systems to put in stand-down, based on the energy curtailment the utility is requesting.

**10.0 TRENDS AND GRAPHS**

The following graphs provide a visual representation of usage and trends toward meeting requirements and site specific goals.

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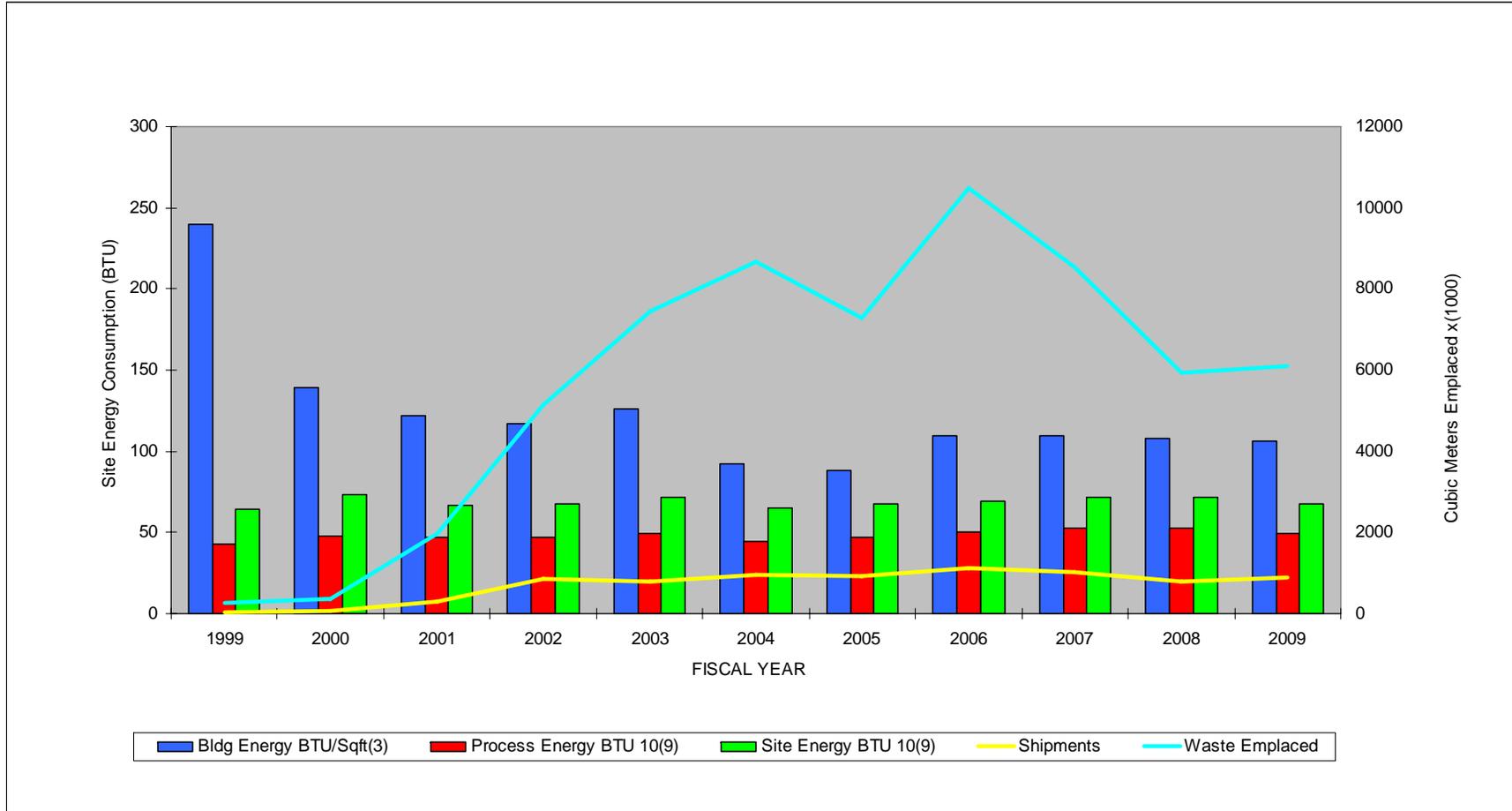
**Table 1 - Correlation of WIPP Energy Use to Shipments and Waste Emplaced**

Correlation of WIPP Energy use to SHIPMENTS and Waste Emplaced											
DATE	Bldg Energy BTU/Sq Ft(3)	Process Energy BTU 10(9)	Site Energy BTU 10(9)	Fiscal Year	Total KWH Energy Use	Site Energy Costs	Energy Charge	Fuel Factor	Total Cost	Shipments	Waste Emplaced
1999	240	42.6	64.61	1999	18,931,200	.037/kwh	\$441,755	-\$32,546	\$710,614	32	266.32
2000	139	48	73.15	2000	21,441,000	.037/kwh	\$500,745	-\$36,897	\$797,865	58	351.75
2001	122	47	66.85	2001	19,594,235	.047/kwh	\$449,146	\$210,093	\$938,179	304	1964.61
2002	117	47.3	67.38	2002	19,749,189	.040/kwh	\$439,419	\$42,585	\$795,318	861	5133.92
2003	126.2	49.5	71.4	2003	20,928,382	.041/kwh	\$465,656	\$95,324	\$851,180	799	7445.11
2004	92.1	44.2	64.7	2004	18,981,172	.050/kwh	\$422,331	\$220,285	\$955,162	964	8679.96
2005	87.8	46.9	67.84	2005	19,883,982	.052/kwh	\$422,418	\$278,940	\$1,039,361	923	7275.46
2006	109.6	50.3	69.33	2006	20,322,377	.063/kwh	\$452,172	\$546,942	\$1,298,910	1128	10491.79
2007	110	52.5	71.6	2007	20,991,941	.055/kwh	\$467,070	\$393,740	\$1,167,463	1019	8548.58
2008	108.2	53.1	71.95	2008	21,088,275	.067/kwh	\$469,214	\$653,770	\$1,428,320	795	5929.84
2009	106	49.7	67.8	2009	19,970,391	.054/kwh	\$883,738	-\$118,616	\$1,088,112	891	6,090

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 - FY 2020)  
DOE/WIPP-04-3327, Rev. 5

Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

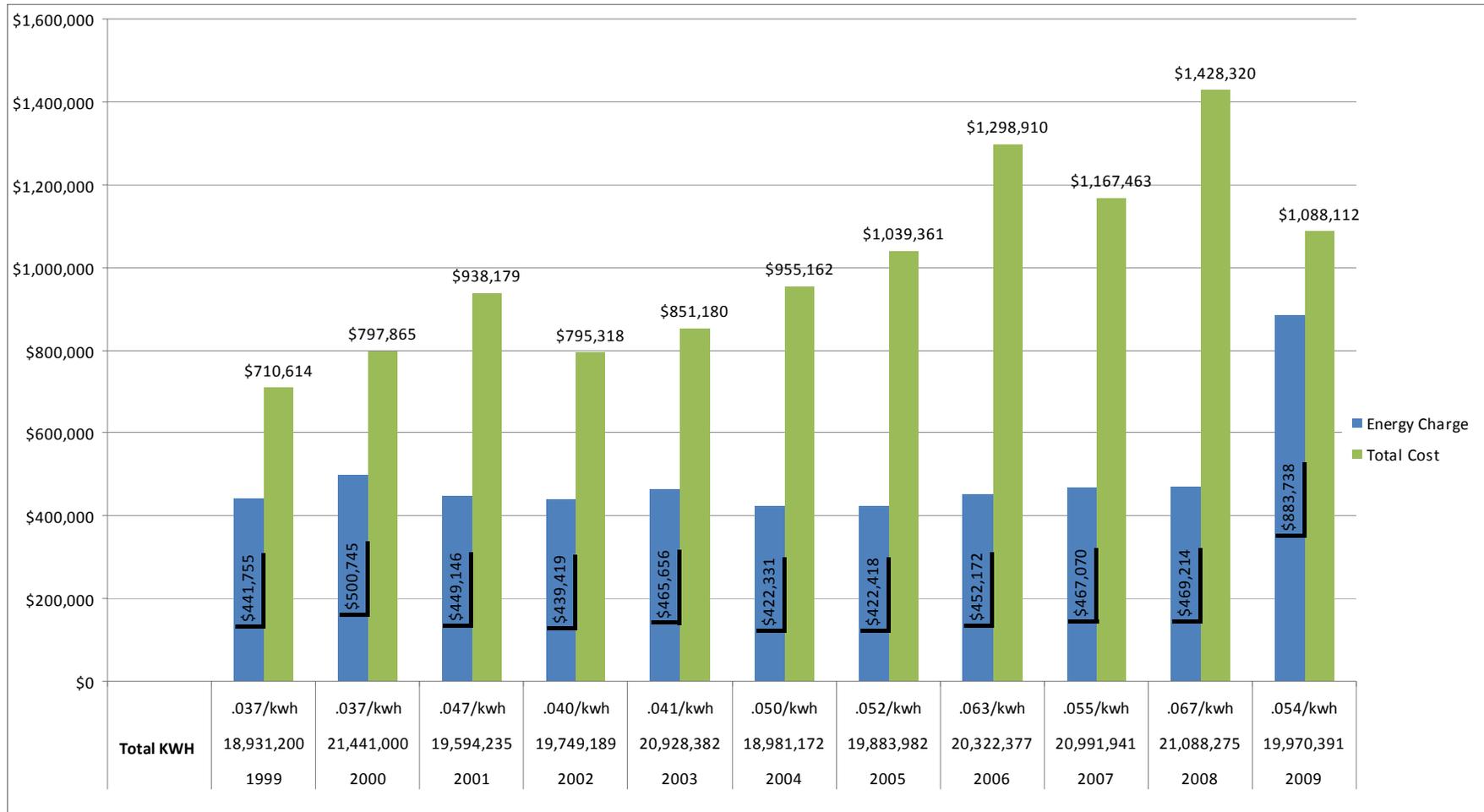
**Graph 1 - Correlation of WIPP Energy Use to Shipments and Waste Emplaced**



Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2011 - FY 2020)  
 DOE/WIPP-04-3327, Rev. 5

