

**PROGRAMMATIC AGREEMENT  
AMONG THE  
U.S. DEPARTMENT OF ENERGY/NATIONAL NUCLEAR SECURITY  
ADMINISTRATION/ PANTEX SITE OFFICE,  
THE TEXAS STATE HISTORIC PRESERVATION OFFICE,  
AND THE  
ADVISORY COUNCIL ON HISTORIC PRESERVATION**

*Authorizing the*

**PANTEX PLANT  
CULTURAL RESOURCE MANAGEMENT PLAN  
U.S. Department of Energy, National Nuclear Security Administration,  
Pantex Site Office**

April 2004



*Prepared by:*  
BWXT Pantex, LLC,  
Legal Division,  
Regulatory Compliance Department



*Prepared for:*  
U.S. Department of Energy,  
National Nuclear Security Administration,  
Pantex Site Office

Confirmed To Be Unclassified By: M.D. Thompson (Authorized Classifier), Date: 11/03/03

**PROGRAMMATIC AGREEMENT  
AMONG THE  
U.S. DEPARTMENT OF ENERGY/NATIONAL NUCLEAR SECURITY  
ADMINISTRATION/ PANTEX SITE OFFICE,  
THE TEXAS STATE HISTORIC PRESERVATION OFFICE,  
AND THE  
ADVISORY COUNCIL ON HISTORIC PRESERVATION**

Recitals

WHEREAS, the U.S. Department of Energy National Nuclear Security Administration Pantex Site Office (PXSO) oversees the management and operation of the Pantex Plant facility; and

WHEREAS, management and operation of Pantex Plant requires frequent modifications and alterations to existing Plant properties and their functions, up to and including demolition of excess properties; and

WHEREAS, the PXSO has determined that such modifications and alterations may effect properties that are eligible for the National Register of Historic Places (National Register); and

WHEREAS, PXSO has made National Register-eligibility determinations for historic properties (including sites, buildings, structures, objects, artifacts, and records) related to three separate contexts (archeology, World War II, and Cold War), which are described in the attached *Cultural Resource Management Plan, U.S. Department of Energy National Nuclear Security Administration Pantex Site Office, Pantex Plant*, and

WHEREAS, BWXT Pantex, LLC., (BWXT) is the Managing and Operating Contractor responsible to the PXSO for preparing the necessary information and analysis for National Historic Preservation Act (NHPA) compliance, pursuant to 36 CFR § 800.2(a)(3); and

WHEREAS, the definitions listed in 36 CFR § 800 are applicable throughout this Programmatic Agreement; and

WHEREAS, Subpart C of 36 CFR 800 authorizes the execution of this Programmatic Agreement; and

WHEREAS, the PXSO intends to use the provisions of this Programmatic Agreement to address applicable requirements of Section 110 (a), (b), and (d) of the NHPA, as amended (16 U.S.C. 470f and 470h-2(f)), the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001-13) (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and the Archeological Resource Protection Act (ARPA); and

WHEREAS, this Programmatic Agreement supersedes all previous agreements among the PXSO, the Texas State Historic Preservation Office (SHPO), and the President's Advisory Council on Historic Preservation (Council); and

WHEREAS, the PXSO has consulted with the SHPO and the Council pursuant to the regulations at 36 CFR § 800 implementing Section 106 of the NHPA; and

WHEREAS, The U.S. Department of Energy's Chief Historian and Federal Preservation Officer has reviewed and concurred with the provisions of this Programmatic Agreement;

NOW THEREFORE, the PXSO, the SHPO, and the Council agree that the management and operation of Pantex Plant shall be carried out in accordance with the following stipulations in order to take into account the effects of management and operation, and of specific undertakings, on Pantex Plant's properties potentially eligible for the National Register.

## Stipulations

The PXSO will ensure that the following measures are carried out:

### I. **Resource Management**

The PXSO will manage those historic properties previously identified and evaluated as eligible for inclusion on the National Register according to the attached Cultural Resource Management Plan (CRMP). These management activities are summarized as follows:

- A. In-situ preservation of the following National Register-eligible historic properties.
  - 1. In-situ preservation and monitoring of archeological sites 41CZ66 and 41CZ23
  - 2. In-situ preservation and continued use of buildings 12-17 complex (17, 17A, 17B, and 17E), 11-20, 12-26, 12-33, 12-44 Cell 1, 12-60, and 12-64
  - 3. Preservation of Cold War objects and artifacts (examples include rail cars, Elmes press, gun barrel press, snatch friction test machine, Monarch lathe, weapon trainers, and weapon tooling).
- B. Archival preservation according to 36 CFR § 79.9 of the following National Register-eligible records.
  - 1. All reports, maps, photographs, and artifacts generated or collected as a result of archeological surveys at Pantex Plant.
  - 2. World War II-era drawings, photographs, and *Pantexan* issues
  - 3. Cold War-era documents, photographs, drawings, film, and video directly related to the Pantex Plant's mission related processes.
- C. Display and interpretation of the Plant's history.
  - 1. Publicly-accessible Southern High Plains archeology exhibit
  - 2. Publicly-accessible Pantex Plant World War II history exhibit
  - 3. Classified and unclassified Cold War history exhibits.
- D. Narrative history of Pantex Plant, including the continued collection of oral histories or development of a knowledge preservation program, as needed.
- E. Documentation according to Stipulation V of all buildings (or representatives) determined National Register-eligible, but not designated for in-situ preservation. Documentation may include the development of an "intranet web-based building reference book/site."

## II. **Review Process**

The following review measures shall be carried out in lieu of the procedures set forth in Subpart B of 36 CFR § 800 and in accordance with Section 106 of the NHPA, as stipulated in 36 CFR § 800.14.

- A. When a proposed undertaking involves any activity not listed in Appendix A Exemptions, that has the potential to adversely effect any property designated in the attached CRMP for in-situ preservation, the PXSO shall consult with the SHPO and the Council in accordance with Stipulation III. Examples of such undertakings include, but are not limited to:
  - 1. Transfer of ownership or land-disturbing projects with the potential to adversely effect archeological sites 41CZ66 or 41CZ23; or
  - 2. New construction, demolition, dismantlement, facility modification, or transfer of ownership projects with the potential to adversely effect any Cold War buildings designated for in-situ preservation; or
  - 3. Demolition, dismantlement, or transfer of ownership of equipment, objects, or artifacts designated for preservation.
- B. When a proposed undertaking involves demolition or structural modifications to any property eligible for inclusion on the National Register, but not designated in the attached CRMP for in-situ preservation, the PXSO shall complete documentation according to Stipulation V (unless such documentation has already been completed under Stipulation I.E.).
- C. When a proposed undertaking involves the demolition, dismantlement, or transfer of ownership of equipment, objects, or artifacts not designated in the attached CRMP for preservation, the PXSO shall evaluate the equipment, objects, or artifacts involved in the undertaking according to Stipulation VI.
- D. When a proposed undertaking involves any property type listed in Appendix A Exemptions, or any property not listed in the final CRMP as eligible for inclusion on the National Register, the PXSO may proceed without further consultation or the implementation of mitigation measures.

## III. **Consultation Process**

The PXSO accepts the high degree of historical importance attached to those properties designated for in-situ preservation, and will minimize the impacts of any project that might adversely effect these historic properties. If PXSO determines that such a project cannot be avoided, they will first consult with the SHPO and the Council. Consultation required under Stipulation II.A. will provide the SHPO and the Council an opportunity to consult with PXSO regarding project alternatives to reduce or eliminate adverse effects to properties designated for in-situ preservation. Consultation required under Stipulation II.A. shall be conducted as follows:

- A. The PXSO shall provide a written request for consultation to the SHPO and the Council that includes the following documentation:

1. A description of the undertaking, including text, photographs, maps, and drawings
  2. A description of the area of potential effect, including all properties designated for in-situ preservation that might be effected by the undertaking
  3. A description of the adverse effects of the undertaking on such properties
  4. A description of alternatives to the proposed undertaking that were considered, and reasons they were not chosen
  5. A description of the PXSO's effort to obtain and consider views of the interested public on the proposed undertaking, including copies of any comments received
  6. A proposal for in-situ preservation of an alternative property that represents the same associative and physical property type characteristics, or some other proposal to mitigate the adverse effects to properties designated for in-situ preservation
- B. The SHPO and the Council shall respond in writing to the PXSO's request, within 45 calendar days after receipt. If the SHPO and the Council agree with the PXSO that there are no viable alternatives to avoid adverse effects to a property designated for in-situ preservation, and that the proposed mitigation is appropriate, then the PXSO shall mitigate the action in accordance with the measures proposed.
- C. If either the SHPO or the Council do NOT agree with the PXSO that there are no viable alternatives to avoid adverse effects to a property designated for in-situ preservation, or that the proposed mitigation measures are appropriate, then the PXSO shall provide the Council with an opportunity to comment in accordance with Stipulation IV.

#### IV. **Dispute Resolution**

Should the PXSO, and either the SHPO or the Council not agree pursuant to Stipulation III of this Programmatic Agreement, the PXSO shall notify the DOE's Federal Preservation Officer; and all four parties shall consult to resolve the objection. If the PXSO determines that the objection cannot be resolved, then the PXSO shall notify all four parties of said decision and forward to the Council a summary statement of the PXSO's position related to the dispute. Within 30 days after receiving the summary statement, the Council will either:

- A. Provide the PXSO with recommendations, which the PXSO will take into account in reaching a final decision regarding the dispute; or
- B. Notify the PXSO that it will provide comment to the Secretary of Energy pursuant to 36 CFR § 800.7(c), and proceed to comment. Any Council comment provided to the Secretary of Energy will be taken into account by the PXSO regarding the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the PXSO's responsibility to carry out all actions under this Programmatic Agreement that are not the subjects of the dispute will remain unchanged.

V. **Documentation**

Documentation of individual National Register-eligible properties is designed to augment the programmatic preservation activities described in Stipulation I. The following documentation measures shall be carried out for all properties (or representatives) eligible for inclusion on the National Register, but not designated in the attached CRMP for in-situ preservation.

- A. The property will be photographically documented in a manner similar to Documentation Level II of the Historic American Buildings Survey (HABS), including interior and exterior views, using professional quality black and white negatives and 8X10 prints.
- B. Existing as-built and modification drawings shall be preserved in a facility meeting the requirements set out in 36 CFR § 79.9.

VI **Evaluation of Equipment, Objects, or Artifacts**

The following evaluation shall be carried out when a proposed undertaking involves the demolition, dismantlement, or transfer of ownership of equipment, objects, or artifacts not designated in the attached CRMP for preservation and not listed in Appendix A Exemptions.

- A. The PXSO shall evaluate the equipment, objects, or artifacts involved in the undertaking to determine if they are directly representative of one or more of the four historic preservation themes listed here and described in more detail in the Cold War context statement.
  - 1. Fabrication of high explosive components
  - 2. Assembly of nuclear weapons
  - 3. High explosives development work
  - 4. Surveillance testing and evaluation.
- B. If PXSO determines that equipment, objects, or artifacts are directly related to one or more of the historic preservation themes, and a similar piece has not already been identified for preservation, then the PXSO will preserve one or more representative pieces. Preservation of such pieces may include onsite relocation and interpretive display.
- C. If PXSO determines that equipment, objects, or artifacts are not directly related to any of the historic preservation themes, then PXSO may proceed with the project without further consultation or the implementation of mitigation measures.
- D. On rare occasions, contamination issues may preclude the PXSO from preserving representative equipment, objects, or artifacts, even though they are directly related to one or more of the historic preservation themes. On such occasions, the representative equipment, objects, or artifacts will be documented according to Stipulation V., prior to disposal.

VII. **Emergency Situations**

The PXSO, the SHPO, and the Council recognize that emergency situations (officially declared by federal, state, or local government or those posing a threat to human health or safety) may require the PXSO to take immediate action involving properties designated for in-situ preservation, without prior consultation with the SHPO or the Council. In such situations, the PXSO shall notify the SHPO and the Council of the action as soon as practicable. Notification shall include photographic documentation, unless conducting such documentation would be life threatening or endanger the property.

VIII. **SHPO's Onsite Review**

The SHPO may perform onsite reviews of undertakings, provided such reviews are scheduled at least 30 days in advance, require no PXSO or Managing and Operating Contractor expenditures, and are conducted by individuals who are U.S. citizens and hold appropriate government clearances (if required). Work on the undertaking will be suspended until the 30-day review period has elapsed, or the SHPO has completed its onsite review.

IX. **Availability of Funds**

Nothing in this Programmatic Agreement shall be construed as obligating the United States, the State of Texas, or any other public agency, their officers, agents, or employees, to expend funds in excess or advance of appropriations authorized and allocated by law.

X. **Discoveries**

In the event that a previously undiscovered historic property is found during the course of Pantex operations, and determined to be eligible for inclusion on the National Register, the site will be protected from any adverse effects. If protection is not feasible, PXSO shall consult with the SHPO and the Council, according to Stipulation III.

XI. **Native American Graves Protection and Repatriation Act**

In the unlikely event of the discovery of Native American human remains or funerary objects as a result of any Plant undertaking, the PXSO shall notify each of the four tribes identified in the attached CRMP and comply with applicable sections of the NAGPRA.

XII. **Professional Qualifications**

The PXSO shall ensure that all historic preservation work pursuant to this Programmatic Agreement is carried out by or under the direct supervision of a person or persons meeting, at minimum, the qualifications for history, archeology, or architectural history specified in the Secretary of Interior's "Professional Qualifications Standards" (36 CFR § 800.2(a)(1)) and (*Federal Register* Vol. 48, No. 190, p. 44739), as appropriate.

XIII. **Annual Summary**

On or before November 15, 2004, and annually thereafter, the PXSO shall provide a summary report of its activities under this Programmatic Agreement to the SHPO and the Council.

XIV. **Council Comment**

At the request of the SHPO or the PXSO, or on its own initiative, the Council may review and comment on individual undertakings when it determines that historic preservation issues warrant such action. The PXSO shall consider the Council's comments and respond in writing to all consulting parties.

**XV. Amendments**

Any party to this Programmatic Agreement may propose to amend its terms by submitting the proposed amendment in writing to each of the other parties and initiating consultation, whereupon all parties must agree before an amendment will be attached to this Agreement.

**XVI. Termination**

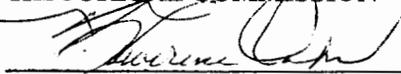
Any party to this Programmatic Agreement may terminate it by providing 60 days written notice to the other parties, provided that the parties consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

Execution of this Programmatic Agreement and carrying out its terms evidences that the PXSO has afforded the Council and the SHPO a reasonable opportunity to comment on its management and operation of Pantex Plant under 36 CFR § 800, that the PXSO has taken into account the effects of its undertakings at Pantex Plant on properties eligible for inclusion on the National Register, and that the PXSO has adequately addressed its NHPA Section 110 (a), (b), and (d) responsibilities.

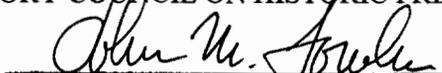
U.S. DEPARTMENT OF ENERGY/  
NATIONAL NUCLEAR SECURITY ADMINISTRATION/  
PANTEX SITE OFFICE

By:  Date: 5/12/04  
Daniel E. Glenn, Area Manager

TEXAS HISTORICAL COMMISSION

By:  Date: 6/22/04  
F. Lawrence Oaks, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

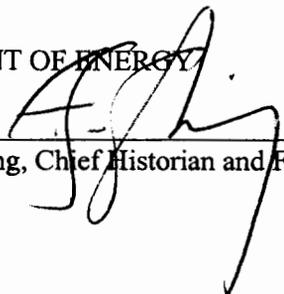
By:  Date: 8/3/04  
John M. Fowler, Executive Director

BWXT PANTEX, LLC.

By:  Date: 5-22-04  
Michael B. Mallory, President & General Manager

**Concurring Party**

U.S. DEPARTMENT OF ENERGY

By:  Date: 10/20/04  
F. G. Gosling, Chief Historian and Federal Preservation Officer

## Appendix A: Exemptions

### Property types

1. Roads
2. Railroad lines
3. Fences
4. Non-extant properties (foundations and ruins)
5. Equipment, tooling, objects, and artifacts used for enduring stockpile programs
6. Utility lines, including, but not limited to:
  - sewage
  - electrical
  - steam
  - compressed air
  - water
  - natural gas

### Activities

1. Routine maintenance and repair activities (Buildings and Grounds, Utilities Systems and equipment) including, but not limited to:
  - Roads and parking lots
  - HVAC system components
  - Landscaping, lawn sprinklers
  - Signs
  - Electrical distribution and lighting systems
  - Steam, condensate, chill water, and RO/DI systems
  - Nitrogen, carbon dioxide, liquid nitrogen, argon and compressed air systems
  - Drain systems
  - Concrete flooring/topping
  - Repainting
  - Roofing
  - Duct-work
  - Fire suppression systems
  - Fencing
  - Minor building repair
  - Utility piping
  - Vehicles
  - Guardrails/barriers
  - Office equipment
  - Emergency repairs
  - Communication system
  - Repair Gulf Seal erosion control covers

2. Plant rearrangement and/or building modifications that do not require new exhaust/venting systems or drain systems including, but not limited to:
  - Office upgrades or rearrangements
  - Factory equipment rearrangements
  - Furnishings installations/replacement
  - Telephone installation
  - Computer cabling
  - Flooring, including carpeting or vinyl tile
  - New HVAC systems
  - Electrical distribution systems
  - Plant utility piping relocation/installation
3. Building modifications that are easily reversible, or that include replacement in-kind, where replacement materials match the original materials in configuration, size, detail, and color.
4. Purchased services contracts that do not impact facilities including, but not limited to:
  - Architectural/engineering services
  - Non-destructive and destructive testing of production materials
  - Production engineering evaluation
  - Environmental monitoring, sample collection, and laboratory analysis
  - Equipment maintenance and repair (support, production, computer, laboratory and office equipment, etc.)
  - Communication equipment installation and repair
  - Waste transportation and disposal for existing waste streams
  - Calibration services
  - Shipping services (truck, air freight)
  - Data processing/key punch services
  - Pest control
  - Laundry/dry cleaning
  - Training services
  - Snow removal
5. Safeguards and Security routine activities
6. Installation or repair of security and personnel safety systems including, but not limited to:
  - Public Address systems
  - Fire alarms, fire detection equipment, and fire suppression equipment
  - Computer security systems
  - Monitoring, detection, and surveillance equipment
  - Security or emergency notification alarm systems
  - Emergency exit lighting systems
  - Emergency eye-wash systems
  - Railings, shields, and guards

**PANTEX PLANT  
CULTURAL RESOURCE MANAGEMENT PLAN  
U.S. Department of Energy, National Nuclear Security Administration,  
Pantex Site Office**

April 2004



*Prepared by:*  
BWXT Pantex, LLC,  
Legal Division,  
Regulatory Compliance Department



*Prepared for:*  
U.S. Department of Energy,  
National Nuclear Security Administration,  
Pantex Site Office



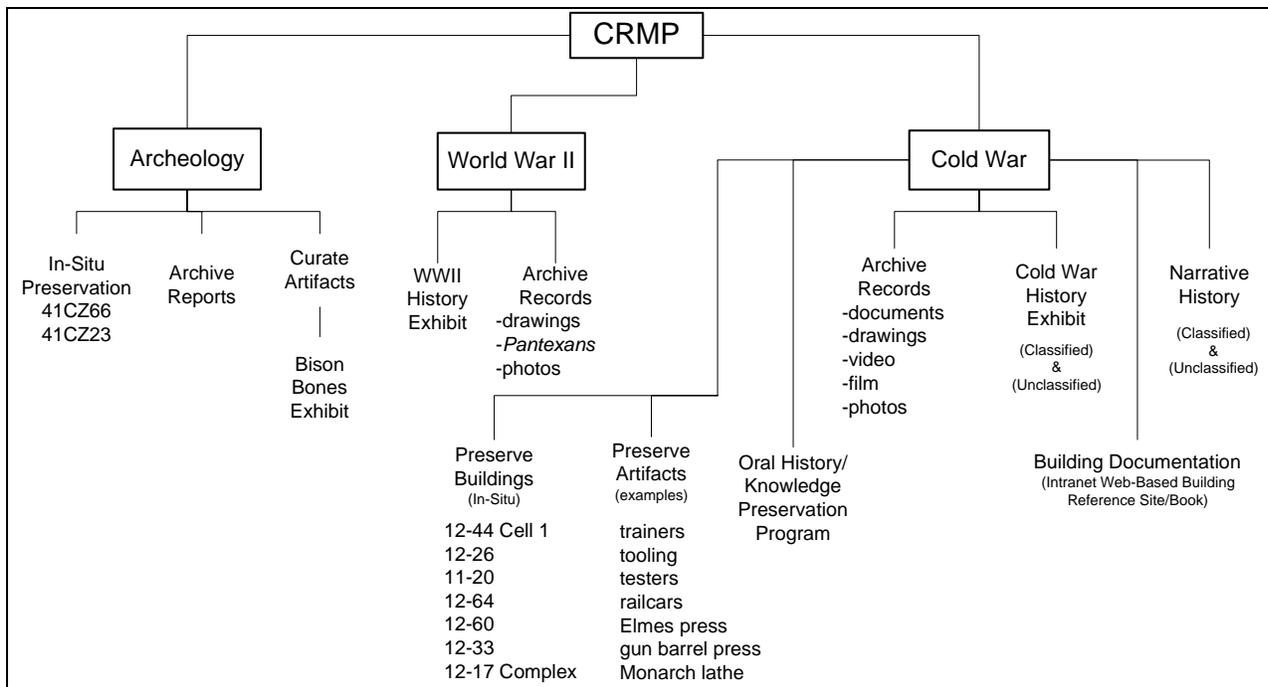
## *EXECUTIVE SUMMARY*

The U.S. Department of Energy National Nuclear Security Administration's (DOE/NNSA) Pantex Plant near Amarillo, Texas, is the nation's only nuclear weapon assembly and disassembly facility. As a federally-owned facility, the cultural resources associated with the Plant must be managed according to a number of federal laws and regulations.

This Cultural Resource Management Plan (CRMP), authorized by the attached Programmatic Agreement, describes a framework to manage the Plant's cultural resources efficiently, systematically, and in a manner that takes into account both the DOE/NNSA's mission and historic preservation concerns. It is a summary statement of DOE/NNSA Pantex Site Office decisions synthesized from contractor and subcontractor investigative work, and consultation with the President's Advisory Council on Historic Preservation, the Texas State Historic Preservation Office, and the interested public. It is focused on those federal requirements most applicable to the cultural resources of Pantex Plant.

