



Plant Protection (PP00)  
System Design Description

CHANGE HISTORY

REV. NO.	REV. DATE	PAGES/SECTIONS AFFECTED	APPROVED BY
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1	3/93	REVISED SECT. 1.0, 2.0, 3.3, & APP ADDED SECT. 3.0, 4.0, 5.0, 6.0, 7.0	ECP 1-PP91-144 ECO NO. 6590
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5	6/04	Added PP03 text (Sections 1.3, 2.3, and 3.3). Replaced Figures 1 and 2. Additional changes on pages 1, 5, 6, 8, 9, 11, 17, 18, and 19	ECO No. 11040
6	1/06	Added to 2.0 Design Requirements, changes to 2.1 Summary	ECO 11320
7	9/06	Changes to PP02: Install security system at G&S building for armory	ECO No. 11393, Addendum 2
8	10/06	Changes to PP01 Updated Figure 1	ECO No. 10716, Addendum 9

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## SUMMARY

Security measures at WIPP include systems to:

- Control access to Secret Restricted Data (SRD)
- Prevent theft, malicious damage, or vandalism of government property that would impair the operation of the plant.

A Site Security Plan specific to the WIPP has been developed which details protective measures and security force responses. This System Design Description defines the security areas established within and adjacent to the facility, the associated postings and access controls (PP01), the communication and monitoring support equipment (PP02) and the Intrusion Detection System (IDS) (or Access and Intrusion Monitoring System [AIMS]) (PP03) for SRD waste forms.

### 1.0 SYSTEM DESCRIPTIONS

There are four functional areas designated for the WIPP site and identified in system PP01. The largest area is the Land Withdrawal Area; followed by the Off Limits Area, then the Exclusive Use Area, and the Property Protection Area. Video monitoring of these areas is provided in the Security Control Room (SCR) by a closed-circuit TV system identified in PP02. Also included in the SCR are communications, remote Central Monitoring System consoles, and intrusion detection monitoring and alarm for the Skeen-Whitlock Building and 401 N. Canal. The WIPP also has an Intrusion Detection System (IDS) for access control and intrusion alarm for monitoring Secret Restricted Data (SRD) waste forms (a.k.a. Classified Waste) identified in system PP03.

#### 1.1 PP01

The Property Protection Area (PPA) is surrounded by a chain-link security fence, encompasses 34.16 acres, and provides security and protection for all major surface structures. The Exclusive Use Area is comprised of approximately 290 acres and is surrounded by a barbed-wire fence and cattle guards. Activities in this area are restricted to those needed to support the operation of the WIPP. This area is defined as the closest public access for the purpose of performing accident consequences to the general public in the WIPP Safety Analysis Report. The DOE Off Limits Area encloses the PPA, and is approximately 1,454 acres. These areas define the WIPP exclusion zone within which certain items and material are prohibited. The final zone is marked by the WIPP Site Boundary (WIPP Land Withdrawal Area) a 16-section Federal land area under the jurisdiction of the DOE.

Lighting is provided in the parking lot, and within the PPA to facilitate visual observation. Access to this area is controlled in accordance with the Site Security Plan.

The gatehouse and the associated vehicle trap provide the means for the protective force personnel to control the authorized access of personnel, material, and vehicles into the PPA. The gatehouse contains personnel radiation portal monitors, as well as space for protective force inspection of personnel identification badges and hand carried items. The arrangement of the vehicle trap ensures a continuous boundary to the PPA while allowing traffic in and out. It also provides space for the inspection of vehicles and includes parking spaces for protective force vehicles.

A vehicle gate in the north fence is provided for the salt haulage trucks. This gate also acts as an emergency exit for site personnel should the vehicle gate at the gatehouse not be usable for a site evacuation. Additional vehicle gates are located in the north fence at the northwest corner, in the south fence near the southeast corner, and where railroad track enters the PPA. These gates are normally locked.

## 1.2 PP02

The Security Control Room (SCR) located in the Guard and Security building contains the communication and monitoring equipment used by the protective force personnel. The control room is illustrated in Figure 2. This equipment includes the following:

- A Closed Circuit Television system, which is controlled, monitored, and recorded (optional) from the SCR. The system uses cameras with pan, tilt, and zoom capabilities mounted on the waste hoist tower to observe the majority of the PPA boundary.
- A secondary monitor is also provided in the gatehouse.
- A radio base station which allows communication with onsite personnel, including the Central Monitoring Room (CMR), Emergency Operations Center (EOC), protective force personnel, emergency response teams, and operations personnel.
- A radio base station which allows communication with offsite personnel, including law enforcement and emergency response organizations.
- Telephones, including an attendant console used to direct calls from outside callers that use the site general telephone number.