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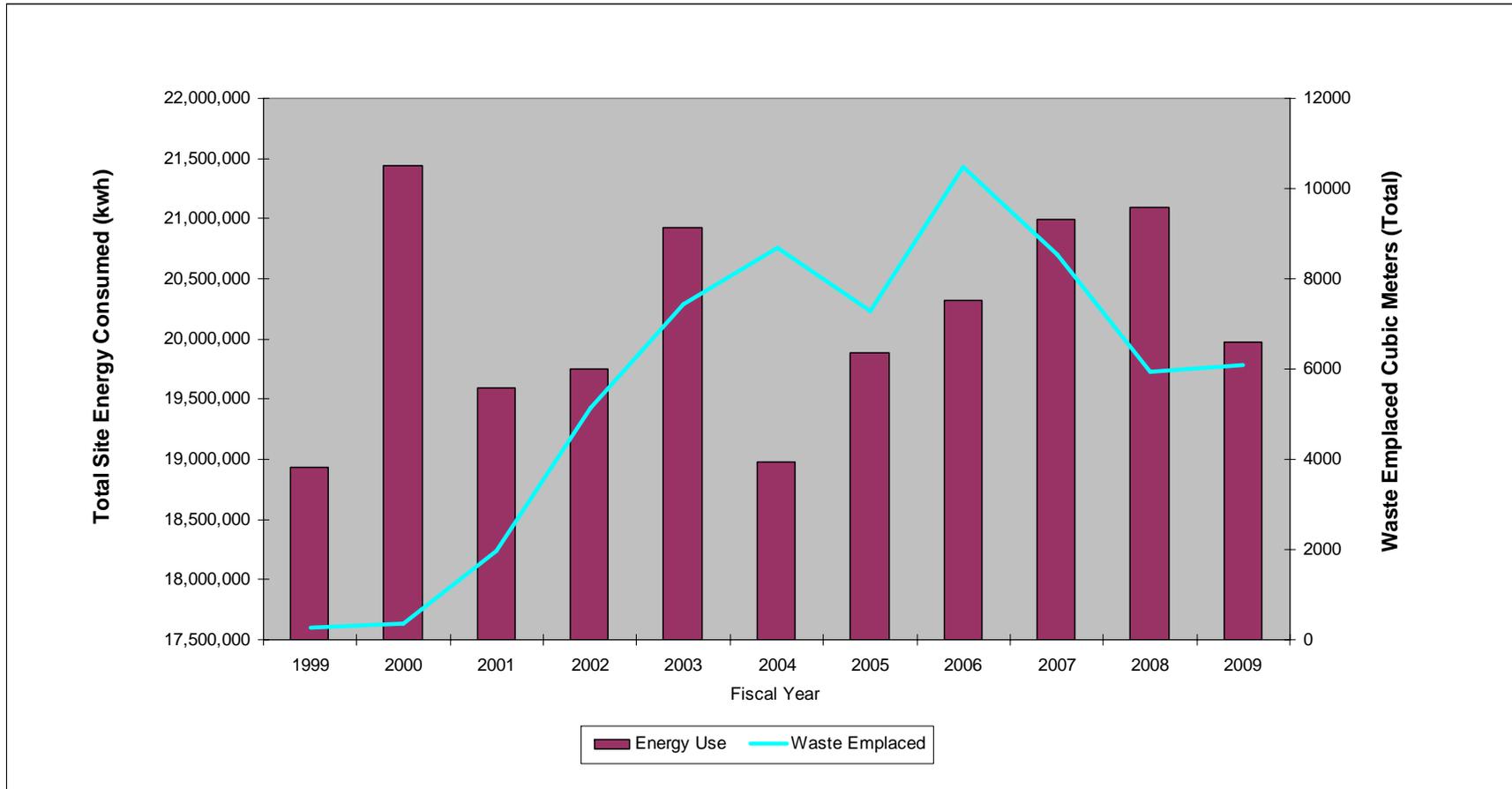
**Graph 2 - WIPP Site Energy Costs During Start-Up for Waste Receipt**



Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 - FY 2020)  
DOE/WIPP-04-3327, Rev. 5

Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

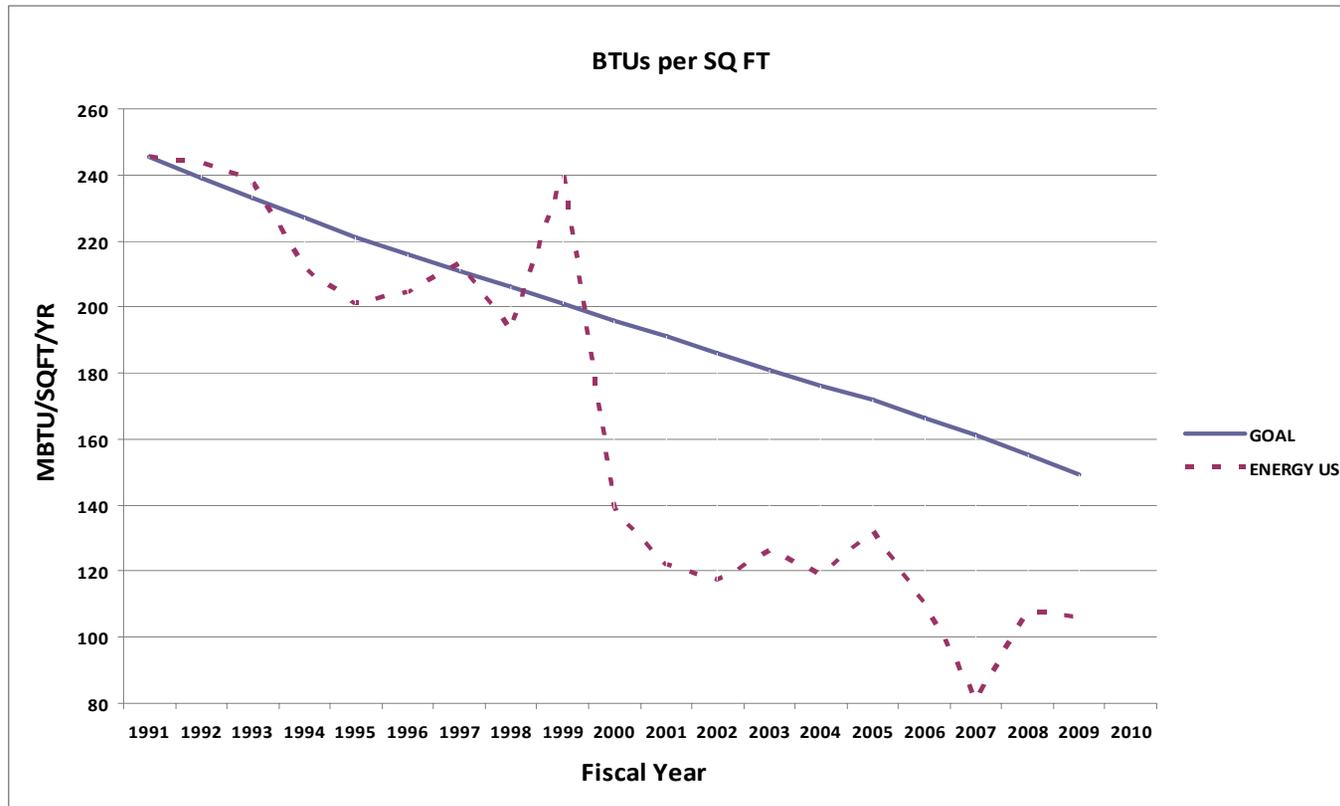
**Graph 3 - Correlation of WIPP Energy to Waste Emplacement**



Waste Isolation Pilot Plant  
 Ten-Year Site Plan (FY 2011 - FY 2020)  
 DOE/WIPP-04-3327, Rev. 5

Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

**Graph 4 - Building Energy Consumption**

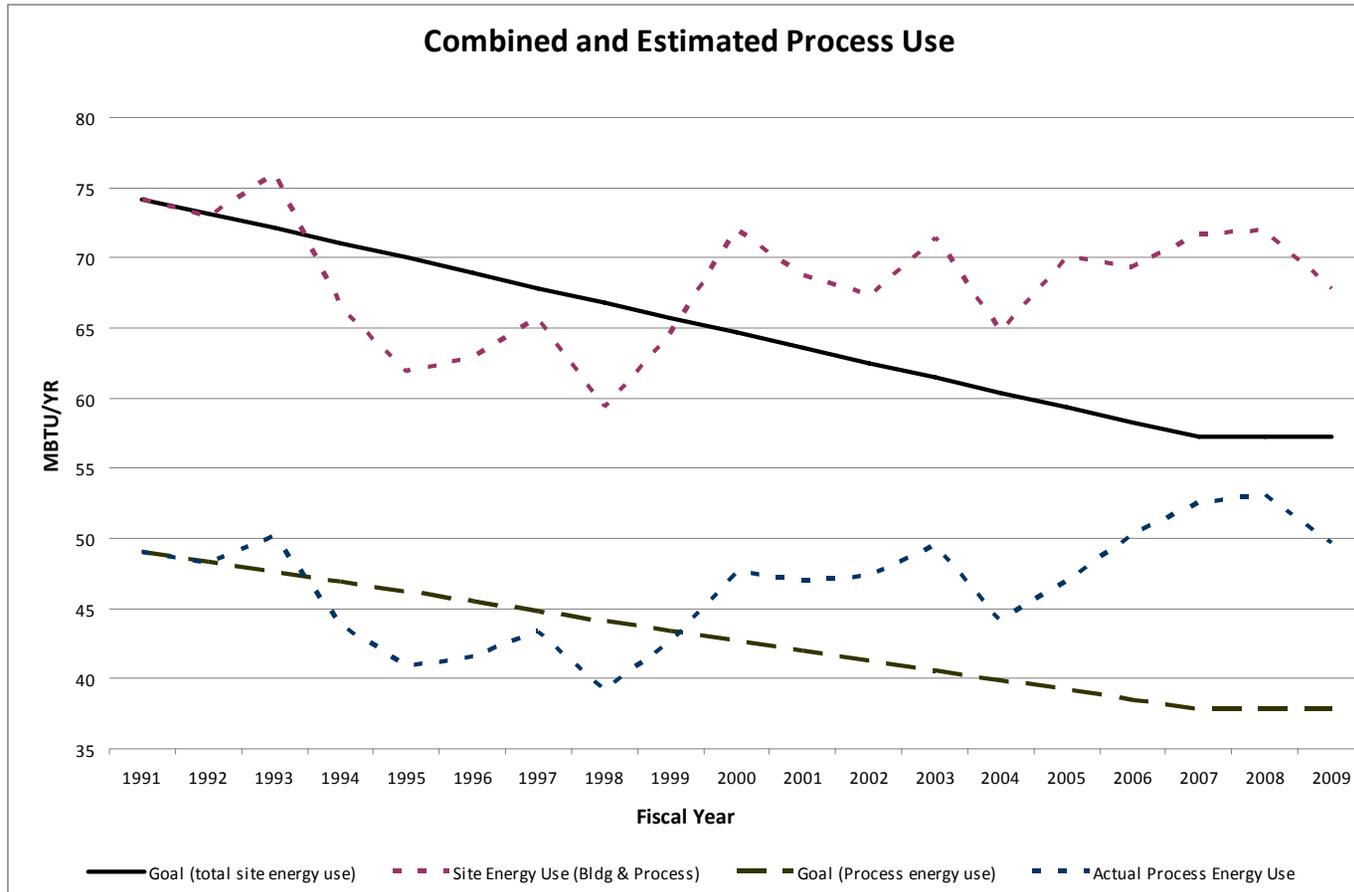


The peak shown in the graph for FY 1999 of 240 MBTU/SQFT is attributed to process energy usage associated with increased mission operations at the site. Building and process energy has been reported together through FY 1999 due to lack of metering capabilities. Increased process energy usage is expected to continue. The sharp downturn shown in the graph for FY 2000 represents the separation of process energy usage from the building energy usage reporting category. The increase beginning FY 2002 represents continued ramp-up activities. The major downturn in FY 2005 represents a combination of metering, controls, lighting upgrades, and new roofing membrane with insulation.

