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U.S. DEPARTMENT OF ENERGY

National Nuclear Security Administration

ENVIRONMENTAL ASSESSMENT FOR THE HIGH EXPLOSIVE SCIENCE AND ENGINEERING FACILITY

PANTEX PLANT * AMARILLO, TEXAS * January 2018

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FIGURES

TABLES

ACRONYMS

A-E	Architect-Engineer
ADA	Americans with Disabilities Act
ASER	Annual Site Environmental Report
B&W	Babcock & Wilcox
BMP	Best Management Practice
CFR	Code of Federal Regulations
CNS	Consolidated Nuclear Security, LLC
CoE	Center of Excellence
CSO	Chief Sustainability Officer
D&D	Deactivation and Decommissioning
dBA	decibels A-weighted
DOD	Department of Defense
DOE	Department of Energy
EA	Environmental Assessment
EDE	Effective Dose Equivalent
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESL	Effect Screening Levels
FHA	Fire Hazard Analysis
FM	Farm-to-Market Road
ft^2	Square feet
GOV	Government-owned vehicle
HE	High Explosive
HE S&E	High Explosive Science and Engineering
HPFL	High Pressure Fire Loop
IAQ	Indoor Air Quality
KWh	Kilowatt hour
LA	Limited Area
LEED	Leadership in Energy and Environmental Design
M&O	Management & Operating Contractor
Mcf	One Thousand Cubic Feet (natural gas)
MEI	Maximally Exposed Individual
MMBtu	One Million British thermal unit
MW	Megawatt
MWh	Megawatt hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NNSA	National Nuclear Security Administration
NPO	NNSA Production Office
NSE	Nuclear Security Enterprise
OSHA	Occupational Safety and Health Administration
PAS	Public Address System
PHA	Process Hazard Analysis
POV	Privately-owned vehicle
PPA	Property Protection Area

SA	Supplement Analysis
SHP	Southern High Plains
SHPO	State Historic Preservation Office
SNM	Special Nuclear Material
SPO	Sustainable Performance Office
SWEIS	Site-Wide Environmental Impact Statement
SWMU	Solid Waste Management Unit
TCEQ	Texas Commission on Environmental Quality
TD&DL	Technology Development & Deployment Laboratory
UFC	Unified Facilities Criteria
USGBC	U.S. Green Building Council

1.0 INTRODUCTION

The National Environmental Policy Act (NEPA) requires Federal agency officials to consider the environmental consequences of their proposed actions before decisions are made. In complying with NEPA, the National Nuclear Security Administration (NNSA), a semi-autonomous agency within the Department of Energy (DOE) follows the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) and DOE's NEPA-implementing procedures (10 CFR Part 1021). The purpose of an environmental assessment (EA) is to provide federal decision makers sufficient information and analysis to determine whether to prepare an environmental impact statement (EIS) or issue a Finding of No Significant Impact.

DOE issued the *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* (Site-Wide Environmental Impact Statement [SWEIS]) in November 1996. The *Supplement Analysis for the* SWEIS, November 2012, (DOE SA 2012) concluded that no further NEPA documentation was required. That determination satisfied DOE's five-year review requirement [10 CFR Park 2012.330(d)] to evaluate the adequacy of the existing 1996 SWEIS or whether to prepare a new SWEIS or supplement the existing EIS, as appropriate. The scope of this EA fits within the parameters of the SWEIS.

2.0 PURPOSE AND NEED FOR AGENCY ACTION

2.1 Background

The Pantex Plant (Figure 1) opened its doors in 1942 mainly as a bomb loading facility in support of the war effort by producing nearly four million conventional bombs and artillery shells during three years of heavy production. In 1945, one day after the surrender of Japan, Pantex closed. It reopened in 1951 and played a key role in the Cold War era.

After reopening, Pantex underwent reconfigurations and additions, especially in Zone 11 (Figure 2). What began as an area for a bomb loading line with facilities for trinitrotoluene screening, service, storage, and pouring facilities, Zone 11 was subsequently reconfigured to produce High Explosives (HE).

In 2008, NNSA announced its plan to transform the Nuclear Security Enterprise (NSE) which would allow the NNSA to evolve from an aging post World War II/Cold War era nuclear weapons complex into a more efficient 21st century NSE with less environmental impact. Redundancy and excess capacity in the NSE has been replaced by carefully considered and chosen Centers of Excellence. The Pantex Plant was designated and recognized as the High Explosive Center of Excellence (HE CoE) for manufacturing and as collaborative partners with the national laboratories for transitioning research and development from bench scale to production scale. As part of the HE CoE, the Pantex Plant (Pantex) is the only site in the NSE with cradle to grave responsibility for HE production; including, HE synthesis, formulation, pressing, machining, chemical and mechanical testing, small component assembly and disassembly, test fire, and disposition. The HE CoE mission consists of developing and sustaining high quality scientific staff and supporting computational and experimental capabilities as well as developing additional evaluation and diagnostic tools for the evaluation, manufacturing support, surveillance, and testing of materials at Pantex.

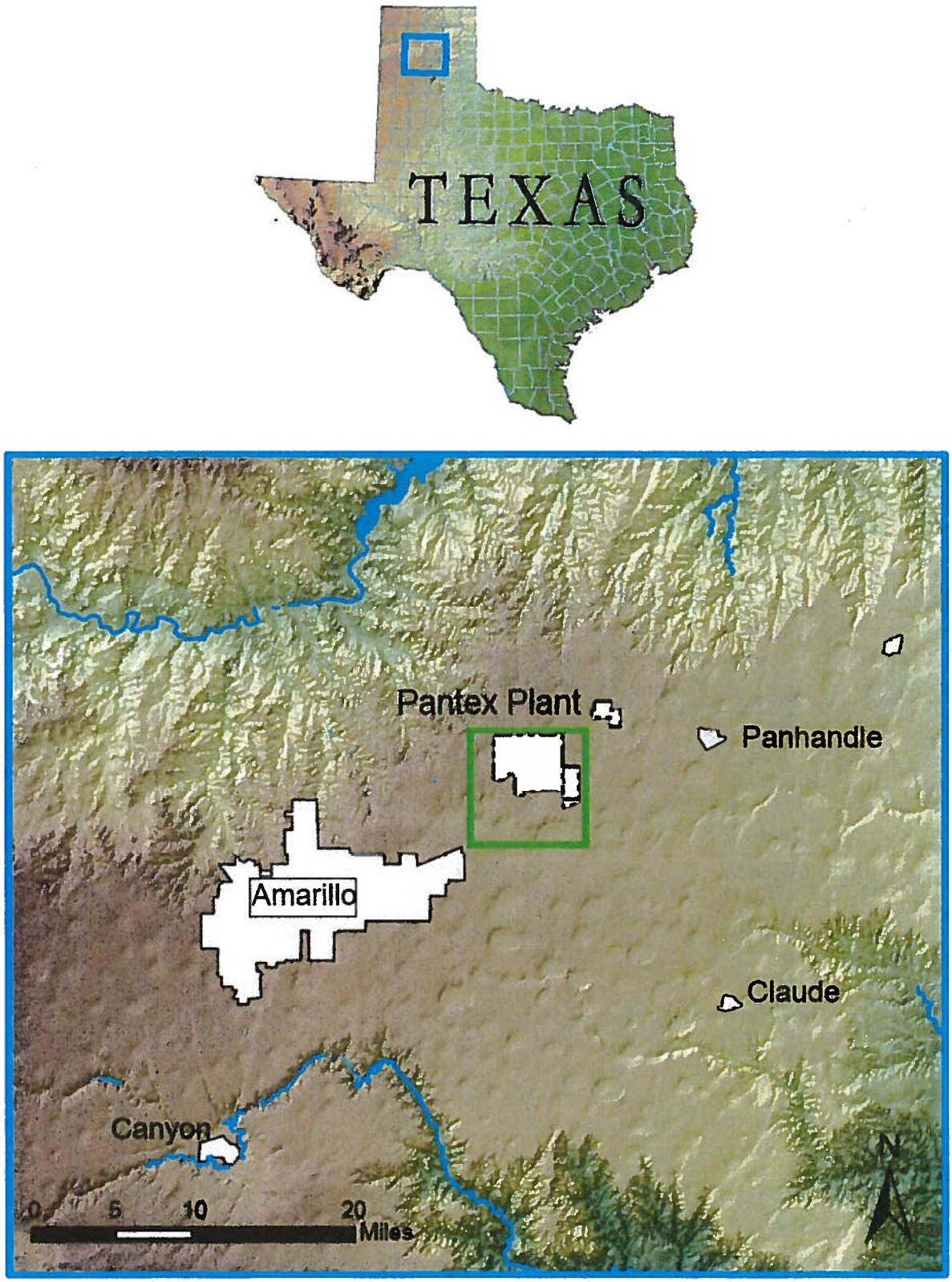

Figure 1: Pantex Plant Site Location

Figure 2: Zone 11 at Pantex Plant

2.2 Purpose and Need

The purpose of this action would be to ensure that the Pantex Plant support the HE CoE mission safely, securely, and efficiently. The Pantex Plant's HE operations currently reside in Zone 11 in several different facilities, which were constructed during the World War II/Cold War Era. This represents a significant maintenance burden and would be difficult for NNSA to meet the Pantex and the HE CoE mission needs without implementation of the proposed action.

3.0 PROPOSED ACTION AND ALTERNATIVES

The proposed action would be to design, construct, and operate a HE S&E facility to ensure that the Pantex Plant can provide a modernized capability-based infrastructure that supports NNSA's future needs. The HE S&E facility would serve as the scientific and engineering hub supporting all HE CoE activities and Special Nuclear Material (SNM) technology development activities at Pantex. Only HE would be present in the facility: no SNM would be present in the facility.

Currently, Pantex Plant's HE operations are located in 17 separate facilities (with a ramp system connecting those facilities) that are approximately 60 years old which demand continuous, high-cost, labor-intensive maintenance. The operations conducted within these facilities would be consolidated into three facilities where operations would be streamlined, technology sharing made possible, and technical communications greatly improved.