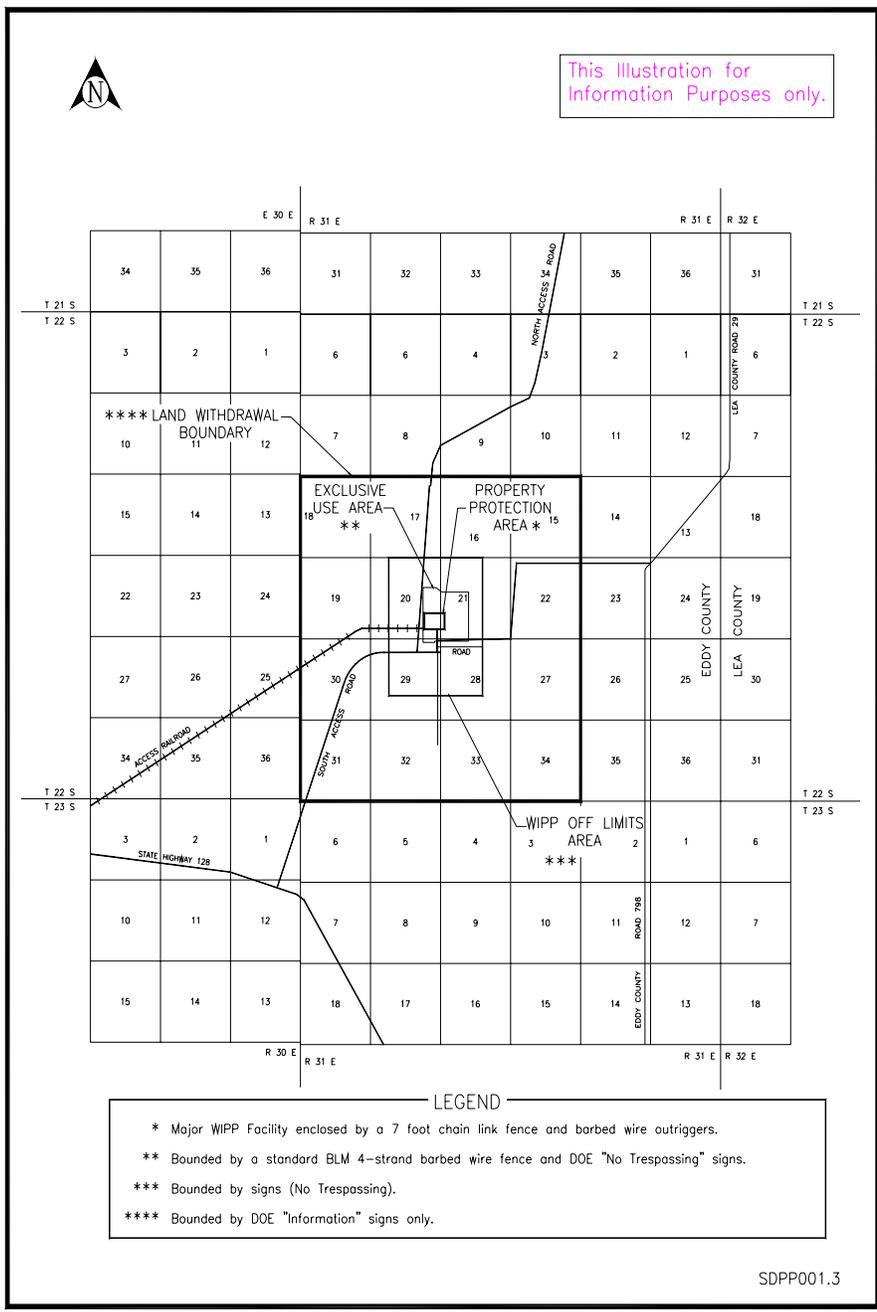


FIGURE 1. WIPP Site Security Areas and Boundary

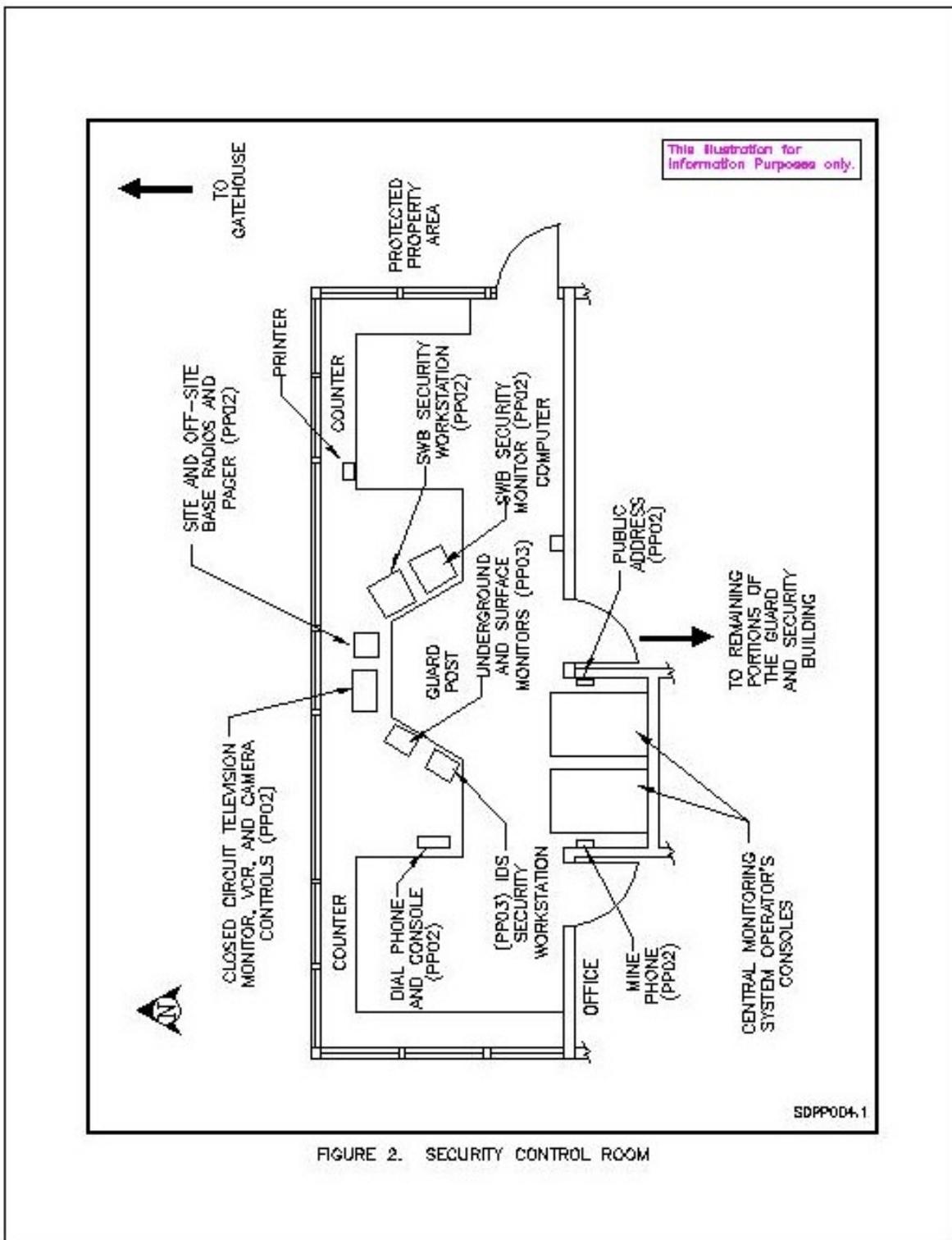


FIGURE 2. SECURITY CONTROL ROOM

- A public address system paging station.
- Two Central Monitoring System (CMS) operator consoles, each including a color monitor and keyboard. Each of these consoles is capable of monitoring the same site data and controlling the same site components as a CMS operator console in the CMR. These consoles are a backup to the CMR and would be manned by CMR personnel should the CMR become inoperable.

Carlsbad facilities associated with the WIPP have intrusion detection monitoring equipment which consist of personal computers and protection sensors. These include the Skeen-Whitlock Building and the 401 N. Canal Street facilities. Some intrusion detection devices are installed at the WIPP site. All but one of these devices are not operational, as protective force patrols and observation serve this purpose. The warehouse facility 453 is equipped with sensors to monitor the entry door during off normal hours.

An alarm system is also installed at the WIPP armory on site. The alarm system monitors all of the external doors at the armory area, and includes passive infrared sensors internal to the armory.

### 1.3 PP03

The WIPP Site Intrusion Detection System (IDS) [or Access and Intrusion Monitoring System {AIMS}] provides protective force personnel with an intrusion alarm and a means for remote surveillance and intrusion alarm of areas where SRD waste forms will be processed and permanently emplaced. These areas are inside the site PPA, in the Waste Handling Building CH Bay and underground in disposal panels.

Secured areas have Closed Circuit Television Cameras, video recorders, motion detection devices, alarm input panels, security control panels and tamper indicators located in strategic places. The Waste Handling Building also has door switches. Underground disposal panels have infrared illuminators.

The SCR and Room 235 in the Support Building have display equipment for remote surveillance by protective force personnel. The system provides CCTV images on an ongoing basis. When motion is detected, alarm notification and camera images of the area are automatically transmitted and recorded. Automatic camera controls can be overridden by protective force personnel.