Waste Isolation Pilot Plant  
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DOE/WIPP-04-3327, Rev. 5

Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

Graph 5 - Process Energy Consumption

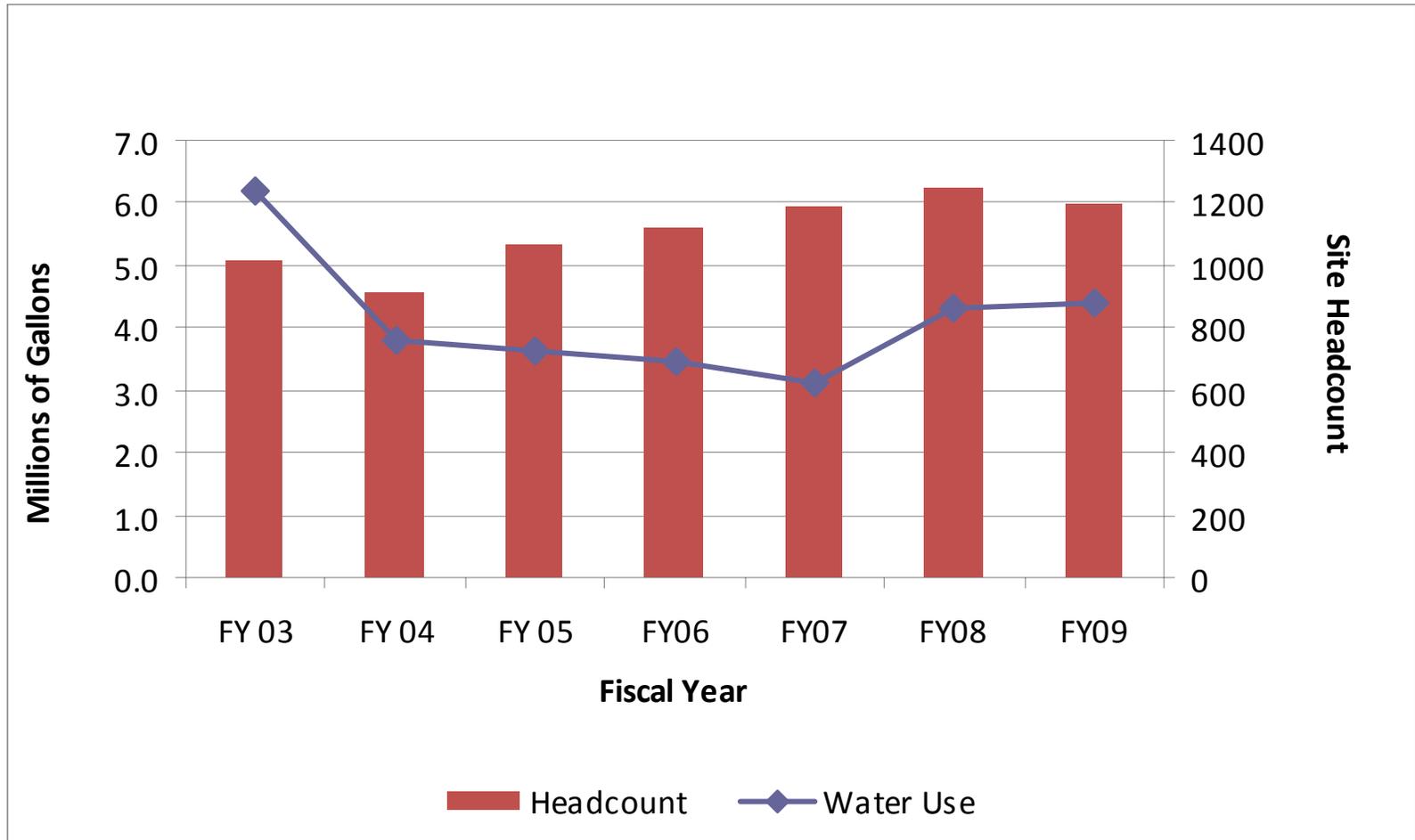


The graph illustrates the ramp-up activities beginning in FY 1998 and the impact to total overall site energy use. Building and process energy had been reported together prior to FY 1999 due to lack of metering capabilities. Increased process energy usage increased as anticipated as the site processes up to 87 CH waste containers/week along with RH waste emplacement activities.

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 - FY 2020)  
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Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

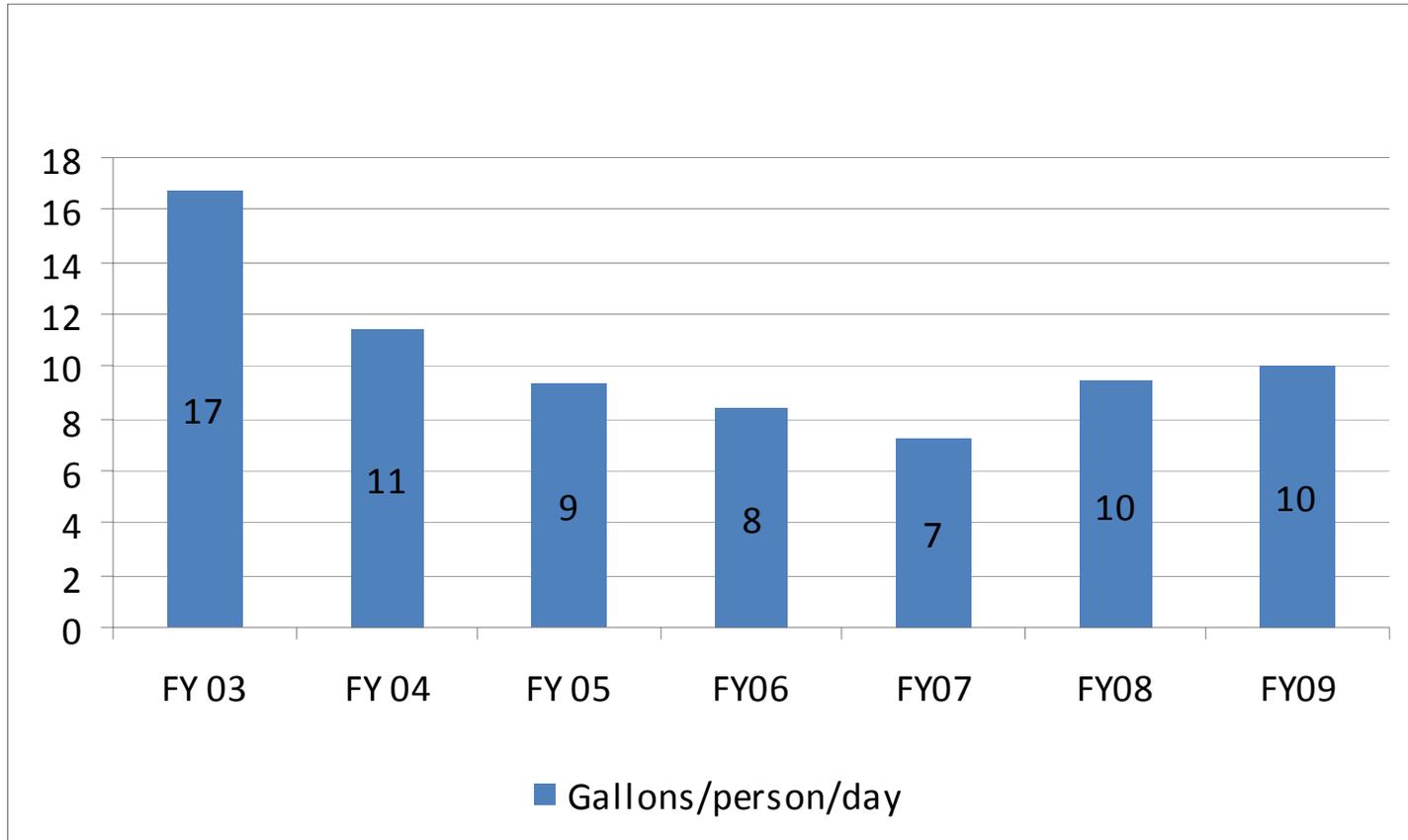
Graph 6 - WIPP Site Annual Potable Water Use



Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 - FY 2020)  
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Attachment G – FY 2009 WIPP Executable Plan for Improving Energy, Environmental, and Transportation Management

**Graph 7 - WIPP Water Usage**



Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
DOE/WIPP-04-3327, Rev. 5

### Appendix 1 – Future Years Preliminary Site Funding Targets and Inflation Rates

Appendix 1 provides the preliminary site funding targets for FY 2011 through FY 2020. Sites are requested to complete the Attachment A Cost Projection Spreadsheets. Updated planning targets consistent with the FY 2011 President's Budget will be provided in the January 2010 timeframe. Appendix 1 also provides the "Industry-Specific Inflation Indexes for FY 2009 through FY 2020" table. The table provides inflation rates and indexes for three classes of capital projects: nuclear, scientific laboratory, and administration or warehouse. The table also provides inflation rates and indexes for remediation and decontamination and decommissioning operating projects. The inflation rate or index shown in the row for FY 2011 of this table should be used in preparing the sites' FY 2011 TYSPs, as appropriate. Similarly, facilities and infrastructure projects/activities for the out years through 2019 will reflect an inflation-based case using the appropriate inflation rate or index for the subject year.

#### Industry-Specific Inflation Indexes for FY 2011 through FY 2020

(Ref: Office of Cost Analysis (CF-70) - current inflation index  
projections from the Engineering News-Record *Building Cost Index*  
and *Construction Cost Index*, and the Chemical Engineering *Chemical Engineering Plant Cost Index*)

FY	Nuclear		Scientific Laboratory		Administration/ Warehouse		Remediation/D&D	
	Rate	Index	Rate	Index	Rate	Index	Rate	Index
2009	5.1	1.000	4.0	1.000	3.2	1.000	2.0	1.000
2010	4.0	1.040	3.6	1.036	3.2	1.032	3.8	1.038
2011	2.8	1.069	2.7	1.064	2.7	1.060	2.8	1.067
2012	2.5	1.096	2.3	1.088	2.2	1.083	2.4	1.093
2013	2.6	1.124	2.6	1.117	2.6	1.111	2.8	1.123
2014	2.6	1.154	2.6	1.146	2.6	1.140	2.3	1.149
2015	2.5	1.182	2.3	1.172	2.2	1.165	2.4	1.177
2016	2.4	1.211	2.1	1.197	1.9	1.187	2.2	1.203
2017	2.9	1.246	3.3	1.236	3.6	1.230	3.5	1.245
2018	2.6	1.278	2.5	1.267	2.5	1.261	2.8	1.280
2019	2.6	1.312	2.5	1.299	2.5	1.292	2.8	1.315
2020	2.6	1.346	2.5	1.332	2.5	1.324	2.8	1.352

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

**Active Facilities:** Facilities with an FIMS status of Operating, Operational Standby, or Operating Pending Deactivation and Decontamination (facility required for current and ongoing mission needs)

**Alterations:** Adjustments to interior arrangements or other physical characteristics of an existing facility so that it may be more effectively adapted to or used for its designated purpose. Alterations do not result in betterment to a facility.  
(DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Annual Utilization Surveys:** Annual utilization surveys are directed by Federal Property Management Regulations §101-47.802 to determine how well the real property assets are being put to use. The survey content must address the standard specified in Federal Property Management Regulations §101-47.801, *Standards*.  
(DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Asset Condition Index (ACI):** The Department's corporate measure of the condition of its facility assets. The ACI reflects the outcomes of real property maintenance and recapitalization policy, planning, and resource decisions. The index is one (1) minus the FCI. FCI is the ratio of Deferred Maintenance to RPV. The FCI is derived from data in FIMS (DOE Order 430.1B, Change 1, *Real Property Asset Management*).