The 17 facilities that are listed in Table 1 would be demolished as funding becomes available. No consultation with the State Historic Preservation Office (SHPO) would be required since none of these buildings were identified as National Register-eligible historic properties according to the *Pantex Plant Programmatic Agreement/Cultural Resource Management Plan (PA/CRMP).*

Table 1: Pantex Plant's Current HE Buildings/Operations

Building / Ramp Number	Year Built	Approx. Square Footage	Current Operations	Operational Environmental Impacts	Building Deficiencies
11-002	1942	10,500	Change House and Office Building	Waste stream for solid waste (office trash, batteries, etc.). De Minimis for Air Emissions. Discharging process water into the sewer system.	Roof leaks are common, and overhead lighting in one office area is permanently turned off due to electrical hazards.
11-005	1942	9,400	Physical Properties Testing Laboratory	Waste stream for scrap, testing and support material. De Minimis for Air Emissions. Discharging process water into sewer system.	Electrical system has insufficient capacity to add new testing equipment without a major modification to the facility.
Ramps 11-R-004, 11-R-007, 11-R-008, 11-R-010, 11-R-011, 11-R-013, 11-R-13A, 11-R-23	1942	20,236	Ramp System connecting various facilities	Not Applicable	Wooden and corrugated steel ramps carry dry pipe fire suppression systems and electrical services to connected facilities. The dry pipe system routinely leaks water into the ramp and snow and ice accumulate in the winter months. The lighting is insufficient. The width is too narrow or the clearance height is too low for a safe passage for forklifts.
11-014	1942	7,700	SNM Technology Development	Waste stream of support material and batteries. De Minimis for Air Emissions. Discharging process water into sewer system.	There are no restrooms in this facility. It does not have the electrical capacity to power many new laser technologies. Because of its location, rodents and vermin have built nests.
11-016	1942	500	Explosives Thermal Treatment	Samples are containerized and moved to a different facility; therefore, no waste stream is generated. De Minimis for Air Emissions. No discharge from this building.	This facility was designed and constructed as a one-room facility. Due to that fact, samples have to be moved to separate facilities before opening as there is no separation of the environmental chambers from the rest of the facility. This facility does not contain any restrooms.
11-017	1942	9,371	Explosives Analytical Laboratory	Waste streams for spent solvents, non-RCRA solvents, acidic aqueous liquids, process liquids, and broken thermometers. There are no discharges from this building. De Minimis for Air Emissions.	Modified in 1968 for use as an analytical laboratory.

Building / Ramp Number	Year Built	Approx. Square Footage	Current Operations	Operational Environmental Impacts	Building Deficiencies
11-017A	1970	1,028	Explosives Staging	Waste streams for spent solvents, non-RCRA solvents, acidic aqueous liquids, process liquids, and broken thermometers. De Minimis for Air Emissions. There are no discharges from this building.	Addition to 11-017 in 1970. 11-017 and 11-017 has inefficient layout with many square feet unavailable for modern laboratory operations. Does not have enough electrical services for the new analytical instrumentation required.
11-018	1942	1,538	High Voltage Testing	Not applicable	Abandoned at the end of 2010. The abandonment has caused delays in projects. Contains no restrooms.
11-019	1942	1,014	Inert Annealing & Testing	De Minimis for Air Emissions. There are no discharges from this building. Samples are containerized and moved to a different facility; therefore, no waste stream is generated.	Facility is isolated from other operations but should be co-located with other environmental chambers. Structure is not air tight; letting in dust and water while heat and air escapes. Contains no restrooms.
11-022	1942	1,140	Chemistry Laboratory Support	De Minimis for Air Emissions. There are no discharges from this building. Samples are containerized and moved to a different facility; therefore, no waste stream is generated.	Isolated from other laboratories so it is only used on an occasional basis to minimize having personnel conduct chemical operations alone. Does not have instrument gas feeds into the facility so all operations must be conducted with portable gas cylinders. Contains no restrooms.
11-027	1971	5,200	Office Building	Waste stream for solid waste (office trash, batteries, etc.). De Minimis for Air Emissions. Discharging process water into sewer system.	This facility was an addition to Building 11-2 in 1971. Heating, Ventilating, and Air Conditioning (HVAC) is unreliable and inefficient. Contains no restrooms for 22 permanent occupants of the facility. Recurring rodent infestations every winter.
11-028	1970	1,800	SNM Technology Development	De Minimis for Air Emissions. Samples are containerized and moved to a different facility; therefore, no waste stream is generated. Discharging process water into sewer system.	Facility is operating at maximum electrical capacity; therefore, new equipment and instrumentation cannot be employed for future technology development. Contains no restrooms.

Building / Ramp Number	Year Built	Approx. Square Footage	Current Operations	Operational Environmental Impacts	Building Deficiencies
11-029	1971	4,300	Photography Laboratory	Not applicable	Abandoned
11-038	1945	7,200	High Voltage Testing and Explosive Test Fire	Waste stream for support material. De Minimis for Air Emissions. Discharging process water into sewer system.	Re-designed in 1970 to house component test fire operations. Due to location, facility experiences serious flooding several times. Contains no restrooms.
11-045	1945	101	Inert Storage	De Minimis for Air Emissions. There are no discharges from this building. No waste streams.	Facility contains one single light which is insufficient for operators. An outside door is typically opened to let light in.
11-047	1966	119	Rest Room	Not applicable	Continuous repairs needed.
11-054	1983	3,408	Office Building	Waste stream for solid waste (office trash). De Minimis for Air Emissions. Discharging process water into sewer system.	Pre-fabricated building that has constant roof leaks. During the wet season, rain constantly leaks into the office building; during the winter months snow leaks through the roof. Building temperature is never consistent. During the winter months, the door connecting the two buildings has to remain shut due to 11-054A's temperature being very cold. Rodent infestation.
11-054A	1984	3,408	Office Building	Waste stream for solid waste (office trash). De Minimis for Air Emissions. Discharging process water into sewer system.	Same conditions as Building 11-054.

3.1 Project Description for Proposed Action

The proposed HE S&E facility would include a campus approach consisting of three buildings, an all-weather ramp connecting the buildings and vehicle access located at the southwest corner of Zone 11 of the Pantex Plant (Figure 3). It would be approximately 72,000 ft^2.

Figure 3: Location of Proposed Action

The HE S&E facility would include the HE and Technology Development & Deployment Laboratory (TD&DL) connected by all-weather ramps, the HE Storage area, parking lots (privately-owned vehicle [POV] and government-owned vehicle [GOV]), and vehicle access (Figure 4).

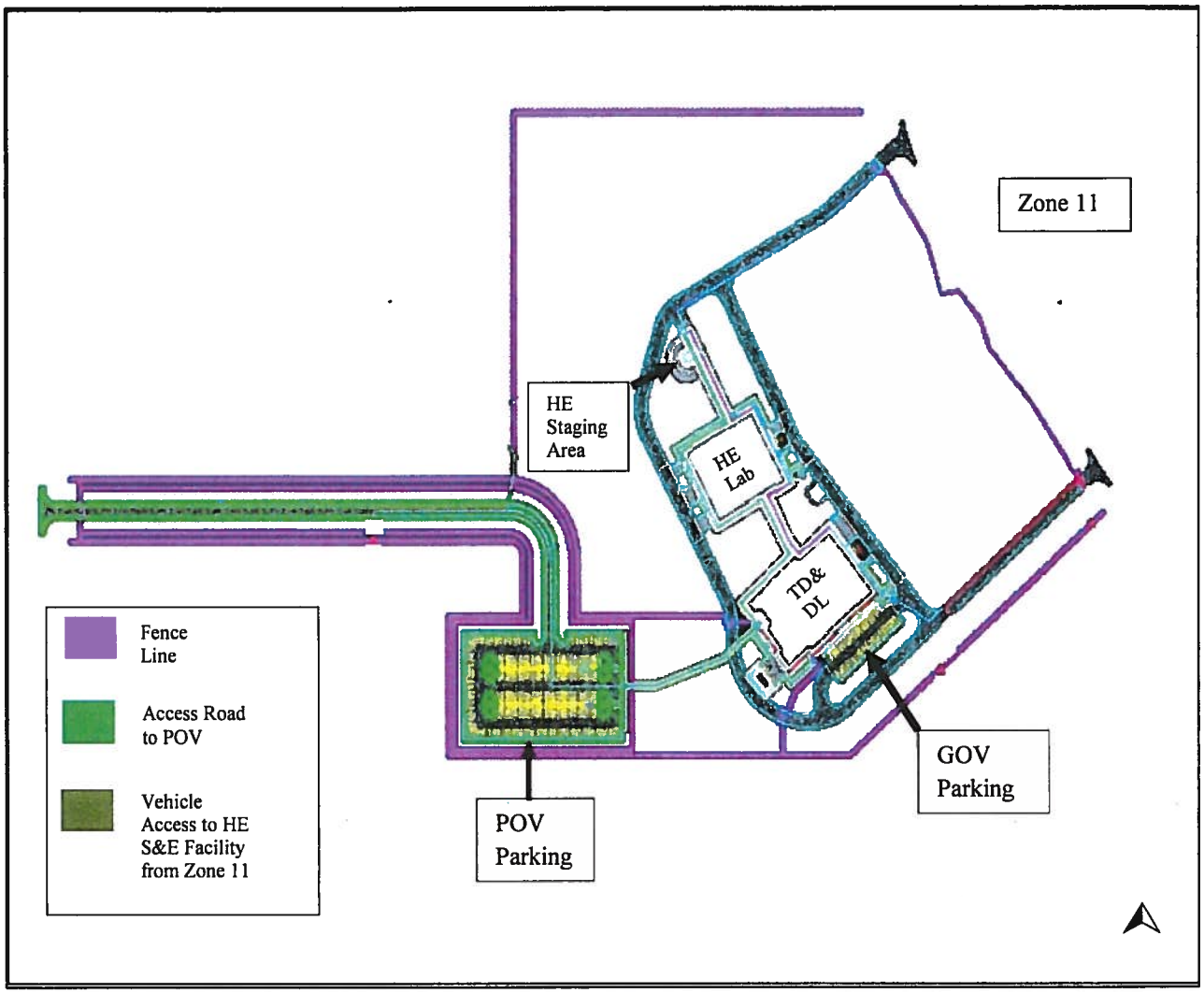

Figure 4: Layout of Proposed Action

The proposed location of the HE S&E facility is currently a green-field site with no significant existing infrastructure. No major demolition is expected; however, there are existing utility lines and monitoring wells within the site location. The proposed site location would be in proximity of Zone 11 but enough distance would be available to avoid impacting ongoing Zone 11 operations during the construction phase. Some relocation of utilities that pass under the proposed building footprint is expected and site earthwork would be expected to promote drainage around the proposed facilities and site layout.

Drainage patterns for Pantex Plant show that water runoff drains to the southeast, away from the proposed site towards existing swales and culverts. Storm water drainage has been designed to drain away from the proposed site facilities and pavements and would utilize the existing drainage pattern of the site. The proposed site would be elevated to promote drainage away from the buildings and elevating the site would allow for positive drainage into drainage swales and infiltration detention ponds. The existing site soils have an infiltration rate of 3-inches per hour, allowing site detention ponds to act as infiltration ponds. The infiltration ponds would have the capability to hold the 25-year, 6-hour storm event runoff and the 100-year, 6-hour storm event runoff from the drainage areas allocated to each pond. Analysis and impact of the 2,000-year storm event has also been considered in the infiltration pond design. Storm drainage pipes from the proposed infiltration ponds would be sized to accommodate the 25-year, 6-hour and 100-year, 6-hour storm events for the proposed attributing watershed.

Sediment control devices would need to be placed down-slope of disturbed areas and in drainage swales where sheet erosion can possibly occur, and around all existing and newly-installed storm drain inlets. After significant runoff events, all erosion control structures would require inspection for silt build-up that interferes with the performance of the erosion control structure and repair or replace those structures, as necessary. These devices would need to be maintained and the sediment removed behind the device on a regular basis to remain effective.

During construction, approximately 40 routine workers and 100 workers during peak construction would be onsite for a duration of approximately 2 ½ years. The construction staging and laydown area has been proposed to be located onsite north of the access road leading to the POV parking lot. It would then be returned back to pre-construction conditions at completion of the project.