This system forms an "electronic box" around the secured areas to detect unauthorized entry after normal working hours. Probability and consequence of this event are low and the system was installed as a proactive measure. It is an alternative to direct observation by Q cleared personnel.

Note that alarm and display equipment for the PP03 system is located in the SCR along with PP02 equipment. The two systems are separate and unrelated. Figure 2 shows which equipment belongs to the PP02 System and which equipment belongs to the PP03 system.

The PP03 system is separate from and unrelated to intrusion detection equipment for facility 453 (in PP02 above) and for in-town facilities.

## 2.0 DESIGN REQUIREMENTS

The functional classifications are defined in the Documented Safety Analysis (DSA) and the General Plant Design Description (GPDD).

### 2.1 Summary

WIPP Site security system electrical components comply with electric safety codes and site standards. Standard commercially available security and communication devices are utilized and set to standard protocols. Components are UL listed, as applicable. Spare parts are stocked to allow timely repair in the event of equipment failure.

### 2.2 PP01

The Property Protection Area shall have security fences, as documented in the site security plan. This area includes the main facility. See Figure 3. The fences and gate hardware shall:

- Be installed not less than 20 feet (6 meters) from the building or material under protection to create the isolation zone. The isolation zone shall be void of any obtrusive structure not functionally related to the security fence. However, existing light stanchions, buildings, temporary structures, and fire hydrants need not be moved to meet the 20 foot criteria.
- Extend to within 2 inches (5 centimeters) of firm ground, or below the surface if the soil is unstable or subject to erosion. Surfaces shall be stabilized in areas where loose sand, shifting soils, or surface waters may cause erosion and thereby assist an intruder in penetrating the area. Where surface stabilization is not possible or is impractical, concrete curbs, sills, or similar types of anchoring devices, extending below ground level, shall be provided.