**ACI = 1 – FCI**

Ratings are assigned to ACI range measures. The goal is for the ACI to approach one (1). The ACI increases and approaches one (1) as the condition of facilities improves at a site. ACI ranges and ratings are as follows:

<b><u>ACI Range</u></b>	<b><u>ACI Rating</u></b>
1.00 > 0.98	Excellent
0.98 > 0.95	Good
0.95 > 0.90	Adequate
0.90 > 0.75	Fair
0.75 >	Poor

**Asset Management Plan:** A Federal Real Property Council (FRPC) requirement that each Executive Agency will draft an asset management plan (AMP) that addresses, at a minimum, the FRPC Guiding Principles and the AMP required components. AMPs are subject to OMB review and approval. (FRPC)

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

**Asset Utilization Index (AUI):** Consistent with Federal Real Property Reporting requirements, Utilization will be captured as a percent utilization on a scale of 0 percent to 100 percent for each FIMS record. The rate of utilization for five key facility types is summarized in the table below.

Rate	Categories and Percent Utilization				
	1. Offices	2. Warehouses	3. Hospitals	4. Laboratories	5. Housing
<b>Over-Utilized</b>	>95%	>85%	>95%	>85%	N/A
<b>Utilized</b>	75-95%	50-85%	70-95%	60-85%	85-100%
<b>Under-Utilized</b>	<75%	10-50%	25-70%	30-60%	<85%
<b>Not Utilized</b>	N/A	<10%	<25%	<30%	N/A

Utilization for each category is measured as follows:

1. Offices – ratio of occupancy to current design capacity
2. Warehouses – ratio of gross square feet occupied to current design capacity
3. Hospitals – ratio of occupancy to current design capacity
4. Laboratories – ratio of active units to current design capacity
5. Housing – measured as a percent of individual units that are occupied

Standard FIMS Report #093 Reports the Asset Utilization Index and outlines both FRPC Guidelines and Office of Engineering and Construction Management (OECM) Guidelines.

**Authorization Basis:** Safety documentation supporting the decision to allow a process or facility to operate. Included are corporate operational and environmental requirements as found in regulations and specific permits and, for specific activities, work packages or job safety analysis (per DOE Guide 450.4-1B, *Integrated Safety Management System Guide for Use with Safety Management System Policies*, dated 3-1-01 [reference 1]). (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Betterments:** Capitalized improvements to facilities that result in better quality work, increased capacity, and/or extended useful life as required to accommodate regulatory and other changes to requirements. Determining when and to what extent expenditure should be treated, as betterment requires judgment. The proper basis for determining whether betterment is effected is when the effect of the replacement is related to each unit when a minor item is replaced in each of a number of similar units, rather than to the cumulative costs. Listed below are the various terms that are commonly used to describe various categories of betterments.

- Construction is the erection, installation, or assembly of a new plant facility; the addition, expansion, improvement, or replacement of an existing facility; or the relocation of a facility. Construction includes equipment installed in and made

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

part of the facility and related site preparation; excavation, filling and landscaping, or other land improvements; and design of the facility.

Examples of improvements to an existing facility include the following types of work.

- Replacing standard walls with fireproof walls.
  - Installing a fire sprinkler system in a space that was previously not protected with a sprinkler system.
  - Replacing utility system components with a significantly larger capacity components (e.g., replacing a 200-ton chiller with a 300-ton chiller) and converting the functional purpose of a room (e.g., converting an office into a computer room).
- Conversion is a major structural revision of a facility that changes the functional purpose for which the facility was originally designed or used.
  - Major Renovation and Replacement is a complete reconstruction of a facility that has deteriorated or has been damaged beyond the point where its individual parts can be economically repaired. If the item replaced is a retirement unit, its original costs (including installation cost) are removed from the plant and capital equipment accounts, and the cost of the newly installed item (including installation cost) is added to the plant and capital equipment accounts. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Capital Equipment:** Heavy equipment includes all vehicles, railroad stock, processing or manufacturing machinery, shop machinery, reactor or accelerator machinery, and reserve construction machinery. Special and scientific equipment includes medical, laboratory, and security equipment. Automated data processing equipment includes computers, printers, cathode ray tubes, operating system software, and interface peripherals. (DOE Accounting Handbook, Chapter 10, 10-5, 1 f [2] [b] [1-3])

**Certified Realty Specialist (CRS):** A DOE employee who is certified in one or more of the four specialty realty areas: acquisition, non-GSA leasing, GSA leasing, and land management and disposal. Employees so certified are authorized to prepare and implement real estate actions within certified specialty areas. Detailed guidance and procedures for becoming a CRS are found in the DOE Real Estate Process Desk Guide for Real Estate Personnel. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Closure Plan:** The plan to deactivate, decontaminate, decommission and dispose of the site and its facilities. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

**Closure Site:** A site at which DOE missions [other than long-term stewardship (LTS)] will be completed and facilities dispositioned within the ten-year planning cycle. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Cognizant Secretarial Office (CSO):** A Program Secretarial Office that has responsibility as an owner for a program-specific (programmatic) facility or area present on a site that is owned by another program office (i.e., the Lead Program Secretarial Office [LPSO]). The CSO coordinates with the site owner (i.e., the LPSO) to ensure needed infrastructure support is planned and provided for its facilities/area. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Construction:** The erection, installation, or assembly of a new plant facility; the addition, expansion, improvement, or replacement of an existing facility; or the relocation of a facility. Construction includes equipment installed in and made part of the facility and related site preparation; excavation, filling and landscaping, or other land improvements; and the design of the facility. (DOE Accounting Handbook, Chapter 10, Plant and Capital Equipment, paragraph 1g[4][a])

**Contaminated Facilities:** DOE facilities that have structural components and/or systems contaminated with hazardous chemicals and/or radioactive substances, including radionuclides. This definition excludes facilities that contain no residual hazardous substances other than those present in building materials and components, such as asbestos-containing material, lead-based paint, or PCB-containing equipment. This definition excludes facilities in which bulk or containerized hazardous substances, including radionuclides, have been used or managed if no contaminants remain in or on structural components and/or systems. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Deactivation:** Placing a facility in a stable and known condition including the removal of hazardous and radioactive materials to ensure adequate protection of the worker, public health and safety, and the environment, thereby limiting the long-term cost of surveillance and maintenance. Actions include the removal of fuel, draining and/or de-energizing noncritical systems, removal of stored radioactive and hazardous materials, and related actions. Deactivation does not include all decontamination necessary for the dismantlement and demolition phase of decommissioning (e.g., removal of contamination remaining in the fixed structures and equipment after deactivation). (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Decommissioning:** The process of closing and securing a nuclear facility or nuclear materials storage facility to provide adequate protection from radiation exposure and to isolate radioactive contamination from the human environment. It takes place after deactivation and includes surveillance, maintenance, decontamination, and/or dismantlement. These actions are taken at the end of the life of a facility to retire it from service with adequate regard for the health and safety of workers and the public and protection of the environment. The ultimate goal of decommissioning is unrestricted

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release or restricted use of the site. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Decontamination:** The removal or reduction of residual radioactive and hazardous materials by mechanical, chemical or other techniques to achieve a stated objective or end condition. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Demolition:** Destruction and removal of facilities or systems from the construction site. This is a direct cost. (DOE Guide 430.1-1)

**Direct Costs:** Any costs that are (can be) identified with a particular program the first time the costs are charged. These costs are directly charged to a program since they are directly related to and are being incurred principally for the benefit of the program receiving the charges. These costs generally consist of direct labor, materials and supplies. (DOE Budget Formulation Handbook)

**Disposal:** Permanent or temporary transfer of DOE control and custody of real property assets to a third party who thereby acquires rights to control, use, or relinquish the property. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Disposition:** Those activities that follow completion of program missions, including, but not limited to, preparation for reuse, surveillance, maintenance, deactivation, decommissioning, and long-term stewardship. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Disposition Baseline:** The technical, programmatic, and regulatory information which serves as input to the disposition preparation and planning process, and is essential to meeting the goal of maximum risk reduction and long-term cost savings in the elimination of excess real property assets. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Energy Savings Performance Contracts (ESPC):** ESPC is designed to accelerate investment in cost-effective energy conservation measures in existing Federal buildings and thereby save taxpayer dollars. Such contracts typically provide for installation of energy conservation measures financed with private sector funds, which are repaid out of the resulting energy cost savings over time.

[http://www1.eere.energy.gov/femp/financing/superespccs\\_espccrule.html](http://www1.eere.energy.gov/femp/financing/superespccs_espccrule.html).

**Excess Real Property:** Land, improvements to land, or both, including interest therein, which is not required for the Department's needs or the discharge of its responsibilities. For the purposes of reporting deferred maintenance, excess real property is an asset that is on the path for disposition. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Expense Funded Projects:** Project activities funded with operating dollars. Examples of these projects include normal M&R, such as painting, cleaning, and small repair jobs

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not resulting in an addition, replacement of a retirement unit, or betterment. (DOE Accounting Standards, Chapter 10)

**Facility:** Land, buildings, and other structures, their functional systems and equipment, and other fixed systems and equipment installed therein, including site development features outside the plant, such as landscaping, roads, walks, parking areas, outside lighting and communication systems, central utility plants, utilities supply and distribution systems, and other physical plant features. These include any of the DOE-owned, -leased, or -controlled facilities, and they may or may not be furnished to a contractor under a contract with DOE. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Facility Condition Index:** DOE adopted the FCI in 1998 as its tool for measuring the condition of its facilities. The FCI is the ratio of the cost of deferred maintenance to the facility's RPV. The cost of deferred maintenance deficiencies is determined by condition assessment inspections. Facilities Information Management System data are used to calculate FCI. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Facilities Information Management System (FIMS):** The FIMS is the DOE's "corporate" real property database. The FIMS provides an automated mechanism that allows users to manage all real property including land and its natural resource, any man-made alterations and additions (e.g., buildings, trailers, modulars, permanent fixtures, and equipment). It was designed to provide management with an accurate tool that can be used for planning by Headquarters and all DOE field offices, respond to both internal and external inquiries, provide easy to access up-to-date information, and automate the preparation of electronic reports for the GSA, the Federal Emergency Management Agency, and Congress.