Indoor Air Quality (IAQ) management during construction and before occupancy reduces air quality problems resulting from the construction process. Pollutant source control, increased filtration at outside air supply and the use of low-emitting adhesives, sealants, paints, coatings, flooring, carpeting and composite wood products contribute to a healthier indoor environment.

Prevention of pollution resulting from construction activities would be accomplished by controlling soil erosion and airborne dust generation through the use of best management practices (BMP), including silt fence and straw bales. As the project would temporarily disturb more than 5 acres of land, the contractor would document means of preventing and minimizing pollution by developing and implementing a Storm Water Pollution Prevention Plan that meets the requirements of the Texas Commission on Environmental Quality (TCEQ) General Permit number TXR150000, "*Storm Water Discharges Associated With Construction Activities*".

All debris from excavation, construction, and demolition activities would be disposed of according to the waste management requirements either at the onsite landfill or in properly permitted disposal facilities. Recycling, both during construction and operation, would be prioritized to reduce the amount of waste directed to landfills. Receptacles for co-mingled recyclables would be located in centralized areas throughout the facilities, with collection at a central location. Building materials with high recycled content and longevity reduce impact to the waste stream, and locally available materials benefit the local economy and reduce transportation. Rapidly renewable and bio-based materials, as well as certified wood products, would be specified to further reduce negative impact to natural resources.

The types of wastes currently generated by existing HE facilities include: batteries (alkaline, lithium, and lead-acid), scrap metal, scrap HE, hazardous and non-hazardous laboratory liquids and solids with residual HE. Current waste generation numbers are not available for specific HE S&E operations; however, an estimation can be given based on waste streams from the existing HE facilities (Table 2).

Table 2: Estimates of Wastes

Operation	Weight (lbs.)	Volume (Gals.)
Administrative / Office	24	2
HE Physical Properties	88	150
Thermal Testing	19	15
High Voltage Testing / Bays / Testing Rooms	3,540	1,098
Laboratories	180	20

Volume and/or weight of wastes generated from the various facilities are available but the waste cannot be separated into one single process. It is conceivable that reductions in maintenance at the proposed new facility would result in a slight reduction of generated waste, but that premise can only be quantified through time.

The current laboratories that do not conduct testing associated with the detonation or deflagration of explosives are currently authorized by a Permit by Rule. The proposed facilities would be eligible for the same authorization.

There are three explosive test chambers currently conducting testing and sanitization located in Zone 11; Emission Point Numbers E015, E034A, and E034B. These operations include the detonation or deflagration of energetic materials. Emissions from Emission Point Numbers E015 and E034B are authorized by Air Quality Permit 84802. Emission Point Number E034A is authorized by a Permit by Rule.

The new facility would contain two enclosed test chambers. These units would be the existing units from E034A & B or new units of the same size as the existing units. It is anticipated that emissions from E034B would be authorized by Air Quality Permit 84802 as a replacement for the existing unit. The other unit would be used to conduct laboratory tests and would be authorized by the same Permit by Rule as E034A. The proposed operations of the subject units would not change the nature, extent, or quantity of pollutants of Air Quality Permit 84802 or the Permit by Rule.

Within Air Quality Permit 84802, Emission Points X011, X015, X022, X023, X026, X029, X030, X031A, X031B, E015, and E034B are grouped together as "All Firing Sites". Table 3 lists the emission limits of these units.

Table 3: Air Contaminant Permit Limits

Air Contaminant	Permit Limits "All Firing Sites"	
	Hourly limit (pounds/hour)	Annual limit (tons per year)
Oxides of Nitrogen	50.1	92.88
Carbon Monoxide	716.0	28.33
Volatile Organic Compounds	131.0	25.72
Oxides of Sulphur	8.36	5.14
Particulate Matter (10 microns)	97.6	18.24
Air Contaminant	Permit Limits "All Firing Sites"	
	Hourly limit (pounds/hour)	Annual limit (tons per year)
Ammonia	1.00	5.60
Hydrochloric acid	24.00	2.50
Hydrogen cyanide	1.00	0.13
Hydrogen fluoride	23.70	2.00
Nitrous oxide	1.00	5.50

The permit limits, presented in Table 3 would not be exceeded. It is conceivable that operation of the more modern equipment used in the proposed new facility would result in a slight reduction of emissions, but that premise can only be quantified through time.

Volume and/or weight of wastes generated from the various facilities are available but the waste cannot be separated into one single process. It is conceivable that reductions in maintenance at the proposed new facility would result in a slight reduction of generated waste, but that premise can only be quantified through time.

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The permit limits, presented in Table 3 would not be exceeded. It is conceivable that operation of the more modern equipment used in the proposed new facility would result in a slight reduction of emissions, but that premise can only be quantified through time.

Sustainability is prioritized at DOE through the assignment of Deputy Under Secretary for Management and Performance as the Department's Chief Sustainability Officer (CSO). In this capacity, the CSO chairs the Senior Sustainability Steering Committee and oversees Departmental attainment of sustainable mission and requirements. The Sustainability Performance Office (SPO) serves as the principal lead for the Department on matters relating to sustainability and supports the CSO in the execution of duties including monitoring performance, developing guidance, reporting, data collection and analysis, and implementing and updating the Strategic Sustainability Performance Plan. The construction and operation of the HE S&E facility would fall under the guidance of the SPO. The SPO Strategic Sustainability Performance Plan of 2015 requires that all new construction and major renovations exceeding $5 million be at least Leadership in Energy and Environmental Design (LEED) New Construction Gold certified. The HE S&E Facility would comply with the LEED requirements to obtain the LEED Gold Certification. To assist in achieving Gold Certification, the HE Laboratory would be registered separately from the TD&DL, which would encompass both a laboratory and an administration/office area. Also to achieve Gold Certification, the laboratories would be designed and constructed following the criteria created by Laboratories for the 21st Century (Labs21), a joint program of the US Environmental Protection Agency (EPA) and the DOE.

Constructing and operating the proposed HE S&E facility under the LEED Gold Certification would reduce environmental impacts such as lowering energy and operating costs, optimizing performance and conserving water. Design approaches and technologies would focus on location and transportation, sustainable site development, water savings, energy efficiency, materials and resources selection and indoor environmental quality specific to the site, mission and programmatic needs of the HE S&E. Storm water design focuses on low impact design strategies to reduce runoff volumes and improve water quality. Implementing hard surface paving and roofing materials for solar reflectance would reduce the heat island effect. Exterior lighting would reduce light pollution through an efficient, but secure, lighting design. Permanent irrigation systems would be eliminated by selecting native and drought-tolerant landscaping. Water use within the buildings is anticipated to be reduced by over 40% through selection of low flow plumbing fixtures and water meters would monitor consumption and verify operational performance over time. The building envelope, mechanical systems, lighting fixtures and controls would be designed to maximize energy savings and meters would monitor utility consumption and verify operational performance over time.

Safety Class Systems would not be utilized within the facility. The proposed HE S&E Facility would be a research facility and not a production facility. However, the High Pressure Fire Loop (HPFL) would be safety class up to the Post Indicator Valve (PIV).

TD&DL Building:

The TD&DL building would be approximately 39,186 ft^2. It would be a two-story building with approximately 100 people occupying the building with the main purpose as administrative and laboratory support of the HE S&E operations.
The first floor would include private offices, open office areas, conference rooms, copier rooms, storage closets, multi-purpose/conference rooms, chemical storage rooms, and several laboratory units. The second floor would include the mechanical and electrical utility spaces.
The TD&DL would have designated areas for classified and unclassified matter. These designated areas would allow personnel involved in the analytical, engineering, and applications of HE activities to work privately as needed.

The TD&DL building is unique in that the southwest portion of the building would be in the Property Protection Area (PPA). The PPA is a security area established for the protection against damage, destruction, or theft of government owned property. The building portion to the northeast would be located in the Limited Area (LA).

Surveillance Diagnostics Bay	1,100	Metallographic analysis is conducted in this area to support laser activity samples which includes mounting press, saw, grinder, and microscopic evaluation.	Waste stream for support material and scrap. De Minimis for Air Emissions. There would be no discharges to the sewer system from this operation.
Prototype Development Bay	2,388	Performs development testing and analysis of new equipment.	De Minimis for Air Emissions. No waste stream. Discharges process water to the sewer system.
Dry Chemical Storage	240	Stores dry chemicals needed for TD&DL operations. All chemicals would be stored in approved storage cabinets.	De Minimis for Air Emissions. There would be no discharges from this building. No waste streams.
Wet Chemical Storage	240	Stores wet chemicals needed for TD&DL operations. All chemicals would be stored in approved storage cabinets.	De Minimis for Air Emissions. There would be no discharges from this building. No waste streams.
Acid Storage Room	240	Stores acids needed for TD&DL operations. All acids would be stored in approved storage cabinets.	De Minimis for Air Emissions. There would be no discharges from this building. No waste streams.

HE Laboratory:

The HE Laboratory would be approximately 28,049 ft^2. It would be a single-story building with approximately 30 people occupying the building. The design and operations would follow the requirements/guidelines of the DOE Standard Explosives Safety (Table 5).

Table 5: Level of Protection Criteria – Hazard Classes

Class	Criteria
0	Explosive operations involving the intentional initiation of explosives materials or articles. Examples are: explosives testing, firing activities associated with training, and destruction of explosives by detonation. Explosive specimens would not be permitted to accumulate in a test beyond the quantity required to sustain the test.
I	Explosive activities with a high accident potential. Remote operations are required because personnel exposure is unacceptable for Class I activities. Examples are: screening, blending, pressing, extrusion, drilling of holes, dry machining, machining explosives and metal combination, some environmental testing, new explosives development and processes, explosives disposal, and destructive testing. Explosive specimens would not be permitted to accumulate in a test beyond the quantity required to sustain the test.
II	Explosive activities with moderate accident potential because of the explosive type, condition of the

Class	Criteria
	explosives, or nature of the operations involved. Class II activities have an accident potential greater than Class III activities, but personnel exposure in contact operations is acceptable. Examples are: weighing, some wet machining, assembly and disassembly, some environmental testing, and some packaging operations. Explosive specimens would not be permitted to accumulate in a test beyond the quantity required to sustain the test.
III	Explosive activities with low accident potential such as activities during storage and operations incidental to storage or removal from storage.

The HE Laboratory would include (Table 6):

Table 6: HE Laboratory Operations

Room Name	Approximate Square Footage	Operations	Operational Environmental Impacts
Core Surveillance Lab	1,210	Performs explosive Class II explosive operations. All Class II operations would be performed remotely.	Waste stream for testing and support material. De Minimis for Air Emissions. Discharging process water into sewer system.
Thermal Testing and Aging Bays	2,082	Performs Class II explosive operations, including thermal aging/testing of explosives and explosive components in large environmental chambers/ovens. Sampling preparation would also be performed.	Waste stream for sampling testing and support material. De Minimis for Air Emissions. Discharging process water into sewer system.
Gas Gun Room	1,275	Class I HE operations area which houses the 4-inch bore light gas gun. The area is Class II during setup and changes to Class I during firing. All controls are located in the control room.	Waste stream for scrap, testing and support material. De Minimis for Air Emissions. Discharging process water into sewer system.