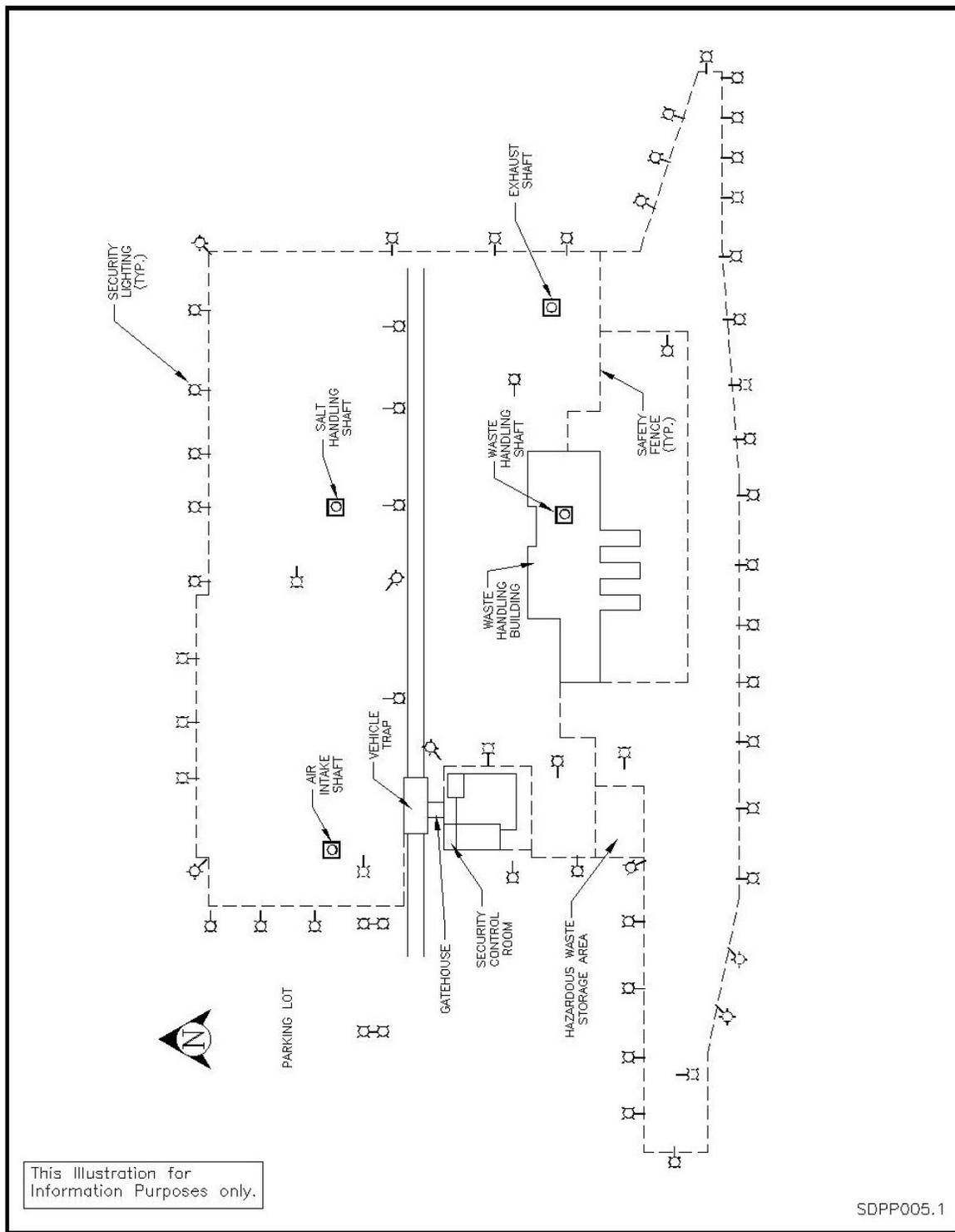


FIGURE 3. Property Protection Area

- Be implemented at all locations where storm sewers, drainage swells, and site utilities intersect the fence perimeter. Unattended openings in the security fence around Property Protection Areas, which meet the following criteria, shall be protected and must incorporate compensatory measures such as security bars:
  - Greater than 96 inches square (619.20 square centimeters) in area and greater than 6 inches (15.24 centimeters) in the smallest dimension; and located within 18 feet (5.48 meters) of the ground, roof, or ledge of a lower Security Area;
  - Located 14 feet (4.26 m) diagonally or directly opposite windows, fire escapes, roofs, or other openings in uncontrolled adjacent buildings; or located 6 feet (1.83 m) from uncontrolled openings in the same barrier.
- Be galvanized steel chain link fabric, consisting of a minimum of 11 gauge with mesh openings not larger than 2 inches. This fencing shall be topped by three or more strands of barbed wire with the outriggers angled outward. Overall fence height, excluding barbed wire shall be a minimum of 7 feet (2.13 meters).
- Be constructed with posts on nominal 10' centers, anchored in concrete and be secured to each post with a minimum of five ties.
- Have gate hardware, such as, screws, nuts, bolts, hasps, clamps, bars, wire mesh, hinges, and hinge pins fastened securely to preclude removal and to ensure visual evidence of tampering. Hardware accessible from outside the area shall be peened, brazed, or spot-welded to preclude removal, or otherwise be secured by hardware that is resistant to tampering (e.g., non-removable hinge pins).
- Facilitate ingress and egress of emergency vehicles and fire protection equipment.
- Where gates are motorized, gate controls shall be located within the PPA. The motorized gates shall be designed to facilitate manual operation during power outages.
- Have "Danger: Authorized Personnel Only" signs posted in English and Spanish and "No Trespassing" signs posted at approximately 50 ft intervals around the PPA fence in English and Spanish. These signs must be legible at 25 ft and any approach to the facility.
- Have prominent security signs at the manned portal that lists prohibited items and a statement that all personnel, packages, and vehicles entering the area may be subjected to search.