**Federal Real Property Asset Management (Executive Order 13327):** On February 4, 2004, President Bush signed Executive Order 13327, *Federal Real Property Asset Management* (<http://www.whitehouse.gov/news/releases/2004/02/20040204-1.html>). This order is intended to significantly improve the management of Federal Government properties by establishing a FRPC, establishing a "Senior Real Property Officer" for each executive agency, and reforming authorities for managing Federal real property.

**Federal Real Property Council (FRPC):** On February 4, 2004, President Bush signed Executive Order 13327, *Federal Real Property Asset Management*, which created an interagency FRPC to develop guidance, serve as a clearinghouse for best practices, and facilitate the efforts of the Senior Real Property Officers. (<http://www.whitehouse.gov/news/releases/2004/02/20040204-1.html>)

**General Plant Projects (GPPs):** Miscellaneous minor new construction projects of a general nature, the total estimated cost of which may not exceed the statutory limit of \$5 million. GPPs are necessary to adapt new facilities or improve production techniques, to effect economies of operations, and to reduce or eliminate health, fire,

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and security problems. These projects provide for design and/or construction, additions, improvements to land, buildings and utility systems, and they may include the construction of small new buildings, replacements or additions to roads, and general area improvements. (DOE Accounting Handbook, Chapter 10, 10-14, 2 h [1])

**General Purpose Equipment (GPE):** Refers to items of plant and equipment, including both real and personal property, that are owned by the DOE, are recorded in the completed plant accounts, and meet the monetary and service life criteria for capitalization (i.e., a service life of two years or more, and a cost equal to or greater than \$25,000), regardless of the appropriation or fund charged. Group purchases of similar items that each cost less than the minimum (\$25,000) but when combined constitute a significant investment, are considered capitalized property, such as automated information system components. For additional details and exclusion concerning plant and capital equipment, see the DOE Accounting Handbook. (DOE Budget Execution Manual 135.1-1, Attachment I-2 [25], 6-5-97. Definition tracks current proposal for revision.)

**Grandfathered:** Refers to projects that meet the provision that approval for start of construction was provided prior to FY 2003. Approved "Grandfathered" projects are not required to meet the Congressional space offset requirement. Projects whose start of construction (when the project receives Critical Decision–3 [CD-3]) is prior to the end of FY 2002 are considered Grandfathered.

**Gross Square Feet (GSF):** The total floor area of a building in square feet (exterior wall to exterior wall). (FIMS User's Guide–12/14/2001)

**Inactive:** Not currently being used but may have a future need. Includes real property in a caretaker status (closed pending disposal) and closed installations with no assigned current federal mission or function (FY 2006 Federal Real Property Reporting Requirement – FRPC Data Changes).

**Indirect Costs:** Costs that are not identified with a single, specific final cost objective. These costs, collected in cost pools, are distributed or allocated to a final cost objective based on a predetermined methodology. Site overhead costs, service centers, and organizational burden are examples of indirect costs. (DOE Budget Formulation Handbook)

**Infrastructure:** All real property, installed equipment, and related real property that is not solely supporting a single program mission at a multiprogram site or that is not programmatic real property at a single program site. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Institutional Controls:** Nonengineering measures intended to affect human activities in such a way as to prevent or reduce exposure to hazardous substances as allowed by contract. There are four categories of institutional controls: governmental controls, proprietary controls, enforcement and permit tools with institutional controls

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components, and information devices. Institutional controls are those governmental controls such as deed notifications, easements, use restrictions, leases and other property interests that are inventoried as records and notes in records in the Facilities Information Management System. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Institutional General Plant Project (IGPP):** IGPPs are miscellaneous minor (i.e., less than \$5M) new construction projects of a general institutional nature benefiting multiple cost objectives and required for general-purpose sitewide needs. IGPPs do not include projects whose benefit can be directly attributed to a specific or single program. Examples of IGPPs are multiprogrammatic/interdisciplinary scientific laboratory, institutional training facility, sitewide maintenance facilities and utilities, new roads, multiprogrammatic office space, OSFs, and multiprogrammatic facilities required for "quality of life" improvements.

**Integrated Facilities and Infrastructure (IFI) Crosscut Budget:** A crosscutting budget exhibit that has been developed to ensure sustained improvement in real property management. It constitutes the resources required to implement a TYSP. This crosscut budget identifies renovation, recapitalization, maintenance, and demolition projects for buildings and facilities by program and site. The IFI budget also includes reports on direct maintenance and an estimate of indirect M&R funding requirements. The IFI is developed in conjunction with the Department's budgeting process and submitted annually with the Presidential Budget to Congress. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Land-Use Planning:** A formal, integrated planning process that is used to identify an appropriate mix of land uses at each site and guidelines for development. (See DOE Policy 430.1, *Land and Facility Use Planning*, dated 7-9-96 [reference o].) (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Lead Program Secretarial Office (LPSO):** A Program Secretarial Office (PSO) that is responsible for implementation of policy promulgated by Headquarters staff and support organizations for a field office. The LPSO owns the site, manages its own program projects, and acts as a host for tenant Cognizant Secretarial Offices/PSOs by providing facility and/or infrastructure support. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Life Cycle:** The life of an asset from planning through acquisition, maintenance, operation, remediation, disposition, long-term stewardship, and disposal. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Life-Cycle Cost:** The sum total of the direct, indirect, recurring, nonrecurring, and other related costs incurred or estimated to be incurred in the design, development, production, operation, maintenance, support, and final disposition of real property over its anticipated useful life span. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

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**Line Item Projects:** Those separately identified project activities that are submitted for funding and are specifically reviewed and approved by Congress. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Long-Term Stewardship:** The physical controls, institutions, information and other mechanisms needed to ensure protection of people and the environment at sites where DOE has completed or plans to complete cleanup (e.g., landfill closures, remedial actions, removal actions, and facility stabilization). This concept includes land-use controls, monitoring, maintenance, and information management. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Maintenance:** Daily work required to sustain property in a condition suitable for it to be used for its designated purposes, including preventive, predictive, and corrective maintenance. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)  
Maintenance costs and work do not include the following:

- Regularly scheduled janitorial work such as cleaning, and preserving facilities and equipment.
  - Work performed in relocating or installing partitions, office furniture, and other associated activities.
  - Work usually associated with the removal, moving, and placement of equipment.
  - Work aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from or significantly greater than those originally intended.
  - Improvement work performed directly by in-house workers or in support of construction contractors accomplishing an improvement.
  - Work performed on special projects not directly in support of maintenance or construction.
  - Non-maintenance roads and grounds work such as grass cutting and street sweeping.
- A. **Annual Actual Maintenance.** Actual costs incurred in the current fiscal year of all maintenance activities for a building, trailer/modular, or OSF (FIMS User's Guide–12/14/2001). Projections of actual maintenance should reflect the funding targets.
- B. **Annual Required Maintenance.** Estimates of all costs required to perform maintenance activities for a building, trailer/modular or OSF in the current fiscal year that one would normally expect to be accomplished as determined by engineering/maintenance/life-cycle analysis and vendor maintenance schedule.

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

Included are preventive maintenance, predictive maintenance, and any other maintenance activity required for which the current fiscal year is the optimum period of accomplishment. Costs for unforeseen repairs are generally not known and should not be reported in this category. (FIMS User's Guide–12/14/2001) Projections of required maintenance should be unconstrained.

- C. **Corrective Maintenance.** The repair or restoration of failed or malfunctioning equipment, systems, or facilities to their intended functions or design conditions. It does not result in a significant extension of the expected useful life. (DOE Order 430.1B, Change 1, *Real Property Asset Management*).
- D. **Deferred Maintenance.** Maintenance that was not performed when it should have been or was scheduled to be and which, therefore, is put off or delayed for a future period. (DOE Order 430.1B, Change 1, *Real Property Asset Management*) Do not include replacement-in-kind and costs associated with programmatic assets.
- E. **Predictive Maintenance.** Those activities involving continuous or periodic monitoring and diagnosis to forecast component degradation so that "as needed" maintenance can be scheduled. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)
- F. **Preventive Maintenance.** Those periodic and planned actions taken to maintain a piece of equipment within design operating conditions and extend its life and performed before equipment failure or to prevent equipment failure. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)
- G. **Proactive Maintenance (PrM).** The metric/measure of the amount of actual dollars spent annually on PrM (preventive and predictive) of DOE Real Property Assets to the actual dollars spent annually on Total Maintenance, expressed as a percentage.

$$\text{Proactive Maintenance (PrM)} = \frac{\text{Preventive} + \text{Predictive Maintenance}}{\text{Total Maintenance}} \times 100\%$$

**Mission Dependency – FRPC Definition:** The value an asset brings to the performance of the mission as determined by the DOE in one of the following categories:

- **Mission-Critical:** Land or constructed assets deemed necessary to perform the primary missions assigned to a particular site. This would encompass any facility or infrastructure predominantly used to perform scientific, production, environmental restoration, or stockpile stewardship, and without which operations would be disrupted or fail to meet safety requirements.

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- **Mission-Dependent, Not Critical:** Land or constructed assets that play a supporting role in meeting the primary missions assigned to a particular site. Loss of Mission Dependent, Not Critical assets would not immediately disrupt operations and can be reasonably restored or otherwise addressed prior to impacting operations.
- **Not Mission-Dependent:** Land or constructed assets that are not in support of the primary missions assigned to a particular site but support secondary missions and/or quality of workplace initiatives. Loss of a Not Mission Dependent asset results in inconvenience and indirectly impacts operations if unavailable for an extended period. Further, assets determined to be excess to the site mission fall under this category.

**Operating Efficiency:** Any measures used to track the operating efficiency of assets (e.g., cleaning, maintenance, and utility costs tracked on a per square foot basis), **or** energy consumption tracked by the British Thermal Unit (BTU) consumption per gross square foot.

**Operating Facilities:** Facilities that have a Facilities Information Management System status code of operating, operating standby, operating pending excess, operating under out-grant, or operating pending decontamination and demolition/disposition. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Optimum Period:** The time in the life cycle of an asset when maintenance actions should be accomplished to preserve and maximize the useful life of the asset. The determination is based on engineering/maintenance analysis and is independent of funding availability or other resource implications.