HE Physical Properties Operations	2,237	Contains multiple universal test machines (UTMs) that are primarily used to measure the physical properties of explosives, including tensile strength, compressive strength, or strain. These machines may also be used to test nonexplosive materials such as lifting straps, bolts, or foams (compression), when required. These areas are Class II explosive operations during setup and change to Class I explosive operations during testing of explosives.	Waste stream for scrap, testing and support material. De Minimis for Air Emissions. Discharging process water into sewer system.
Inert Physical Properties Operations	697	Measures the physical properties of nonexplosive materials. It includes a UTM used to test the tensile strength, compressive strength, or strain of the nonexplosive materials (lifting straps, bolts, foams, etc.). It is also used to store these types of materials. This is a Class III area.	Waste stream for scrap, testing and support material. De Minimis for Air Emissions. Discharging process water into sewer system.
Equipment Diagnostics and Repair	1,305	Inspects, diagnoses the potential problem, perform necessary repairs, and re-inspect all nonfunctional or damaged non-HE equipment in accordance with the manufacturer supplied instructions and procedures. Step-by-step inspection and repair procedures may be developed if required for more sophisticated equipment. This is a Class III area.	De Minimis for Air Emissions. No waste stream would be generated. No discharges to the sewer system.
Dry Chemical Storage Room	230	This area is used to store dry chemicals needed for HE operations. All dry chemicals are stored in approved storage cabinets. This is a Class III area.	De Minimis for Air Emissions. There are no discharges from this building. No waste streams.
Wet Chemical Storage Room	230	This area is used to store wet chemicals needed for HE operations. All wet chemicals are stored in approved storage cabinets. This is a Class III area.	De Minimis for Air Emissions. There are no discharges from this building. No waste streams.
Acid Storage Room	230	This area is used to store acids needed for HE operations. All acids are stored in approved storage cabinets. This is a Class III area.	De Minimis for Air Emissions. There are no discharges from this building. No waste streams.

Drop Hammer and Friction Testing Room	460	Houses the large drop hammer impact tester and large scale friction tester. These tests use falling hammers to measure explosives sensitivity to impact or to high-pressure friction. This area is a Class II explosive operation during setup and changes to a Class I explosive operation during explosive testing.	Waste streams for spent solvents, non-RCRA solvents, acidic aqueous liquids, and process liquids. There would be no discharges from this operation and all wastes are containerized. De Minimis for Air Emissions.
Material and Equipment Staging	525	Stages material or equipment to be used for testing. This is a Class III area.	De Minimis for Air Emissions. There would be no discharges from this building. No waste streams.
Assembly Bay	1,948	Temporarily stages HE and other components for final assembly for experiments. This area would be Class II.	De Minimis for Air Emissions. There would be no discharges from this building. No waste streams.
Spark Friction Test Bay	300	Uses samples to determine how much energy is required to get a reaction from an explosive sample and uses a sliding ceramic plate and pin to determine how much weight on the arm is required to obtain a reaction. This area would be HE Class I.	De Minimis for Air Emissions. Waste streams for samples and support and testing materials. Discharging process water into sewer system.
Tank Room	2,009	Contains two firing chambers and one pulser, along with other support equipment for testing. These tests provide data, including sensitivity of materials to a stimulus such as fire or impact. These areas are Class II explosive operations during setup and change to Class I explosive operations during testing of explosives.	De Minimis for Air Emissions. Waste streams for samples and support and testing materials. Discharging process water into sewer system.
Gas Gun Control Room	315	Stores gas gun equipment for verification, functionality check, and diagnosis of potential problems. Gas gun experiments may be controlled from this area. This is a Class III area.	De Minimis for Air Emissions. There would be no discharges from this building. No waste streams.
Stress Cushion Test Room	223	Contains a small tabletop UTM, the UTM controller, an environmental chamber, and a balance. This equipment would be used to measure the physical properties of nonexplosive materials that may be contaminated with low levels of radioactivity. This is a Class III area.	De Minimis for Air Emissions. Waste streams for support and testing materials. There would be no discharges into the sewer system.

Control and Technical Room	1,975	General-purpose area which would contain all the controls for the equipment used in the gas gun room and the tank room. No HE would be allowed in this area. This is a Class III area.	De Minimis for Air Emissions. There are no discharges from this building. No waste streams.
Tool Room	403	Provides tools for use by technicians in the HE laboratories. This is a Class III area.	De Minimis for Air Emissions. There are no discharges from this building. No waste streams.
Supply, hallway, mechanical, electrical, restrooms, storage rooms	10,900	No explosive and nonexplosive activities and/or operations are performed in these areas. These are Class III areas.	Discharge process water to sewer system. De Minimis for Air Emissions. No waste streams.

HE Material Staging Area:

The HE Material Staging Area would be approximately 352 ft^2 and is enclosed by an earth-mounded bunker. It would be a Class II level of operations area. It would include a loading area to allow forklifts direct access to the delivery vehicles.

Ramp System:

All-weather ramps would connect the three buildings. Ramp R-1 and R-1a would be approximately 138 ft. long running from the HE Material Staging Area to the HE Laboratory. Ramp R-2 would be approximately 118 ft. long running from the HE Laboratory to the TD&DL building. This all-weather ramp system would be provided to protect personnel and equipment from the outside environment while transitioning between buildings.

Parking Lots:

There would be GOV Parking to the south of the TD&DL building that would be approximately .12 acres supplying parking for 33 government vehicles, and 2 ADA-accessible spaces.

A POV Parking lot would be to the west of the project site. This would be approximately .67 acres supplying 152 POVs, 5 electrical vehicle charging station spaces, 12 preferred parking spaces, 5 motorcycle spaces, and 6 ADA-accessible spaces.

The main access roads surrounding the HE S&E facilities, and GOV parking would be designed to accommodate daily traffic patterns over a 20-year design life while the POV parking lot and access roads would be designed to accommodate its assumed daily traffic patterns over a 20-year design life.

Utilities:

Surveys for new utilities include (but are not limited to) natural gas, compressed air, HPFL, water, sanitary sewer, potable water, electricity, LAN, telephone, public address system (PAS), and maintenance communication system.

Where exact routes of existing underground utilities are not defined within record drawings, NPO and the Management and Operating (M&O) contractor would coordinate necessary electronic line detection. The Architect – Engineer (A-E) would be responsible for locating and marking the utilities surveyed and documented.

All aboveground utilities that cross roadways would be elevated a minimum of 16.5 ft. above the roadway according to the Pantex Design Criteria Manual, Section 1671. All utilities that cross roadways that have less than the required clearance would be replaced with new utility lines.

Underground utilities available near the HE S&E site include potable water, HPFL, sanitary sewer, and electricity (as shown in Figure 5). Natural gas and compressed air would have to be extended onto the site. All phone and communications would have to be extended onto the site within the existing duct-bank from Building 11-27 to the HE Pressing Facility, Building 11-61 then extending south along the Zone 11 fence line in a new duct-bank which would require minimal trenching for extensions to the new facility. The trenching for basic utilities would be from the perimeter road of the adjacent industrial zone (Zone 11) to the proposed facility. All underground utility lines such as fire protection water lines, new water lines, sanitary sewer lines, and electric lines would not be placed under pavement, except when crossing such pavement is unavoidable, or when adequate space is not available.

The project manager would coordinate the underground piping requirements with the cathodic protection coordinator to ensure that the piping is properly protected. There is the potential of shutting off the utilities temporarily in the area; however, this would be done off hours.

Connection to the potable water system would comply with the requirements and specifications outlined in the National Sanitation Foundation/American Water Works Association manuals. Any materials used would be approved for use in a potable water system. Any connections (and/or disconnections) with the sanitary sewer system and/or potable water system would be approved by the Utilities System Engineer. A final inspection and approval would be provided by the water system purveyor before operations begin.

Utility usage for the HE S&E facility is unknown until it is operational and recording data from the advanced meters installed; however, the current design is projected to achieve a 37.9% energy use and 22% energy cost reduction with the proposed facility:

- Electric – 990,142 kWh / year
- Natural Gas – 22,586 therms / year
- Total Energy Usage – 5,638 MMBtu / year

For renewable energy, the Pantex Plant has a total wind power generation capacity totally 11.5 MW. Pantex Plant's wind power production would be dedicated to offset no less than 15 % of the HE S&E facility energy usage: Dedicated Wind Power Production – 175,201 MWh.

The 1996 Site-Wide Environmental Impact Statement (SWEIS) evaluated alternatives related to continued operations of Pantex Plant. Utility usage was evaluated for water, wastewater treatment, steam, electricity, and natural gas. The *Supplement Analysis for the Final Environmental Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* (DOE SA), DOE/EIS-0225/SA-12, stated that utility usage would remain within the range evaluated in the 1996 SWEIS and within the capacities of the current utility system. Usage by the proposed new facility should not exceed the ranges of utility usage evaluated in the SA, since the activities occurring in the new facilities would be a consolidation of current activities and no new activities would be introduced. However, new and improved energy-saving equipment, devices, and procedures would be in place at the proposed new facility and could result in reductions in energy use during HE S&E activities.

According to the Annual Site Environmental Report (ASER) 2014, usage numbers for the Pantex Plant were:

- Natural Gas – 391,023.162 Mcf
- Water – 101.94 Million Gallons

- Electric – 73,510.911 MWh
- Total energy consumption – 652,791.039 MMbtu

Presently, emissions from the 17 separate facilities currently operating for HE production are de minimis. Estimates quantifying current utility usage from the various buildings involved in the existing HE operations is not available due to the non-existence of meters on the individual buildings associated with HE operations at Pantex.