Cultural resources at Pantex Plant have been identified under three separate contexts related to: prehistoric and historic archeology, World War II, and the Cold War. In the development of this CRMP, identification, evaluation, and management decisions have been completed for resources related to all three contexts. Remaining work involves implementation of the identified management decisions and related activities, schematically depicted below.

This comprehensive CRMP recognizes the real constraints imposed by the Plant's continuing mission, maximizes available assets, protects the Plant's important cultural resources, continues and strengthens National Historic Preservation Act (NHPA) compliance, and provides a positive and lasting impact for the public. In short, this CRMP presents a win-win situation for the DOE/NNSA, for Pantex Plant, for state and federal NHPA regulators, and for the public.



*Figure 1: Summary of Planned CRM Activities*



## *TABLE OF CONTENTS*

Executive Summary .....	iv
Table of Contents .....	v
1.0 Introduction.....	1
1.1 Pantex Plant Location and Natural Environment.....	1
1.1.1 Meteorology.....	4
1.1.2 Hydrology.....	4
1.1.3 Geology.....	4
1.2 Pantex Plant Site History .....	4
1.2.1 Prehistory/Native American .....	4
1.2.2 World War II.....	5
1.2.3 Cold War.....	5
1.2.4 Present Mission.....	6
1.3 Facility Description.....	6
2.0 Cultural Resource Management.....	8
2.1 Federal CRM Requirements .....	8
2.2 The National Historic Preservation Act.....	8
2.2.1 Identification.....	9
2.2.2 Evaluate .....	10
2.2.3 Manage .....	11
3.0 Pantex Plant CRM .....	12
3.1 Background.....	12
3.2 CRMP .....	13
3.2.1 Section 106 Compliance .....	13
3.2.1.1 New Programmatic Agreement .....	13
3.2.1.2 Integration with NEPA .....	13
3.2.2 Section 110 Compliance .....	14
3.2.2.1 Method.....	14
3.2.2.2 Resource Management Philosophy and Goals .....	15
3.2.2.3 Planned Resource Management Activities .....	15
4.0 Archeology Resources .....	17
4.1 Identification.....	17
4.1.1 Context.....	17
4.1.2 Survey .....	18
4.1.3 Property Types.....	19
4.2 Evaluation .....	19
4.2.1 National Register Criteria .....	19
4.2.2 Integrity.....	19
4.2.3 Eligibility .....	20
4.3 Management.....	20
5.0 World War II-Era Resources .....	21
5.1 Identification.....	21
5.1.1 Context.....	21
5.1.2 Survey .....	21
5.1.3 Property Types.....	22
5.2 Evaluation .....	22
5.2.1 National Register Criteria .....	22
5.2.2 Integrity.....	22
5.2.3 Eligibility .....	23
5.3 Management.....	23
6.0 Cold War-era Resources .....	24
6.1 Identification.....	24



6.1.1	Context.....	24
6.1.2	Survey .....	24
6.1.3	Property Type .....	25
6.2	Evaluation .....	26
6.2.1	National Register Criteria .....	26
6.2.2	Integrity.....	27
6.2.3	Eligibility .....	27
6.2.4	Management .....	28
7.0	ARPA and Native American Issues .....	30
7.1	Identification.....	30
7.1.1	Personal Contact .....	30
7.1.2	Archival Research.....	30
7.2	Requirements and Management.....	31
7.2.1	ARPA Requirements at Pantex.....	31
7.2.1.1	Section 4: Permits.....	31
7.2.1.2	Section 9: Confidentiality.....	31
7.2.1.3	Section 10(c), 13, and 14: Reporting.....	32
7.2.2	AIRFA and NAGPRA Requirements at Pantex .....	32
8.0	Conclusion .....	33
Appendix A:	Reference List of Pantex Plant CRM-Related Documents .....	34
Appendix B:	Pantex Plant Section 110 Compliance Method.....	37
Appendix C:	Pantex Plant Section 110 Compliance Method, Archeology Context .....	38
Appendix D:	Pantex Plant Section 110 Compliance Method, World War II Context .....	39
Appendix E:	Pantex Plant Section 110 Compliance Method, Cold War Context.....	40
Appendix F:	Cold War Properties Eligible for the National Register .....	41
Appendix G:	Cold War Properties Not Eligible for the National Register .....	45
Appendix H:	Pantex Plant CRM Milestones .....	53



## 1.0 INTRODUCTION

This Cultural Resource Management Plan (CRMP) fulfills a U. S. Department of Energy National Nuclear Security Administration Pantex Site Office (PXSO) commitment made in the 1996 Programmatic Agreement, providing a compliance framework for the comprehensive management of cultural resources at Pantex Plant. It is focused on compliance with those federal requirements most applicable to the cultural resources of the Plant: primarily Sections 106 and 110 of the National Historic Preservation Act (NHPA), and to a lesser extent, the Native American Graves Protection and Repatriation Act (NAGPRA), the Archeological Resources Protection Act (ARPA), and the American Indian Religious Freedom Act (AIRFA). This CRMP is a summary statement of DOE compliance decisions synthesized from contractor and subcontractor investigative work (which occasionally included conflicting recommendations), and the dynamic process of consultation among the President's Advisory Council on Historic Preservation (Advisory Council), the Texas State Historic Preservation Office (SHPO), and members of the interested public. Though citations are not included in the text of this report, the documents used in its development are listed in Appendix A, and most are available to the public upon request.

**Section 1** of this CRMP provides an introduction including brief descriptions of the site's location, contextual history, and facilities. **Section 2** includes a general discussion of federal cultural resource management (CRM) laws and requirements. **Section 3** describes Pantex Plant's CRM compliance program. **Sections 4, 5, and 6** describe the investigative

work and NHPA-compliance decisions completed and planned for each of the Plant's three major historic contexts, respectively. **Section 7** describes ARPA compliance and Native American issues at Pantex. **Section 8** is a brief conclusion, and is followed by several appendices that are referenced in the report.

### 1.1 Pantex Plant Location and Natural Environment

The U. S. Department of Energy's (DOE) Pantex Plant is located in the Texas Panhandle in Carson County, north of U.S. Highway 60. The Plant is 17 miles northeast of downtown Amarillo, and consists of 10,177 acres owned by the DOE, and 5,800 acres owned by Texas Tech University and leased by the DOE as a safety and security buffer (Figure 2). Pantex Plant is in the Southern High Plains region of the Great Plains at an elevation of approximately 3,500 feet (Figure 3).

The topography at Pantex Plant is relatively flat, characterized by grassy plains and six natural playa basins. Playas are shallow ephemeral lakes, mostly less than one-half mile in diameter that receive the area's rainfall runoff.

Two to four miles north of the Plant, the relatively flat plains become rolling breaks that form the escarpment above the Canadian River, which is 17 miles north and flows in a generally eastward direction. The Canadian River bed lies 800 feet below the elevation of the plains. The river is impounded by a dam 25 miles north of the Plant, forming Lake Meredith.



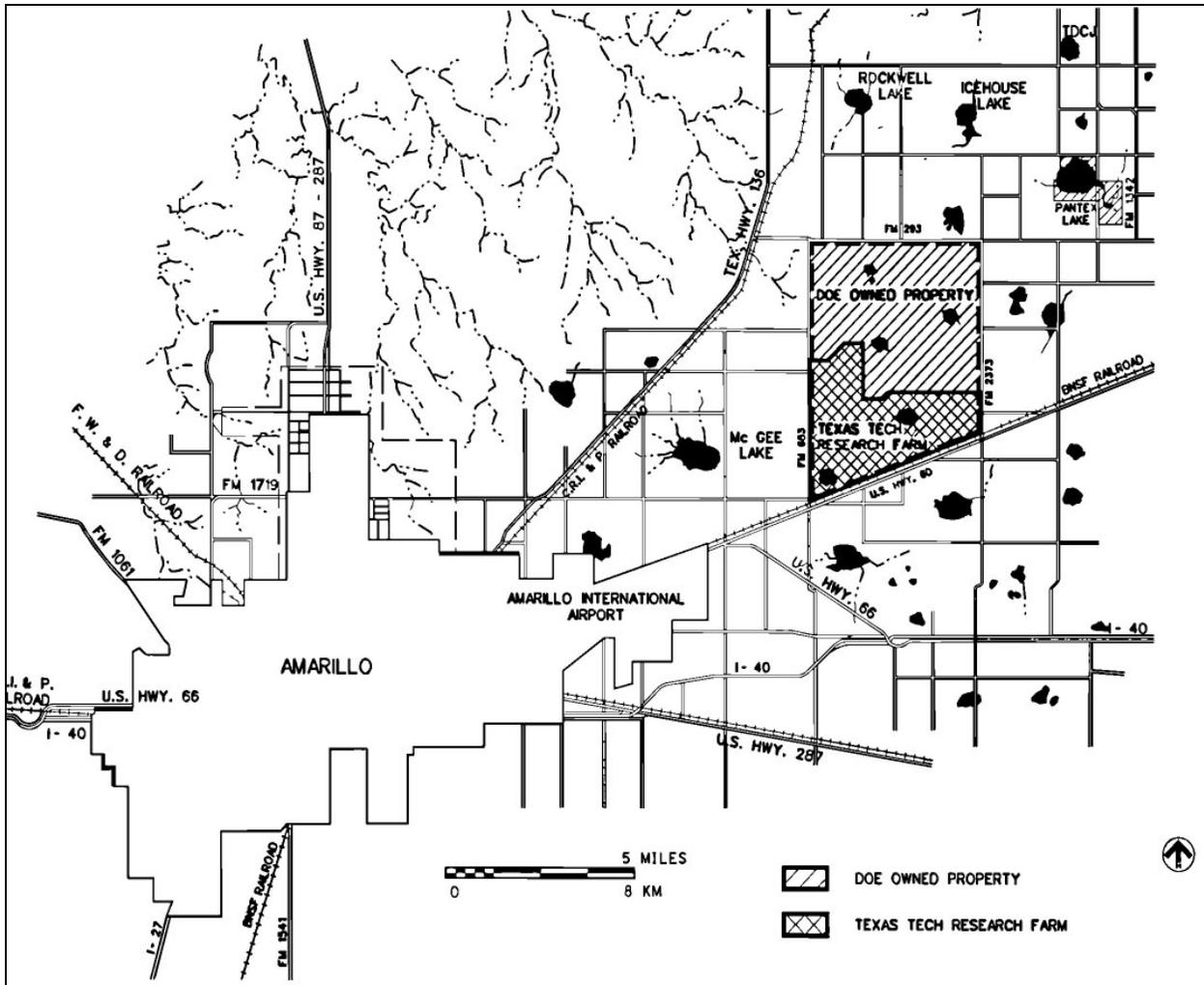


Figure 2: Pantex Plant Site Location



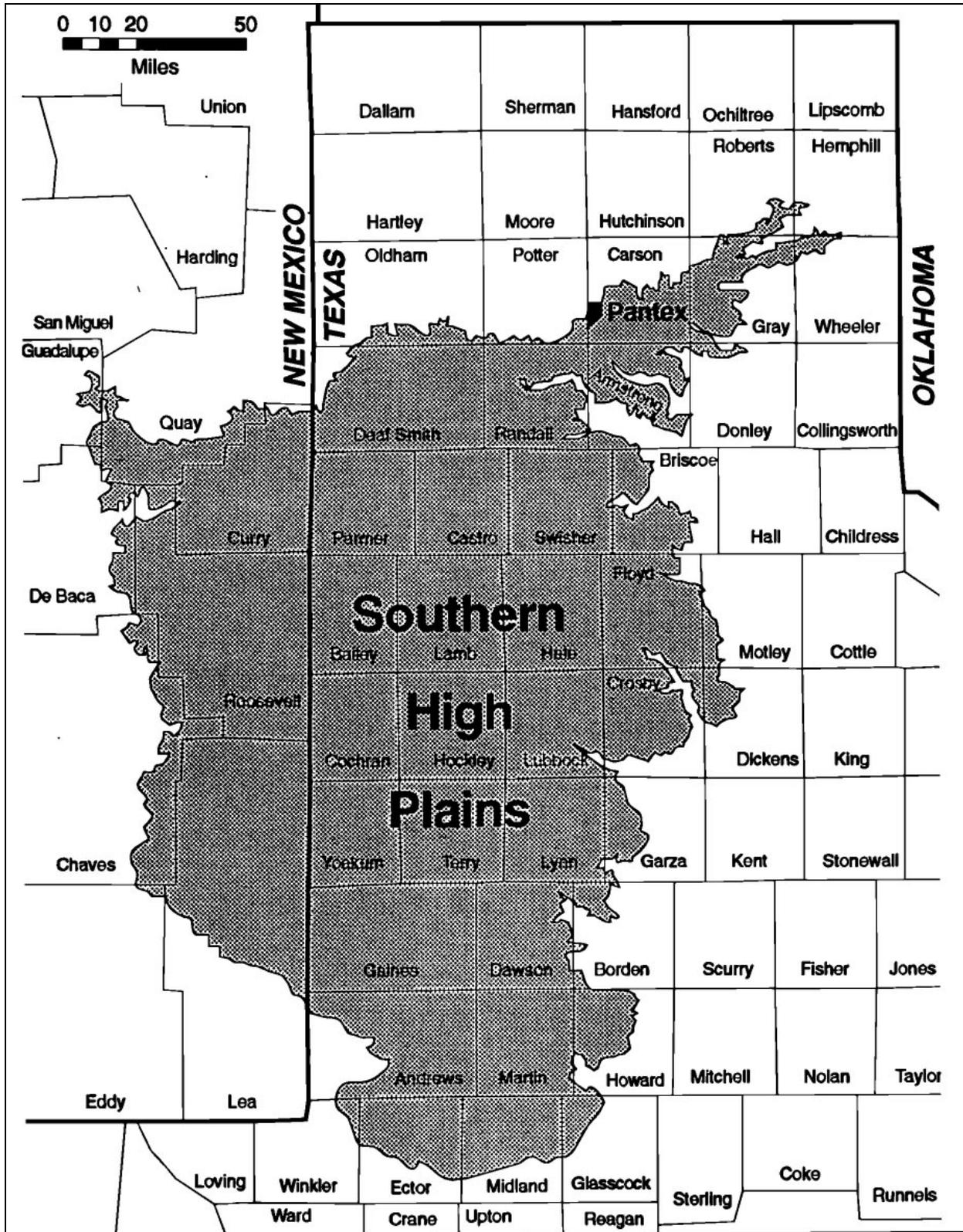


Figure 3: Outline of Southern High Plains



### 1.1.1 Meteorology

The climate in the area is classified as semi-arid and characterized by hot summers and relatively cold winters. The skies are clear to partly cloudy 70 percent of the time. The mean daily minimum temperature in January is 21.8<sup>o</sup>F, and the mean daily maximum temperature in July is 91.1<sup>o</sup>F. The Southern High Plains is subject to rapid temperature changes, especially in winter, when cold fronts pass through the area.

The average annual rainfall is 19.56 inches. Seventy-five percent of the total annual precipitation falls between April and September. Severe storms occur seasonally, with damaging hail, lightning, and wind. The average annual snowfall is 16.9 inches, but it usually melts in a few days. Heavy snowfalls of 10 inches or more, usually with near-blizzard conditions, occur an average of once every 5 years and last approximately 2 days. The region is classified as windy, with wind speeds above 7 miles per hour more than 95 percent of the year. The wind blows predominately from the south and southwest.

### 1.1.2 Hydrology

Surface water in the vicinity of Pantex includes the Canadian River, 17 miles north of the Plant; Sweetwater Creek, 50 miles east of the Plant; the Salt Fork of the Red River, 20 miles east of the Plant; and the Prairie Dog Town Fork of the Red River, 35 miles south of the Plant. Some water from Lake Meredith is mixed with groundwater pumped from the Ogallala Formation and used to supply municipal and industrial water to the cities and towns in the Southern High Plains.

All of the precipitation surface water runoff at the site drains into nearby playas, which are relatively shallow ephemeral lakes; frequently dry because of the high evaporation rate and relatively low precipitation. Playas in the area may be as large as 4,000 feet in diameter, though they average 2,500 feet in diameter. Most playas are floored with a lens-shaped accumulation of clay, sometimes 30 feet thick near the center, but much thinner toward the edges. The soils that develop on these clay floors may contain desiccation cracks up to 6 feet deep when dry.

Most of the surface water at Pantex drains into three onsite playas and a fourth playa located south of the Plant on land leased from Texas Tech University. Pantex Lake is also a DOE-owned playa, and is located approximately 2.5 miles northeast of the main portion of the Plant site. This playa once received treated wastewater discharged from the facility; however, this discharge is now directed into Playa 1. Playa 5, located on Texas Tech University property in the southwest corner of the Plant's buffer zone, receives no surface water drainage from Pantex Plant.

### 1.1.3 Geology

The primary surface deposits at the Pantex site are Pullman soils on the plains surface and Randall soils in the playas. The Pullman soils grade downward into the Blackwater Draw Formation, which overlies the Ogallala Formation. Underlying the Ogallala Formation are the sedimentary rocks of the Dockum Group, which are themselves underlain by Permian rocks.

The Ogallala Formation, consisting of interbedded sands, silts, clays, and gravels, is the primary source of groundwater for Amarillo, Pantex, and the Southern High Plains. The Blackwater Draw Formation, which overlies the Ogallala, consists of interbedded silty clays with caliche, and very fine sands with caliche. The Randall and Pullman soils top the Blackwater Draw Formation.

The soil in the Pantex Plant area is primarily Pullman silty clay loam, which is finely textured and easily eroded. However, the relatively level landscape, combined with natural vegetation, modern agricultural practices, and good soil management practices can limit erosion caused by wind or rainfall.

## 1.2 Pantex Plant Site History

### 1.2.1 Prehistory/Native American

Prehistoric Native Americans once roamed the "Llano Estacado," or Staked Plains, including the site in Carson County, Texas that is now Pantex Plant. The archeological record left by these early Native Americans indicates that they consistently exploited the buffalo and antelope



herds of the playa-dotted short-grass prairie uplands. These prehistoric peoples were succeeded by historic Native Americans, including Apache, Comanche, Kiowa, Arapaho, and Cheyenne tribes. The lifeways of these peoples, similar to those of their prehistoric predecessors, were drastically altered with the arrival in the 1600s of Spanish and French, then Mexicans and Americans. The clashes among these cultures brought conflict and continued change to the Southern High Plains. By 1878, the great buffalo herds were completely destroyed, and the new masters of the Llano Estacado brought ranching and farming, which continues as the dominant economic pattern.

### 1.2.2 World War II

The Pantex Plant began as the Pantex Ordnance Plant during World War II, and its construction was authorized on February 24, 1942. Pantex Ordnance Plant was a "second wave" ordnance facility, the last of 14 bomb-loading facilities built under the government-owned/contractor-operated (GOCO) system. The Plant produced 105-millimeter artillery shells, 500-pound general-purpose bombs, 250-pound general-purpose bombs, and 23-pound fragmentation bombs. Pantex Ordnance Plant was a relatively small cog in the GOCO wheel of industrial mobilization during World War II. At the height of its activity, the Plant employed 5,254 employees, of whom 60 percent were female. The Plant covered approximately 16,000 acres, and had three operational bomb-loading lines; a fourth line was completed just before the war ended, but was never operational. An ammonium nitrate line, a bomb fuse and booster line, three large complexes for explosives and ammunition storage, a shop and maintenance area, a cafeteria, a hospital, two large dormitories, a sewage treatment plant, and a water-softening plant supported the Plant's bomb-loading mission. Pantex Village, which consisted of 69 residences, a community center, a store, and a movie theater, provided domestic support.

The Pantex Ordnance Plant was closed after the war. This closure involved removal of the production equipment and decontamination of the remaining facilities. In 1949, the 16,000-acre installation was sold for one dollar, subject to recall under a national security clause, to

Texas Technological College (now Texas Tech University) for use as an agricultural experiment station.

### 1.2.3 Cold War

The Cold War era of operations at Pantex began in 1951. In that year, the Atomic Energy Commission (AEC) selected the former ordnance plant for use as a high explosives fabrication and weapon assembly installation in the nation's developing nuclear weapon complex. The AEC obtained approximately 7,000 acres of the original plant site from Texas Technological College, and the college retained the remainder of the land. The AEC used \$25 million to construct ten new buildings and modify three World War II-era buildings. These efforts were concentrated primarily on facilities in the previously unused fourth load-line (now Zone 12). Expanding operations in 1955 required the acquisition of an additional 2,000 acres of land from Texas Technical College and 1,000 acres from private landowners.

Throughout the Cold War, Pantex served as a major component of the nuclear weapon production complex, enabling the National Laboratories to focus on research and design of new nuclear weapon systems. At the height of U.S. production of nuclear weapons, there were four assembly, disassembly, and modification facilities, all run by Mason & Hanger--Silas Mason Company, Inc.; the Pantex Plant near Amarillo, Texas; the Iowa Army Ammunition Plant in Burlington, Iowa; the Medina Modification Center in San Antonio, Texas; and the Clarksville Modification Center in Clarksville, Tennessee. As the AEC began to reduce the production of weapons in the mid-'60s, it transferred responsibilities of the two modification centers back to the Pantex and Burlington Plants. Transition of Clarksville operations, the smaller of the two, was completed in September 1965, and transition of Medina operations in July 1966. On June 25, 1973, the AEC decided to consolidate Burlington and Pantex operations. The complete shutdown of the nuclear weapon activity at Burlington was completed in July 1975. Since 1975, Pantex has been the nation's only assembly, disassembly, retrofit, and modification center. In 1975, the Energy Research and Development Administration



(ERDA) replaced the AEC and took responsibility for operation of Pantex Plant; and in 1977, the ERDA was replaced by the U.S. Department of Energy (DOE). A reorganization in 2000, shifted responsibility for operation of Pantex to the National Nuclear Security Administration (NNSA), a semi-autonomous administration within the DOE.

#### 1.2.4 Present Mission

Pantex Plant is currently owned by the DOE/NNSA and operated by BWXT Pantex, LLC. The Plant's current mission involves the following.