**Other Project Costs (OPC):** For purposes of allocating indirect costs to DOE construction/capital projects, this would mean that (in addition to fringe and organizational burden) an equitable share of all general and administrative and other sitewide common support activities would be charged to all cost objectives, regardless of the type of funding. In most, if not all, instances, this would result in the application of the same overhead/indirect rate to both operating and construction/capital projects. However, this does not preclude the use of a different rate if there are cost centers/costs that are material and do not have a causal and beneficial relationship to construction/capital projects. (DOE Budget Formulation Handbook, dated March 2, 1998, Chapter II, paragraph 4b [1], page II-4.1)

**Personal Property:** Generally, property that can be moved (i.e., not permanently affixed to and part of the real estate). Generally, items remain personal property if they can be moved without seriously damaging or diminishing the functional value of either the real estate or the items themselves. Examples of personal property include, but are not limited to, shop and lab equipment, motor vehicles or aircraft, construction equipment, and automated data processing and peripheral equipment. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

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**Plant, Property, and Equipment:** Tangible assets that meet the capitalization criteria, that are not intended for sale in the ordinary course of operations, and have been acquired or constructed with the intention of being used, or being available for use by the entity. Plant, property, and equipment includes site infrastructure. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Programmatic Equipment:** Personal property used by programmatic personnel, including the personal property meeting the threshold for the list of capital equipment. (DOE CFO, FY 2003 *Real Property Deferred and Annual Maintenance Reporting Requirement*)

**Programmatic Real Property:** Reactors, accelerators, and similar devices used by programmatic personnel, acquired with line item funding, and listed in the Facilities Information Management System as "Other Structures and Facilities" under the 3200 series usage codes, such as 3209, 3221, 3251 and 3261. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Program Secretarial Office (PSO):** A senior outlay program office that has work performed at a site, but not as the host Lead Program Secretarial Office or Cognizant Secretarial Office at that site, and provides annual program direction and guidance to the site/field manager for the work to be performed at the site, and for budgeting to support program work and an appropriate share of their tenant costs to the landlord. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Project Engineering and Design Fund (PE&D):** Design funds established for use on preliminary design, which are Operating Expense funds. Typically, Project Engineering and Design funds are used for preliminary and final design and related activities for design-bid-build strategies, and for preliminary design and related costs in design-build strategies. (DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*)

**Property, Plant, and Equipment (PP&E):** Tangible assets that meet the capitalization criteria that are not intended for sale in the ordinary course of operations, and have been acquired or constructed with the intention of being used, or being available for use by the entity. Any reference to PP&E also includes site infrastructure. (FY 2000 FIMS Guidance)

**Quarterly Performance Report (QPR):** Reports of real property metrics that are provided to the Office of Engineering and Construction Management (MA-50) and used to assess EM performance. A schedule of QPR deliverables is provided in Appendix 5, Quarterly Performance Reports and Deliverables.

**Real Estate Actions:** Documents and activities related to acquisition, management, and disposal of real property interests (e.g., easements, leases, fee title, public domain withdrawals, and mineral rights). This includes, but is not limited to, land-use permits; land surveying; appraisals; market surveys; acquisitions; in-granting; out-granting;

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management directives; utilization surveys; encroachment; disposal of any real estate interests; disposal of Departmental improvements without the underlying land; and establishment of use restrictions, easements, and similar institutional controls. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Real Property Assets:** Any interest in land, together with the improvements, facilities, structures, and fixtures located thereon, including prefabricated movable structures and appurtenances thereto, under the control of the DOE. All real property owned by, leased, or acquired by the Government under the terms of the contract. It includes both government-furnished property and contractor-acquired property as defined in Federal Acquisition Regulation 45.101. DOE-owned, -used, and -controlled land, land improvements, structures, utilities, installed equipment, and components are included. Real property and real estate means land and rights in land, ground improvements, utility distribution systems, and buildings and other structures. Real Property Assets are defined by the Federal Property Management Regulations §101-47.103-12, *Real Property*. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Repair:** The restoration of failed or malfunctioning equipment, a system, or a facility to its intended function or design condition. Repair does not result in a significant extension of the expected useful life. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Replacement:** A complete reconstruction of a plant record unit that has deteriorated or has been damaged beyond the point where its individual parts can be economically repaired. If the item replaced is a retirement unit, its original costs (including installation cost) are removed from the P&CE accounts, and the cost of the newly installed item (including installation cost) is added to the P&CE accounts. (DOE Accounting Handbook, Chapter 10, 10-1 g [4] [c]).

**Replacement Plant Value (RPV):** Cost to replace the existing structure with a new structure of comparable size using current technology, codes, standards, and materials. (DOE Order 430.1B, Change 1, *Real Property Asset Management*).

**Senior Real Property Officer:** The individual in each Federal Agency who is responsible for the effective management of agency real properties, consistent with the guidance and requirements of the FRPC (Executive Order 13327).

**Site:** A geographic area owned or leased by or for the account of the Federal Government for the performance of DOE program activities. The term includes any extant buildings, infrastructure, and other improvements. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Site/Field Manager:** Individual responsible for planning, programming, budgeting, and evaluation of activities in support of Secretarial office programs located on sites under their cognizance, including host LPSO to tenant CSO and PSO activities establishing site priorities consistent with mission objectives and goals established by DOE program

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offices having line responsibility, leading site technical direction, preparing and defending the site budget, supporting milestones agreed to with LPSO, CSOs, or PSOs, providing public and private sector liaison, expediting follow-up actions, and retaining overall accountability for site activities in support of program office successes. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Standby Facilities:** Facilities with a FIMS designation of Operational Standby (future programmatic use other than cleanup expected).

**Status:** The DOE FIMS requires an asset's status to be categorized by one of the following FIMS codes: (1) Operating; (2) Operating Standby; (3) Shutdown Pending Transfer; (4) Shutdown Pending D&D; (5) D&D in Progress; (6) Operating Pending D&D; (7) Operating Under an Out-grant; (8) Federal Transfer (archive); (9) Sale (archive); (10) Demolished (archive); (11) Deactivation; (12) Shutdown Pending Disposal; (13) Active; (14) Inactive; (15) Public (benefit) Conveyance (archive); (16) Lease Termination (archive); or (17) Other Disposition (archive). For the purposes of reporting Status consistent with FRPC reporting requirements, buildings, structures and land parcels will be reported under one of the following status values: (1) Active, (2) Inactive, (3) Excess, or (4) Out-grant/Out-leased. For required annual reporting to the FRPC, the DOE OECM will automatically map an asset's FIMS Value to an appropriate FRPC Value. For specific information as to how FIMS Values are mapped annually to FPC Values, refer to the most recent FRPC Reporting Instructions.

**Surveillance and Maintenance (S&M):** Activities conducted throughout the facility life cycle, including periodic inspections and maintenance of structures, systems and equipment necessary for the satisfactory containment of contamination, and for the protection of workers, the public, and the environment. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Sustainment:** M&R activities necessary to keep the inventory of facilities in good working order. This includes regularly scheduled maintenance as well as anticipated major repairs or replacement of components that occur periodically over the expected service life of the facilities. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Ten-Year Site Plan (TYSP):** A planning document that identifies the site's annual and strategic program requirements and priorities, and links these to real property asset requirements. Real property asset requirements must be consistent with program missions, budgets, and planning estimates. Planning employs costing efficiencies, eliminates excess buildings, consolidates operations where practicable, and addresses mission-critical requirements through an appropriate mix of recapitalization, new construction, and disposal of excess facilities. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

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**Total Project Cost (TPC):** The DOE has traditionally identified project costs in two categories: (1) Total Estimated Cost and (2) Other Project Cost. The sum of the Total Estimated Cost and Other Project Costs make up the Total Project Cost.

- Total Estimated Cost includes project costs incurred after critical decision (CD)1, such as costs associated with the acquisition of land and land rights; engineering, design, and inspection; direct and indirect construction/fabrication; and the initial equipment necessary to place the plant or installation in operation. Total Estimated Cost may be funded as an operating or capital expense.
- Other Project Costs include all project costs that are not identified as Total Estimated Cost costs. Generally, Other Project Costs are costs incurred during the Initiation and Definition Phases for planning, conceptual design, research and development, and during the Execution Phase for startup and operation. Other Project Costs are always operating funds. (DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*)

**Transfer of Facilities:** Transferring programmatic and financial responsibility of land and/or facilities from one program office to another. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Utilization Justified Assets:** The summation for a site of the product of each operating facilities area, in square feet, times its utilization rate in FIMS. For land, it is the acreage of the site identified as fully utilized under an Executive Order 12512 survey (reference s). (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Value Engineering (VE):** An organized effort directed at analyzing the functions of systems, equipment, facilities, services, and supplies for the purpose of achieving the essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality, and safety. For purposes of this Order, value analysis, value management, and value control are considered synonymous with VE. (DOE Order 430.1B, Change 1, *Real Property Asset Management*)

**Waiver:** In Conference Committee Report 107-258 accompanying the FY 2002 Energy and Water Development Appropriation Bill, the Committee established the requirement that for each DOE site, the footprint added by construction of new facilities must be offset by the elimination of an equal amount of excess footprint at the site. The Secretary of Energy can, on a case-by-case basis when it is deemed impractical due to critical mission requirements, provide a waiver to allow the offset requirement to be met through the reduction of excess facilities at another site.

**Work for Others:** The performance of work for non-DOE entities by DOE/contractor personnel and/or the utilization of DOE facilities that is not directly funded by DOE appropriations. (DP F&I Assessment, Phase I, Report 2000–No source listed.)

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

**ABBREVIATIONS AND ACRONYMS**

ACI	Asset Condition Index
AOC	Area of Concern
AMP	asset management plan
ARRA	American Recovery and Reinvestment Act
AUI	Asset Utilization Index
BIPV	Building Integrated Photovoltaic Solar
BLM	Bureau of Land Management
BTU	British Thermal Unit
BY	Budget Year
CAM	continuous air monitor
CAIS	Condition Assessment Information System
CAS	Condition Assessment Survey
CBFO	Carlsbad Field Office
CCP	Central Characterization Project
CD	critical decision
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
CH	contact-handled
CMR	Central Monitoring Room
CMS	Central Monitoring System
CQPR	Consolidated Quarterly Performance Report
CRS	Certified Realty Specialist
CSO	Cognizant Secretarial Office
CTAC	CBFO Technical Assistance Contractor
CY	calendar year
D&D	decontamination and decommissioning
DBE	design basis earthquake
DM	deferred maintenance
DOE	U.S. Department of Energy
DOE HQ	DOE Headquarters
DSA	Documented Safety Analysis
EERE	Office of Energy Efficiency and Renewable Energy
EM	DOE Office of Environmental Management
EMS	environmental management system
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPEAT	Electronic Product Environmental Assessment Tool

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ESPC	Energy Savings Performance Contract
EXO	enriched xenon observatory
F&I	Facilities and Infrastructure
FCI	Facility Condition Index
FE	Office of Fossil Energy
FIMS	Facility Information Management System
FRPC	Federal Real Property Council
FY	fiscal year
GC	General Council
GPP	General Plant Project
GSA	U.S. General Services Administration
GSF	gross square feet
HEPA	high-efficiency particulate air (filter)
HPSBWG	High Performance Sustainable Buildings Working Group
HVAC	heating, ventilation, and air conditioning
HWFP	Hazardous Waste Facility Permit
ICE	induction coupled electrodeless
IGPP	Institutional General Plant Projects
IFI	Integrated Facilities and Infrastructure
LI	line item
LMP	Land Management Plan
LPSO	Lead Program Secretarial Office
M&R	maintenance and repair
MEGA	multiple-element germanium array
MgO	magnesium oxide
MOC	management and operating contractor
MOU	memorandum of understanding
NE	Office of Nuclear Energy
NEPA	National Environmental Policy Act
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NRC	U.S. Nuclear Regulatory Commission
OECM	Office of Engineering and Construction Management
OMB	Office of Management and Budget
OPC	other project cost
OSF	other structure and facility

## Appendix 2 – Glossary of Terms and Abbreviations/Acronyms

PE&D	project engineering and design
PEP	program execution plan
PMR	Permit Modification Request
PP&E	property, plant, and equipment
PSO	Program Secretarial Office
PY	prior year
RCRA	Resource Conservation and Recovery Act
RH	remote-handled
RPA	real property asset
RPV	replacement plant value
S&M	surveillance and maintenance
SC	safety class
SECON	security condition
SEGA	segmented enriched germanium assembly
SLB2	Standard Large Box 2
SS	safety significant
SSCs	structures, systems, and components
SSP	Site Security Plan
SWB	Skeen-Whitlock Building
SWMU	solid waste management unit
TBD	to be determined
TEAM	Transformational Energy Action Management
TEC	total estimated cost
TPC	total project cost
TRU	transuranic
TRUPACT	Transuranic Package Transporter
TYSP	ten-year site plan
U.S.C.	<i>United States Code</i>
UDMS	Utility Data Management System
VE	value engineering
WHB	Waste Handling Building
WIPP	Waste Isolation Pilot Plant

### Appendix 3 – EM Corporate Commitments to Deferred Maintenance Reduction for Facilities and Infrastructure

EM is corporately committed to maintaining its mission essential real property assets in a manner which will ensure its ability to complete its mission as well as support all other enduring DOE missions at sites where EM is the Lead Programmatic Secretarial Office.