- Have any walls serving as part of the security fences around Property Protection Areas meet following requirements:
  - Building materials shall offer penetration resistance to, and evidence of, unauthorized entry into the area. Construction shall meet the Uniform Building Code.
  - Extend from the floor to the structural ceiling, unless equivalent means are used.
- Have any doors and door jambs serving as part of the security fences around Property Protection Areas provide the necessary barrier delay rating required by the security plan. As a minimum, requirements shall include the following:
  - Penetration resistance to, and evidence of unauthorized entry into the area.
  - An astragal shall be used where doors used in pairs meet.
  - Door louvers, baffle plates, or astragals, when used, shall be reinforced and immovable from outside the area being protected.
- Have any windows serving as part of the security fences around Property Protection Areas provide the necessary barrier delay rating required by the security plan. As a minimum, requirements shall include the following:
  - Offer penetration resistance to, and evidence of unauthorized entry into the area.
  - Frames shall be securely anchored in the walls, and windows shall be locked from the inside or installed in fixed (non-operable) frames so the panes are not removable from outside the area being protected.
- Have lighting an average of 0.5 foot candles at any point along the fence of the main facility and the truck security inspection area which is electrically powered such that adjacent perimeter lights are served by different power source branches.

The Exclusive Use Area is surrounded by a barbed wire fence (BLM standard) and cattle guards at open roads and railroad crossings. The area is marked with "No Trespassing" signs and is patrolled by WIPP security personnel.

### 2.3 PP02

(Design requirements not identified).

## 2.4 PP03

Access to areas where classified waste is processed and emplaced will be controlled by a security system. The security system shall:

- Have cameras, intrusion detection devices, and monitors for remote surveillance.
- Provide alarm notification and video images of the area when an intrusion is detected.
- Record video images for future viewing in the area where intrusion was detected.
- Have uninterruptible power supply with sufficient capacity for continued operation without interruption for the duration of routine power outages (4 hours minimum).
- Have 100% coverage for all means of ingress and egress.
- Provide illumination in underground areas with sufficient intensity to allow clear camera images to be produced.
- Have testing performed to verify system operation after initial installation and after substantial hardware modifications. System functions affected by the installation or modification (such as motion detection, camera activation, data and image transmission) will be tested.
- Have trained operators and maintenance staff, familiar with system configuration and use. Administrators will be trained on system setup and maintenance.
- Have essential system features documented.
- Have computer programming backed up on a regular basis
- Have administrative methods and computer software that controls access to the system.
- Have approved instructions for performance of system modifications and maintenance.

The two WIPP Site locations where SRD waste is monitored by PP03 equipment are:

- The Waste Handling Building CH Bay area
- The underground disposal panel area.

The two WIPP Site locations where surveillance is performed using PP03 equipment are:

- The Security Control Room, which has alarm notification and camera surveillance equipment for protective force personnel.
- Room 235 in the Support Building, which is the alternate area for alarm notification and camera surveillance.

Applicable Codes and Standards		
Subject	Number	Title
General Design	DOE O 473.1	Physical Protection Program
General Design	NEC/NFPA 70	National Electric Code
Posting Requirements	10 CFR 860	Trespassing on Administration Property
Posting Requirements	40 CFR 264.14	General Security Measures
Maintenance	DOE O 433.1	Maintenance Management Program For DOE Nuclear Facilities

### 3.0 SYSTEM OPERATIONS AND PRECAUTIONS

#### 3.1 PP01

##### Property Protection Area

Objects or equipment which could be used to defeat the fence by going under, over, or through the fence shall be removed from the fence line.

The two gates at the main entrance are interlocked so that one gate must be closed before the other can be opened. A bypass switch is provided so that both gates can be opened at the same time if this becomes necessary. A set of controls is also provided near the operator of each gate to facilitate performance of maintenance. Operation of the gates is essentially as follows:

- Pressing an OPEN or CLOSE push button closes the contact to start the hydraulic pump on the gate operator and operates a solenoid valve to run the hydraulic motor to open or close the gate. A maximum run timer ensures that the operator will not run for longer than approximately twice the time needed to open or close the gate. In both the open and close operations the gate is stopped at the end of its travel by timers and limit switches.
- A gate sensing device installed in the gate edge reverses the direction of the gate should a vehicle be encountered by the closing gate. A warning beeper and flashing beacon are actuated when the gate is in motion.