- 1) **Assemble** nuclear weapons for the nation's stockpile.
- 2) **Disassemble** nuclear weapons being retired from the stockpile.
- 3) **Evaluate, repair and retrofit** nuclear weapons in the stockpile.
- 4) **Sanitize** components from dismantled nuclear weapons.
- 5) **Provide interim storage for** plutonium pits from dismantled nuclear weapons.
- 6) **Develop, fabricate and test** chemical explosives and explosive components for nuclear weapons and to support DOE/NNSA initiatives.
- 7) **Provide through the Enhanced Surveillance Program (ESP)** the predictive models and aged-focused diagnostics required to anticipate weapon refurbishment.
- 8) **Provide the production complex** with advanced capabilities for designing, developing, and certifying components and systems through Advanced Design and Production Technologies (ADAPT).
- 9) **Support transparency** and irreversibility initiatives of the DOE/NNSA.

### 1.3 Facility Description

The Plant is composed of several functional areas, commonly referred to as numbered zones (Figure 4). These include a weapon assembly, disassembly, and support area (Zone 12), a weapon staging area (Zone 4), an area for

experimental explosive development (Zone 11), an area for inert storage and construction lay-down yard (Zone 10), an area for explosive test-firing (Firing Site), and a burning ground area for treatment of high explosive waste and sanitization of components. Other functional areas include a drinking water treatment plant, a sanitary wastewater treatment facility, vehicle maintenance area, a utilities area for steam and compressed air, and landfills. Overall, there are approximately 700 buildings at the Plant.

Zone 12 is divided into a weapon assembly and disassembly area, and administrative and crafts support area. In the weapon assembly and disassembly area, nuclear components, parts received from other DOE/NNSA plants, and chemical explosive components and metal parts fabricated at Pantex Plant are assembled into nuclear weapons. This area also includes disassembly operations, and testing and evaluation operations.

Zone 4 is used for general warehousing and temporary holding, or staging, of weapons and weapon components awaiting movement to the Zone 12 assembly area for modification, repair, or disassembly, shipment to other DOE/NNSA facilities for reworking or disposal, or shipment to the military. Zone 4 is also used for interim storage of plutonium components from weapon disassembly operations.

The Zone 11 explosives development area consists of facilities for synthesizing, formulating, pressing, machining, and characterizing experimental explosives.

The drinking water treatment facility consists of production wells, chlorination and pumping facilities, storage tanks, and associated distribution lines. This facility also supplies non-potable water to the high-pressure fire protection system. The utilities area includes a steam generation facility (boiler house) and a central air compressor facility.

The Firing Site area includes several test-shot stands and small-quantity test-firing chambers for measuring and evaluating detonation properties of explosive components. The Firing Site also includes supporting facilities for setting up test-shots, interpreting the results, and sanitizing some components.



The Burning Ground is used for thermal treatment of waste explosives and explosive-contaminated materials by means of controlled

open burning, and for sanitization of some components.

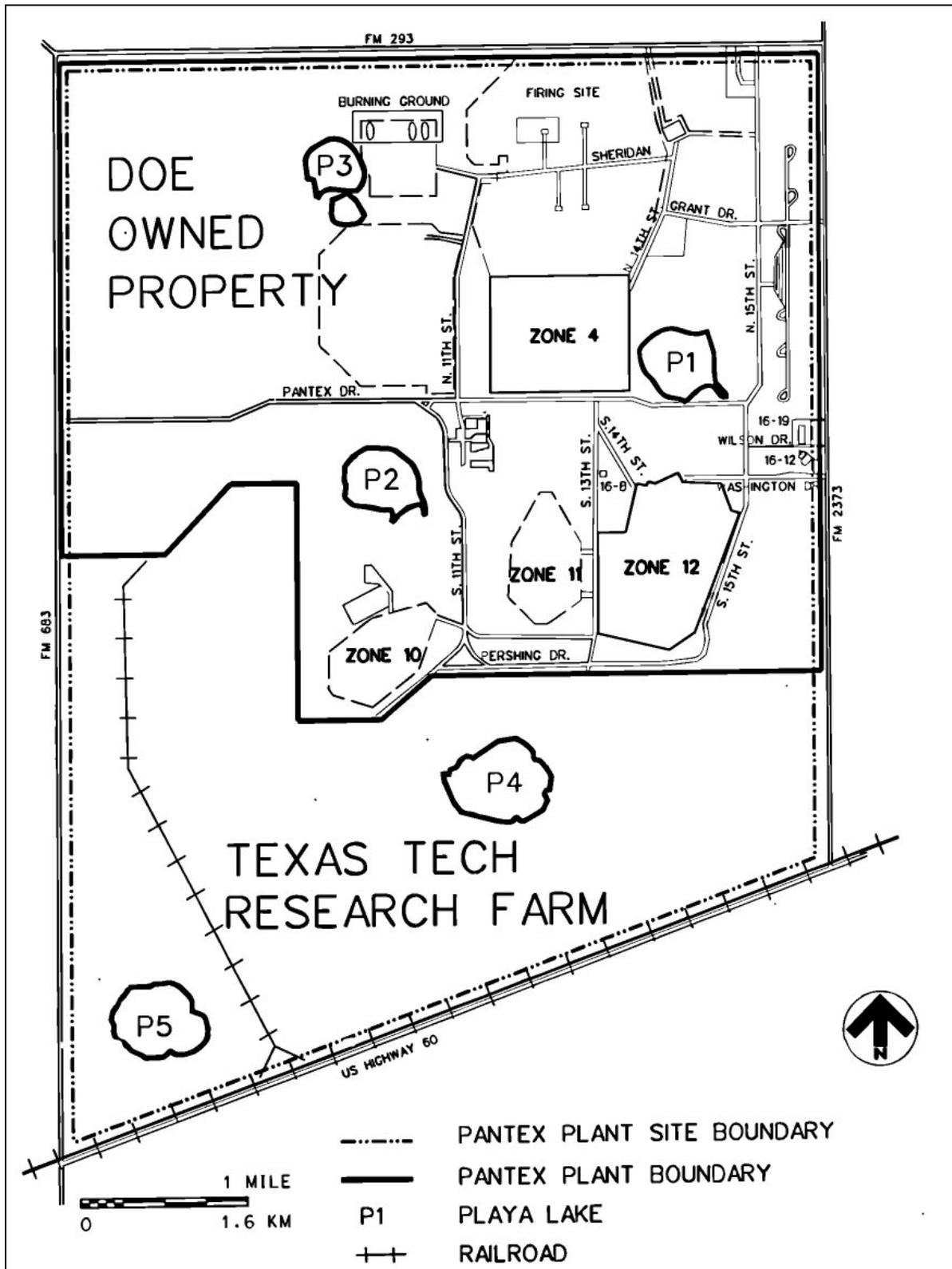


Figure 4: Principal Features of Pantex Plant Site



## 2.0 CULTURAL RESOURCE MANAGEMENT

### 2.1 Federal CRM Requirements

The DOE recognizes that the preservation and protection of America's cultural heritage is an important function and responsibility of the federal government, and the Department is committed to providing stewardship through its CRM program. Cultural resources include the following broad range of items and locations: (1) archeological materials and sites dating to the prehistoric, historic, and ethnohistoric periods that are currently located on the ground surface or are buried beneath it; (2) standing structures that are over 50 years of age or are exceptionally important because they represent a major historical theme or era; (3) cultural and natural places, select natural resources and sacred objects that have importance for Native Americans; and (4) American folklife traditions and arts. Cultural resources include "historic properties," as defined in the NHPA, "archaeological resources" as defined in the ARPA, and "cultural items" as defined in the NAGPRA.

The major laws, regulations, and guidance defining DOE's responsibilities for cultural resources include the following:

- Antiquities Act of 1906 (PL 59-209)
- Historic Sites Act of 1935 (PL 74-292)
- Archaeological Recovery Act of 1960 (PL 86-523)
- National Historic Preservation Act of 1966 (PL 89-655)
- National Environmental Policy Act of 1969 (42 U.S.C. " 4321-4347)
- Archaeological and Historic Preservation Act of 1974 (PL93-291)
- American Indian Religious Freedom Act of 1978 (PL 95-341) (AIRFA)
- Archaeological Resources Protection Act of 1979 (PL 96-95)
- Native American Graves Protection and Repatriation Act of 1990 (PL 101-601)
- Executive Order 11593
- Executive Order 13287

Of these, ARPA, NAGPRA, AIRFA, and Sections 106 and 110 of the NHPA form the backbone of federal cultural resources

management. Their implementing regulations are found in 36 CFR 60, 63, 78, 79, 800, and 43 CFR 7 and 10. Executive Order 13287 "Preserve America" was signed by President George W. Bush in March 2003, and its impact on agency activities is yet to be determined.

Since no human remains, mortuary objects, Traditional Cultural Properties, or Native American religious sites have ever been found at Pantex Plant, compliance with NAGPRA and AIRFA is only theoretical at this point. In addition, since the Plant site is secure for national security reasons, archeological surveys requiring a permitting system under ARPA are not allowed. Given the nature of cultural resources found at Pantex Plant, Sections 106 and 110 of the NHPA are the most applicable; and constitute the focus of this CRMP, warranting a more detailed discussion.

### 2.2 The National Historic Preservation Act

The NHPA is a procedural law, ensuring that some consideration is afforded historic properties owned by the American public before they are impacted by federal agency actions. It does not dictate a rigid definition of all properties that are important, nor does it dictate how such important properties are to be managed; both of these decisions are the result of consultation. The NHPA defines a consultation process where all concerned parties can discuss issues and the agency can make such decisions, taking into account both its mission and preservation concerns.

This process is specifically outlined in the implementing regulations, 36 CFR 800, for project-driven reviews (Section 106). The same basic process is required of agencies in developing their historic preservation programs for making programmatic decisions (Section 110) regarding all of their properties, regardless of whether or not there are any pending potentially resource-altering projects.

The spirit of the NHPA, and in large part, all federal CRM laws, is to **balance historic**



**preservation concerns with the needs of Federal undertakings.** Reduced to its simplest form, the NHPA is a decision-making process, and compliance (with Sections 106 and 110) requires three basic steps, 1) identification, 2) evaluation, and 3) management of historic properties (Figure 5). The agency is responsible for decision-making at each of these steps, in

consultation with the SHPO, the interested public, and in most cases the Advisory Council. This process of decision-making should proceed programmatically (Section 110) until a specific property is threatened by an agency project; then the decision-making process focuses on the threatened property (Section 106).

<b>Identification</b>	<b>Evaluation</b>	<b>Management</b>
<p>What do you have?</p> <ul style="list-style-type: none"> <li>• Inventory/survey of what properties you have (properties can include districts, sites, buildings, structures, objects, and related artifacts, records, and remains).</li> <li>• If needed, develop "property types" as method to categorize large numbers of individual properties into more manageable groupings.</li> <li>• Develop historic contexts (a sense of time and place) for individual properties or property types.</li> </ul>	<p>Is it historically important?</p> <ul style="list-style-type: none"> <li>• Determine if the property is eligible for the National Register according to the four evaluation criteria (historically important or not?).</li> <li>• Assess the property's integrity (highly modified from its original design or not?).</li> <li>• Know what historic characteristics of the property make it important (architectural features, function?).</li> </ul>	<p>How will you manage this historically important property?</p> <ul style="list-style-type: none"> <li>• Preserve it as is?</li> <li>• Document the architecture (photographs, as-built drawings, measured drawings)?</li> <li>• Interpret to the public?</li> <li>• Document the function (oral histories, equipment, records, photographs, narrative history)?</li> </ul>

Figure 5: Basic NHPA

**2.2.1 Identification**

Compliance with the NHPA requires an understanding of the cultural resources of the agency's site; therefore, both project-driven Section 106 and programmatic Section 110 compliance usually begin with site surveys and investigative work. Such work might include surveys and inventories of existing buildings, building remains, equipment, records, and surface and subsurface archeological sites. Pertinent information about these resources is collected and documented, including architectural style, integrity, and function over time. Surveys can occur in phases, beginning with preliminary "windshield" surveys followed by more detailed data collection surveys (photographs, measurements, etc.) supplemented by archival research.

Large numbers of properties can be grouped into "property types" as a more manageable method to deal with them. Property types are groupings of properties that share similar "physical or associative characteristics."<sup>1</sup> Physical characteristics might include architectural style (such as "Queen Anne" houses), suspension bridges, stratified archeological sites, or rail cars. Associative characteristics thematic and can cut across different kinds of properties (buildings, structures, artifacts, and records). For instance, a property type defined as "coal extraction" might include industrial buildings, mine shafts, extraction equipment, mining helmets, and specific coal mining records, photographs, and drawings. Although different

<sup>1</sup> National Park Service, "Archeological and Historic Preservation; Secretary of the Interior's Standards and Guidelines," Federal Register, vol. 48, no. 190, 44719.



kinds of physical manifestations of coal mining, they could all be grouped into one property type, based on their association with coal mining. Properties, either individually or as property types, must also be understood in a larger historical context. A historic context is a documented sense of time and place within which properties can be understood. Historic contexts are organized sets of themes, historic facts, events, people, places, and their interrelationships; that tell the bigger story within which the particular properties of concern are broadly agreed to be important, or not. Properties can be evaluated in more than one historic context.

The information collected during surveys and investigative work, and the resulting contextual framework, is then used in the formal evaluation process to determine if the resources are historically important.

### 2.2.2 Evaluate

The process of evaluating properties—determining whether or not a property is eligible for inclusion on the National Register—is one of the most important steps in the NHPA compliance process, and is outlined in 36CFR60. National Register eligibility affords a property greater consideration when facing pending alteration or demolition; an ineligible property is not afforded any special consideration under the law. Properties can be evaluated for eligibility as part of a project-driven Section 106 review, or as part of a site-wide Section 110 historic preservation program.

Properties (districts, sites, buildings, structures, and objects) are considered eligible for inclusion on the National Register: 1) if they represent one or more of four eligibility criteria, and 2) if they retain a level of "integrity" dating to their period of importance. The four eligibility criteria are:

- A) association with a historic event;
- B) association with a historically important person;
- C) representation of a "type, period, or method of construction" (usually architectural style); and

- D) the possibility to yield "information important in prehistory or history" (usually archeological sites).<sup>2</sup>

Integrity is defined as "the ability of a property to convey its significance."<sup>3</sup> The seven elements or aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. Though somewhat subjective in nature, a property must retain most, if not all, of the seven aspects of integrity to be considered eligible for the National Register.

Properties must typically be at least 50 years old to be considered for eligibility, though this artificial period is only meant to allow passage of sufficient time for historical perspective. Eligibility regulations also include seven "criteria considerations," which amount to exceptions to the standard eligibility requirements. One of these seven, criteria consideration "G," is an exception to the "50-year rule." Criteria consideration "G" states that a property that is less than 50 years old can qualify for the National Register if it meets one or more of the four criteria for evaluation, retains integrity, and is of "exceptional importance."

The agency determines whether or not a property is eligible for inclusion on the National Register; however, it must be decided in consultation with the SHPO and public individuals and groups who have expressed an interest. Because this required consultation process can be time consuming, agency projects are delayed many times by Section 106 reviews.

An effective Section 110 historic preservation program can preclude such delays. Part of the intent, and a significant benefit, of the NHPA's Section 110, is to complete the identification, research, and eligibility decisions before the time and funding constraints of a specific agency project require it under the Section 106 process.

<sup>2</sup> National Park Service, National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (Washington, D.C.: GPO, 1990), 2.

<sup>3</sup> National Park Service, National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (Washington, D.C.: GPO, 1990), 44.



An effective Section 110 historic preservation program allows the agency to identify and evaluate all of its properties programmatically, so that when a future project is developed that could impact a particular property, the bulk of the Section 106 review work has already been completed; and the project can continue smoothly and uninterrupted. Also, none of the properties, determined through a programmatic Section 110 program as ineligible for the National Register, will require Section 106 review when a future project impacts them. Either way, the agency is required to identify and evaluate all of its properties for historical value. It can either do so under the funding and time constraints of a project, or do it in a systematic manner ahead of time.

### 2.2.3 *Manage*

Those properties evaluated as being of historical importance, or eligible for inclusion on the National Register, must then be managed appropriately by the agency. How such important properties are managed depends on many factors, but must be the result of consultation among the agency, the SHPO, the Council, and the interested public. Such management might consist of continued use, preservation and interpretation in-situ, adaptive

reuse, transfer of ownership with covenants, development of narrative histories, collection of oral histories, photographic documentation, development of measured drawings, no additional preservation effort, some combination, or some other effort agreed as being appropriate by those involved. In cases where there are several eligible individual properties of the same property type, agencies may focus preservation efforts on one example as a "representative" of that property type, with no additional preservation for the remainder.

If the management decision is the result of a project-driven Section 106 review, then it is documented in a signed Memorandum of Agreement. In such a scenario, the terms "mitigate" or "treatment" may be used for the concept of management, since a project has been identified that would have an adverse effect on the historic property. If such a management effort is the result of the agency's Section 110 compliance program, then it should be documented in a Cultural Resource Management Plan, or Historic Preservation Plan. Such plans should indicate where the agency is in the compliance process, including what CRM work has been completed, what decisions have been made, and what remains to be done.



### 3.0 PANTEX PLANT CRM

The wide range of cultural resources at Pantex Plant reveals a "time-deep" site, primarily touching three widely separated historic contexts: prehistoric and historic archeology, World War II, and the Cold War. From a prehistoric buffalo-kill site to the vast complexities of a nuclear weapon assembly facility, these tangible legacies of our past are found at Pantex Plant. The comprehensive management of the cultural resources significant to these distinct historic contexts is complicated by several factors:

- The Plant's ongoing mission requires continued safety and functional modifications to existing buildings and structures. These requirements are especially relevant for existing World War II-era structures, modified extensively throughout the Cold War and still in use. Built in the early 1940s, these properties were constructed as temporary facilities and have far exceeded their original functional life expectancy.
- Projected plans to streamline and consolidate current Plant activities, plus possible changes in the Plant's mission, will likely require new construction and extensive modifications in the Plant's active industrial areas. The historic integrity of individual properties in these areas, which also embody the Plant's Cold War-era significance will, therefore, be impacted by new construction, renovation, and the demolition of structurally unsound properties.
- Pantex Plant has been designated a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund site and required environmental restoration work may impact the Plant's cultural resources.
- The nature of Pantex Plant's mission in the DOE/NNSA nuclear weapon complex dictates that many of its Cold War-era resources, properties, processes, and technologies are, and will remain, classified and inaccessible to the public.

#### 3.1 Background

A CRM Program was established at Pantex Plant in 1993 at the direction of PXS0, marking the beginning of a more systematic and comprehensive approach to CRM. A full-time Cultural Resources Manager, with extensive archeology and preservation training and experience, was hired to guide the development and implementation of this program, which was designed to achieve full compliance with all applicable CRM requirements. A full-time historian was hired in 1994, to augment the development and implementation of the program.

The focus of CRM work in 1993 and 1994 was on identification efforts for archeological and World War II-era resources. These efforts included subcontracted surveys of archeological sites and World War II-era buildings, and development of pre-history and World War II-era historic context statements. Though many of these subcontracted reports included recommendations for National Register eligibility, the PXS0 did not make such eligibility determinations at the time.

The CRM staff spent the majority of 1995 and 1996 drafting a long-term CRM strategy for the Plant. The draft strategy was reviewed by a group of historic preservation specialists representing several disciplines and varying perspectives, including academic, government, and consulting backgrounds. Incorporating the recommendations from the peer review team, the revised CRM strategy provided the foundation for a new Programmatic Agreement for the management of cultural resources at Pantex Plant.

The Programmatic Agreement, signed in October 1996, was the result of formal consultation among the PXS0, the Texas SHPO, and the Council, with review and comment opportunities for Native American groups, and the public at large. The Programmatic Agreement provides a specific process for day-to-day Section 106 compliance and a framework of agreed goals for scheduled Section 110 activities. In addition, the Programmatic



Agreement formalized a PXSO to SHPO annual reporting/meeting arrangement that had begun in 1993. Development of the Programmatic Agreement was a significant step in the Plant's CRM program, allowing a refocusing of funding and time away from routine Section 106 reviews towards more proactive Section 110 related activities, while still maintaining a strong compliance stance.

Since the 1996 Programmatic Agreement, the CRM staff focused on identification, evaluation, and management of Cold War-era resources. These historic resources of the Cold War period are the most numerous and the most significant at the Plant. Efforts included a literature search, building surveys, collection of oral histories, and records surveys. This work culminated in the development of a draft Cold War context statement, completed in September 1999. While the draft Cold War context statement was being reviewed, the CRM staff developed a draft CRMP in 2000. The draft Cold War context statement was then significantly revised in 2001, incorporating review comments from the Texas SHPO, the Council, preservation specialists at several DOE sites, and academic and federal personnel with historic preservation and Cold War history backgrounds and responsibilities. Though the increased detail provided in the revision 1 draft Cold War context statement rendered it "Official Use Only," the SHPO reviewed it and concurred with PXSO's National Register eligibility decisions.

## 3.2 CRMP

This CRMP represents a significant revision to the original 2000 version, incorporating review comments made by the Texas SHPO and the Council in 2001. The purpose of this CRMP is to consolidate all of the Plant's CRM compliance decisions and plans into one comprehensive document; including, a new authorizing programmatic agreement and Section 106 process to replace that described in the 1996 Programmatic Agreement, and measures to fulfill applicable requirements of Section 110 (a), (b), and (d) of the NHPA, the NAGPRA, the ARPA, and the AIRFA. Due to the nature of the cultural resources found at Pantex, the focus of this CRMP is on the NHPA's Sections 106 and 110 compliance requirements.

### 3.2.1 Section 106 Compliance

Prior to October 1996, the Plant's compliance with Section 106 followed the generic procedures outlined in 36 CFR 800. With completion of the Programmatic Agreement, the Plant realized a more efficient Pantex-specific mechanism for project-driven NHPA compliance. The Section 106 procedures included in the Programmatic Agreement were based on the Cultural Resource Management Strategy completed in 1995. The CRM strategy document was developed in consultation with the Texas SHPO and provided broad direction on the kinds of resources that were considered historically important and a broad range of scheduled CRM activities. The section 106 procedures included in the 1996 Programmatic Agreement were scheduled to be in place until a more detailed CRMP could be developed to replace the broadly focused CRM strategy. This CRMP, and the new Programmatic Agreement to which it is attached, are a fulfillment of that 1996 agreement, reflecting lessons learned and additional CRM decisions completed in the interim.