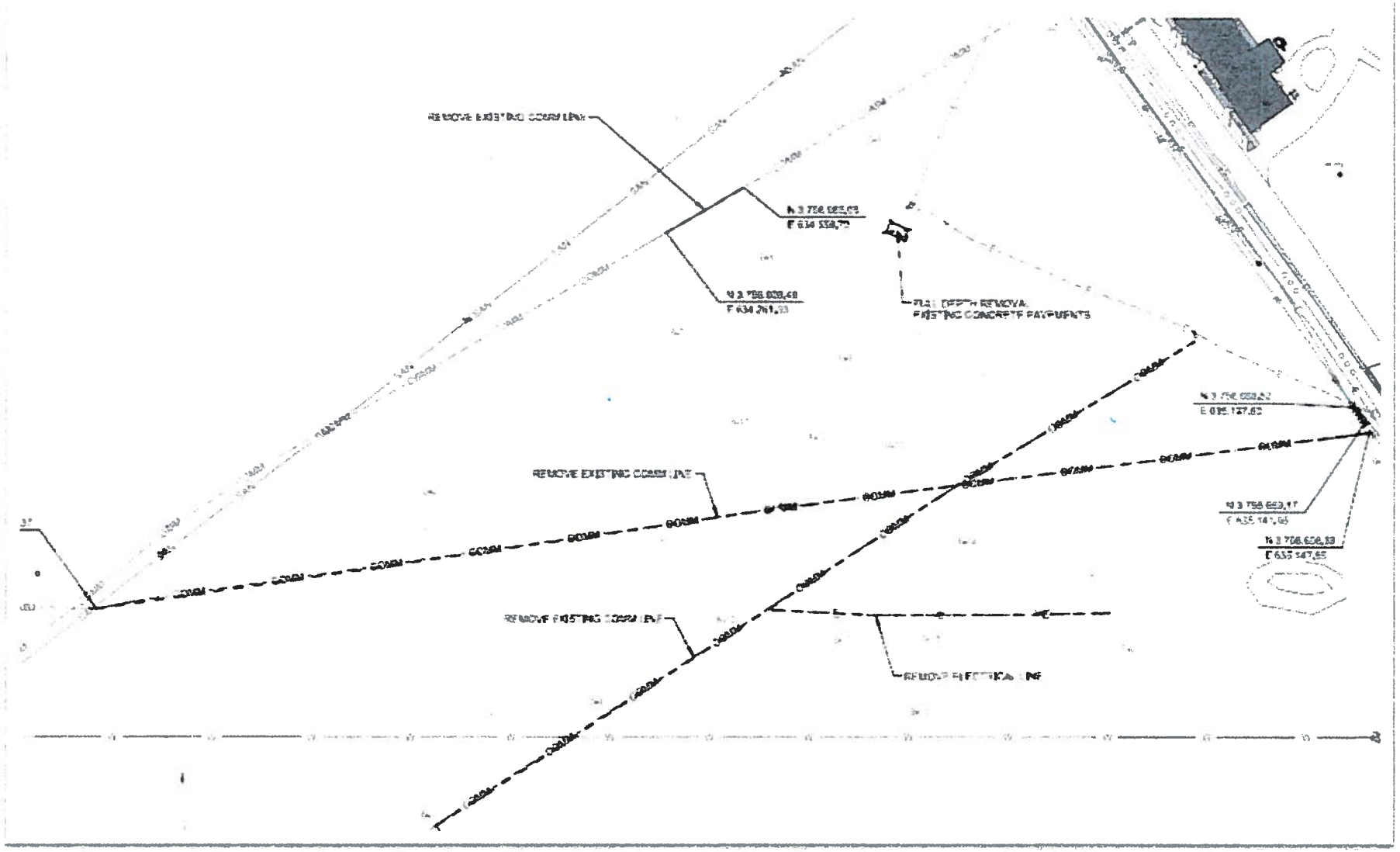

Figure 5: Existing Utilities on Proposed Site

3.2 NO-ACTION ALTERNATIVE

Under this alternative, the current HE buildings (See Table 1) would not be replaced or renovated. The existing 60-year old buildings would continue to age and be well beyond their useful life. Operations and maintenance costs would increase. From a mission fulfillment standpoint, the aging facilities would become technologically obsolete and would see further decreases in efficiency and effectiveness. There are no advanced metering systems at the current HE facilities to track energy usage and/or efficiency.

3.3 OTHER ALTERNATIVES CONSIDERED

These alternatives were analyzed further and after completing the design descriptions, facility arrangements and site plans, cost estimates for design and construction were essentially the same for each alternative.

Table 7: Alternatives for Further Analysis

Alternative	Description
Integrated Building Structure	New integrated facility using shared walls and single base mat/foundation/roof. (Southwest (SW) Zone 11)
Close-Coupled Building Structure	New integrated facility with separate structural walls connected by corridors and separate base mats/foundations/roofs for HE labs, non-HE labs, and office complex. (SW Zone 11)
Campus Structure with one-story office building	Office/Admin facilities located on a single floor. (SW Zone 11)
Distributed Structures	New distributed facilities (i.e. new buildings constructed in different areas or Zones at the Pantex Plant). HE lab located in Zone 11 and non-HE laboratory located east of Zone 12. Office/admin areas would be constructed adjacent to the HE or non-HE lab (or some other combination) as needed.
Distributed Structures-1 Story Office in HE Area	Single-story office located near the HE lab in Zone 11. The non-HE lab located separately east of Zone 12, closer to the SNM operations areas, without separate office facilities.
Distributed Structures-2 Story Office in HE Area	Two-story office located near the HE lab in Zone 11. The non-HE lab located separately east of Zone 12, closer to the SNM operations areas, without separate office facilities.
Distributed Structures-2 Story Office in Non-HE Area	Two-story office and non-HE lab located east of Zone 12, closer to the SNM operations area and the HE lab located in Zone 11 near other HE operations, without separate office facilities.

3.3.1 Alternatives Considered But Dismissed From Further Consideration

The following alternatives were considered but rejected because they did not meet the purpose and need of the project.

Table 8: Initial Screening of Alternatives Considered But Not Analyzed in Detail

Alternative	Reason for Alternatives Dismissed From Further Consideration
Upgrade Alternative	Existing facilities could not be upgraded sufficiently and also provide a safe and secure operating environment. To rebuild the existing facilities to meet current code requirements, it would require full or partial demolition and reconstruction which would not be cost effective. In addition, reconstruction of the existing facilities would effectively shut down the on-going operations for the entire duration since these facilities currently provide essential missions and there are no other facilities that can perform the required functions, this alternative would not comply with the mission requirements.
Upgrade/Relocate Alternative	Existing facilities could not be upgraded sufficiently and also provide a safe and secure operating environment. To rebuild the existing facilities to meet current code requirements, it would require full or partial demolition and reconstruction which would not be cost effective. In addition, reconstruction of the existing facilities would effectively shut down the on-going operations for the entire duration since these facilities currently provide essential missions and there are no other facilities that can perform the required functions, this alternative would not comply with the mission requirements.
Upgrade/New Office Alternative	Existing facilities could not be upgraded sufficiently and also provide a safe and secure operating environment. To rebuild the existing facilities to meet current code requirements, it would require full or partial demolition and reconstruction which would not be cost effective. In addition, reconstruction of the existing facilities would effectively shut down the on-going operations for the entire duration since these facilities currently provide essential missions and there are no other facilities that can perform the required functions, this alternative would not comply with the mission requirements.
Move HE to Building 11-50/New Office-Lab Alternative: 1) Sub-option A – Single Story 2) Sub-option B – Two Story	At initial screening, Building 11-50 showed that it had sufficient floor space to accommodate the HE laboratories. After further review, Building 11-50 has thick walls and labyrinths that significantly reduced the floor space needed to accommodate the HE laboratories. In addition, the equipment to be installed is larger than the space available and the fire protection in Building 11-50 is primarily deluge which is not compatible with laboratory instrumentation. It would require building modification.

3.4 SCOPE AND METHODOLOGY OF THE ENVIRONMENTAL ASSESSMENT ANALYSIS

A sliding scale approach was used for analyzing potential environmental and socioeconomic effects. This means that this EA focused on significant environmental issues and alternatives and discussed impacts in proportion to their significance. NPO provided the public an opportunity to review and comment on the Draft EA prior to the Final EA. Comments were received and resolutions are addressed in the Review and Comment Form. The aspects with greater potential for impacts are discussed in more detail in this EA. Those aspects of the action judged to have little potential for impact are the following:

Environmental Justice: Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, directs Federal agencies to address the environmental justice impacts of their actions on minority and low-income populations. Based on 2010 census data, 243 people reside within a 5-mile radius of the Pantex Plant. Of the 243 residents, 7.2 percent are living below the poverty line in Carson County and there are no minorities or low-income families living within that 5-mile radius of the Pantex Plant.

Floodplains/Wetlands: The proposed project addressed in this EA is located in the watershed drainage of Playa 4, which has a base floodplain (100-year floodplain) elevation of 3,505.5 feet above mean sea level and a critical action floodplain (500-year floodplain) of 3,506.5 feet above mean sea level, as determined by the U. S. Army Corps of Engineers. The proposed project is located in a relatively flat area at an elevation of approximately 3,540 feet above mean sea level, and therefore approximately 33.5 feet above the critical action floodplain. The proposed action **would not** be within a floodplain as described by the requirements of 10 CFR 1022. No floodplains or wetlands would be impacted during the construction or operation of this project. Flood hazard analysis does not address 500-year floodplains.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 REGIONAL SETTING

The Pantex Plant is centered on approximately 17,503 acres (including Pantex Lake, land east of Farm-to-Market (FM) Road 2373, and Texas Tech University (TTU) leased land) in western Carson County of the Texas Panhandle, north of U. S. Highway 60 and 17 miles northeast of downtown Amarillo. The Plant consists of land that is owned and leased by the DOE/NNSA. A safety and security buffer zone south of the main Plant consists of 5,800 acres leased from TTU.

Pantex Plant is located on the Southern High Plains (SHP) portion of the Great Plains, at an elevation of approximately 3,500 feet. Topography is relatively flat, characterized by rolling grassy plains and numerous natural playa basins. The region is a semi-arid farming and ranching area. Pantex Plant is surrounded by agricultural land, but several industrial facilities are also located nearby.

The primary surface deposits in the project area are the Pullman and Randall soil series, which grade downward to the Blackwater Draw Formation. This formation consists of about 15 meters (50 feet) of interbedded silty clays with caliche and very fine sand with caliche.

The principal surface water feature on the SHP is the Canadian River, which flows southwest to northeast approximately 17 miles north of the Plant. The Canadian River valley defines the northern boundary of the SHP. Plant surface waters do not drain into this system, but for the most part, discharge into onsite playas. Storm water from agricultural areas at the periphery of the Plant drains into offsite playas. From the various playas, water either evaporates or infiltrates the soil. Two principal subsurface water-bearing units exist beneath Pantex Plant and adjacent areas: the Ogallala Aquifer and the underlying Dockum Group Aquifer. The vadose or unsaturated zone, above the Ogallala Aquifer consists of as much as 460 feet of sediments that lie between the land surface and the aquifer. (EID, 2007).

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4.2 SITE-SPECIFIC DESCRIPTION AND ANALYSIS

4.2.1 Land Use

Affected Environment: The primary surface deposits at Pantex are the Pullman and Randall soil series, which grade downward to the Blackwater Draw Formation. This formation consists of about 15 meters (50 feet) of interbedded silty clay with caliche, and very fine sand with caliche. Underlying the Blackwater Draw Formation, the Ogallala Formation consists of interbedded sand, silt, clay, and gravel. The base of the Ogallala Formation is an irregular surface that represents the pre-Ogallala topography. As a result, depths to the base of the Ogallala vary. At Pantex Plant, the vertical distance to the base of the Ogallala varies from approximately 394 ft. at the southwest corner to approximately 889 ft. at the northeast corner of the Plant. Underlying the Ogallala Formation is sedimentary rock of the Dockum Group, consisting of shale, clayey siltstone, and sandstone.

There is no designated Critical Habitat on the proposed project site or at Pantex Plant. The habitat on site is not considered unique compared to adjacent portions of the same land use.

Pantex Plant contains several soil types classified as prime farmland, which is defined in *Prime and Unique Farmlands* (7 CFR 657) as land containing the best combination of physical and chemical characteristics for producing crops. This includes cropland, pastureland, rangeland, and forestland. Soil types classified as prime farmland covers the majority of Pantex Plant.

The Pantex Plant is comprised of 11,703 acres of DOE-owned land, including 9,100 acres in the main Plant area, 1,526 acres in four tracts purchased in the latter part of 2008 (adjacent to the main Plant area, but east of FM2373), and 1,077 acres approximately 2.4 miles to the northeast, at Pantex Lake. In addition, NNSA leases 5,503 acres of land south of the main Plant area from TTU for use as a safety and security buffer zone.