### 3.2 PP02

#### CCTV Surveillance System

There are currently four security cameras installed on the top of the Waste Hoist Tower, one at each corner, to provide surveillance of the perimeter fence. The location of the cameras, along with their capability to automatically pan a preset pattern, provides for viewing of the majority of the perimeter fence area from the Guard and Security building or the Gate House. Each camera is programmed to pan back and forth, covering at least 90 degrees. The system automatically switches from camera to camera in a preset sequence.

A monitor and keypad located in the hardened area of the G&S building allows security personnel to view the perimeter fence area as the cameras go through their sequence or manually switch from camera to camera. The pan/tilt function allows the operator to manually position a specific camera to view a specific area, and with the zoom/focus capability, provide a close and clear view of that area. Another monitor located in the Gate House allows the security personnel in that facility to view the same areas as the personnel in the G&S. However, the monitor and keypad in this facility provides only manual switching of the cameras, not pan/tilt control capability.

### 3.3 PP03

#### WIPP Site Intrusion Detection System

Monitoring equipment, illuminators, communication systems and output devices are set to operate continuously when processing and emplacing SRD waste forms.

Signals from surface and underground cameras are displayed on video monitors. Alarm notification is provided at work station computers. Work stations are used by qualified security personnel to program control panels in waste handling and disposal areas. Programming can be changed for daily operating conditions, such as masking alarms and turning off switches or sensors when work is being done in an area.

Under normal conditions, images from video cameras in monitored areas are automatically selected for display on a rotating basis. Automated camera selection can be overridden by operators. They can select cameras that cover areas they need to view and they can zoom-in and pan within the fixed camera image areas.

When a monitored door is opened or when motion is detected by a sensor, the system transmits alarm notification of the event to the workstations. The camera covering the corresponding area is automatically activated and images from it are displayed at the workstation for surveillance by security force personnel.

Signals from the detection devices are transmitted to an alarm panel that activates a camera relay through a security control panel. The sensor/camera association is programmed into the system. Monitors in surveillance areas display the image from the camera where motion was detected. The control panel provides alarm notification (in text and/or sound) at computer workstations.

The CH Bay area of the Waste Handling Building is secured with the following monitoring and control equipment:

- Motion detectors cover 100% of the required areas. They are the Passive Infrared Sensor (PIRS) type, with 180 degree coverage in a horizontal plane, adjustable vertical range, tamper switches, line monitor trouble indicators and normally closed contacts. Settings for distance, range and sensitivity are made for compliance with acceptance testing criterion.
- Door monitor switches provide notification for 100% of the required areas. They are the balanced magnetic, preadjusted type that conform with the Class IV specification. Two door switch configurations are used: one for roll up overhead doors and the other for pedestrian doors.
- The main control panel or terminal box contains equipment for processing input from the motion detectors and the door switches, controls to select and operate cameras, communication devices and a video recorder. It has a tamper switch and includes the following:
  - Alarm control panel that processes input from monitoring devices and is programmed by protective force personnel from remote workstations. The control panel uses the video multiplexer to select a camera in the area where intrusion is detected and it provides alarm event notification to work stations. It has 5 communication cards and space for 16 inputs from alarm modules.
  - Alarm input data converter takes data from the alarm control panel and converts it for the video multiplexer.
  - The video multiplexer selects cameras based on instructions from the data converter and the alarm control panel. It has 16 channels for camera selection.
  - A video archive drive is used to record video images during alarm events for future viewing. It has 250 MB storage capacity with zip drive.
  - A one-channel data transceiver operates through a converter to communicate with the workstations for manual override of automated camera controls.

- A four-channel video transceiver with one data channel converts Waste Handling Building CCTV signals for transmission to a converter in Room 253 of the Support Building.
- Closed circuit TV cameras provide 100% coverage of the required areas. They have fixed lenses with F3.5 to F8 auto varifocal iris. Camera positions are adjusted to meet acceptance criteria identified in test documents. Digital imaging software at the workstations allows operators to zoom in on areas within the camera image and to pan around within the fixed image area.

Uninterruptible Power Supplies provide continuous power for sensors, IR illuminators and cameras in the event of a power outage. Automatic timed control settings are disabled.

Tamper indicators placed in strategic locations.

The system uses plant communication fiber optic cable (System PC05) to communicate between workstations and the areas being monitored.

Underground disposal panel areas, where the waste is permanently emplaced are secured by two similar monitoring systems. The two systems are independent and have separate control equipment. Systems are placed in strategic locations in access drifts of the disposal panel and in the room that is currently being filled. When a room or panel is nearly filled, equipment is moved up to the next area.

Underground PP03 system components and functions are like those in the Waste Handling Building, with the following exceptions:

Underground, components for each system are installed on skids that can be moved when a room or panel is filled

In underground disposal areas, there are no doors to be monitored and no door switches.

Video multiplexers are 9 channel instead of 16 channel.

Infrared illuminators are used for underground cameras. They are located and adjusted for camera operation.

The SCR is the primary location for protective force personnel to perform surveillance on the secured areas. Equipment listed below provide alarm notification and camera images:

A computer "server" workstation with a monitor, keyboard, and mouse. Minimum computer requirements are Pentium III, 800/133 MHZ, 512 MB SDRAM, 20 GB hard drive, floppy drive, 20/48X CD-ROM, 2 serial and 1 parallel and 2 USB ports, 10/100 Ethernet port, 56K modem, Windows 2000 server operating system for up to 5 clients and PCAnywhere.