By the end of FY 2010, EM will:

- (1) Reduce deferred maintenance to within industry standards for those facilities with a remaining useful life in excess of seven years and fund maintenance between 2 percent to 4 percent of RPV.
- (2) Return facility conditions, for our mission essential facilities and infrastructure with remaining useful life in excess of seven years, to an assessment level of good to excellent (deferred maintenance/RPV less than 5 percent).
- (3) For facilities that are planned to become inactive (e.g., shutdown), leverage redundant systems and services, fail safe systems, and institutional controls to maintain safety and minimize deferred maintenance backlog as allowed by contract.
- (4) Have institutionalized responsible and accountable facility management processes, including budgetary ones, so that the condition of EM facilities and infrastructure is maintained equal to or better than industry standards.

Additionally, EM will establish validated baseline of deferred maintenance (using the FIMS Deferred Maintenance definition) and RPV no later than the summer of 2008 which incorporates these commitments into the validated life-cycle baselines. EM's corporate deferred maintenance reduction goals beyond FY 2008 will be measured at the site, versus building, level.

## Appendix 4 – Disposition Prioritization and Methodologies

**DOE Corporate Initiative on Prioritization of Excess Process Contaminated Facilities**

In response to the Deputy Secretary's Program Decision Memorandum for the FY 2009-FY 2013 Corporate Program Review (PDM EM-08-12, Rev. 1, dated August 10, 2006), the Office of Environmental Management (EM) is leading the Department's initiative to develop a DOE-wide prioritization methodology for disposition of excess process contaminated facilities. The objectives are to begin to implement the Department's excess process contaminated facilities disposition prioritization methodology in support of the FY 2009-2013 President's Budget, with full implementation in time to support the FY 2009-2013 Programming and Budgeting process next spring/summer. Sites should follow the general guidance for risk-based budget prioritization method per DOE Policy 455.1, *Use of Risk-Based End States*. The expectation is that the sites' FY 2009-2018 TYSPs will reflect the new prioritization methodology guidance to the greatest extent practical.

Due to increasing competition for limited resources, the Assistant Secretary for Environmental Management, along with concurrences from the Deputy Secretary and OMB, shifted to a risk-based budget prioritization approach for cleanup projects<sup>1</sup> in order to control government spending.

- EM began to assess options for risk reduction measures, life-cycle costs, project uncertainties, and other relevant policy factors in order to achieve cleanup end states quicker, safer, and more efficiently.
- Progress is measured at the site and program levels, instead of individual operable unit or release site levels. The most urgent risks are managed first.
- The prioritization approach is updated annually in the EM Integrated Priority List, according to descending environment, safety, and health risk reduction, as summarized below. Many of the highest priority activities are compliance driven and must be executed at the expense of the lower priority activities such as D&D.
  - Requisite safety, security, and services across EM cleanup sites;
  - Radioactive tank waste storage, treatment, and disposal; and
  - Spent nuclear fuel storage, receipt, and remediation; Solid waste (transuranic, low-level, and mixed low-level waste) treatment, storage, and disposal.

**General Guidance on Prioritization of Excess Disposition.** Sites are required to prioritize ALL excess facilities requiring disposition on Attachment E-1. Report

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<sup>1</sup> Ref. DOE Policy 455.1, *Use of Risk-Based End States*

## Appendix 4 – Disposition Prioritization and Methodologies

prioritized facilities by funding program, where a known funding source has been identified. Separately group and prioritize those excess facilities requiring disposition where no funding source has yet been identified (indicate "TBD"). A large number of prioritization systems of varying levels of sophistication and complexity have been proposed and applied to line items, infrastructure, and major expense projects over the years (e.g., Life-Cycle Asset Management Good Practice Guide, GPG-FM-030, *Prioritization*, March 1996, presents four examples). Per DOE Order 430.1B, Change 1, prioritization should be based on criteria of reducing (worker and public) risks and minimizing life-cycle costs. In addition to these criteria, the following criteria should be considered and balanced in determining the ranking of facilities for disposition:

- Regulatory compliance drivers: address possible failures to comply with compliance agreements with EPA or the State, or other major laws and regulations;
- Execution logic: addresses sequencing of proposed activities compared with other related site activities and/or constraints;
- Mission impact: addresses potential adverse impacts to ability to perform EM missions of the site or facility;
- Environmental impact reduction: addresses potential adverse impacts on natural resources, such as air, water, land, and wildlife.

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
DOE/WIPP-04-3327, Rev. 5

## Appendix 5 – Consolidated Quarterly Performance Report Requirements and Deliverables

The Office of Engineering and Construction Management (OECM) is responsible for managing various real property asset management reporting requirements to the Office of Management and Budget. For FY 2009, sites are required to report to following deliverables. OECM scores the submissions based on both critical and non-critical elements.

### Overall Scorecard Rating for Consolidated Quarterly Performance Report (CQPR) Deliverables

<b>GREEN</b>	All <u>critical</u> elements green, and no more than one <u>non-critical</u> element yellow
<b>YELLOW</b>	Any <u>critical</u> elements yellow, and any <u>non-critical</u> element red, or two or more <u>non-critical</u> elements yellow
<b>RED</b>	Any <u>critical</u> elements red, or two or more <u>non-critical</u> elements red

1 <sup>st</sup> Quarter CQPR Deliverables	Due to OECM	HQ Review	Site Due Date
Submit the Proactive Maintenance (PrM) data (critical) - based on the FIMS end of fiscal year 2008 snapshot data.	11/14/2008	11/11/2008	10/31/2008
Final FY2009 Maintenance Report - Timeliness of Submission (non-critical) - Submitted on time (within 45 days from the end of the quarter). Scoring: Green on time; Yellow < one week late; Red > one week late.	11/15/2008	11/10/2008	10/31/2008
Final FY2009 Maintenance Report- Performance(critical) - Scoring: Green > 95% of target; Yellow Between 90 and 95% of target; Red < 90% of target.	11/15/2008	11/10/2008	10/31/2008
Populate FIMS Data Base (critical) - Populate the 25 data elements required by the FRPC for the FRPP. Scoring: Green all data populated by due date; Red any data not populated.	11/14/2008	11/14/2008	11/14/2008
Capture sustainability data in FIMS (critical).	11/14/2008	11/14/2008	11/14/2008
Provide OECM the scheduled dates for FIMS data validations for all sites (critical). Scoring: Green all schedules provided by due date; Red any site schedule not provided.	12/15/2008	12/10/2008	12/10/2008
Archive real property assets disposed of during 1st Qtr FY 2010 (non-critical).	12/30/2008	12/30/2008	12/30/2008

2 <sup>nd</sup> Quarter CQPR Deliverables	Due to OECM	HQ Review	Site Due Date
Quarterly Maintenance Report - Timeliness of Submission (noncritical) - Submitted on time (within 45 days from the end of the quarter). Scoring: Green on time; Yellow < one week late; Red > one week late.	2/15/2009	2/9/2009	2/2/2009
Quarterly Maintenance Report - Performance (critical) - Scoring: Green > 90% of target; Yellow Between 80 and 90% of target; Red < 80% of target.	2/15/2009	2/9/2009	2/2/2009

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
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Appendix 5 – Consolidated Quarterly Performance Report Requirements and Deliverables

<b>2<sup>nd</sup> Quarter CQPR Deliverables</b>	<b>Due to OECM</b>	<b>HQ Review</b>	<b>Site Due Date</b>
IFI Crosscut Budget - FY 2010 Congressional Submission (critical) - Submitted on time, approved at Program's headquarters level, and in accordance with guidance. Scoring: Green submitted on time with program headquarters approval; Red Criteria not met.	2/28/2009	2/20/2009	2/13/2009
Develop Third Effectiveness Measure-Establish Team (critical) - Provide program representative to be on the team and establish the third effectiveness measure. Scoring: Green team member identified, participates in team meetings and measure established. Red team member not identified or does not participate in the process.	2/28/2009	2/20/2009	2/13/2009
Update Projects List - Maintenance and repair over \$5M (critical). Scoring: Green Yes; Red No.	3/1/2009	2/20/2009	2/13/2009
Generate and analyze the first and second effectiveness measure (critical). Provide to Programs for comparison and benchmarking. Programs provide analysis/planned action to OECM. Scoring: Green OECM provided analysis/planned actions by programs. Red analysis/planned actions not provided or no analysis performed on data.	3/1/2009	2/20/2009	2/13/2009
FIMS Data Validation - Complete scheduled FIMS Data Validations (critical). Scoring: Green, meet or exceed target; Yellow, between 90 and 100% of validations complete; Red, < 90% of validations complete. NOTE: Provide to OECM either an electronic copy of the scorecard (if green), or an electronic copy of the scorecard and a Corrective Action Plan or confirmation from the Program that the site has initiated a CAP (if red). Contact Phil Dalby prior to March 1 if 2nd Qtr data validations need to be rescheduled..	3/15/2009	3/9/2009	3/2/2009
Use ACI prediction model to assist programs in budget preparation (critical). Modify program specific ACI targets, if necessary. Include targets in the FY 2011 planning and programming budget guidance. Scoring: Green ACI targets modified if required. Red ACI targets not modified when required.	3/15/2009	3/9/2009	3/2/2009

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
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Appendix 5 – Consolidated Quarterly Performance Report Requirements and Deliverables