Current land use on the 11,703 acres of DOE-owned land at Pantex includes 2,630 acres for operations, 4,387 acres of cultivated land, and 4,549 acres of rangeland/grass land (the rangeland/grass land includes 534 acres of wetlands). These acreages include 10 acres removed from cultivation and added to operations for permanent use by the wind turbine construction completed in 2014. The current area of 11,703 acres is the legal description that extends to the center of all public roadways surrounding the Plant. The land use categories do not extend into those surrounding public roadways and accounts for the 137 acre difference between the total of the land use categories and the Plant area total (DOE SA).

Cattle are not allowed in the proposed site location (PPA/LA) due to security reasons. This site was an old operational area and the land had been abandoned. In 1995, it was planted back to native short-grass prairie to more easily maintain and to keep the weeds from blowing into fences.

Geotechnical sampling would occur at the proposed site as a standard practice for a free-standing structure to determine foundation strength and reduce the risk of structural failure. The only impacts would be small diameter boreholes, which would not affect the underlying formations.

The site for the proposed project is formerly cultivated upland that is restored short grass prairie with buffalograss (*Buchloe dactyloides*) and blue grama (*Bouteloua dacilis*) as the dominant plant species.

Shortgrass prairie, consisting of buffalograss, blue grama, and, in mesic sites, western wheatgrass (*Agrophyron smithii*), represents the primary habitat for species of concern in the area, such as Texas Horned Lizard (*Phrynosoma cornutum*), Ferruginous Hawk (*Buteo regalis*), Western Burrowing Owl (*Athene cunicularia hypugaea*), and song birds.

Trapping and spotlight surveys have been conducted on Pantex and TTU property to document the presence or absence of Swift Fox (*Vulpes velox*) and Plains Spotted Skunk (*Spilogate putorius interrupta*), rare species without regulatory status. Data suggests that these two species do not occur on these sites, and thus it appears unlikely that they would occur in the vicinity of the proposed project.

Colonies of Black-tailed Prairie Dog (*Cynomys ludovicianus*) provide habitat for some special status species such as Ferruginous Hawk, Bald Eagle (*Haliaeetus leucocephalus*), Golden Eagle (*Aquila chrysaetos*), Western Burrowing Owl, and some songbirds. Prairie dog colonies are found on Pantex, but not within the proposed project area.

The Texas Horned Lizard is the only State threatened or endangered species that is a year-round resident in areas of Pantex. It could be found at the proposed project site. The American and Artic Peregrine falcons (*Valco peregrinus anatum* and *Falso peregrinus tundruis*), as well as the Bald Eagle and Whooping Crane (*Grus America*), are migratory, and may be observed along the project route during the fall through spring migrational and wintering periods. There is no designated Critical Habitat on the proposed project site or Pantex, nor is the habitat on the site considered unique compared to adjacent portions of the same grass stand.

The proposed project site has not been in cultivation since the 1990s and is not expected to be cultivated in the future, since it is within the protected area of the Plant. No farmland in production would be impacted by the proposed project.

Environmental Consequences of Proposed Action: Approximately 25 acres of reestablished shortgrass prairie would be impacted by both permanent and temporary features of the proposed project. Of the total area impacted, approximately 2 acres would remain in industrial use after HE S&E facility construction is completed including an access road.

Any disturbed land not occupied by the proposed facility would be reseeded with the appropriate seed mix of native grasses (blue grama or buffalograss) for the soil type and land use. According to Construction Management Master Specifications Division 1 (Environmental Protection), a nurse crop shall be planted followed by a second planting of native grass mix. Controls to install and maintain must be in place to protect the newly seeded areas. The grasses are best planted between February and April. Native grasses can be planted in the spring. If project construction were completed in May or June, the native grasses could still be planted, though that is not the ideal time for establishment.

Excess soil, generated as a result of construction activities, would be handled in accordance with applicable rules and regulations. Depending on characterization, the excess soil may be sent to the onsite borrow pit for reuse, or to an applicable landfill or disposal facility.

If nests of birds were discovered in the proposed project site, the Pantex Wildlife Biologist would be contacted for assistance in mitigating disturbance of these nests. Nests could possibly be encountered during the March through August nesting season.

If Texas Horned lizards were encountered at the proposed site, they would be moved out of harm's way and released adjacent to the site. Texas Horned lizards could possibly be encountered from March through October. It is possible that the acreage of temporary disturbance left from the construction would be of use to the Texas Horned lizards and other species (invasive plant species including noxious weeds) that utilize bare, soft, or recently disturbed ground.

Impact to transient species would be minimal, since the habitat disturbance area would be geographically small scale, temporary, and not a critical or unique habitat.

The operations of the proposed HE S&E Facility would not impact land use other than by construction activities.

Environmental Consequences of No Action Alternative: There would be no changes to current Pantex land use in the proposed project area. It would continue to be formerly cultivated upland that is restored short grass prairie with buffalograss (*Buchloe dactyloides*) and blue grama (*Bouteloua dacilis*) as the dominant plant species.

Environmental Consequences of Integrated Building Structure Alternative: This alternative would be located at the same site as the proposed action. The impacts to land use would be similar as the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: This alternative would be located at the same site as the proposed action. The impacts to land use would be similar as the Proposed Action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: This alternative would be located at the same site as the proposed action. The impacts to land use would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for the HE laboratory to be located at the same site as the proposed action and non-HE laboratory and office to be located east of Zone 12. The impacts to land use for the HE laboratory would be similar as the proposed action. The non-HE laboratory and office would be located in the vicinity of other office areas; which is consistent with industrial land use.

4.2.2 Water Resources

Affected Environment: The major surface water source near Pantex is the Canadian River, located about 17 miles northwest of the facility, which flows in a generally eastward direction into Lake Meredith, a constructed reservoir. Plant surface waters do not drain into this system, but mostly discharge into onsite playas in a southeast direction. Storm water, from agricultural areas at the periphery of the Plant, drains into offsite playas. From the various playas, water either evaporates or infiltrates the soil.

Groundwater beneath the proposed site is first encountered approximately 265 feet deep, and is perched above a low permeability fine-grained zone. The Ogallala Aquifer is present beneath the proposed site about 410 feet below ground surface. None of the construction surface work would result in contaminants reaching the perched groundwater or the Ogallala Aquifer. There would be no discharge of water to the perched groundwater or the Ogallala Aquifer during construction or operations. (Argonne).

Environmental Consequences of Proposed Action: Good engineering practices, including soil erosion and sediment control measures, spill prevention and waste management practices would minimize any suspended sediment and pollutant transport that could result in potential water quality impacts; however the installation of permanent access roads has the potential to affect surface water drainage patterns. The access roads would be all weather and the design would require proper sized culverts to allow for drainage and support the weight of equipment. Drainage patterns for Pantex Plant show that water runoff drains to the southeast, away from the proposed site towards existing swales and culverts. Storm water

drainage has been designed to drain away from the proposed site facilities and pavements and would utilize the existing drainage pattern of the site and elevating the proposed site would allow for positive drainage into drainage swales and infiltration detention ponds. Storm drainage pipes from infiltration ponds would be sized to accommodate the 25-year, 6-hour and 100-year, 6-hour storm events for the proposed attributing watershed.

Sediment control devices would need to be placed down-slope of disturbed areas and in drainage swales where sheet erosion can possibly occur, and around all existing and newly-installed storm drain inlets.

Any wastewater would be treated at the wastewater treatment facility onsite and Pantex is authorized to discharge wastewater to an underground irrigation system pursuant to a Texas Land Application Permit, however onsite playa lake discharge is still permitted pursuant to a Texas Water Quality Permit issued by TCEQ, although water has not been discharged to the playa for many years. Operation of the new facility would not impact capacity of the wastewater treatment facility since the new facility is consolidating operations in current facilities, not adding new employees or new operations.

Environmental Consequences of No Action Alternative: There would be no changes to surface water drainage patterns or surface water quality.

Environmental Consequences of Integrated Building Structure Alternative: This alternative would be located at the same site as the proposed action. The impacts to surface water drainage patterns or surface water quality would be similar as the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: This alternative would be located at the same site as the proposed action. The impacts to surface water drainage patterns or surface water quality would be similar as the proposed action.

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Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for the HE laboratory to be located at the same site as the proposed action and non-HE laboratory and office to be located east of Zone 12. The impacts to land use for the HE laboratory would be similar as the proposed action. The non-HE laboratory and office would be located in the vicinity of other office areas. New control measures and good engineering impacts would be designed and developed to ensure surface water drainage patterns or surface water quality would remain consistent under normal operations.

4.2.3 Air Quality and Climate Change

Affected Environment: Modeling results of concentrations for criteria and toxic pollutants using Plant emissions for ongoing operations indicated that none of the National Ambient Air Quality Standards (NAAQS) would be exceeded at the Pantex Plant boundary. All of the toxic air pollutants were estimated to be below their respective annual Effect Screening Levels (ESLs) at the Plant boundary. Modeling performed during the period 1996-2001 indicated that no NAAQS or annual ESLs were exceeded during that time. Similarly, concentrations at the Pantex Plant boundary are estimated to continue to remain within all NAAQS and annual ESLs based on projected emissions for continued operations since the Pantex Plant is in an area of attainment or unclassified status of attainment for NAAQS.

In addition, modeling results for the maximum effective dose equivalent (EDE) of a member of the general public (a maximally exposed individual (MEI)) to emissions of radiological material from plant operations indicate that no EDE exceeds the 10 mrem/year standard established in the National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61.92. Modeling performed during the period from 1996-2001 (and for all years since that period) indicates that the EDE is on the order of 0.001% of the aforementioned standard. There is no expected "effect" from these levels. The EDE at the MEI locations are expected to remain within the 40 CFR limit in the future.

Environmental Consequences of Proposed Action: The current explosive staging facilities do not emit pollutants to the atmosphere, nor would the proposed HE Material Staging Area.

Air emissions from construction activities would include dust (trenching and movements of construction vehicles), emissions from vehicles exhausts, and dust and emissions from operation of the concrete batch plant; but these emissions would not require monitoring. Standard dust suppression methods such as water spraying would be used to minimize dust from excavation or construction. Appropriate best management practices would be used to control fugitive dust and particulate emissions.

The proposed facility made up of three buildings: HE Lab Building, TD&DL Building, and HE Material Staging facility would consolidate the current operations of 17 separate facilities in Zone 11. The new facility would support all HE CoE activities and SNM technology development activities at Pantex. Only HE would be present in the facility (no SNM or other radiological material would be present in the facility).

No new operations would result from the construction and operation of the proposed facility.

Currently, emissions from the existing support of the office spaces are authorized by either Permits-by-Rule or its predecessor, Standard Exemptions. These authorizations are defined as types of facilities or changes within facilities which the Texas Commission of Environmental Quality has determined would not make a significant contribution of air contaminants to the atmosphere pursuant to the Texas Health and Safety Code, and the Texas Clean Air Act §382.057 and §382.05196 [1]. As the proposed facility would not increase or change the nature or extent of emissions, the proposed office spaces would be eligible to be authorized by the same authorization.