#### 3.2.1.1 New Programmatic Agreement

The new Programmatic Agreement, to which this CRMP is attached, supercedes the 1996 Programmatic Agreement. Stipulation I identifies section 110-related activities that are planned for management of National Register-eligible properties. Stipulations II through VI describe a revised review process for Pantex projects. This revised review process takes into account identification and evaluation decisions that have already been made for the Plant's cultural resources.

#### 3.2.1.2 Integration with NEPA

Coordination with the Plant's National Environmental Policy Act (NEPA) compliance program remains the primary structure to identify Plant projects requiring review under the Plant's new Programmatic Agreement. This process is formalized in Plant Standards STD-3037, *Protection of Cultural Resources*; and STD-3062, *Preparation of documentation for Compliance with the National Environmental Policy Act*.

The Plant's NEPA compliance program serves as an umbrella review system for all Plant projects,



and includes documented review for 17 different subjects. Cultural resources review is one of these 17 required sign-offs. If warranted, each of the 17 subjects is then incorporated into the development of larger NEPA review documentation, including Environmental Assessments and Environmental Impact Statements.

Typically, existing Plant projects that require review are identified by the NEPA staff, summarized, and distributed to the subject matter experts. In the case of cultural resources review, the properties to be impacted and the type of activity will first be identified, then compared to the new Programmatic Agreement to determine if documentation or additional SHPO consultation will be required. If either the properties or activities involved are exempted under the Programmatic Agreement, then the project is approved as is. If both the property involved and the type of impacts likely from the activity will require additional consultation, then one of two scenarios can occur. First, the CRM staff will consult with the project sponsors, to determine if the project can be redesigned or relocated to avoid adverse impacts to historic properties. If this is not possible, then the second scenario will include requirements in the NEPA paperwork that either documentation of a National Register-eligible property is required, or that additional SHPO consultation is required prior to initiation of the project. The CRM staff is still responsible for completing any documentation required under the Programmatic Agreement, or for coordinating and conducting consultation with the SHPO, through the PXSO.

### 3.2.2 Section 110 Compliance

Section 110 of the NHPA requires agencies to develop a historic preservation program that evaluates all of the agency's resources, regardless of pending projects, for historical value; and to appropriately manage those that are determined important. The value to future agency projects in completing identification and evaluation efforts programmatically has already been discussed. Stipulation I of the new Programmatic Agreement briefly describes how Pantex will manage the historic properties that were identified and evaluated as part of the Plant's Section 110 compliance program. Each

of the bullets listed in Stipulation I is discussed in greater detail in Sections 4-6 of this CRMP.

The following method and philosophy were developed specifically for Pantex to fulfill the broad NHPA requirements discussed in Section 2.2, outlining the logic sequence or process for Section 110 decision-making at the Plant. This method has been applied to resources within all three contexts: archeology, World War II, and the Cold War. The application of this method to each of these three contexts culminated in the resource management decisions that form the core of this CRMP.

#### 3.2.2.1 Method

Appendix B schematically depicts the method used for making Section 110 compliance decisions for the historic resources of Pantex Plant. Though equally applicable to Section 106 decisions, this method was designed for broad-based application under the Plant's Section 110 historic preservation program. The application of this method was, in reality, a dynamic and fluid process; Appendix B is a snapshot of the end result of that process. Decisions regarding resources within each of the three major contexts at Pantex are depicted using this method in their respective sections.

Most of the steps involved in this method have already been discussed in Section 2.2; however, of special note is the sequential nature of the two-stage eligibility determination under step 2, "Evaluate," and the level at which each of the two decisions points are made. As stated earlier, eligibility for the National Register requires two things: 1) the property must be related to at least one of the four eligibility criteria described in 36 CFR 60; and 2) the property must possess integrity from its period of importance.

Within step 2 of the Pantex method, the criteria-relationship decision is made at the property type level, rather than at the individual property level. Though in theory this decision could be made at either level, by making it at the property type level, the CRM staff precluded the cost associated with detailed investigative surveys and research on groups of properties that were not related to any of the four eligibility criteria.

The second decision point, related to integrity, has to be made at the individual property level.



Property types cannot be assessed for integrity; however, by scheduling the integrity determination for individual properties subsequent to the criteria-relationship decision, the required investigative research was focused on properties that are members of property types that had already passed the first eligibility requirement. Those individual properties that met both requirements were determined eligible for the National Register. Of those properties that are eligible for the National Register, representative properties from most property types were chosen for in-situ preservation. Those properties that are eligible for the National Register, but not designated for in-situ preservation will be documented and included in broader-based preservation, such as exhibits and narrative histories.

### *3.2.2.2 Resource Management Philosophy and Goals*

Since the Plant's cultural resource management program took shape in 1993, it has been focused on two goals and guided by a general philosophy. The immediate goal was to bring the Plant into effective and efficient compliance with all applicable cultural resource management laws. This goal was met with effective interim measures to review Plant projects according to 36CFR800. Significant efficiencies were realized with the 1996 Programmatic Agreement, and now the new Programmatic Agreement.

The long-term goal has been to develop a preservation program and resource management activities that support and integrate with the Plant mission, as well as constitute good preservation. The resource management activities described in this CRMP, and listed under Stipulation I of the new Programmatic Agreement, not only combine to form a strong preservation program, they stand on their own as smart business practices that support the Plant's overall mission, regardless of preservation laws. Because historic properties under the DOE's stewardship are, in fact, owned by the American public, and because federal CRM laws are

intended to benefit the public, it has been the guiding philosophy of the Plant's CRM program since 1993 to incorporate public interpretation as a major component of its historic properties management. This approach was further validated by the issuance of Executive Order 13287, *Preserve America*, in March 2003. Though circumstances have changed dramatically since September 11, 2001, this guiding philosophy has not. Historic preservation decisions are long-term by definition; though the events of September 11 may change the schedule of broad public interpretation, they have not changed the intent, and are not likely to change the ultimate outcome. Though the timing for public interpretation of the Plant's archeological and World War II-era resources will not likely be impacted, interpretation to the general public of the Plant's Cold War-era resources is not likely to occur in the near term. However, there are many "audiences" for the Plant's historic preservation. An internal audience of some 3000 employees exists, and a large audience of other government and contractor employees with the proper clearances and "need-to-know" will benefit from the Plant's historic preservation activities. The one constant in our society is change, and if good preservation decisions are made today, then these historic properties will be available for some variation of public interpretation 20 or 30 years from now, or whenever circumstances may change.

### *3.2.2.3 Planned Resource Management Activities*

The resource management activities described in the following sections, and schematically depicted in Figure 6, consist of an interrelated set of actions that effectively combine across all three historic contexts, in-situ preservation and documentation; onsite and offsite display; governmental and non-governmental entities; and historic properties including building, objects, artifacts, and records. The compliance work that resulted in these planned management activities is discussed by context in the next three sections.



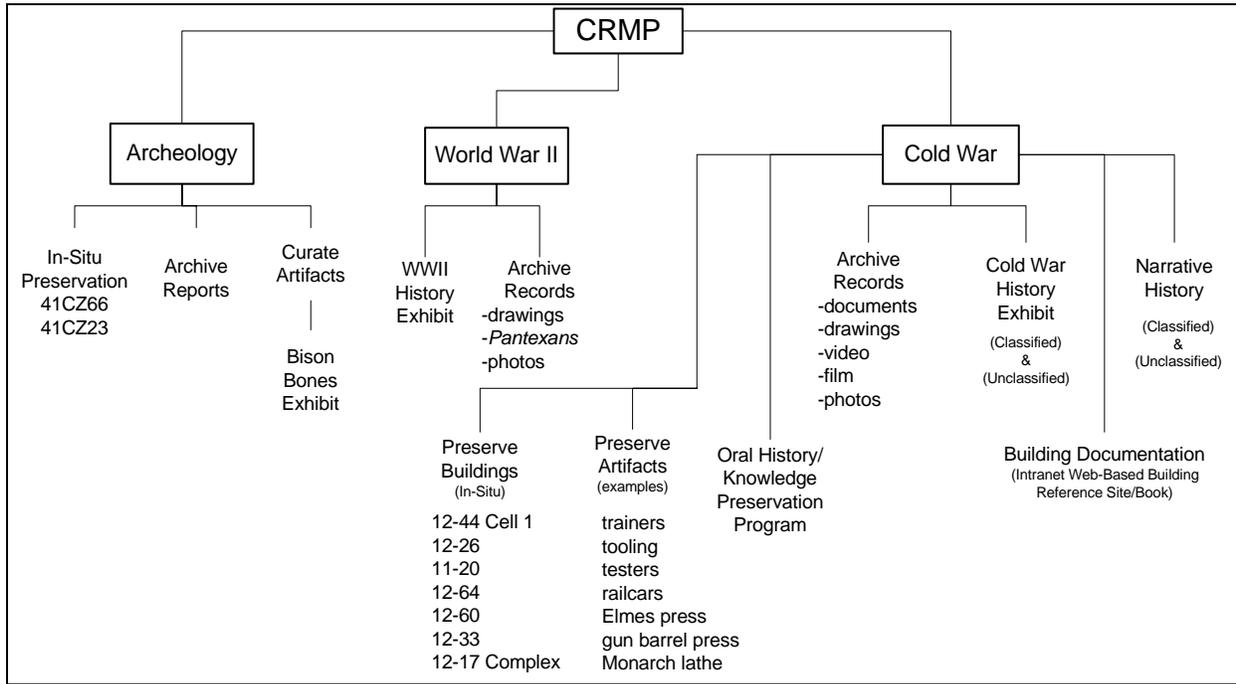


Figure 6: Summary of Planned CRM Activities



## 4.0 ARCHEOLOGY RESOURCES

Archeological investigative and evaluation work at Pantex Plant has been completed, including surveys, historic context development, and determinations of National Register eligibility. This chapter of the CRMP summarizes the formal management decisions for archeological resources at Pantex, building on that described in the 1996 Programmatic Agreement. The archeological resources at Pantex Plant consist primarily of small prehistoric lithic scatter sites, plus several pre-World War II-era farmstead sites. The original structures at the farmsteads have been largely destroyed. Consequently, apart from existing documentary information, much of the potential data from these sites would have to be collected by archeological methods. For this reason, they are identified and evaluated within the archeological context rather than a separate historical context. The application of the Pantex CRM method to the archeological context is schematically depicted in Appendix C, and the rest of this chapter describes each of the major steps depicted.

### 4.1 Identification

#### 4.1.1 Context

It is acknowledged that this archeology context is somewhat broader in scope than that which is normally accepted; however, it is further subdivided into two more narrowly defined sub-contexts: prehistoric resource procurement on the Llano Estacado, and historic farming and ranching on the Southern High Plains. The broader archeology context is based on the nature of the resources and the primary required method of data recovery, while the two sub-contexts are based on the more familiar constructs of chronology and function. This approach is used for two reasons: the limited number and homogeneous nature of the sites under each of these sub-contexts, and the significant overlap in investigative approach and geographical site locations. Sites within each of these sub-contexts were often identified during the same archeological surveys, occasionally occurring together at the same locations and identified by the same site number; and they are understood through many of the same data recovery, analysis, and interpretation methods.

The prehistoric resource procurement sub-context is represented by lithic scatter sites near playas resulting from long-standing subsistence procurement patterns of prehistoric peoples on the Llano Estacado. The regional archeological record indicates that these flat "Staked Plains" served as hunting and gathering territory between the more ecologically diverse and protected habitation areas of the nearby Canadian and Red River valleys. Numerous playa lakes on the short grass prairies of the Llano Estacado provided seasonal water and prime hunting area for buffalo, antelope, and migrating waterfowl. Prehistoric people living in either the Red River or Canadian River systems would have found the playa-covered prairies a rich source of animal resources.

In addition to this long-standing subsistence pattern by a succession of cultural groups over several thousand years, the source area for a very desirable and high-quality raw material stone for making flaked stone tools, known today as "Alibates Flint," is located less than 20 miles north of Pantex Plant on the Canadian River. This raw material was used and traded widely throughout the entire High Plains region, and occasionally well beyond, for a period of at least 10,000 years. The Plant location is on the shortest north-south corridor across a northeastward extending arm of the Llano Estacado between the Canadian and Red River drainages, and travelers between the Red River system to the south and the stone raw material source to the north may have passed through Pantex Plant. Though survey efforts have not identified any sites that can be attributed exclusively as travel related, the Plant's geographical proximity to the Alibates Flint source area may have influenced the number of sites located along this probable travel corridor.

The frequency of these hunting and traveling episodes, on or near what is now Pantex Plant, may have been positively impacted by the Plant's location on a narrow arm of the Llano Estacado, between the Canadian River valley and Alibates Flint Quarry to the north, and the Red River system of valleys to the south and east. If the Southern High Plains was as inhospitable to prehistoric peoples as the historic



records indicate it was to proto-historic peoples, then travelers may have chosen this corridor as the quickest way across. Such travelers, in both directions, would necessarily have passed very close to or through the Pantex Plant location.

The historic farming and ranching sub-context is represented by a number of pre-World War II farmstead sites. All of the original structures at these farmsteads were destroyed with the construction of the Pantex Ordnance Plant during World War II, or the subsequent Texas Tech University and Atomic Energy Commission operations. In addition to their current archeological expressions, limited historical information about them is available, such as local deed records, oral histories, and aerial photographs. The Texas Historical Commission has identified Agriculture (1680-1945) as one of nine important statewide historic contexts. The farming and ranching sub-context presented here is related to, and representative of, this important historic context.

#### 4.1.2 Survey

The total area of the Pantex Plant is approximately 15,977 acres (6,466 hectares), of which 5,800 acres (2,347 hectares) are leased from Texas Tech University as a security buffer. Four playas are located on DOE-owned land, and two on Texas Tech University land. A major thrust of the Plant's CRM Program has been systematic survey coverage of all areas surrounding these playas, plus a substantial sample of nonplaya areas. Based on these surveys, a prehistoric archeological site location model has been developed and confirmed. This site location model holds that prehistoric archeological sites at Pantex Plant, and probably throughout the Llano Estacado, will be located within approximately 1/4 mile (400 meters) of playas or their major drainages. Conversely, such sites will not occur in the interplaya upland areas. This site location model was included in formal consultation with the Texas SHPO, and was subsequently incorporated as part of the Plant's 1996 Programmatic Agreement.

Approximately 7,100 acres (2,876 hectares), on both DOE-owned and -leased land, have been systematically surveyed for archeological sites. All remaining unsurveyed areas of the Plant are industrial areas, playa wetlands, or between-

playas upland areas with very low probability of site occurrence. To date, 69 archeological sites have been recorded: 12 pre-World War II-era farmstead sites and 57 prehistoric lithic scatter sites.

Archeological studies at Pantex Plant began in 1981, with a non-systematic survey by West Texas State University (now West Texas A&M University) that located 42 prehistoric lithic scatter sites and three historic farmstead sites around four of the Plant's playas. The principal investigators identified a number of these sites as having either "medium" or "high" significance.

In 1992, Mariah Associates, Inc. relocated these medium and high significance sites for avoidance by an environmental sampling program, and in the process located and recorded five additional prehistoric sites. In 1993, and extending into 1994, Geo-Marine, Inc., surveyed 4,700 acres (1,904 hectares) of Texas Tech University land leased by DOE, recording 11 additional prehistoric and three historic sites. Geo-Marine, Inc. also systematically re-surveyed the areas within approximately one-half mile (800 meters) of all four DOE-owned playas, and re-recorded all sites to ensure adequate and consistent coverage of these areas with highest probability for site occurrence. In addition, substantial between-playas upland areas were included in this survey to confirm the Plant's archeological site location model. This survey of 2,400 acres (972 hectares), along with approximately 200 acres (81 hectares) surveyed by the Plant's CRM staff for project-specific reviews, completed the Plant's archeological resources survey process. In order to provide information on the nature and extent of subsurface cultural deposits at these sites, the 23 sites on DOE-owned land considered most likely to contain such deposits were test excavated in 1993 by Geo-Marine, Inc. This testing indicated only two sites (41-CZ-23 and 41-CZ-66) with identifiable subsurface cultural deposits. Notably, features related to more permanent occupation such as hearths, tipi rings, fire-cracked rock concentrations, architectural evidence, or human burials have not been found at any Pantex Plant sites, either as surface or subsurface expressions.



On the basis of the survey and testing data, the 57 recorded prehistoric sites at Pantex Plant can be assigned an inclusive date range from the Late Archaic period, beginning approximately 1000 B.C., through the Late Formative period, terminating approximately 1300 A.D. These dates are based on the relatively few temporally diagnostic artifacts, mostly projectile points, described or collected from the sites. A very few individual items could be much older, but likely represent only earlier items collected and used by the later inhabitants.

#### 4.1.3 *Property Types*

The relative homogeneity of the prehistoric and farming and ranching archeological sites, and the artifacts found in them, negates the need to further subdivide the individual sites into multiple property types; however, for the sake of consistency with the rest of this document, the property types "lithic scatter site" and "pre-World War II farming and ranching dwellings, outbuildings, and related structures" are identified here. Though a seemingly broad property type, in almost all cases these pre-World War II archeological sites include remnants of each of the following: dwellings; outbuildings, such as barns and sheds; support structures and features, such as wells, water tanks, corrals, ditches, and trash deposits; and surface scatters of metal, ceramic, and glass artifacts.

## 4.2 *Evaluation*

### 4.2.1 *National Register Criteria*

The formal consultation, between the PXS0 and the Texas SHPO for eligibility of the prehistoric archeological sites, was a thoroughly debated process. Mostly, this debate centered around whether or not prehistoric lithic scatter sites have the potential, either individually or as a district, to yield information important in understanding prehistoric peoples (Criterion D). Critical to this discussion was whether lithic scatter sites can yield important information based on artifact content alone, without their original spatial relationship. If so, a number of functional site types such as "travel campsites," "processing sites," "lithic reduction sites," or "bison kill sites" could be identified, producing behaviorally-interpretable site categories.

However, compounding the problem of site content similarity, the initial archeological surveys on Pantex Plant were "non-collecting," in that artifacts were described or classified in the field, but were not collected. Beginning in 1994, both sub-contractors and Plant CRM staff began mapping and collecting those artifacts that were individually interpretable, or that were temporally, functionally, or technologically "diagnostic." As a result, comparably analyzable artifact assemblages are not readily available for all the Plant's prehistoric sites.

Through consultation, it was determined that with the lack of potential for site content analysis, original spatial relationship of artifacts is a critically important requirement for these sites to possess the potential to yield important information, either individually or collectively.

The Pre-World War II-era farming and ranching archeological sites at Pantex Plant were evaluated under Criterion A, association with events important to the nation's history. However, the significance or importance of these particular sites within such a historic event as "Texas agriculture" identified by the Texas SHPO, or any other settlement/agriculture related context has not been clearly demonstrated. Such a discussion quickly becomes moot when the second eligibility question of "integrity" is addressed.

### 4.2.2 *Integrity*

Virtually all of the Llano Estacado has been extensively and aggressively modified by historic agricultural activities, either plowing or grazing, or both, since at least the early 1900s. Consequently, most surface or shallow prehistoric archeological sites are seriously disturbed, lacking the original spatial relationships of their artifacts and features. In addition, it is unknown what impact avocational artifact collecting may have had on the content of these surface scatter sites. Only those sites with substantial depth can be expected to retain the associational integrity of their artifacts and features. It was the expressed opinion of the SHPO during the consultation process that disturbed sites with no identified subsurface deposits lack the integrity required to be considered eligible for the National Register. It is also readily apparent that none of the Plant's



pre-World War II-era farming and ranching sites retain integrity in five of the seven required categories (retaining only integrity of location and association).

#### 4.2.3 Eligibility

In consultation with the SHPO, PXSO has determined that 55 of the 57 identified prehistoric archeological sites are not eligible for the National Register due to a lack of associational integrity. Sites 41-CZ-23 and 41-CZ-66 appear to contain subsurface materials in their original spatial relation; and are, therefore, potentially eligible for the National Register under Criterion D. However, a final determination of eligibility for these two sites would require more extensive testing and further consultation with the SHPO. Formal consultation with the SHPO also resulted in concurrence with the PXSO's determination that none of the Plant's 12 pre-World War II-era farmstead sites are eligible for the National Register, due again to a lack of required integrity.

### 4.3 Management

The results of formal consultation with the Texas SHPO regarding eligibility of the Plant's archeological sites were, with opportunity for public comment, incorporated into a Programmatic Agreement among the PXSO, the Texas SHPO, and the Advisory Council in late 1996. That Programmatic Agreement outlined the steps the Plant would take to manage the two prehistoric archeological sites potentially eligible for the National Register: sites 41-CZ-23 and 41-CZ-66. This management—consisting of protection from any adverse impacts of Plant undertakings, measures to mitigate erosion, and regular monitoring—is extended to this CRMP.

During site monitoring in late 1996, erosion was discovered to have exposed large mammal bones in a drainage ditch at site 41-CZ-66. Since the bones could not be protected in-situ, emergency excavation of this material was conducted under

the leadership of an experienced and qualified archeologist. The excavated bones, remains of a prehistoric bison-butchered event, were analyzed by the Texas Tech University Museum, with a final report completed in August 1997. In addition, the Texas Tech University Museum developed a traveling interpretive exhibit with the bison remains as the focal point, supported by photographs and text. Since early 1998 this exhibit has been displayed at a different Panhandle area museums on a quarterly basis, and constitutes a significant public interpretation component of the Plant's archeological management program.

Erosion at site 41-CZ-66 has since been minimized with the installation of rip-rap and fencing to exclude cattle; and procedures have been established for site 41-CZ-23 that will ensure its protection from overgrazing. The two sites remain fenced and locked. Confirmation is reported annually to the SHPO that these protection measures are effective.

Although determined not eligible for the National Register, 22 of the Plant's prehistoric archeology sites have been protected in-situ within buffer zones around three of the DOE-owned playas. These zones are managed as multiple-resource "playa management units," in conjunction with other environmental protection requirements.

Plant standards and procedures have been implemented, providing for early CRM staff notification and coordination of any projects requiring ground-disturbing activities with the potential to uncover new prehistoric archeological sites. Should such sites be encountered, they will be protected as though they are eligible for the National Register, until formal eligibility determinations are made. Absent such discoveries, no additional prehistoric or historic archeology work is planned for Pantex Plant. All archeological reports, field records, photographs, maps, and artifacts will be archived at the Plant in accordance with 36 CFR 79.