3 <sup>rd</sup> Quarter CQPR Deliverables	Due to OECM	HQ Review	Site Due Date
Quarterly Maintenance Report - Timeliness of Submission (non-critical) - Submitted on time (within 45 days from the end of the quarter). Scoring: Green on time; Yellow < one week late; Red > one week late.	5/15/2009	5/8/2009	5/1/2009
Quarterly Maintenance Report - Performance (critical) - Scoring: Green > 90% of target; Yellow Between 80 and 90% of target; Red < 80% of target.	5/15/2009	5/8/2009	5/1/2009
Analyze Program RPV and DM (critical) - Come to an agreement with OECM on the Program's RPV and DM based on FY 2009 snapshot. The agreed upon values for RPV and DM will be used in the FY 2011 budget cycle to calculate required sustainment and ACI respectfully. Scoring: Green RPV established; Red RPV not established.	5/15/2009	5/8/2009	5/1/2009
Sustainment Funding (critical) - Sustainment funding budgeted as documented in the FY 2011 IFI Crosscut Budget. Scoring: Green > 2% of RPV; Yellow between 1.8 and 2 %; Red < 1.8%.	6/15/2009	6/8/2009	6/1/2009
Deferred Maintenance Reduction (critical) - Deferred Maintenance reduction program in place, if required (ACI < .95). Scoring: Green N/R or >1% of RPV; Yellow between .5 and 1% of RPV; Red <.5% of RPV.	6/15/2009	6/8/2009	6/1/2009
IFI Crosscut Budget - FY 2011 CPR Submission (critical) - Submitted on time, approved at Program's headquarters level, and in accordance with guidance. Scoring: Green submitted on time with program headquarters approval; Red Criteria not met.	6/15/2009	6/8/2009	6/1/2009
ACI Targets (critical) - Develop program specific ACI targets for FY 2010 to FY 2011 in conjunction with OECM. OECM will provide recommend ACI targets using an ACI prediction model based on FY 2011 IFI Crosscut. These ACI targets will be used in the FY 2010 TYRT update. Scoring: Green ACI Targets established. Red ACI targets not established.	6/15/2009	6/8/2009	6/1/2009
FIMS Data Validation (critical) - Complete scheduled FIMS Data Validations. Scoring: Green, meet or exceed target; Yellow, between 90 and 100% of validations complete; Red, < 90% of validations complete. NOTE: Validations are not considered complete until OECM is provided an electronic copy of the scorecard (if green) and an electronic copy of the scorecard and Corrective Action Plan or confirmation from the Program that the site has initiated a CAP (red).	6/15/2009	6/8/2009	6/1/2009
TYSP (critical) - TYSP Updated and Approved by program. Scoring: Green provide OECM a CD or electronic copy of each site's TYSP by due date. Yellow electronic copy of TYSP provided by 30 June. Red electronic copy of TYSP provided after 30 June.	6/15/2009	6/8/2009	6/1/2009

Waste Isolation Pilot Plant  
Ten-Year Site Plan (FY 2011 – FY 2020)  
DOE/WIPP-04-3327, Rev. 5

Appendix 5 – Consolidated Quarterly Performance Report Requirements and Deliverables

<b>3<sup>rd</sup> Quarter CQPR Deliverables</b>	<b>Due to OECM</b>	<b>HQ Review</b>	<b>Site Due Date</b>
Programs confirm with sites that they have updated FIMS "Estimated Disposition Year" for assets that will be disposed of during the FY 2010 to FY 2012 timeframe (critical). Scoring: Green certification provided by due date. Red certification not provided by due date.	6/15/2009	6/8/2009	6/1/2009

<b>4<sup>th</sup> Quarter CQPR Deliverables</b>	<b>Due to OECM</b>	<b>HQ Review</b>	<b>Site Due Date</b>
Update TYRT (critical). Provide Required Program Input. Scoring: Green input provided by due date. Red input not provided by due date.	8/1/2009	7/24/2009	7/17/2009
Quarterly Maintenance Report - Timeliness of Submission (non-critical) - Submitted on time (within 45 days from the end of the quarter). Scoring: Green on time; Yellow < one week late; Red > one week late.	8/15/2009	8/7/2009	7/31/2009
Quarterly Maintenance Report – Performance (critical) - Scoring: Green > 90% of target; Yellow Between 80 and 90% of target; Red < 80% of target.	8/15/2009	8/7/2009	7/31/2009
Third Effectiveness Measure (critical) - Establish guidance on reporting third effectiveness measure. Scoring: Green reporting method defined by due date. Red due date not met.	9/1/2009	8/25/2009	8/18/2009
Update program specific ACI targets based on sustainment funding and backlog reduction program (critical). Scoring: Green ACI targets provided OECM by due date. Red ACI targets not provided by due date.	9/15/2009	9/8/2009	9/1/2009
7FI Crosscut Budget - FY 2010 OMB Submission (IF Required, critical) - Submitted on time, approved at Program's headquarters level, and in accordance with guidance. Scoring: Green submitted on time with program headquarters approval; Red Criteria not met.	9/15/2009	9/8/2009	9/1/2009
FIMS Data Validation - Complete all FIMS Data Validations (critical). Scoring: Green all FIMS data validations complete. Red one or more FIMS data validations not complete. NOTE: Validations are not considered complete until OECM is provided an electronic copy of the scorecard (if green) and an electronic copy of the scorecard and Corrective Action Plan or confirmation from the program that the site has initiated a CAP (red).	9/15/2009	9/8/2009	9/1/2009
Deferred Maintenance - Deferred maintenance populated in FIMS. Scoring: Green Yes; Red No. Due 30 September 2010. Critical.	9/30/2009	9/23/2009	9/16/2009

## Appendix 6 – Supporting Documentation for High Performance and Sustainable Buildings

**High Performance and Sustainable Buildings**  
**Support Documentation**  
**Executive Order- January 2008**

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**Executive Order 13423 – Strengthening Federal Environmental, Energy, and Transportation Management**

– challenges each agency to reduce greenhouse gases; substantially increase the use of energy efficiency and renewable energy technologies; adopt sustainable "green building" design practices for construction and retrofits; and significantly reduce the use of petroleum in vehicle fleets. This order requires all Federal Agencies and departments to "conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner" 72 FR 3919. The Executive Order outlines the following goals for agencies:

- (a) improve energy efficiency and reduce greenhouse gas emissions of the agency, through reduction of energy intensity by (i) 3 percent annually through the end of fiscal year 2015, or (ii) 30 percent by the end of fiscal year 2015, relative to the baseline of the agency's energy use in fiscal year 2003;
- (b) ensure that (i) at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable sources, and (ii) to the extent feasible, the agency implements renewable energy generation projects on agency property for agency use;
- (c) beginning in FY 2009, reduce water consumption intensity, relative to the baseline of the agency's water consumption in fiscal year 2008, through life-cycle cost-effective measures by 2 percent annually through the end of fiscal year 2015 or 16 percent by the end of fiscal year 2015;
- (d) require in agency acquisitions of goods and services (i) use of sustainable environmental practices, including acquisition of bio-based, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and (ii) use of paper of at least 30 percent post-consumer fiber content;
- (e) ensure that the agency (i) reduces the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of by the agency, (ii) increases diversion of solid waste as appropriate, and (iii) maintains cost-effective waste prevention and recycling programs in its facilities;
- (f) ensure that (i) new construction and major renovation of agency buildings comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings set forth in the Federal Leadership in High Performance and Sustainable

## Appendix 6 – Supporting Documentation for High Performance and Sustainable Buildings

Buildings Memorandum of Understanding (2006), and (ii) 15 percent of the existing Federal capital asset building inventory of the agency as of the end of fiscal year 2015 incorporates the sustainable practices in the Guiding Principles;

(g) ensure that, if the agency operates a fleet of at least 20 motor vehicles, the agency, relative to agency baselines for fiscal year 2005, (i) reduces the fleet's total consumption of petroleum products by 2 percent annually through the end of fiscal year 2015, (ii) increases the total fuel consumption that is non-petroleum-based by 10 percent annually, and (iii) uses plug-in hybrid (PIH) vehicles when PIH vehicles are commercially available at a cost reasonably comparable, on the basis of life-cycle cost, to non-PIH vehicles; and

(h) ensure that the agency (i) when acquiring an electronic product to meet its requirements, meets at least 95 percent of those requirements with an Electronic Product Environmental Assessment Tool (EPEAT)-registered electronic product, unless there is no EPEAT standard for such product, (ii) enables the Energy Star feature on agency computers and monitors, (iii) establishes and implements policies to extend the useful life of agency electronic equipment, and (iv) uses environmentally sound practices with respect to disposition of agency electronic equipment that has reached the end of its useful life.

## Appendix 6 – Supporting Documentation for High Performance and Sustainable Buildings

**High Performance Sustainable Buildings Working Group (HPSBWG)–  
September 2007**

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**Charter:** The purpose of the High Performance Sustainable Buildings Working Group (HPSBWG) is to support the Department in implementation of the TEAM Initiative supporting Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*. The Executive Order requires the Department of Energy to ensure that new construction and major renovations of agency buildings comply with or *exceed* statutory requirements and address each of the five guiding principles set forth in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) for planning, acquiring, designing, locating, constructing, maintaining, and operating its facilities

**Team Leadership**

- Department's Designated Senior Agency Official (SAO), Andy Karsner (and HPSBWG Champion)
- Chair: Office of Energy and Efficiency and Renewable Energy (EERE)

**HPSB Working Group Activities and Recommendations:** The HSBWG has been meeting regularly with all real property owning Programs and the National Nuclear Security Administration (NNSA): the Office of Environmental Management (EM), the Office of Science, the Office of Fossil Energy (FE), the Office of Nuclear Energy (NE), the Office of Energy Efficiency and Renewable Energy (EERE), and the Office of Legacy Management, and Support Offices including: the Office of Engineering and Construction Management (OECM), General Council (GC), and the Office of Health, Safety and Security (HSS).

The HSBWG has reviewed the Guiding Principles and existing rating systems, such as the United States Green Building Council's Leadership for Environmental and Energy Design (USGBC LEED®) and the Green Building Institute's Green Globes. The HSBWG also heard from GSA on their sustainable design program. The General Services Administration, EPA, NASA, Department of Agriculture, and the U.S. Department of Defense services are already directing their new building programs to meet LEED® criteria. The HSBWG has recommended that the Department utilize the LEED® rating system to implement and verify the implementation of the Guiding Principles. Currently, LEED® offers a viable process to match the Guiding Principles to LEED® credits for both new and existing construction and to track performance over time to ensure that DOE capital asset building inventory meets the requirements of the Guiding Principles.

The USGBC currently has a robust training initiative and is supported by local chapters nationwide to train individuals and diverse organizations on green building principles.

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USGBC also provides LEED® professional accreditation that distinguishes individuals with detailed knowledge of LEED® project certification requirements and design principles who must demonstrate that knowledge by passing an exam. There are over 35,000 LEED® Accredited Professionals today including LEED® Accredited Professionals located throughout our national laboratories. USGBC has trained and accredited architects, general contractors, manufactures and distributors in LEED® criteria assure that the Department's diverse construction needs and leadership position can be adequately supported.