Accordingly the operation of the HE S&E facility would not result in any additional exposure of members of the general public above the effects noted above.

Environmental Consequences of No Action Alternative: There would be no changes to air quality because there would be no short-term emissions from construction or operational activities.

Environmental Consequences of Integrated Building Structure Alternative: This alternative would be located at the same site as the proposed action. The impacts to air quality would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: This alternative would be located at the same site as the proposed action. The impacts to air quality would be similar as the proposed action.

[1] Title 30 of the Texas Administrative Code, Chapter 106, Subchapter A, Rule §106.1: This chapter identifies certain types of facilities or changes within facilities which the commission has determined would not make a significant contribution of air contaminants to the atmosphere pursuant to the Texas Health and Safety Code, the TCAA, §382.057 and §382.05196.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: This alternative would be located at the same site as the proposed action. The impacts to air quality would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Air Quality would temporarily be affected with any construction in Zone 12 around the existing office areas and plant personnel working in and around proposed area for this alternative. During preparation and construction, the use of heavy equipment would generate combustion engine exhaust that contain air pollutants associated with diesel combustion. In addition, construction activities could generate an increase in fugitive dust from construction vehicle movement.

4.2.4 Visual Resources

Affected Environment: The topography of the project area is relatively flat. The office and production buildings at Pantex are visible to some landowners, and to traffic along Highway 60 and FM 2373, 683, and 293. As for the proposed site, it would be visible to Pantex employees as an undeveloped area.

Environmental Consequences of Proposed Action: Heavy equipment and hauling operations, staging areas, site preparation activities, trenching, construction, and operation of the concrete batch plant, and construction traffic would denude approximately 2 acres of revegetated prairie and create temporary adverse visual effects. The proposed new facility would be adjacent to an industrial zone within the security fence and from a distance would present a façade similar in sizes and appearance to existing facilities. For the public traveling on area roads, there would be a slight change in the distant view-scape.

Environmental Consequences of No Action Alternative: There would be no changes to visual resources with this alternative.

Environmental Consequences of Integrated Building Structure Alternative: This alternative would be located at the same site as the proposed action. The changes to visual resources would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: This alternative would be located at the same site as the proposed action. The changes to visual resources would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: This alternative would be located at the same site as the proposed action. The changes to visual resources would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Visual Resources would be altered in Zone 12 with the construction of a new building.

4.2.5 Noise

Affected Environment: Sources of environmental noise offsite consist of background sounds from vehicular traffic on Highway 60 and FMs, county roads, airport traffic, railroad traffic, and the operations of heavy equipment during agricultural activities.

Sources of environmental noise at Pantex Plant include background sounds from industrial processes, vehicular traffic, and routine operations, occasional HE testing, firearms training of security police officers, and ongoing construction and demolition. Average onsite sound levels are 40-60 decibels A-weighted (dBA) (DOE/NNSA, 2008).

Environmental Consequences of Proposed Action: The temporary increase in noise levels from proposed construction activities and traffic would be similar to other construction activities and vehicular noise at Pantex, as well as offsite vehicular traffic, airport traffic, railroad traffic, and agricultural activities. Temporary increases would not be expected to cause sufficient change in noise levels to result in more than a temporary annoyance to employees or adjacent landowners. Temporary, intermittent noise levels (between 80 and 90 dBA) could result from the use of heavy equipment like backhoes, large trucks, and cranes during construction activities. These levels attenuate rapidly with distance, and would not likely impact neighboring landowners because construction activities would be confined to the central portion of the Plant, away from residential populations. Noise levels would return to pre-construction levels following completion of proposed construction activities.

Noise levels from the operations of the proposed HE S&E Facility would be consistent with the existing sound levels of 40-60 decibels A-weighted (dBA) from HE testing. All HE testing would be done remotely from a sound proof control room.

Environmental Consequences of No Action Alternative: There would be no changes to the current ambient noise levels.

Environmental Consequences of Integrated Building Structure Alternative: The impacts to noise would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: The impacts to noise would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: The impacts to noise would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Noise would temporarily be affected with any construction in Zone 12 around the existing office areas and plant personnel working in and around the proposed area due to heavy equipment. After construction, the noise levels would be similar to existing office buildings.

4.2.6 Cultural Resources

Affected Environment: A major thrust of the Plant's Cultural Resources Program has been systematic survey coverage of all areas surrounding playas located on DOE-owned land plus a substantial sample of non-playa areas. Based on these surveys, a prehistoric archeological site location model was developed and confirmed. This site location model holds that prehistoric archeological sites at Pantex Plant, and probably throughout the Llano Estacado, are likely to be located within approximately 1/4 mile of playas or their major drainages and such sites are not likely to occur in the interplaya upland areas.

Environmental Consequence of Proposed Action: This site location model was included in formal consultation with the Texas State Historic Preservation Office (SHPO), and is included in the *Pantex*

Plant Programmatic Agreement/Cultural Resource Management Plan. Features related to more permanent occupations (such as hearths, tipi rings, fire-cracked rock concentrations, architectural evidence, or human burials) have not been found at any Pantex Plant sites, as either surface or subsurface expressions. Since at least the early 1900s, historic agricultural activities, such as plowing and grazing, have extensively and aggressively modified virtually all of the Llano Estacado. Consequently, most surface or shallow prehistoric archeological sites are seriously disturbed, lacking the original spatial relationships of their artifacts and features. The NPO and the SHPO have agreed that the disturbed sites lack the integrity required for consideration of inclusion in the National Register. It is not anticipated that any activities from this project would occur within 1/4 mile of a playa.

The existing buildings involved in the HE production at Pantex (Table 1) would be demolished after construction of the proposed HE S&E facility.

Environmental Consequences of No Action Alternative: There would be no changes to the current Cultural Resources.

Environmental Consequences of Integrated Building Structure Alternative: Impacts to Cultural Resources would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: The impacts to Cultural Resources would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: The impacts to Cultural Resources would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Impacts to Cultural Resources at either location (Zone 11 and Zone 12) would be similar to the proposed action at Zone 11 and similar to existing structures in Zone 12.

4.2.7 Human Health

Affected Environment: Pantex workers and subcontractors involved in potentially hazardous operations are protected by administrative and engineering controls, and are required to wear appropriate personal protective equipment. Workers receive training that is required to identify and avoid or correct potential hazards typically found in the work environment, and to respond to emergency situations. Even though Occupational Safety and Health Administration (OSHA) does not exercise its jurisdiction at the Pantex Plant, DOE requires that Pantex contractors must adhere to all OSHA standards in performing all work by complying with 10 CFR 851.

Pantex's Operational Center reports any detrimental weather in the area. Workers are informed of lightning within 35 miles of the Plant and personnel security announcements of lightning within 15 miles of the Plant. Personnel safety announcement alerts the workers that no work is allowed outdoors; everyone is to remain indoors.

Environmental Consequences of Proposed Action: The types of activities during the construction of the new HE S&E facility include building an access road to the facility and normal construction of the buildings. The operational aspect of the facility is to develop and sustain diagnostic tools for the evaluation of technology development of HE. There would be no radiological impacts or radiological

hazards within the facility. Potential chemical and explosive hazards are acknowledged as part of Pantex's day-to-day operations. Some chemical hazards are burns, release of high pressures that could cause bodily injury, and/or spontaneously react on its own. Explosive hazards could include instability, bodily injuries, and burns. There are administrative and engineering controls in place to ensure all workers remain safe while working around these hazards. Currently, personnel are having to transport material between the different buildings. Consolidating the operations into the proposed HE S&E Facility would increase the safety of the worker.

Environmental Consequences of No Action Alternative: There would be no changes to the current human health impacts.

Environmental Consequences of Integrated Building Structure Alternative: Impacts to Human Health would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: The impacts to Human Health would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: The impacts to Human Health would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Impacts to Human Health would be similar as the proposed action in Zone 11. Impacts would be similar to existing conditions to Human Health in Zone 12.

4.2.8 Transportation/Traffic

Affected Environment: Local highways, interstates, and site transportation routes are the primary methods used to transport Pantex employees. These roadways are also used to transport hazardous and radioactive materials. Inter-zonal transfers are carried out on paved roads. Transportation between buildings in various zones is frequently carried out via enclosed ramps. Unpaved roads are sometimes used for production and monitoring well access and utility access. Onsite transfer of radioactive material is governed by DOE orders and Pantex-specific standards (DOE, 1996).

Offsite, Highway 60 and FMs 683, 2373, and 293 are paved roads that are most heavily used within the project area. There are also unpaved county roads offsite that are less heavily used.

Environmental Consequences of Proposed Action: There would be some temporary increase in traffic from proposed construction, and there might also be rerouting of onsite traffic. No offsite routes would have traffic flow interrupted directly by construction, because the proposed construction would occur within the industrialized area of Pantex, away from Plant boundaries. Construction activities would not be expected to cause sufficient change in traffic to result in more than a temporary annoyance to Plant employees or adjacent landowners. Upon completion and start-up of the proposed facility, there could be a slight reduction in Plant traffic, and an accompanying reduction in fuel use and vehicle maintenance costs, by consolidating existing operations from several facilities in various zones into a single facility.

Environmental Consequences of No Action Alternative: There would be no change to current transportation or traffic activities.

Environmental Consequences of Integrated Building Structure Alternative: Impacts to transportation/traffic would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: The impacts to transportation/traffic would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: The impacts to transportation/traffic would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Impacts to transportation/traffic at the proposed location in Zone 11 would be similar to the proposed action. Impacts to transportation/traffic would increase with a new building in Zone 12.

4.2.9 Waste

Affected Environment: Waste at Pantex Plant is generated from ongoing weapons operations, HE production, and support operations such as medical services, vehicle maintenance activities, general office work, construction activities, environmental monitoring, laboratory activities, and environmental restoration activities (DOE, 1996).

Environmental Consequences of Proposed Action: Construction would result in the potential for the generation, treatment, storage, and disposal of solid waste as defined in 40 CFR 261.2. Waste would be handled in a manner that is appropriate to its characterization; including but not limited to waste from a Solid Waste Management Unit (SWMU) and is consistent with federal and state regulations and the contractor's approved waste management plan. Waste minimization principles would be incorporated into the project. All waste would be evaluated for recycling or reuse options. Operational impacts would not change from current waste management practices. The same types of waste would be generated by the proposed new facility as those generated by existing HE facilities, since the processes would be the same.

The estimates for the volume of non-hazardous construction waste that would potentially be disposed of in the onsite landfill would be approximately 1,200 cubic meters.

Environmental Consequences of No Action Alternative: There would be no changes to the current generation of waste.

Environmental Consequences of Integrated Building Structure Alternative: Impacts to the generation of waste would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: The impacts to the generation of waste would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: The impacts to the generation of waste would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Impacts to the generation of waste at

Zone 11 would be similar to the proposed action and any generation of waste impacts to Zone 12 would be similar to existing structures.

4.2.10 Socioeconomic Resources

Affected Environment: Pantex employs approximately 3,400 people, including USDOE/NNSA, M&O, prime contractor and subcontractor personnel, Sandia, Lawrence Livermore, and Los Alamos National Laboratories staff, consultants, and oversight personnel. This employment figure has remained relatively constant for the past 10 years.