## 5.0 WORLD WAR II-ERA RESOURCES

Identification work under the World War II-era context at Pantex Plant was completed before 1996, including development of national and local level context statements, survey and inventory of World War II-related resources, and development of appropriate property types. Evaluation and management decisions are included in this CRMP. Application of the Pantex Plant CRM method to the World War II-era context is schematically depicted in Appendix D, and the major steps are described in this section.

### 5.1 Identification

#### 5.1.1 Context

The "Pantex Ordnance Plant" historic context is one of World War II industrial mobilization on the home front. The Pantex Ordnance Plant was constructed between 1942 and 1945 on 14,987 acres of agricultural land acquired by the federal government from private landowners. It was constructed by the U.S. Army Corps of Engineers and operated by the Certain-teed Products Corporation to produce general-purpose bombs and artillery shells.

The Pantex Ordnance Plant was part of an extensive, nationwide network of GOCO facilities created to produce a wide range of armaments for the war effort. This system was created by the Army Ordnance Department in cooperation with the U.S. Army Quartermaster Corps and the U.S. Army Corps of Engineers. Seven Army Ordnance Department munitions plants were constructed in Texas: the Dickson Gun Plant in Houston produced small arms; the Baytown Ordnance Works in Baytown and the Cactus Ordnance works in Dumas produced the chemical components of high explosives; the Longhorn Ordnance Works in Marshall manufactured TNT bomb fillings; and the Bluebonnet Ordnance Plant in McGregor, the Lone Star Ordnance Plant in Texarkana, and the Pantex Ordnance Plant performed the loading and final assembly of bombs and shells.

The production of bombs at the Pantex Ordnance Plant began on September 17, 1942, and continued throughout the war until August

15, 1945. The original Plant had three bomb-loading lines, supported by an ammonium nitrate production plant, a production line for bomb boosters and adapters, and three storage areas for ammunition. Several facilities indirectly involved in ordnance manufacturing were constructed on the Plant site. These included an administration area; a small "town" called Pantex Village, operated by the Federal Housing Authority; a shop and maintenance area; a fire department; corrals and stables for mounted guards; a sewage treatment system; and a water supply system.

Major Plant expansion and changes in Plant personnel, products, and production technology occurred throughout World War II. During its period of operation, the Plant produced 250- and 500-pound bombs containing amatol and TNT high explosives. Bomb Line No. 2 (Zone 10) was converted to 105-mm howitzer shell production in 1943, and Bomb Line No. 3 (Zone 11) was converted to the production of 23-pound fragmentation bombs. As a result of these changes, some buildings went unused, and the original functions of others were changed. A switch from amatol to TNT explosives resulted in closure of the ammonium nitrate plant and discontinued use of loading line buildings associated with amatol use.

The production capacity of all three existing load lines was increased in 1945. A fourth bomb-load line (Zone 12), which never went into production, was completed shortly before the end of the war. Early construction of a fifth load line (Zone 14) ceased when World War II ended in August 1945. Only a few subsurface foundation pads had been poured, and a few earthen berms had been constructed. Of 514 buildings and structures that were part of the World War II Pantex Ordnance Plant, 162 still exist, of which 55 are identical storage bunkers.

#### 5.1.2 Survey

A comprehensive survey of the historical resources at Pantex Plant began in 1992, when PXSO initiated an inventory of World War II-era buildings constructed between 1942 and 1945, and nearing 50 years old. This research,



conducted by Pacific Northwest National Laboratory (PNNL) and Legacy Research Associates, Inc., was divided into three components, or "packets."

Packet 1 consisted of developing a World War II historic context statement for the Plant, and surveying the World War II-era standing structures in the active zones of the Plant: Zones 4, 10, 11, and 12. The PNNL began work on Packet 1 in July 1992, and the final report was completed in May 1994. Packets 2 and 3 concentrated on the survey and evaluation of all World War II-era historical resources not documented in Packet 1. Packet 2 required the inventory of 29 standing structures across the Plant. Packet 3 involved the documentation of all World War II-era foundations and ruins located inside the historical boundaries of Pantex Ordnance Plant, including the land now owned by Texas Tech University. Eighty-two foundations and partial structures were documented. Work on Packets 2 and 3 began in 1993, and a combined final report was completed in May 1994.

CRM staff has identified a set of historic building photographs and copies of building drawings from the Plant's World War II operations. However, no historic equipment remains from the Plant's World War II operations. Development of a national-level World War II historic context statement was authorized by PXS0 in early 1994. The research was conducted by Geo-Marine, Inc. during the fall of 1994, and a final report was completed in early 1995. All World War II-era properties have been surveyed, including standing buildings and structures and foundational ruins. Two local-level World War II historic context statements have been completed, one based on documentary research and the other based on oral histories. These data, in conjunction with the national-level World War II historic context statement and work done on other World War II-era GOCO facilities for the Department of Defense, provide an adequate contextual base from which to make CRM management decisions.

### 5.1.3 Property Types

Property types identified by the Department of Defense for the Indiana Army Ammunition

Depot World War II-era historic context statement have been used for other Ordnance Department GOCO facilities, and are appropriate for Pantex Ordnance Plant. These eight property types are 1) Administrative, 2) Housing, 3) Manufacturing and Chemical Processes, 4) Support for Manufacturing and Chemical Processes, 5) Shipping and Storage, 6) Support for Workers, 7) Utilities and Infrastructure, and 8) Site Features and Landscape. World War II-era property types at Pantex Plant include the buildings, structures, records, and building remains that represent each of these eight categories.

## 5.2 Evaluation

### 5.2.1 National Register Criteria

Pantex Plant's World War II-era cultural resources were evaluated for eligibility for inclusion on the National Register under Criterion A as resources associated with the historic event of World War II industrial mobilization on the home front, and under Criterion C, as resources representing the type, period, and method of construction of World War II-era military/industrial temporary architecture. Pantex Plant's primary World War II-era historical significance was evaluated at the national level. Though the Pantex Ordnance Plant certainly had both an economic and demographic impact on the Texas Panhandle, its World War II-era properties were not designed or used based on local or state influences.

### 5.2.2 Integrity

Of the original 514 World War II-era properties, 390 have been demolished and 6 are owned by Texas Tech University. Most of the 118 remaining World War II-era properties were highly modified during the succeeding Cold War era, and in fact, exist only because of their functional suitability for use during the Cold War. Therefore existing World War II-era properties are more representative of early Cold War functional needs than of World War II-era mission-related themes. The vast majority of these properties lack integrity of design, materials, and workmanship. Additionally, the original setting, feeling, and association of existing World War II-era properties, both individually and as districts, have been seriously



impacted by demolition of many original properties, and infill from 40 years of Cold War construction. Therefore, representation of the World War II-era bomb-loading line process is limited primarily to the spatial relationship of building foundations and remains in Zone 9 (owned by Texas Tech University) and Zone 10, and to some extent, to heavily modified standing buildings in Zone 11. In comparison, other World War II-era GOCO ordnance facilities, such as the Cornhusker Army Ammunition Plant, the Nebraska Ordnance Plant, the Iowa Army Ammunition Plant, and the Ravenna Army Ammunition Plant, retain greater integrity, possibly including some original equipment.

### 5.2.3 Eligibility

In consultation with the Texas SHPO, the PXSO has determined that none of the World War II era buildings or structures at Pantex retain the required integrity, either individually or as districts, to be eligible for inclusion on the National Register. However, the Plant's World War II-era record collection, including drawings, photographs, and documents, retains the required integrity, and is therefore eligible for inclusion on the National Register under Criterion A.

## 5.3 Management

The PXSO has determined, in consultation with the Texas SHPO and the Advisory Council, that no World War II era buildings or structures will be preserved in-situ based on their association with the Plant's World War II context.

However, two World War II-era buildings reused during the Cold War have been designated for in-situ preservation under the Plant's Cold War context. In addition, all World War II-era buildings, structures, and remains have been preserved to some extent through survey documentation and recording, including photographs, individual site forms, and oral histories. This contemporary information will be coupled with historic photographs, documents, and drawings, and interpreted for the public and made available for research. The National Register eligible historic records will be preserved according to the requirements of 36 CFR 79, either onsite or in cooperation with an existing archive.



## 6.0 COLD WAR-ERA RESOURCES

Identification and evaluation work for the Pantex Plant's Cold War context was completed in 2001, including building surveys, archival research, development of the Revision 1 draft Cold War context statement, and eligibility determinations for the Plant's approximately 700 buildings and structures. The management decisions related to these resources are included in this CRMP. Application of the Pantex Plant CRM method to the Cold War context is schematically depicted in Appendix E.

### 6.1 Identification

#### 6.1.1 Context

The period of Cold War operations at Pantex Plant dates from 1951, when the Plant was reclaimed by the AEC as a part of the expanding nuclear weapon complex, to the September 1991 address to the nation by then-President George H. W. Bush directing the dismantlement of a portion of the nation's nuclear weapon stockpile; thereby fundamentally changing the Pantex Mission from one of nuclear weapon assembly to one of disassembly.

The historic properties related to Pantex Plant's Cold War context are clearly its most significant contribution to our nation's material culture. The Cold War was a war of fear, caused primarily by the awesome destructive capabilities of the nuclear weapons possessed by two opposing ideologies. Fear was driven not only by the existence of nuclear technology, but by the magnitude of each Superpower's weapon arsenal. The large numbers of weapons that were central to, and a direct result of, the Cold War arms race, were possible only with the technologies of mass production developed and carried out at Pantex Plant. Without the threat of nuclear holocaust, the tensions and fears experienced during the Cold War era would have been no greater and no less than those of any other time in history. At Pantex Plant, Cold War rhetoric became tangible reality.

Pantex Plant's Cold War-era context revolves around the growth of the U.S. nuclear weapon stockpile. Creation of the Atomic Energy Commission in 1946, and President Harry Truman's subsequent decisions to vastly expand

the nation's nuclear weapon production capability ushered in an era commonly known as the "arms race." The development of Pantex Plant between 1951 and 1952 as a high explosives fabrication facility, and one of only two "final assembly" sites, was a critical element in the nation's capability to compete in the arms race. Pantex Plant exists not merely because of the existence of nuclear weapons, but because of the scale of those weapons in the U.S. stockpile over time. Had the stockpile remained relatively small, the assembly and maintenance work could have remained at Los Alamos and Sandia National Laboratories, and there would have been no need for additional assembly facilities like Pantex. However, with the Cold War arms race, and the corresponding growth of the nuclear weapon stockpile, came the need for Pantex Plant.

Pantex Plant maintained a consistent mission over a 40-year period (1951-1991), while high explosives fabrication and final assembly operations at Burlington, Iowa, were consolidated into the Pantex operation. As the only final assembly plant for the nation's nuclear arsenal since 1975, Pantex Plant lies at the very heart of Cold War history. This mission remained consistent until President Bush's September 1991 televised address to the nation, canceling several new weapon programs and directing the complete dismantlement of several existing weapon programs. Consequently, Pantex Plant's Cold War mission of weapon assembly was redirected to a post-Cold War mission of weapon disassembly.

#### 6.1.2 Survey

A comprehensive literature search of both primary and secondary documents relating to the Cold War arms race, and Pantex Plant's role in it, was completed in April 1996. The sources collected in this search were reviewed in 1997 and 1998, and augmented by oral histories collected in 1997, supporting the development of a draft Cold War context statement in 1999.

A preliminary Cold War-era building survey was completed in 1997, followed by extensive archival research of the Plant's engineering drawings collection in 1998. An intensive



building survey was completed in 2001, with the survey and photographic documentation of over half of the Plant's approximately 700 buildings and structures as a representative sample.

### 6.1.3 Property Type

The Department of Defense Legacy Cold War Task Area's "systems/functional" approach has provided a sound model for identifying Pantex Plant Cold War-era property types. Cold War-era properties were identified and evaluated according to their design or dominant historic usage related to the following property types, as described in *Rhetoric to Reality: A Cold War Context Statement for the Pantex Plant, 1951-1991*.

Nineteen property types were developed that are based on associative characteristics and related to Criterion A, association with historic events (see Figure 7). Thirteen of these property types are based on the Plant's four major missions, and resulting preservation themes identified and described in chapter V of the Cold War context

statement. The remaining six property types based on associative characteristics fall under the broad theme of "Mission Support." These six property types include those functions that might be typically found at any large industrial site: technical support, safeguards and security, crafts, administration, storage, and infrastructure.

Another 19 property types were developed based on physical characteristics and related to Criterion C, properties that "embody the distinctive characteristics of a type, period, or method of construction" (see Figure 8). The first five; cells, steel arch construction, and three different bay designs, are described in Chapter VI of the Cold War context statement as facility-design milestones. Four of the remaining 14 are readily recognizable as common architectural designs, including Quonset huts, guard towers (metal and concrete), and modified World War II-era Richmond Magazines. The remaining 10 property types are defined primarily by the construction materials used. Eight of these 10 are listed under the broad architectural category

"Industrial Vernacular," an Albert Kahn "form follows function"-based definition. The final two are hardened concrete structures further subdivided as to their placement above or below grade.

It is critical for the integrity and management decisions to understand what "character defining elements" qualify an individual property to be categorized into a particular property type, this is especially true of property types related to Criterion C, and based on physical characteristics. Unlike those property types based on associative characteristics where character defining elements are simply defined by the property's past use, the character defining elements of property types based on physical characteristics are tangible and require explicit statement. An

Figure 7: Property Types based on Associative Characteristics

Figure 8: Property Types based on Physical Characteristics



understanding of character defining elements for Criterion C-related properties is especially critical for resource management decisions. Modification or elimination of character defining elements cannot be avoided or mitigated if they are not first fully articulated in the evaluation phase. For instance, a steeply pitched roof is critical to the Gothic Revival style, columns are critical to the Colonial Revival and Greek Revival styles, and unpainted wood shingle siding is critical to the Shingle style. To remove or significantly alter any of these character-defining elements would destroy the property's integrity and disqualify it as representative of that architectural style; defined in the regulations as an adverse effect. "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." (36CFR800.5[a][1])

Character defining elements of Pantex Cold War properties are not related to high style architecture, rather they are based primarily on function-required engineering elements, and in most cases materials used. Due to the nature of the Plant's work, much of the building design criteria (segregated work bays and earthen overburden), interrelationship of buildings (intra line distances), and materials used (heavily reinforced concrete) have been greatly influenced by requirements outlined by the Armed Services HE Safety Board.

The following is a description of character defining elements for five of the 19 Criterion C-related property types based on physical characteristics.

- Cells are defined by their circular work area, right-angled entry corridor, heavy steel interlocking personnel and equipment blast doors, bridge cable suspension or catenary roof system, and dome shaped gravel and earthen overburden.
- Common-Wall Bays are defined by their rectangular three-walled work areas, common one-foot thick concrete walls,

opened-ended side facing a frangible exterior blast wall (typically constructed of hollow clay tile or cemesto board), unprotected ramp walkways, and lack of earth or gravel overburden.

- Single-Wall Bays are defined by their single "J-shaped" heavily reinforced concrete wall, frangible exterior blast wall, protected ramp walkways, and lack of earth or gravel overburden.
- Separated Bays are defined by gravel and earth filled walls on three sides, heavy steel interlocking personnel and equipment blast doors, heavily reinforced concrete ceilings hinged to vent blast gasses, and earthen and gravel overburden.
- Steel Arch Construction (SAC), as the name implies, is defined by a Quonset-shaped corrugated steel roof covered with earthen and gravel overburden; doors range from heavy steel blast doors to lighter weight steel doors barricaded with large multi-ton concrete blocks.

The eight property types identified under the broad category "Industrial Vernacular" are defined by their dominant construction material: hollow clay tile exterior over timber structural components mostly left over from early World War II construction, hollow clay tile over steel structural components mostly the result of late World War II and early Cold War construction, brick exterior facade, poured and precast concrete load-bearing walls, concrete masonry units or "cinder blocks," corrugated or sheet metal siding, and cemesto board siding. The property type "Hardened Concrete" is defined by reinforced concrete walls and ceilings of 12-inch thickness or greater, that are not designed to house weapon assembly operations.

## 6.2 Evaluation

### 6.2.1 National Register Criteria

As an industrial manufacturing facility, there are no Cold War properties at Pantex that are "associated with the lives of persons significant in our past" (Criterion B). Nor are there any



Cold War properties at Pantex "that have yielded, or may be likely to yield, information important in prehistory or history" (Criterion D). Any such information would be much more readily found in records or recollections of people involved with the Plant's mission, than in the properties themselves. Criterion D is usually applied to archeological sites where there are no written records, or people left, that can explain related events. Consequently, there are no Cold War property types at Pantex related to either criteria B or D.

The Cold War arms race was an important event within the history of this country, meeting the description of eligibility Criterion A. Many of the Plant's Cold War properties are also eligible for the National Register under Criterion C, as examples of type, period, and method of construction for architectural, technological, and engineering advances. The role of the Pantex Plant within the history of the Cold War arms race is crucial, and as such, the Plant's Cold War properties meet the requirements of "exceptional importance" for properties less than 50 years old, as stated in criteria consideration "G."

Pantex Plant's primary Cold War-era historical significance is at the national level. Though the Plant has certainly had both an economic and demographic impact on the Texas Panhandle, its Cold War properties were not designed or used based on local or state influences. The historic importance of the Plant's built environment derives from its role in the Plant's critical contribution to the nuclear weapon complex and the Cold War arms race.

### 6.2.2 Integrity

The vast majority of the Plant's Cold War-era properties retain a high level of integrity. This is partly because Pantex Plant's Cold War context and "period of significance" covers such a long period of time (1951-1991); and a primary element within that context is change over time (from 126 buildings in 1951, to 577 buildings in 1991). The end result of the Plant's Cold War evolution is just over a decade past, and much of the built environment remains in its unmodified "original" condition. Given the Plant's continuity of mission, the core character defining elements of individual buildings have not been significantly altered. Consequently,

they retain integrity of location, design, materials, and workmanship. Unlike its World War II processes, the Plant's Cold War processes were complex and non-linear in nature. When viewed as a grouping or district, the spatial relationship of process-related buildings is not critically important. Even with some infill from a decade of new construction, the Plant still retains a high degree of integrity of setting, feeling, and association.

Collections of other historic resources, including photographs, drawings, documents, and artifacts, similarly retain high integrity in representing both the property types and historic themes of the Cold War era at Pantex Plant.

### 6.2.3 Eligibility

The Cold War is clearly an important event within the history of this country, and the role of Pantex Plant within the history of the Cold War arms race is crucial. As such, the Plant's Cold War properties warrant evaluation for eligibility to the National Register under criteria A and C, and meet the definition of "exceptional importance" stated in criteria consideration "G." In developing the 1996 Programmatic Agreement, PXS0, in consultation with the Texas SHPO, determined that prefabricated modular buildings, trailers, storage tanks, and those properties constructed after 1991 are not eligible for the National Register.

In developing the Revision 1 Draft Cold War context statement in 2001, the PXS0, in consultation with the Texas SHPO, determined that 183 Cold War-era buildings were eligible for inclusion on the National Register; and the remaining 509 buildings were not eligible. Since 2001, these numbers have been revised to include impacts from recent projects and revisions to the Cold War context statement. The final Cold War context statement was revised to reflect the new numbers: 178 eligible buildings listed in Appendix F, and 483 ineligible buildings listed in Appendix G (123 post-1991 buildings included in the 483 ineligible buildings; total of 661 buildings, down from 692 in 2001).



#### 6.2.4 Management

Borrowing many of the concepts described in the Advisory Council's 1991 guidance book, *Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities*, the Plant's management of Cold War historic properties will be a multifaceted effort. This effort will include: a combination of in-situ preservation, continued use, and documentation of eligible properties; and comprehensive preservation, documentation, and interpretation of the Plant's historic Cold War processes, represented by various buildings, equipment, objects, artifacts, and records.

The core of this Cold War preservation effort will be the preservation in-situ of the ten most historically important buildings at Pantex, 12-17 complex (17, 17A, 17B, and 17E), 11-20, 12-26, 12-33, 12-44 Cell 1, 12-60, and 12-64. In-situ preservation of these buildings will mean the continued use or reuse of all ten, including any necessary modifications or renovations. Any required modifications or renovations will be designed to preclude adverse effect of the character-defining elements of these properties. Building modifications and renovations are a continuation of the Plant's 40-year Cold War evolution and heritage, not contrary to it. Modifications and renovations also provide for continued use and reuse, which is the strongest and most effective preservation possible at Pantex.

All of the 178 National Register-eligible buildings at Pantex will be formally documented with collection of 35 mm black and white photographs, including historic photographs when available, and engineering drawings. Where multiple buildings of the same design

exist, a single representative building will be documented—storage magazines for example. These documentation packages will be maintained in the Plant's archives, according to the requirements set out in 36 CFR 79. In addition, the Plant may develop electronic versions of these documentation packages that would be accessible on the Plant's intranet web server. It is important to note that the majority of the Plant's 178 National Register-eligible buildings are scheduled for continued use. However, any modifications to the character-defining elements of buildings not designated for preservation in-situ will first require completion of a documentation package. Preservation of historic artifacts, equipment, and records directly related to the Plant's mission-related processes will significantly add to building preservation efforts. Several large pieces of equipment have already been identified as historically significant and designated for preservation, including eight rail cars, the Elms press, a gun barrel press, a high explosives machining lathe, and representative samples of weapon trainers, weapon tooling, and weapon electrical testers. These artifacts, along with numerous smaller process-related artifacts will form the basis of planned classified and unclassified interpretive display areas. These display areas, possibly housed in historic buildings designated for in-situ preservation, or housed in cooperation with local museums, will document the Plant's mission-related processes. Long-term goals include the phased development of several displays across the Plant, each focused on historic artifacts and specific processes. Conceptually, the classified visitor center would form the hub in such an arrangement, and displays of specific processes might form several spokes (see Figure 9).