Specialized security software programs are installed in the workstation to program remote alarm panels with associations between cameras, motion detectors and door switches. The work station is also used to modify system configuration according to current facility conditions and security requirements. This may include activating and deactivating alarms, motion detectors and door switches. The workstation also controls system access so that only designated personnel can change configurations.

The SCR workstation communicates with the remote controllers through network and communication equipment in Room 235 of the Support Building. When an intrusion event is detected, the workstation is notified. It provides a visual and/or audible alarm and the event is logged in the system's database. Protective force personnel then dispatch the alarm.

The video system is separate from and independent of the workstation. It has video monitors, a video multiplexer with a keyboard, a fiber optic data converter for the network and a four channel fiber optic transceiver that converts fiber optic signals for the monitors. The monitors display automatically selected camera images. Controls allow operators to override automatic camera selection and make other temporary and permanent changes.

Uninterruptible Power Supplies provide continuous power for operation of the workstation and video system in the event of a power outage. Automatic timed control settings are disabled.

Room 235 in the Support Building is the alternate location for surveillance of the two secured areas. It has identical, redundant equipment plus additional fiber optic conversion and transceiving equipment. Communication signals from remote sensing equipment in the secured areas are transmitted to the SCR through Room 235 of the Support Building. Additional communication equipment includes:

- Network multiplexer cards for communication with cameras in the two underground systems
- Serial network card to communicate with underground cameras
- Fiberoptic transceiver with four video channels and one data channel for equipment in the waste handling building
- Data transceivers for remote monitoring system.

The PP03 WIPP Site Intrusion Detection System is active only during the "window" of time when classified waste is being processed and emplaced. When the processing of classified waste is completed in the Waste Handling Building and the classified waste is "permanently" emplaced in a disposal room underground, the IDS can be inactivated.

#### 4.0 APPENDICES

##### APPENDIX A - Maintenance Schedules

The fence shall be examined for damage or signs of attempted intrusion, and the status of perimeter lights shall be noted during the normal security patrols. Corrective action must be implemented in a timely manner. The corrective action shall be either a repair of the problem or a temporary compensating action such as, temporary lighting, constant observation, CCTV installation etc.

All maintenance performed on the components of the plant protection system shall follow the requirements of applicable DOE Orders. When maintenance is performed upon a component, proper alignment, clearances, performance, and other checks and tests shall be made and verified to ensure the component is restored to service in an acceptable condition. After corrective maintenance, a retest, as required, shall be performed to ensure that the system has been restored in compliance with its design operating capability.

Vendor manuals provide trouble shooting charts and component replacement procedures and should be used.

##### **PP01**

Any hole in the PPA boundary fence larger than one square foot needs to be repaired immediately since continuous guarding of the breach is required.

##### **PP02**

No specific in-service inspection of the Closed Circuit Television is required. Proper functioning is observed by the operator during routine operation.

The surveillance and in-service inspection of the communication equipment is covered by system PC00 (SDD-CM00). A radio check with off-site law enforcement agencies is performed on an as needed basis.

There are no surveillance instrumentation requirements for the plant protection system components.

##### **PP03**

No specific in-service inspection of the IDS is required. Proper functioning is observed on a daily basis by operators.

The surveillance and in-service inspection of supporting communication equipment is covered by system PC00 (SDD-CM00).

No periodic maintenance requirements are identified. Corrective maintenance will be performed on an as-needed basis. Areas covered by the system are also checked by the roving watch underground and by routine security checks on the surface.

Daily system checks are performed by operators and alarm event notifications are dispositioned according to a documented process. Backup power supplies (UPS) are checked routinely (automatic battery test is carried out periodically. In the event of a fault, a LED provides advance warning for battery replacement).

**APPENDIX B - Original Equipment Documentation**

The following is a listing of owner's manuals associated with specific pieces of equipment. These are available in the Engineering File Room (EFR).

<b>Equipment Number</b>	<b>Item</b>	<b>Manual or Brochure</b>	<b>Company</b>
41-V-006	Camera	PELCO CC +600	PELCO
41-V-007	Camera	PELCO CC +600	PELCO
41-V-008	Camera	PELCO CC +600	PELCO
41-V-009	Camera	PELCO CC +600	PELCO
45-V-002	Camera	Panasonic WV-CL300CCD	Panasonic
45-Q-010	Gate Operator	222 SS EX Slide	Hy - Security Gate
45-Q-011	Gate Operator	Gate Operators	Operators - Seattle, WA
41-V-107 Series	IDS CAMERAS CH Bay (Surface)		Pelco
	Underground System 1		Pelco
52-V-004, 5 & 6	Underground System 2		Pelco
411-YS-411 Series	IDS PIRs CH Bay (Surface)		Pulnix
	Underground System 1		Pulnix
512-YT-006 & 7	Underground System 2		
	IDS IR ILLUMINATORS Underground System 1		Stellar-Senstar
	Underground System 2		Stellar-Senstar
411-YT-411 Series	IDS DOOR SWITCHES Overhead and Pedestrian Doors CH Bay (Surface)		Hirsch