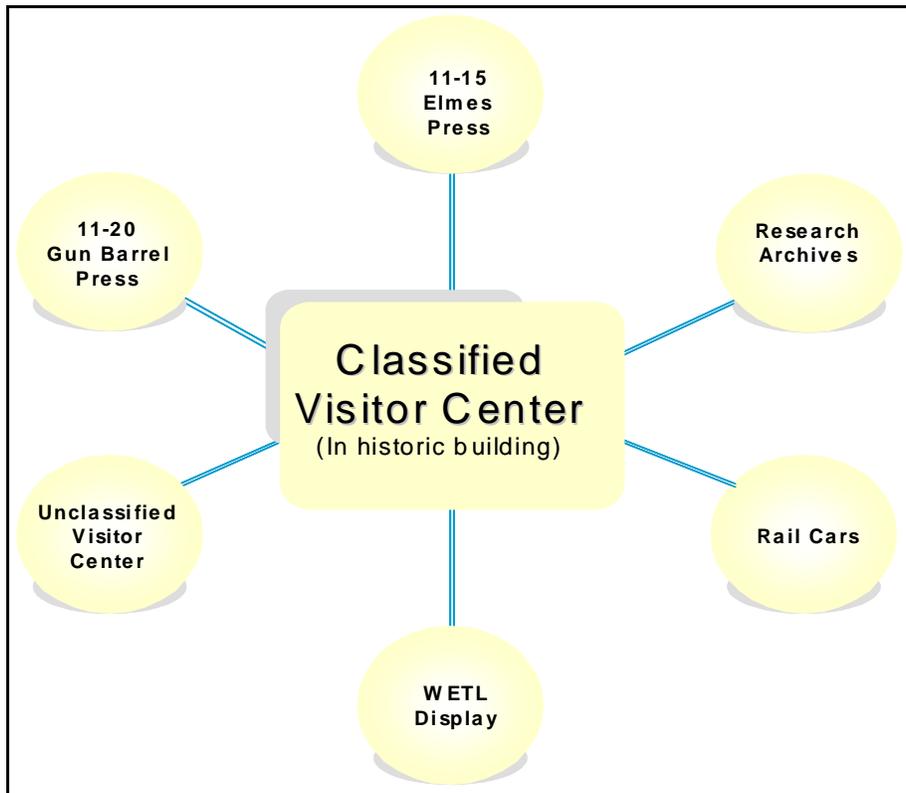


Figure 9: "Hub & Spoke" Display Strategy

In addition, procedures are included in the attached Programmatic Agreement that require the evaluation of additional artifacts for National Register eligibility and preservation. Tooling and equipment related to the nation's enduring nuclear weapon stockpile is not included in this review process. The Plant's records management group has begun the process of developing an archive. This archive will house documents including reports, photographs, microfilm, microfiche, film, video, and engineering drawings directly related to the Plant's missions and designated as historic records for permanent

retention. The Plant's CRM staff will be included in the review of any records scheduled for destruction.

In order to tie all of these preservation activities together, the Plant will develop a narrative history of Pantex Plant, building on the historical information provided in the final Cold War context statement. Completion of such a narrative may include the collection of additional oral histories or development of a formal knowledge preservation program.



## 7.0 ARPA AND NATIVE AMERICAN ISSUES

Several federal laws and requirements address archeological sites and Native American concerns that are in addition to the NHPA requirements already discussed. They include the Archeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1990, and the American Indian Religious Freedom Act of 1978. The latter was reemphasized in May 1996 with the issuance of Executive Order 13007, *Indian Sacred Sites*. The efforts of Pantex Plant to identify concerned Native American tribes, and the Plant's response to compliance requirements of these laws are discussed in this section of the CRMP.

### 7.1 Identification

Important in both NHPA compliance efforts and in any potential compliance efforts that might arise under the ARPA, NAGPRA, or AIRFA, is the identification of the Native American tribes that might be affiliated with the natural and cultural resources located at Pantex Plant. The following sections describe two substantial efforts to identify and facilitate communication with Native American tribes known to have inhabited the Texas Panhandle.

#### 7.1.1 Personal Contact

In mid-1994 the PXSO identified, through consultation with the Texas SHPO and the Anadarko, Oklahoma, office of the Bureau of Indian Affairs, 10 Native American groups in New Mexico and Oklahoma as potential stakeholders in CRM and environmental activities at Pantex Plant. The tribes were: the Comanche Tribe of Oklahoma, the Kiowa Tribe of Oklahoma, the Cheyenne-Arapaho Tribe of Oklahoma, the Wichita and Affiliated Tribes, the Caddo Tribe of Oklahoma, the Delaware Tribe of Western Oklahoma, the Apache Tribe of Oklahoma, the Fort Sill Apache Tribe, the Mescalero Apache Tribe, and the Jicarilla Apache Tribe. PXSO contacted these tribes by mail and telephone to determine their interest in activities at the Plant, particularly in the preparation of a Site-Wide Environmental Impact Statement (SWEIS) for the Plant's operation, and in the development of agreement

documents for management of the Plant's cultural resources. The Mescalero and Jicarilla Apache Tribes indicated that, while they appreciated the notification, they would not have concerns with activities at Pantex Plant. The remaining eight tribes expressed interest in knowing more about such activities.

Pantex Plant CRM staff visited each of these eight tribal offices in June 1994. Discussions were open and positive, and each tribe was provided with SWEIS information, and information related to the Plant's CRM program, including the scheduled development of this CRMP. The tribes were explicitly asked to indicate whether they had concerns with these planned activities at Pantex Plant, or whether those plans impacted any of their traditional interests or important locations. Several indicated some concern with areas in nearby Palo Duro Canyon and/or the Alibates Flint Quarries National Monument, but none expressed interest in the Pantex Plant area. Several of the tribes also indicated that if prehistoric human burials or grave goods were located at the Plant, they would then have such concerns. The tribes were encouraged to notify Pantex Plant in the event that they had future concerns, and that those concerns would be seriously considered on a government-to-government basis.

#### 7.1.2 Archival Research

To further ensure that all federally recognized Native American tribes with traditionally- or treaty-based interests in preserving important cultural or natural resources on DOE/NNSA's Pantex Plant had been identified, the Plant's CRM staff completed a Native American Treaty Search in September 1996. Research conducted for this study revealed no Executive Orders related to Native American issues or interests on Pantex Plant land. Two treaties concluded in 1865 and 1867 involved Native American rights to certain lands, including what is now Pantex Plant; however, all land claims related to these two treaties were settled in courts of the Indian Claims Commission. The study further revealed no federally recognized Native American tribes with title or treaty rights to Pantex Plant lands.



However, through the Indian Claims Commission judicial process, the Comanche, Kiowa, and Apache Tribes of Oklahoma were identified as tribes with "judicially established" ties to the area of the Texas Panhandle and Pantex Plant. In addition, although not listed as a tribe with such judicially established ties to this area, the Cheyenne-Arapaho Tribe of Oklahoma may also have traditional, cultural, or religious interests in the land area of Pantex Plant, since historical accounts indicate that this tribe may have used the Texas Panhandle area on a seasonal basis, and therefore may have an interest in the natural and cultural resources on Pantex Plant lands.

Copies of the Plant's draft *Native American Treaty Search: Summary of Findings* were submitted to these four tribes B the Comanche, Kiowa, Apache, and Cheyenne-Arapaho Tribes of Oklahoma B for comment or clarification in July 1997. These tribes were again invited to express any concern or issue they might have with cultural or environmental activities at Pantex Plant; no responses were received. These four tribes remain on the Plant's list of stakeholders to be notified of major CRM and environmental issues and projects.

## 7.2 Requirements and Management

Applicable requirements of the ARPA and PXSO's compliance efforts are discussed in this section of the CRMP. Since no places or resources relevant to the NAGPRA or the AIRFA have ever been identified at Pantex Plant, either by archeological survey or communication with relevant Native American tribes, compliance with these two laws is only theoretical at this point. In the event that any such places or resources are ever identified or discovered at the Plant, applicable requirements of these two laws would be followed and the four tribes with recognized historical ties to the area would be notified. In addition, procedures discussed in the NEPA Integration section of this CRMP are in place for the prompt notification of the Plant CRM staff if ground-disturbing activities by Plant or subcontractor personnel encounter any such sites or remains.

### 7.2.1 ARPA Requirements at Pantex

The purpose of ARPA is to "...secure, for the present and future benefit of the American people, the protection of archeological resources and sites which are on public lands..."<sup>4</sup> Sections 4, 9, 10(c), 13, and 14 of ARPA are applicable to the Pantex Plant, and are implemented through 43 CFR 7.

#### 7.2.1.1 Section 4: Permits

ARPA allows any person to apply to a federal land manager for a permit to excavate or remove archeological resources located on public lands. Much of ARPA describes the requirements of the federal permitting programs under which such requests can be made, including terms and conditions, prohibited acts, and criminal and civil penalties.

The archeological activities conducted at Pantex Plant at the direction of the PXSO and associated with the management of archeological resources, either in-house or subcontracted, are exempted from such a permitting system (43 CFR 7.5(c)). PXSO has never received a request to conduct independent archeological activities on Pantex Plant property unrelated to the Plant's archeological resources management program. Such a request is unlikely due to the limited nature of the archeological resources found at Pantex, the comprehensiveness of the survey work already conducted, and the national security issues involved at a nuclear weapon site; however, should such a request ever be received and seem feasible, an appropriate permitting program would be developed consistent with the requirements of ARPA.

#### 7.2.1.2 Section 9: Confidentiality

In order to protect known archeological sites from potential looting or vandalism, Section 9 of ARPA requires federal land managers to keep information concerning the nature and location of archeological sites confidential. Access to the Pantex Plant site is strictly limited for national security reasons, thereby precluding the opportunity for looting or vandalism. However, archeological survey maps of the Plant that indicate the location of archeological sites are no longer included in publicly available reports.

<sup>4</sup>ARPA 1979 Findings and Purpose, Section 2.



*7.2.1.3 Section 10(c), 13, and 14: Reporting* Sections 10(c), 13, and 14 of the ARPA are all concerned with the Department of Interior's annual reporting responsibilities to Congress through its various committees. Though these reporting requirements fall primarily on the Departments of Interior, Agriculture, and Defense, and the Chairman of the Board of the Tennessee Valley Authority, the implementing regulations specify, in most cases, the same requirements of other federal land managers. Three specific activities are listed that should be included in the Department of Interior's annual report: activities carried out under the provisions of ARPA (primarily permitting), programs to increase public awareness of the importance of archeological resources on public land, and agency plans for surveying lands under their jurisdiction.

Pantex Plant has annually reported relevant activities under these three headings to the Secretary of the Interior, through DOE/Headquarters (EH-232) since 1993. As stated earlier, Pantex has not issued any archeological permits under ARPA. Pantex has increased public awareness of the importance of archeological resources on public lands by making all archeological reports available to the public through the PXSO reading rooms, and by funding a traveling exhibit developed around bison bones excavated at a Pantex archeological site. In addition, all Pantex Plant archeological

surveys have been reported annually. Future archeological activities and reporting will likely be minimal.

### *7.2.2 AIRFA and NAGPRA Requirements at Pantex*

In 1978 Congress passed the AIRFA and in 1996 the President reinforced it by signing Executive Order 13007. The AIRFA mandates that federal agencies protect and preserve for American Indians their rights to exercise traditional religions, primarily by providing access to sacred sites located on federal lands. The NAGPRA, passed in 1990, mandates that federal agencies identify and offer for repatriation any Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony in their archeological collections to recognized Native American tribes with which they are affiliated.

No such sacred sites, traditional religious issues, human remains, funerary objects, sacred objects, or objects of cultural patrimony have ever been identified at Pantex Plant, either through surveys, archival research, or communications with relevant tribes. Should such issues arise or objects be found, they will be addressed by PXSO on a government-to-government basis with the concerned tribes, and in compliance with AIRFA and NAGPRA.



## 8.0 CONCLUSION

The PXSO accepts its stewardship responsibilities for all cultural resources at Pantex Plant. These resources represent major themes within three separate historic contexts: prehistoric and historic archeology, World War II, and the Cold War. Through 1996, Pantex Plant fulfilled its NHPA Section 106 requirements on a case-by-case basis according to the procedures of 36 CFR 800. The CRM Strategy document developed in 1996 formed the foundation for a transition from case-by-case to programmatic compliance. The CRM concepts included in that document, and refined for this CRMP, underwent formal peer review by a group of CRM professionals from both inside and outside the DOE/NNSA complex, as well as extensive review by the Council and the Texas SHPO. Those CRM concepts were formalized in a Programmatic Agreement that included public comment and was completed in October 1996. With the shift from case-by-case consultation to the terms and procedures of the Programmatic Agreement, the CRM staff was

able to focus limited resources in development of a Section 110 compliance program. The development of this CRMP, and the identification, evaluation, and management decisions described herein are the direct result of that Section 110 compliance program.

This CRMP and the attached Programmatic Agreement describe the identification and evaluation decisions made across all three relevant contexts, and a framework to manage the Plant's cultural resources efficiently, systematically, and in a manner that takes into account both the Plant's mission and historic preservation concerns. This has been accomplished through successful consultation with the Council, the Texas SHPO, and members of the interested public. The table in Appendix H schematically lists the Plant's major CRM program accomplishments and planned resource management activities described in this CRMP.



## **APPENDIX A: REFERENCE LIST OF PANTEX PLANT CRM-RELATED DOCUMENTS**

1. Acklen, J. C. *Archaeological Letter Report for Cultural Resources Investigations Conducted in Association with the Ditches and Playa Program at the Pantex Plant Near Amarillo, Texas*, prepared by Mariah and Associates for Radian Corp., May 8, 1992.
2. Battelle-Pantex. *Integrated Plan for Playa Management at Pantex Plant*, prepared by the Environmental Protection Department for the U.S. Department of Energy, Amarillo Area Office, December 1996.
3. Battelle-Pantex. *Memorandum of Agreement Between the U.S. Department of Energy/Amarillo Area Office and the Texas State Historic Preservation Officer Regarding the FS-5 Decontamination and Decommissioning Project, Submitted to the Advisory Council on Historic Preservation Pursuant to 36 CFR ' 600.6(a)*, prepared by the Environmental Protection Department for the U.S. Department of Energy, Amarillo Area Office, August 1996.
4. Battelle-Pantex. *Programmatic Agreement Among the U.S. Department of Energy/Amarillo Area Office, the Texas State Historic Preservation Office, and the Advisory Council on Historic Preservation*, prepared by the Environmental Protection Department for the U.S. Department of Energy, Amarillo Area Office, October 1996.
5. Dudgeon, Ruth. *Pantex Cold War Literature Search Project Final Report*, prepared by History Associates Inc., for Mason & Hanger--Silas Mason Co., Inc., April 10, 1996.
6. Gaither, Steve and Duane Peter. *Ordnance Production in the Texas Panhandle: The Pantex Ordnance Plant Amarillo, Texas 1942-1945*, Miscellaneous Report of Investigations, Number 92, prepared by Geo-Marine, Inc., for the U.S. Corps of Engineers, Tulsa District, November 1995.
7. Gwyn, Andi. *Pantex Public Interpretation/Outreach Report*, prepared by Ad Hoc panel led by the Panhandle Museum Resource Sharing Consortium for Mason & Hanger Corp., May 20, 1997.
8. Hughes, Jack T. and Roberta D. Speer. *An Archaeological Survey of the Pantex Plant, Carson County, Texas*, prepared by West Texas State University for Mason & Hanger--Silas Mason Co., Inc., July 1981.
9. Johnson, Eileen and María Gutierrez. *Taphonomy and Cultural Implications of a Late Holocene Faunal Collection from 41CZ66 at Pantex Plant, Carson County, Texas*, prepared by Museum of Texas Tech University for Mason & Hanger Corp., August 1997.
10. Katz, Susana R. *Prehistory of the Pantex Plant and Vicinity, Volumes I. and II.*, prepared by PRIAM for Mason & Hanger--Silas Mason Co., Inc., February 1995.
11. Katz, Susana R. *History of the Pantex Plant Vicinity, 1541-1953, Volumes I. and II.*, prepared by PRIAM for Mason & Hanger--Silas Mason Co., Inc., April 1995.
12. Largent, Floyd B. and Frank Winchell. *A Cultural Resources Survey of 500 Acres Surrounding the Sewage Playa at the Pantex Plant Facility, Carson County, Texas*, Miscellaneous Report of Investigations, Number 75, prepared by Geo-Marine, Inc., for the U.S. Army Corps of Engineers, Tulsa District, May 1995.



13. Largent, Floyd B. *A Cultural Resources Survey of 4,200 Acres at the Pantex Facility, Carson County, Texas*, Miscellaneous Report of Investigations, Number 80, prepared by Geo-Marine, Inc., for the U.S. Army Corps of Engineers, Tulsa District, August 1995.
14. Largent, Floyd B. *A Cultural Resources Survey of 2,400 Acres at the U.S. Department of Energy Pantex Plant Facility, Carson County, Texas*, Miscellaneous Report of Investigations, Number 87, prepared by Geo-Marine, Inc., March 1995.
15. Mason & Hanger Corporation. *National Historic Preservation Act Responsibilities*, letter from William A. Weinreich to Jerry S. Johnson, March 12, 1998.
16. Mitchell, Kris C. and Holly Haines, Christy Collier, and Judy Fugate. *Nuclear Weapons Dismantlement History, Phase I Draft Report*, prepared by Mason & Hanger Corporation for the U.S. Department of Energy, Defense Programs, January 1999 (document classified as SRD).
17. Mitchell, Kris C. and Carl J. Phagan. *Cultural Resource Management Strategy U.S. Department of Energy, Pantex Plant*, prepared by Battelle-Pantex for the U.S. Department of Energy, Amarillo Area Office, April 1995.
18. Mitchell, Kris C. and Carl J. Phagan. *Native American Treaty Search: Summary of Findings*, prepared by Mason & Hanger Corporation for the U.S. Department of Energy, Amarillo Area Office, January 13, 1999.
19. Mitchell, Kris C. *Pantex Plant Interested Persons/Parties List*, prepared by Battelle-Pantex for the U.S. Department of Energy, Amarillo Area Office, February 1996.
20. Mitchell, Kris C. *Plant Standard 3037: Protection of Cultural Resources*, prepared by the Environmental Protection Department for Mason & Hanger-Silas Mason Co., Inc., October 31, 1995, Revised August 26, 1998.
21. Mitchell, Kris C. *Rhetoric to Reality: A Cold War Context Statement for the Pantex Plant, 1951-1991*, prepared by BWXT Pantex, LLC., for the U.S. Department of Energy, National Nuclear Security Administration, Pantex Site Office, September 2003.
22. Phagan, Carl J. *Interim Management Procedures*, prepared by Battelle-Pantex for the U.S. Department of Energy, Amarillo Area Office, January 18, 1994.
23. Phagan, Carl J. and Kris C. Mitchell. *Archeological Sites at Pantex Plant: National Register Eligibility and Management, Draft*, prepared by Battelle-Pantex for the U.S. Department of Energy, Amarillo Area Office, June 1996.
24. Stricker, Nahani A. and Rebecca M. Poet. *Historic Resources Survey of World War II-Era Structures and Foundations at Pantex Plant, Amarillo, Texas (Packet 1 - Final Report)*, prepared by Legacy Research Associates, Inc., for Mason & Hanger--Silas Mason Co., Inc., May 28, 1994.
25. Stricker, Nahani A. and Rebecca M. Poet. *Historic Resources Survey of World War II-Era Structures and Foundations at Pantex Plant, Amarillo, Texas (Packets 2 and 3 - Final Report)*, prepared by Legacy Research Associates, Inc., for Mason & Hanger--Silas Mason Co., Inc., May 24, 1994.
26. Texas Historical Commission, Department of Antiquities Protection. *Clarification of Pantex Plant eligibility recommendations, and changes to draft PA*, letter from James E. Bruseth and Timothy K. Perttula to Jerry S. Johnson, September 11, 1996.

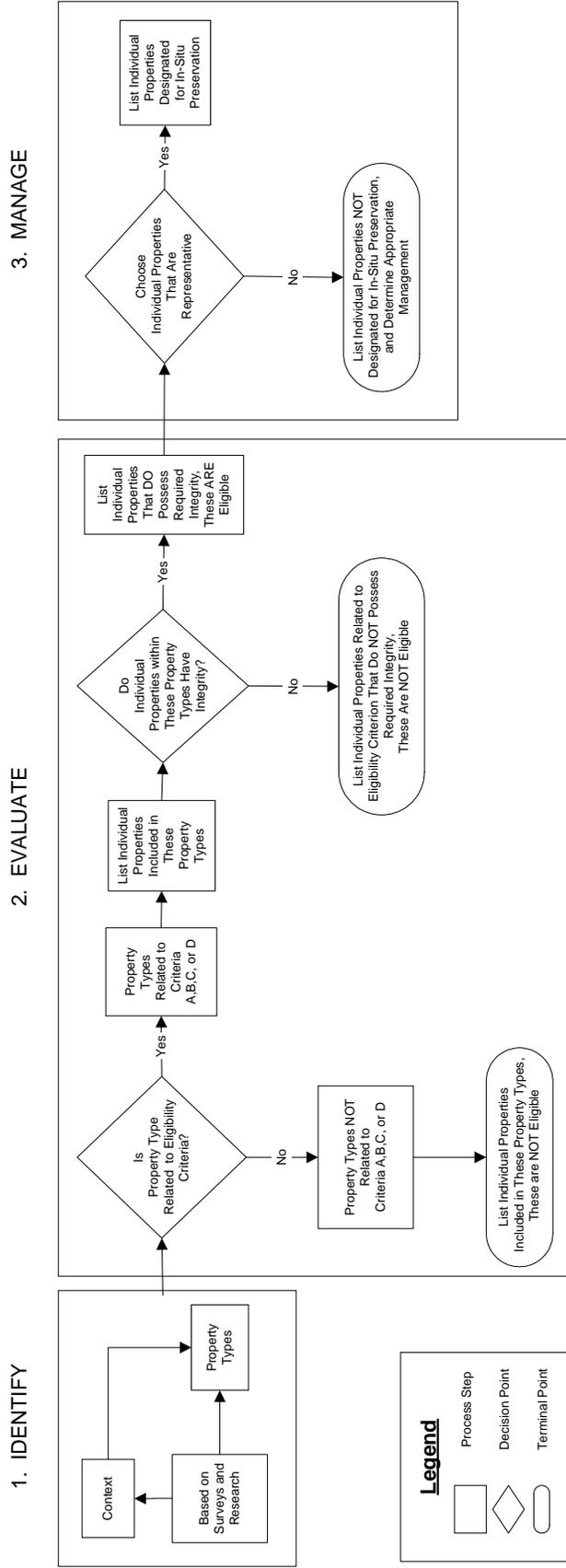


27. Texas Historical Commission, Division of Architecture. *Cold War Context Statement for the Pantex Plant*, letter from Peter Ketter to Jerry S. Johnson, February 27, 2002.
28. U.S. Department of Energy, Amarillo Area Office. *Nuclear Weapons Trainers for National Historic Preservation Act (NHPA) Compliance Program*, memorandum from Jerry S. Johnson to Rob Aaron, March 24, 1998.
29. U.S. Department of Energy, Albuquerque Operations Office. *Trainers for National Historic Preservation Act Compliance*, memorandum from Curtis K. Kenagy to Jerry S. Johnson, May 1, 1998.
30. Williams, Paul K., Paul Nickens, Jannelle Warren-Findley, and Rebecca H. Cameron. *Peer Review of the Pantex Plant Cultural Resource Management Program, Final Report*, prepared by Ad Hoc panel for Mason & Hanger--Silas Mason Co., Inc., August 31, 1995.
31. Winchell, Frank and Floyd B. Largent. *Test Excavations of 23 Archaeological Sites at the U.S. Department of Energy Pantex Plant Facility, Carson County, Texas*, Miscellaneous Reports of Investigations, Number 73, prepared by Geo-Marine Inc., for the U.S. Army Corps of Engineers, Tulsa District, July 1994.