Equipment Number	Item	Manual or Brochure	Company
45P-UPS 03/008 45-P-UPS 03/009 52P-UPS03	IDS UPS CH Bay (Surface) SCR (Surface) CMR (Surface) Underground System 1 Underground System 2		
411-CP-411 521-CP-006 521-CP-007	IDS ALARM PNL & CONTROLLER CH Bay (Surface) Underground System 1 Underground System 2		Hirsch Hirsch Hirsch
411-AJC-411 45P-TBSE/001 41P-TBSE/002 521-AJC-006 521-AJC-007	VIDEO CONTROL DEVICES CH Bay (Surface) SCR (Surface) CMR (Surface) Underground System 1 Underground System 2		Hirsch Hirsch Hirsch Hirsch Hirsch
411-AT-411 458-AT-000 451-AT-000 451-AY-000 452-AY-000 521-AT-006 521-AT-007 512-AT-007	IDS COMMUNICATION EQUIPMENT Alarm Inputs, Fiber Optic Transceivers, Recorders, & Converters CH Bay (Surface) SCR (Surface) CMR (Surface) Underground System 1 Underground System 2		Hirsch Int'l Fiber Systems. Dedicated Micros, Iomega Int'l F.O. Sys. Sprite-Ded.Micro
458-AA-000 451-AA-000	IDS WORK STATIONS SCR (Surface) CMR (Surface)		

APPENDIX C - System Interfaces

Listed below is a summary of the interface requirements for the PP00 system. Since the PP00 system does not provide service to any other system, there are not secondary interface requirements.

SYSTEM PROVIDING SERVICE	SERVICE TO BE PROVIDED
ED00	<p>Provide 480 VAC 60Hz, service to each light fixture and supply the necessary quantity of fixtures to assure that the required light levels are met for the PPA.</p> <p>Provide 120 VAC 60Hz, service to the security control room and the gatehouse and the equipment therein. Provide 120 VAC 60 Hz, service to the security closed circuit television (CCTV) system including the cameras on the Waste Hoist Tower roof and the controls, monitors, and recorders in the Security Control Room. The physical interface shall be at the breaker protected terminals within the nearest electrical system enclosure, if the security equipment is connected directly to the breaker enclosure. If the security equipment is connected to a wall outlet (that is, the interface).</p> <p>Provide 120 VAC 60 Hz service to CH Bay area of the Waste Handling Building, to Room 235 of the Support Building and to the Security Control Room for waste handling area intrusion detection system components. In the waste handling building; control panels, network communication equipment, motion detectors, door switches, security closed circuit television (CCTV) cameras, video recorders, communication equipment and the control system use 120 volt power. In the Security Control Room and in Room 235 of the Support Building; computer workstations, monitors and communication equipment use 120 volt power.</p> <p>Provide backup power for the security control room and the outside perimeter lights.</p> <p>Provide on-site instrumentation and control cabling.</p> <p>Provide grounding of perimeter fence.</p> <p>Provide 120 VAC 60 Hz service to underground disposal panels for waste handling area intrusion detection system components. This includes control panels, network communication equipment, motion detectors, door switches and the security closed circuit television (CCTV) system.</p>
CF00-GC00	Provide sheltered space for the SCR and the Gatehouse

<b>SYSTEM PROVIDING SERVICE</b>	<b>SERVICE TO BE PROVIDED</b>
PC00	Provide phones used by security.  Provides pagers, radios, and other communication equipment used by security.  Provide outside physical equipment to support communications, such as antennas.  Provide charging system for all battery powered communication device used by security.  Provide maintenance on all communication equipment including frequency drift verification of all radio equipment in accordance with FCC regulations.
RM00	Provide portal radiation monitors for the gatehouse.
CM00	Provide interface equipment with the CMR and the alternate CMR. Two CMS operator consoles, each including a color monitor and keyboard, are located in the SCR. Each of these consoles is capable of monitoring the same site data and alarms and controlling the same site components as a CMS operator console in the CMR. One of the consoles is configured in the alarm mode and can provide audible as well as visual alarms. These consoles are a backup to the CMR and would be manned by CMR personnel should the CMR become inoperable.
FP00	Provides fire protection and alarm for the SCR and gatehouse.

**APPENDIX D - Operating Limits**

As a Balance of Plant System, the plant protection equipment is not designed to meet the Natural Phenomena Hazards (NPH) such as Design Basis Earthquake and Design Basis Tornado. In general, following the NPH or any other damaging event, the plant protection system equipment should be checked for functional integrity to ensure that the system can satisfactorily perform its specified function.

Vehicle trap gate operating limits for limit switch clearance, the "soft stop" open timer, maximum run timer, and placement of physical stops are given in manufacturers' installation instructions. The vehicle trap gates can be operated manually if power is not available.

In addition to the fire protection and mitigation provided by the fire protection system FP00, the SCR in the guard and security building and the gatehouse guard area are hardened areas protected from fires.

There are no safety limits, system set points or alarm set points for the plant protection system except for the gatehouse portal radiation monitors. The alarm set point for the gatehouse portal radiation monitors is established by Health Physics personnel.

#### APPENDIX E - Alarms

PP03 door switches, passive infrared motion detectors, tamper indicators and line monitors initiate IDS alarms in the SCR and Room 235 of the Support Building. Locations and settings for these devices are determined by design documents and functional testing.

#### APPENDIX F - Control Set Points

None