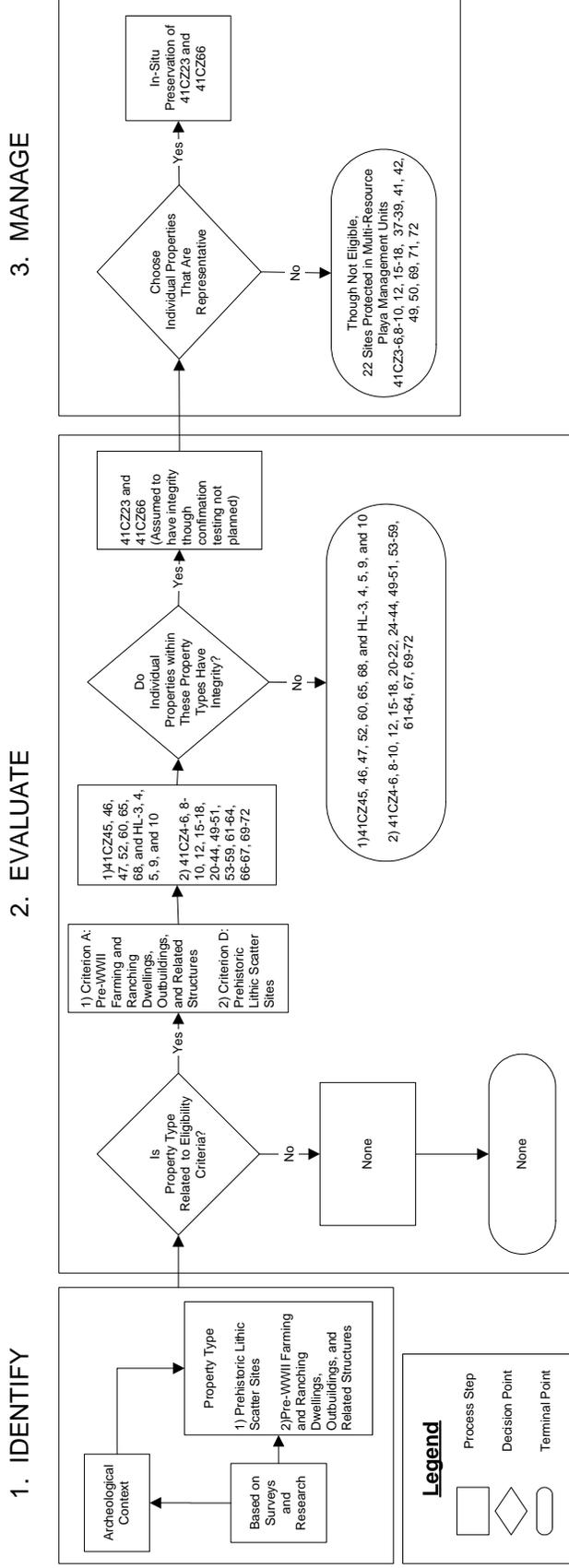


# APPENDIX B: PANTEX PLANT SECTION 110 COMPLIANCE METHOD



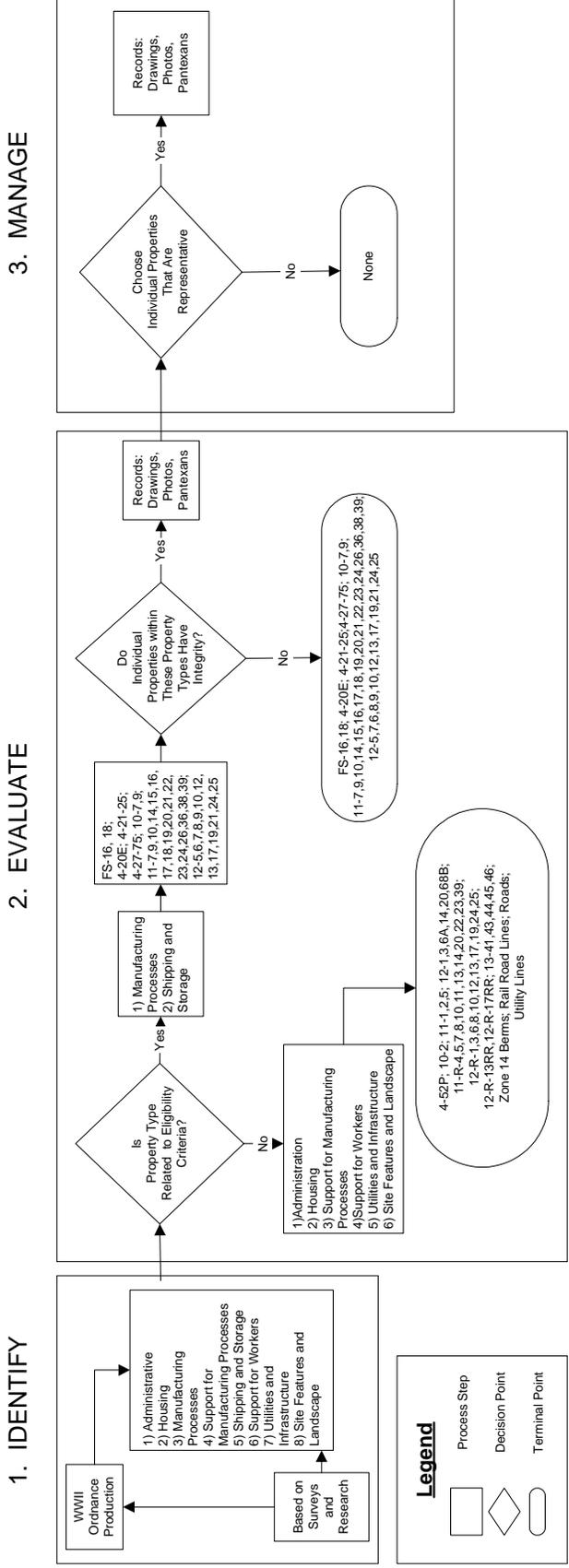


# APPENDIX C: PANTEX PLANT SECTION 110 COMPLIANCE METHOD, ARCHEOLOGY CONTEXT





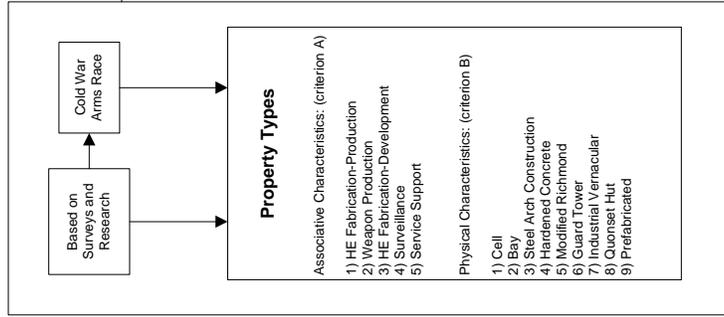
# APPENDIX D: PANTEX PLANT SECTION 110 COMPLIANCE METHOD, WORLD WAR II CONTEXT



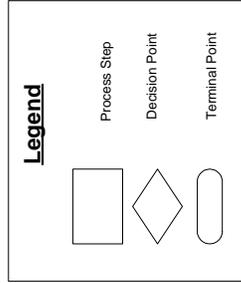
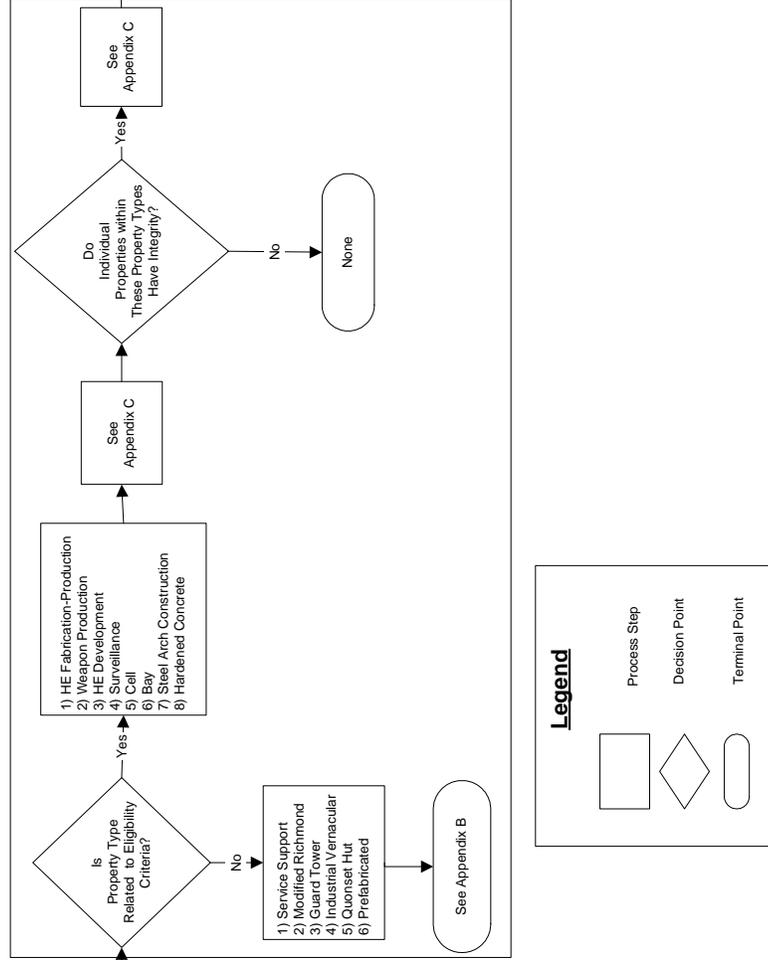


# APPENDIX E: PANTEX PLANT SECTION 110 COMPLIANCE METHOD, COLD WAR CONTEXT

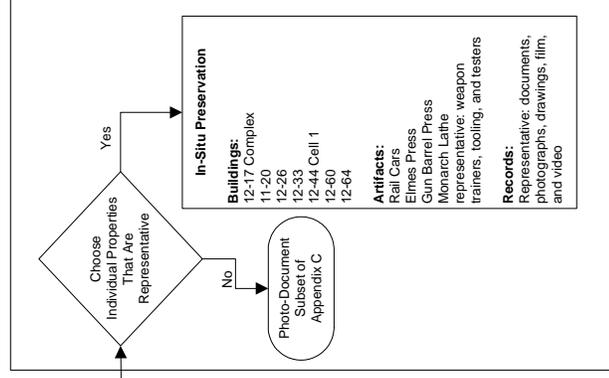
## 1. IDENTIFY



## 2. EVALUATE



## 3. MANAGE





**APPENDIX F: COLD WAR PROPERTIES ELIGIBLE FOR THE  
NATIONAL REGISTER**

Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
04-019	1958		265	Weapon Production	Modified Richmond
04-021	1944	1951	1040	Weapon Production	Modified Richmond
04-023	1944	1951	1040	Weapon Production	Modified Richmond
04-024	1944	1951	1040	Weapon Production	Modified Richmond
04-025	1944	1951	1040	Weapon Production	Modified Richmond
04-026	1958		4500	Weapon Production	IV-Metal
04-027	1944	1951	1040	Weapon Production	Modified Richmond
04-028	1944	1951	1040	Weapon Production	Modified Richmond
04-029	1944	1951	1040	Weapon Production	Modified Richmond
04-030	1944	1951	1040	Weapon Production	Modified Richmond
04-031	1944	1951	1040	Weapon Production	Modified Richmond
04-032	1944	1951	1040	Weapon Production	Modified Richmond
04-033	1944	1951	1040	Weapon Production	Modified Richmond
04-034	1944	1951	1040	Weapon Production	Modified Richmond
04-035	1944	1951	1040	Weapon Production	Modified Richmond
04-036	1944	1951	1040	Weapon Production	Modified Richmond
04-037	1944	1951	1040	Weapon Production	Modified Richmond
04-038	1944	1951	1040	Weapon Production	Modified Richmond
04-039	1944	1951	1040	Weapon Production	Modified Richmond
04-040	1944	1951	1040	Weapon Production	Modified Richmond
04-041	1944	1951	1040	Weapon Production	Modified Richmond
04-042	1944	1951	1040	Weapon Production	Modified Richmond
04-043	1944	1951	1040	Weapon Production	Modified Richmond
04-044	1944	1951	1040	Weapon Production	Modified Richmond
04-045	1944	1951	1040	Weapon Production	Modified Richmond
04-046	1944	1951	1040	Weapon Production	Modified Richmond
04-047	1944	1951	1040	Weapon Production	Modified Richmond
04-048	1944	1951	1040	Weapon Production	Modified Richmond
04-049	1944	1951	1040	Weapon Production	Modified Richmond
04-050	1944	1951	1040	Weapon Production	Modified Richmond
04-051	1944	1951	1040	Weapon Production	Modified Richmond
04-052	1944	1951	1040	Weapon Production	Modified Richmond
04-053	1944	1951	1040	Weapon Production	Modified Richmond
04-054	1944	1951	1040	Weapon Production	Modified Richmond
04-055	1944	1951	1040	Weapon Production	Modified Richmond
04-056	1944	1951	1040	Weapon Production	Modified Richmond
04-057	1944	1951	1040	Weapon Production	Modified Richmond
04-058	1944	1951	1040	Weapon Production	Modified Richmond
04-059	1944	1951	1040	Weapon Production	Modified Richmond
04-060	1944	1951	1040	Weapon Production	Modified Richmond
04-061	1944	1951	1040	Weapon Production	Modified Richmond
04-062	1944	1951	1040	Weapon Production	Modified Richmond
04-063	1944	1951	1040	Weapon Production	Modified Richmond



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
04-064	1944	1951	1040	Weapon Production	Modified Richmond
04-065	1944	1951	1040	Weapon Production	Modified Richmond
04-066	1944	1951	1040	Weapon Production	Modified Richmond
04-067	1944	1951	1040	Weapon Production	Modified Richmond
04-068	1944	1951	1040	Weapon Production	Modified Richmond
04-069	1944	1951	1040	Weapon Production	Modified Richmond
04-070	1944	1951	1040	Weapon Production	Modified Richmond
04-071	1944	1951	1040	Weapon Production	Modified Richmond
04-072	1944	1951	1040	Weapon Production	Modified Richmond
04-073	1944	1951	1040	Weapon Production	Modified Richmond
04-074	1944	1951	1040	Weapon Production	Modified Richmond
04-075	1944	1951	1040	Weapon Production	Modified Richmond
04-101	1965		1182	Weapon Production	SAC
04-102	1965		1182	Weapon Production	SAC
04-103	1965		1182	Weapon Production	SAC
04-104	1965		1182	Weapon Production	SAC
04-105	1965		1182	Weapon Production	SAC
04-106	1965		1182	Weapon Production	SAC
04-107	1965		1182	Weapon Production	SAC
04-108	1965		1182	Weapon Production	SAC
04-109	1965		1182	Weapon Production	SAC
04-110	1965		1182	Weapon Production	SAC
04-111	1965		1182	Weapon Production	SAC
04-112	1965		1182	Weapon Production	SAC
04-113	1965		1182	Weapon Production	SAC
04-114	1965		1182	Weapon Production	SAC
04-115	1965		1182	Weapon Production	SAC
04-116	1965		1182	Weapon Production	SAC
04-117	1965		1182	Weapon Production	SAC
04-118	1965		1182	Weapon Production	SAC
04-119	1965		1182	Weapon Production	SAC
04-120	1965		1182	Weapon Production	SAC
04-121	1965		1182	Weapon Production	SAC
04-122	1965		1182	Weapon Production	SAC
04-123	1965		1182	Weapon Production	SAC
04-124	1965		1182	Weapon Production	SAC
04-125	1965		1182	Weapon Production	SAC
04-126	1965		1182	Weapon Production	SAC
04-127	1965		1182	Weapon Production	SAC
04-128	1965		1182	Weapon Production	SAC
04-129	1965		1182	Weapon Production	SAC
04-130	1965		1182	Weapon Production	SAC
04-131	1965		1182	Weapon Production	SAC
04-132	1965		1182	Weapon Production	SAC
04-133	1965		1182	Weapon Production	SAC
04-134	1965		1182	Weapon Production	SAC
04-135	1965		1182	Weapon Production	SAC
04-136	1965		1182	Weapon Production	SAC



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
04-137	1965		1182	Weapon Production	SAC
04-138	1965		1182	Weapon Production	SAC
04-139	1965		1182	Weapon Production	SAC
04-140	1965		1182	Weapon Production	SAC
04-141	1965		1182	Weapon Production	SAC
04-142	1965		1182	Weapon Production	SAC
11-005	1944	1969	9000	HE Development	Single-Wall Bay
11-015	1944	1962	5952	HE Development	Common-Wall Bay
11-015A	1967		2400	HE Development	HC Surface
11-017	1944	1962	9624	HE Development	Common-Wall Bay
11-017A	1970		780	HE Development	Single-Wall Bay
11-018	1944	1963	1500	HE Development	IV-HCT/Timber
11-019	1944	1963	900	HE Development	IV-HCT/Timber
11-020	1944	1959	16600	HE Development	Single-Wall Bay
11-022	1944	1961	900	HE Development	IV-HCT/Steel
11-028	1970		2000	HE Development	SAC
11-036	1944		5000	HE Development	IV-HCT/Steel
11-037	1950		600	Service/Support	SAC
11-038	1944	1961	7900	HE Development	Common-Wall Bay
11-042	1966		3200	Service/Support	SAC
11-050	1984		22200	HE Development	Common-Wall Bay
11-051	1981		11600	HE Development	IV-Precast
12-013	1944	1951	500	HE Fabrication-Production	IV-HCT/Steel
12-017	1944	1951	28100	HE Fabrication-Production	Common-Wall Bay
12-017A	1959		3425	HE Fabrication-Production	Separated Bay
12-017B	1960		3425	HE Fabrication-Production	Separated Bay
12-017E	1952		7400	Service/Support	Subsurface Bunker
12-019E	1952		7500	Service/Support	Subsurface Bunker
12-019East	1945	1951	14500	HE Development	Common-Wall Bay
12-019West	1945	1951	14500	Surveillance	Common-Wall Bay
12-021	1944	1951	29300	HE Development	Common-Wall Bay
12-021A	1972		3000	Weapon Production	IV-Concrete
12-024 North	1953		29600	HE Fabrication-Production	Single-Wall Bay
12-024 South	1944	1951	15300	Weapon Production	Common-Wall Bay
12-026N/S	1953		49400	Weapon Production	Common-Wall Bay
12-031	1952		7600	Weapon Production	Common-Wall Bay
12-032	1952		7600	Weapon Production	Common-Wall Bay
12-033	1952		7600	Weapon Production	Common-Wall Bay
12-042A	1965		19900	Surveillance	IV-Metal
12-042B	1965		420	Surveillance	IV-Metal
12-042C	1965		353	Surveillance	IV-Metal
12-042D	1965		356	Surveillance	IV-Metal
12-042F	1965		1300	Surveillance	IV-Concrete
12-044 Cell 1	1959		22958	Weapon Production	Cell
12-044 Cell 2	1959		22958	Weapon Production	Cell
12-044 Cell 3	1959		22958	Weapon Production	Cell
12-044 Cell 4	1959		22958	Weapon Production	Cell
12-044 Cell 5	1959		22958	Weapon Production	Cell



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
12-044 Cell 6	1959		22958	Weapon Production	Cell
12-044 Cell 8	1971		4142	Weapon Production	Cell
12-050	1970		1400	Surveillance	Separated Bay
12-055	1965		800	Service/Support	SAC
12-056	1965		2300	Surveillance	IV-Concrete
12-058	1966		2600	Weapon Production	SAC
12-060	1969		8600	Surveillance	SAC
12-062	1971		4900	HE Fabrication-Production	Common-Wall Bay
12-063	1971		3400	HE Fabrication-Production	SAC
12-063A	1971		154	HE Fabrication-Production	IV-Cemesto
12-064	1970		32000	Weapon Production	Separated Bay
12-065	1973		8100	Weapon Production	Separated Bay
12-078	1986		2380	HE Fabrication-Production	Single-Wall Bay
12-083	1986		13074	Weapon Production	SAC
12-084	1984		107400	Weapon Production	Separated Bay
12-085	1984		7865	Weapon Production	Cell
12-086	1988		49186	Surveillance	Common-Wall Bay
12-092	1986		947	Weapon Production	SAC
12-094	1986		7233	Surveillance	IV-Precast
12-095	1984		2630	Weapon Production	Separated Bay
12-096	1984		7865	Weapon Production	Cell
12-098 Cell 1	1986		34400	Weapon Production	Cell
12-098 Cell 2	1986		34400	Weapon Production	Cell
12-098 Cell 3	1986		34400	Weapon Production	Cell
12-098 Cell 4	1986		34400	Weapon Production	Cell
12-099	1987		60700	Weapon Production	Separated Bay
12-104	1988		99700	Weapon Production	Separated Bay
BG-002	1953		64	Service/Support	SAC
FS-004	1953		790	HE Fabrication-Production	Subsurface Bunker
FS-010	1962		1100	HE Development	HC Surface
FS-010A	1962		400	Surveillance	HC Surface
FS-011	1962		600	HE Development	IV-CMU
FS-011A	1978		2700	Service/Support	SAC
FS-016	1944		1000	HE Development	IV-Metal
FS-021	1969		1300	HE Development	HC Surface
FS-022	1972		1800	HE Fabrication-Production	HC Surface
FS-023	1982		414	Surveillance	Special Design
FS-023A	1982		286	Surveillance	Special Design
FS-024	1987		7100	HE Fabrication-Production	IV-Brick



## **APPENDIX G: COLD WAR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER**

<b>Building Number</b>	<b>Construction Date</b>	<b>Renovation Date</b>	<b>Gross Sq Feet</b>	<b>Associative Property Type-1</b>	<b>Physical Property Type</b>
04-004	1952		36	Service/Support	IV-CMU
04-020E	1944	1951	1000	Service/Support	Modified Richmond
04-022	1944	1951	1040	Service/Support	Modified Richmond
04-052P	1944	1951	96	Service/Support	Modified Richmond
04-143	1975		348	Service/Support	Guard Tower-Concrete
04-144	1978		348	Service/Support	Guard Tower-Concrete
04-145	1978		400	Service/Support	IV-Precast
04-146	1980		360	Service/Support	IV-CMU
04-147	1990		500	Service/Support	IV-CMU
04-148	1989		625	Service/Support	IV-CMU
09-001	1985		500	Service/Support	Prefab Trailer
09-002	1985		1536	Service/Support	Prefab Trailer
09-003	1985		1536	Service/Support	Prefab Trailer
09-008	1987		90	Service/Support	Guard Tower-Metal
09-009	1987		90	Service/Support	Guard Tower-Metal
09-010	1987		90	Service/Support	Guard Tower-Metal
09-011	1987		90	Service/Support	Guard Tower-Metal
09-012	1987		90	Service/Support	Guard Tower-Metal
09-013	1987		90	Service/Support	Prefab Modular
09-014	1987		90	Service/Support	Prefab Modular
09-015	1987		90	Service/Support	Prefab Modular
09-016	1987		144	Service/Support	Prefab Modular
09-017	1987		100	Service/Support	Prefab Modular
09-018	1987		252	Service/Support	Prefab Modular
09-021	1987		612	Service/Support	Prefab Modular
09-022	1987		160	Service/Support	Prefab Modular
09-023	1987		160	Service/Support	Prefab Modular
09-024	1987		192	Service/Support	Prefab Modular
09-025	1987		196	Service/Support	Prefab Modular
09-029	1987		592	Service/Support	Prefab Trailer
09-030	1987		592	Service/Support	Prefab Trailer
09-031	1988		924	Service/Support	Prefab Trailer
09-032	1989		180	Service/Support	Prefab Modular
09-033	1989		180	Service/Support	Prefab Modular
09-034	1989		180	Service/Support	Prefab Modular
09-035	1989		180	Service/Support	Prefab Modular
09-036	1989		180	Service/Support	Prefab Modular
09-037	1989		180	Service/Support	Prefab Modular
09-038	1989		180	Service/Support	Prefab Modular
09-039	1989		180	Service/Support	Prefab Modular
09-040	1989		234	Service/Support	Prefab Modular
09-049	1990		504	Service/Support	Prefab Modular
09-054	1990		560	Service/Support	Prefab Modular



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
10-002	1944		4520	Service/Support	IV-Concrete
10-007	1944	1968	14400	Service/Support	IV-HCT/Timber
10-009	1944	1968	15500	Service/Support	IV-HCT/Timber
11-002	1944	1964	9600	Service/Support	IV-HCT/Steel
11-007	1944	1957	34100	Service/Support	IV-HCT/Timber
11-009	1944	1960	17700	Service/Support	IV-HCT/Timber
11-010	1944		990	Service/Support	IV-HCT/Timber
11-014	1944	1962	6800	Service/Support	IV-HCT/Steel
11-014SS	1942		134	Service/Support	IV-Metal
11-015V1	1942		42	Service/Support	IV-Metal
11-016	1944	1972	400	Service/Support	IV-HCT/Steel
11-017V1	1988		42	Service/Support	IV-Metal
11-017V2	1988		92	Service/Support	IV-Metal
11-020E	1944	1959	360	Service/Support	IV-Cemesto
11-020E1	1944		460	Service/Support	IV-Cemesto
11-020SS	1942		136	Service/Support	IV-Metal
11-021	1944	1959	1100	Service/Support	IV-Brick
11-023	1944		600	Service/Support	IV-HCT/Timber
11-024	1944		600	Service/Support	IV-HCT/Timber
11-025	1961		500	Service/Support	IV-CMU
11-026	1944	1968	7000	Service/Support	IV-Brick
11-027	1971	1969	5100	Service/Support	IV-Metal
11-029	1971		4200	Service/Support	IV-CMU
11-030	1975		3600	Service/Support	Prefab Modular
11-034	1977		600	Service/Support	IV-CMU
11-036SS	1977		793	Service/Support	IV-Metal
11-039	1944		1000	Service/Support	IV-HCT/Steel
11-039SS	1945		102	Service/Support	IV-Metal
11-040	1978		100	Service/Support	Prefab Modular
11-042E	1966		52	Service/Support	IV-Metal
11-043	1965		1000	Service/Support	IV-CMU
11-044	1963		900	Service/Support	IV-CMU
11-045	1945		100	Service/Support	IV-Metal
11-047	1966		120	Service/Support	IV-CMU
11-048	1966		3200	Service/Support	IV-Metal
11-048SS	1966		95	Service/Support	IV-Metal
11-049	1966		120	Service/Support	IV-CMU
11-053	1981		300	Service/Support	IV-CMU
11-054	1983		3110	Service/Support	Prefab Trailer
11-054A	1984		3560	Service/Support	IV-Metal
11-R-004	1944		2880	Service/Support	IV-Metal
11-R-005	1944		1860	Service/Support	IV-Metal
11-R-007	1944		5040	Service/Support	IV-Metal
11-R-008	1944		4740	Service/Support	IV-Metal
11-R-010	1944		4260	Service/Support	IV-Metal
11-R-011	1944		8640	Service/Support	IV-Metal
11-R-013	1944		3480	Service/Support	IV-HCT/Timber
11-R-013A	1942		2830	Service/Support	IV-Metal



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
11-R-014	1944		1140	Service/Support	IV-Metal
11-R-016	1942		480	Service/Support	IV-Metal
11-R-020	1944		1140	Service/Support	IV-Metal
11-R-022	1944		6840	Service/Support	IV-Metal
11-R-023	1944		1440	Service/Support	IV-Metal
11-R-039	1944		500	Service/Support	IV-Metal
11-R-042	1944		3600	Service/Support	IV-Cemesto
11-R-050	1984		7440	Service/Support	IV-Metal
11-R-051	1984		2520	Service/Support	IV-Metal
12-001	1944	1951	29000	Service/Support	IV-HCT/Steel
12-001A	1952		3400	Service/Support	IV-HCT/Steel
12-002	1970		13456	Service/Support	IV-Brick
12-002A	1979		1500	Service/Support	IV-CMU
12-002B	1983		3220	Service/Support	Prefab Trailer
12-003	1944	1951	2000	Service/Support	IV-HCT/Steel
12-003L	1945	1951	100	Service/Support	IV-HCT/Steel
12-005	1944	1951	74400	Service/Support	IV-HCT/Steel
12-005A	1944	1951	8200	Service/Support	Quonset
12-005B	1963		4700	Service/Support	IV-Metal
12-005C	1964		21700	Service/Support	IV-Metal
12-005E	1944	1951	952	Service/Support	IV-HCT/Steel
12-005G3	1983		504	Service/Support	IV-Metal
12-005G4	1983		2250	Service/Support	IV-Metal
12-005V1	1983		42	Service/Support	Prefab Modular
12-005V2	1988		58	Service/Support	Prefab Modular
12-006	1944	1951	23700	Service/Support	IV-HCT/Steel
12-006A	1944	1951	320	Service/Support	IV-HCT/Steel
12-006B	1969		5900	Service/Support	IV-Metal
12-006BE	1969		1535	Service/Support	IV-CMU
12-006S	1944	1951	570	Service/Support	IV-HCT/Steel
12-006V	1945		54	Service/Support	Prefab Modular
12-007	1944	1951	2800	Service/Support	IV-HCT/Steel
12-008	1944	1951	626	Service/Support	IV-HCT/Steel
12-009	1944	1951	18500	Service/Support	IV-HCT/Steel
12-009A	1955		3100	Service/Support	IV-CMU
12-009S	1944	1951	505	Service/Support	IV-HCT/Steel
12-011	1961		2900	Service/Support	IV-CMU
12-011A	1961		5200	Service/Support	IV-Brick
12-014	1944	1951	900	Service/Support	IV-HCT/Steel
12-015	1971		16800	Service/Support	IV-CMU
12-016	1972		5000	Service/Support	IV-CMU
12-016A	1984		825	Service/Support	IV-Metal
12-016B	1985		500	Service/Support	IV-CMU
12-016SS	1945	1951	90	Service/Support	IV-CMU
12-017F1	1951		2000	Service/Support	IV-HCT/Steel
12-017F2	1951		800	Service/Support	IV-HCT/Steel
12-017F3	1951		800	Service/Support	IV-HCT/Steel



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
12-017F4	1951		800	Service/Support	IV-HCT/Steel
12-017L	1945	1951	102	Service/Support	IV-HCT/Steel
12-017P1	1984		64	Service/Support	IV-Metal
12-017P2	1984		64	Service/Support	IV-Metal
12-017S	1953		1000	Service/Support	IV-HCT/Steel
12-017V	1945		60	Service/Support	Prefab Modular
12-018	1970		1900	Service/Support	IV-Metal
12-019F1	1951		1024	Service/Support	IV-HCT/Steel
12-019F2	1951		400	Service/Support	IV-HCT/Steel
12-019F3	1951		400	Service/Support	IV-HCT/Steel
12-019F4	1951		400	Service/Support	IV-HCT/Steel
12-019L	1945	1951	102	Service/Support	IV-HCT/Steel
12-019P	1944	1951	143	Service/Support	IV-Concrete
12-019V	1945	1951	56	Service/Support	Prefab Modular
12-020	1944	1951	225	Service/Support	IV-HCT/Steel
12-022	1971		800	Service/Support	IV-CMU
12-023	1972		3200	Service/Support	IV-CMU
12-024A	1965		1200	Service/Support	IV-CMU
12-024E	1951		3300	Service/Support	IV-HCT/Steel
12-024S	1953		847	Service/Support	IV-HCT/Steel
12-024SS	1945	1951	200	Service/Support	IV-Metal
12-025	1944	1951	900	Service/Support	IV-HCT/Steel
12-026 East	1975		37600	Service/Support	IV-CMU
12-026E	1952		1380	Service/Support	IV-HCT/Steel
12-026S	1953		548	Service/Support	IV-HCT/Steel
12-028	1971		3500	Service/Support	IV-CMU
12-030	1972		440	Service/Support	IV-CMU
12-031V	1952		56	Service/Support	Prefab Modular
12-033V	1952		56	Service/Support	Prefab Modular
12-034	1952		114	Service/Support	IV-HCT/Steel
12-034SS	1952		352	Service/Support	IV-Metal
12-035	1953		13400	Service/Support	IV-HCT/Steel
12-035A	1953		150	Service/Support	Prefab Modular
12-036	1953		29400	Service/Support	IV-Brick
12-036A	1971		4000	Service/Support	IV-CMU
12-036P	1953		120	Service/Support	IV-HCT/Steel
12-036S	1953		118	Service/Support	IV-HCT/Steel
12-037	1974		22700	Service/Support	IV-Concrete
12-037A	1987		5179	Service/Support	IV-Precast
12-039	1953		8200	Service/Support	IV-HCT/Steel
12-039A	1984		1560	Service/Support	IV-Metal
12-041	1952		5600	Service/Support	IV-CMU
12-041A	1985		3000	Service/Support	IV-Metal
12-041SS	1985		240	Service/Support	IV-Metal
12-041V	1985		51	Service/Support	Prefab Modular
12-042	1959		47400	Service/Support	IV-Metal
12-043	1953		2700	Service/Support	IV-HCT/Steel
12-044E	1959		1900	Service/Support	IV-Cemesto



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
12-044EA	1971		640	Service/Support	IV-Cemesto
12-045	1960		100	Service/Support	IV-Metal
12-046	1959		180	Service/Support	IV-CMU
12-047	1961		140	Service/Support	Quonset
12-048	1962		4100	Service/Support	Quonset
12-049	1973		3900	Service/Support	IV-CMU
12-050E	1970		380	Service/Support	IV-CMU
12-051	1961		140	Service/Support	Quonset
12-052	1963		5200	Service/Support	IV-CMU
12-052A	1968		3300	Service/Support	IV-CMU
12-052AE	1968		314	Service/Support	IV-CMU
12-052B	1968		4000	Service/Support	IV-CMU
12-052C	1974		3600	Service/Support	IV-CMU
12-052E	1962		205	Service/Support	IV-CMU
12-053	1965		4900	Service/Support	IV-CMU
12-055E	1965		50	Service/Support	IV-CMU
12-057	1965		2500	Service/Support	IV-Metal
12-059	1969		8300	Service/Support	IV-Brick
12-059E	1969		615	Service/Support	IV-CMU
12-059V	1969		36	Service/Support	IV-Metal
12-060E	1969		850	Service/Support	IV-Cemesto
12-061	1970		24000	Service/Support	IV-Metal
12-062SS	1972		226	Service/Support	IV-Cemesto
12-063E	1971		475	Service/Support	IV-Cemesto
12-063E1	1971		465	Service/Support	IV-Metal
12-063E2	1971		79	Service/Support	IV-Metal
12-064A	1970		2300	Service/Support	IV-CMU
12-064E	1970		920	Service/Support	IV-Cemesto
12-066	1973		25900	Service/Support	IV-CMU
12-067	1973		600	Service/Support	IV-CMU
12-068	1977		36200	Service/Support	IV-CMU
12-068A	1977		4600	Service/Support	IV-CMU
12-068B	1977		1765	Service/Support	Quonset
12-068D	1977		315	Service/Support	IV-Metal
12-069	1975		9800	Service/Support	IV-CMU
12-069E	1975		710	Service/Support	IV-CMU
12-070	1977		12100	Service/Support	IV-Precast
12-071	1975		2100	Service/Support	IV-CMU
12-072	1975		2425	Service/Support	IV-Metal
12-073	1976		1500	Service/Support	IV-CMU
12-074	1975		348	Service/Support	Guard Tower-Concrete
12-075	1978		26400	Service/Support	HC Surface
12-075A	1983		3280	Service/Support	Prefab Trailer
12-075G	1989		420	Service/Support	IV-Precast
12-079	1980		28700	Service/Support	IV-Concrete
12-080	1978		96	Service/Support	IV-Precast
12-081	1979		4400	Service/Support	IV-Metal



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
12-082	1980		6800	Service/Support	IV-CMU
12-087	1978		348	Service/Support	Guard Tower-Concrete
12-088	1978		348	Service/Support	Guard Tower-Concrete
12-089	1978		348	Service/Support	Guard Tower-Concrete
12-090	1979		120	Service/Support	HC Surface
12-090A	1991		2000	Service/Support	IV-Precast
12-093	1979		300	Service/Support	IV-Metal
12-097	1983		10000	Service/Support	Prefab Trailer
12-098E1	1986		2300	Service/Support	IV-Metal
12-098E2	1986		2300	Service/Support	IV-Metal
12-100	1984		4360	Service/Support	IV-Metal
12-101	1984		5334	Service/Support	IV-Metal
12-102	1984		5778	Service/Support	IV-Metal
12-103	1989		23600	Service/Support	IV-Precast
12-104P1	1988		192	Service/Support	IV-Metal
12-104P2	1988		192	Service/Support	IV-Metal
12-105	1986		480	Service/Support	IV-Metal
12-106	1986		5400	Service/Support	IV-Metal
12-106A	1988		12600	Service/Support	IV-Metal
12-107	1986		10000	Service/Support	IV-Metal
12-108	1987		2000	Service/Support	IV-Precast
12-109	1989		960	Service/Support	IV-CMU
12-110	1988		7800	Service/Support	IV-Metal
12-111	1988		7416	Service/Support	IV-Metal
12-112	1988		6525	Service/Support	IV-Metal
12-114	1989		2200	Service/Support	IV-Concrete
12-115	1989		1200	Service/Support	IV-CMU
12-118	1990		18000	Service/Support	IV-Metal
12-119	1989		855	Service/Support	IV-Precast
12-120	1988		220	Service/Support	IV-Metal
12-120A	1991		2346	Service/Support	IV-Concrete
12-122	1991		6017	Service/Support	IV-Metal
12-124	1991		126	Service/Support	Prefab Modular
12-R-001	1953		8610	Service/Support	IV-Cemesto
12-R-002	1953		6050	Service/Support	IV-CMU
12-R-003	1944	1951	500	Service/Support	IV-Cemesto
12-R-005	1972		6040	Service/Support	IV-Metal
12-R-005A	1944	1951	783	Service/Support	IV-Cemesto
12-R-006	1953		9250	Service/Support	IV-Cemesto
12-R-008	1953		3000	Service/Support	IV-Cemesto
12-R-009A	1953		5400	Service/Support	IV-Cemesto
12-R-009B	1961		1800	Service/Support	IV-CMU
12-R-017	1953		4950	Service/Support	IV-Cemesto
12-R-017A	1953		4950	Service/Support	IV-Cemesto
12-R-017RR	1953		285	Service/Support	IV-HCT/Steel
12-R-019	1953		6750	Service/Support	IV-Cemesto
12-R-019A	1953		5160	Service/Support	IV-Cemesto
12-R-021	1953		4895	Service/Support	IV-Cemesto



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
12-R-024	1953		3600	Service/Support	IV-Cemesto
12-R-024A	1953		3600	Service/Support	IV-Cemesto
12-R-025	1944	1951	512	Service/Support	IV-Cemesto
12-R-029	1953		6270	Service/Support	IV-Cemesto
12-R-031	1953		5280	Service/Support	IV-Cemesto
12-R-032	1953		5400	Service/Support	IV-Cemesto
12-R-032A	1953		2520	Service/Support	IV-Cemesto
12-R-033	1964		3600	Service/Support	IV-Cemesto
12-R-034	1952		1060	Service/Support	IV-Cemesto
12-R-035	1953		3412	Service/Support	IV-HCT/Steel
12-R-037	1974		1650	Service/Support	IV-CMU
12-R-040	1962		1780	Service/Support	IV-CMU
12-R-041	1953		6185	Service/Support	IV-Cemesto
12-R-044	1957		17460	Service/Support	IV-Cemesto
12-R-044A	1966		5250	Service/Support	IV-Cemesto
12-R-048	1962		5925	Service/Support	IV-Cemesto
12-R-050	1970		1800	Service/Support	IV-Metal
12-R-053	1965		650	Service/Support	IV-Cemesto
12-R-056	1965		3320	Service/Support	IV-CMU
12-R-058	1966		4460	Service/Support	IV-CMU
12-R-059	1969		545	Service/Support	IV-CMU
12-R-060	1969		1030	Service/Support	IV-Cemesto
12-R-062	1971		3750	Service/Support	IV-Cemesto
12-R-063	1971		4575	Service/Support	IV-Cemesto
12-R-063A	1971		750	Service/Support	IV-Cemesto
12-R-064	1973		1500	Service/Support	IV-Cemesto
12-R-065	1973		8615	Service/Support	IV-Cemesto
12-R-068	1977		2100	Service/Support	IV-CMU
12-R-078	1983		960	Service/Support	IV-Metal
12-R-079	1987		9135	Service/Support	IV-Metal
12-R-083	1984		2642	Service/Support	IV-Metal
12-R-084	1984		14069	Service/Support	IV-Metal
12-R-086	1988		6198	Service/Support	IV-Cemesto
12-R-095	1983		2279	Service/Support	IV-Metal
12-R-098	1987		5475	Service/Support	IV-Metal
13-047	1987		351	Service/Support	IV-Precast
15-016	1944		200	Service/Support	IV-CMU
15-020	1974		450	Service/Support	IV-CMU
15-024	1971		400000	Service/Support	IV-Concrete
15-024A	1973		120	Service/Support	IV-Metal
15-025	1971		400000	Service/Support	IV-Concrete
15-025A	1973		120	Service/Support	IV-Metal
15-026	1987		592	Service/Support	IV-Precast
15-027	1987		2320	Service/Support	IV-Precast
15-028	1987		2400000	Service/Support	Storage Tank
15-029	1987		168	Service/Support	IV-Precast
16-001	1980		54200	Service/Support	IV-Concrete



Building Number	Construction Date	Renovation Date	Gross Sq Feet	Associative Property Type-1	Physical Property Type
16-002	1979		19900	Service/Support	IV-Concrete
16-003	1979		100	Service/Support	Prefab Modular
16-004	1980		6100	Service/Support	IV-Metal
16-005	1980		246	Service/Support	IV-CMU
16-007	1977		2300	Service/Support	IV-CMU
16-008	1978		6017	Service/Support	IV-CMU
16-009	1988		240	Service/Support	IV-Concrete
16-010	1980		2300	Service/Support	IV-Metal
16-010A	1980		330	Service/Support	Quonset
16-010E	1980		700	Service/Support	IV-CMU
16-011	1988		240	Service/Support	IV-Concrete
16-012	1989		29000	Service/Support	IV-Precast
16-013	1988		20000	Service/Support	IV-Metal
16-014	1989		140	Service/Support	IV-Metal
16-015	1989		900	Service/Support	IV-Metal
18-001	1950		3350	Service/Support	IV-Brick
18-002	1955		3927	Service/Support	IV-Brick
BG-001	1953		400	Service/Support	IV-Metal
BG-003	1953		64	Service/Support	IV-Concrete
BG-004	1953		64	Service/Support	IV-Concrete
FS-001	1952		5360	Service/Support	IV-Metal
FS-001A	1983		1478	Service/Support	IV-Metal
FS-001P	1952		80	Service/Support	IV-HCT/Steel
FS-001SS	1952		68	Service/Support	IV-Metal
FS-002	1953		64	Service/Support	IV-Concrete
FS-003	1953		196	Service/Support	IV-Concrete
FS-004A	1953		100	Service/Support	Prefab Modular
FS-010SS	1962		80	Service/Support	IV-Metal
FS-013	1975		10	Service/Support	Prefab Modular
FS-021A	1969		70	Service/Support	IV-Concrete
FS-023B	1988		2000	Service/Support	IV-Metal
FS-R-024	1987		432	Service/Support	IV-Brick



***APPENDIX H: PANTEX PLANT CRM MILESTONES***