Pantex is the major employer in Carson County and is one of the largest employers within the four county regions of influence that includes Carson, Armstrong, Potter, and Randall counties, and the Amarillo metropolitan area.

Environmental Consequences of Proposed Action: The majority of construction materials and temporary construction workers would most likely be drawn from the local community. As a result, permanent increases in population would not occur and housing and community services would not be permanently impacted. The increase in economic activity would be temporary and would subside with project completion. During construction, approximately 40 routine workers and 100 workers during peak construction would be onsite for a duration of approximately 2 ½ years. It is not anticipated that the construction and operation of the new facility would lead to a reduction in jobs, nor would there be Environmental Justice connections to employment.

Environmental Consequences of No Action Alternative: The current socioeconomic resources would not change with this alternative.

Environmental Consequences of Integrated Building Structure Alternative: Impacts to the socioeconomic resources would be similar to the proposed action.

Environmental Consequences of Close-Coupled Building Alternative: The impacts to the socioeconomic resources would be similar as the proposed action.

Environmental Consequences of Campus Structures with One-story Office Building Alternative: The impacts to the socioeconomic resources would be similar as the proposed action.

Environmental Consequences of Distributed Structures Alternatives: This alternative proposes for building structures to be distributed between Zone 11 and Zone 12. Impacts to the socioeconomic resources in Zone 11 and Zone 12 would be similar to the proposed action.

5.0 CUMULATIVE EFFECTS

Actions that could contribute to cumulative impacts include those conducted by Federal or non-Federal agencies or persons on lands adjacent to the Pantex Plant, within a 50-mile area of influence. Actions in the Area of Influence include:

- Construction of a new Staging Facility (Onsite)
- Construction of a new Administrative Support Complex (Offsite)
- Construction of a new Intermediate Use of Force Facility (Onsite)
- Demolition projects within the Plant
- Construction of a new addition to an existing building

- Construction of power grid transmission lines in Carson, Potter, and Gray counties (Offsite)
- Private development of wind turbine generators (wind farms [this seems to be ongoing])

Analyzed resources which could potentially experience cumulative effects, are land use, water resources, biological resources, air quality and climate change, visual, noise, cultural resources, human health, transportation, waste, and socioeconomic.

The resource areas which are not considered under Cumulative Effects have a small potential for impact. These areas were discussed in Section 3.4 "Scope and Methodology of the Environmental Assessment Analysis." There would be no additional impacts to the Area of Influence from the proposed project.

Actions in the Area of Influence are mostly temporary and short-term. Most of the acreage that is needed for the construction phases of these projects would be returned to the original condition of open space or cultivation. For the long-term impacts of these projects, only the footprint of the facilities would remain and the land not necessary for the footprint would be restored. Pipelines and some electrical connections are underground, so after installation, the surfaces would be returned to the original condition. Regarding the demolition projects, the footprints would be removed and the site returned to open space. Therefore, the incremental impact of the proposed action, when added to those from actions of a similar nature, would be minor.

Although outside the scope of this EA's Proposed Action, a preliminary analysis of the decontamination, decommissioning, and demolition of the existing HE production buildings at Pantex determined that impacts on the various resource areas would be negligible. However, this action would meet DOE's goal of reducing the plant's footprint and reducing management and operating costs. The identified negligible cumulative impacts associated with waste management, as well as with health and safety, are due to the generation of demolition waste, possibly containing asbestos and other hazardous materials. Cultural Resources would have no impact due to the existing buildings set to be demolished are not eligible for nomination to the National Register of Historic Places. A final resource area, socioeconomics, was identified to have a negligible cumulative impact due to the employment estimates for the construction of the Proposed Action.

5.1 Water Resources

Water use during construction is generally associated with dust suppression, soil compaction, and the mixing of concrete. These uses are temporary and short-term. Occupancy of buildings would require long-term use of water resources similar to the normal use of office buildings. There are no similar actions in the vicinity of the proposed action.

5.2 Air Quality and Climate Change

Actions in the Area of Influence are intermittent and short term for air quality and, in a region with an average annual wind speed of 14 miles per hour, would not degrade the local air quality of the Plant, which continues to meet the allowable emission limits and permit requirements.

5.3 Noise

Sounds produced by construction equipment are attenuated by winds, distances, and by their temporary nature. The incremental impact of the proposed action, when added to those from actions of a similar nature, would be minor.

5.4 Cultural Resources

The existing buildings scheduled for D&D that the HE S&E would replace are not eligible for nomination to the National Register of Historic Places. Since NEPA documentation is needed for each building scheduled for D&D, Cultural Resources would be addressed at that time.

5.5 Construction Waste

The identified negligible cumulative impacts associated with waste management, as well as with health and safety, are due to the generation of demolition waste, possibly containing asbestos and other hazardous materials. No wastes are expected to remain at the proposed project site. Although difficult to estimate the amount of waste that would be generated from construction, all wastes would be handled appropriately in accordance with the approved waste management plans and applicable procedures. The waste would not require special handling beyond the capabilities of licensed disposal facilities. The planned or potential projects making up the Actions in the Area of Influence would probably not all be constructed simultaneously; therefore, the capacities of licensed disposal facilities should not be exceeded at any given time.

6.0 ACCIDENT ANALYSIS

The proposed action consists of activities that are performed on a routine basis in construction. Therefore, specialized accident types that are considered at NNSA facilities are not a consideration. The most serious potential accident considered for the Proposed Action would be a fatality, although none are likely to result from the proposed construction. Potentially, serious exposures to various hazards or injuries are possible during the construction phase of the Proposed Action. Adverse effects could range from relatively minor (e.g., lung irritation, cuts, or sprains) to major (e.g., lung damage, broken bones, or fatalities).

The *Occupational Injuries and Illnesses and Fatal Injuries Profile* from the U.S. Department of Labor - Bureau of Labor Statistics, found that construction activities accounted for 2,104 fatal work injuries, the most of any industry sector. The Occupational Injuries and Illnesses and Fatal Injuries Profile, also from the Bureau of Labor Statistics, includes the following data as causes of fatalities in the construction industry: contact with objects and equipment, falls, exposure to harmful substances or environments, transportation incidents, fires and explosions, assaults and violent acts. Potential worst case industrial accident scenarios from the construction of the proposed HE S&E Facility could include: excavation collapse, wall collapse, crane collapse, chemical exposure, contact with an electrical current, or grassfire from a welding spark.

The HE S&E facility would not have any radiological impacts or radiological hazards within the facility. Depending on the type of chemical used during normal operations of the proposed HE S&E Facility and throughout the Pantex Plant, all workers are to adhere to the Safety Data Sheets when in contact with any chemical. Administrative and engineering controls are in place to ensure all personnel working with and around HE are conscientious of all hazards.

Consolidated Nuclear Security (CNS), the M&O Contractor at the Pantex Plant has stringent safety requirements for all employees and contractors and the safety statistics are lower than national averages – in 2014, Pantex Plant underwent a change of ownership in the M&O contract; therefore, the total recordable case rate for B&W (the prior M&O contractor) was .89; for CNS was .34 (Lacy, P., 2015).

The potential for any accidents related to the construction of the proposed facility would be anticipated to be no worse than the current safety statistics at Pantex. The 1996 SWEIS analyzed two accident scenarios that involved HE detonation – one initiated from an internal process involving HE development, manufacturing, testing, evaluation, and treatment, and one initiated from an external event or natural phenomena. Both types of potential accidents were analyzed in the *High Explosive Science and Engineering Facility Process Hazard Analysis* (PHA) for the proposed HE S&E Facility. The 1996 SWEIS concluded that the likelihood of the internal event could occur at a frequency greater than or equal to 10^{-2} per year (*anticipated)*. The scenario involving an external event or natural phenomena would be *unlikely* – or probability of occurrence in a given year of 10^{-2} to 10^{-4}. Either scenario could fatally injure a single worker; however, members of the public and non-involved workers would not be at risk.

The PHA was performed for the construction of a proposed new HE S&E Facility that would house processes now operating in existing facilities at Pantex. The HE process equipment would be located in various areas of the new facility. These areas would contain the manufacturing support, surveillance, materials testing, and technology development already being performed at Pantex. The PHA qualitatively evaluated both facility and high-level process hazards. These hazards included airblast, fragmentation, and thermal. Also evaluated was the interaction of the identified hazards and potential external and natural phenomena events. The result of a PHA is a set of controls, both preventive and mitigative, that can be relied upon to prevent or minimize the event consequences. The construction of the facility along with the layout within the TD&DL and HE Laboratory are major preventive measures against potential hazards. Upon completion of construction, this document would be revised to reflect the "as built" modifications and to evaluate the HE S&E Facility process procedures written for specific operations performed in each area.

The facility design, location, construction, and established material limits would meet the requirements of DOE-STD-1212-2012, *Explosives Safety*. It shall comply with Unified Facilities Criteria (UFC) 3-340-02 (Blast Load Parameters, calculating dynamic response of structural elements including reinforced concrete, and guidelines for explosive facilities), *Structures to Resist the Effects of Accidental Explosions* (formerly TM 5-1300); DOE/TIC-11268, *A Manual for the Prediction of Blast and Fragment Loading of Structures,* and Department of Defense (DOD) 6055.9-STD, *DOD Ammunition and Explosives Safety Standards* to resist the impacts of an explosion from a nearby facility and would also take into account protecting nearby facilities. The Explosives Safety Program establishes the quantity distance and correct location distances for facilities. The location criteria, in conjunction with the Nuclear Materials and Explosives Inventory Control Program bay limits, ensure an explosion that occurs in one building would not result in a sympathetic explosion in a nearby building.

The HE S&E Facility would consist of bays with blast doors, which would comply with the DOE-STD-1212-2012, that provide protection from blast overpressure and fragments. The HE S&E Facility would include individual control areas for remote operation bays. The bay walls would be designed in accordance with UFC 3 340-02. The proposed HE S&E Facility bay structures would be designed to mitigate the effects of an explosive accident in an adjoining bay, prevent penetration of primary missiles from the bay of explosive occurrence into adjoining bays, vent the blast pressures associated with internal explosions, and provide protection for personnel in occupied areas outside the bay of occurrence. The bay structures would also be designed to mitigate the effects of design basis Natural Phenomena Hazard (NPH) events, as classified by DOE-STD-1020-2012, *Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components*. The proposed HE S&E Facility would be constructed to withstand a PC-2 seismic event and PC-2 wind and PC-3 tornado loads. The construction of the building would also withstand mechanical impact due to an impact by a surface

load requirements of PC-2 snow/ice/rain/hail accumulation. A Fire Hazards Analysis (FHA) was prepared to ensure that fire protection and life safety features are incorporated into the design of the proposed new HE S&E Facility. The FHA is a comprehensive evaluation of the risks from fire and its related perils in this facility. This document identifies major fire protection and life safety features required for this facility and the necessary codes and standards to correctly design and install those features. In addition, this document identifies key occupancy and hazard classifications. It also identifies key design criteria (i.e., sprinkler system densities/remote area and hose streams, etc.). The potential for catastrophic accidents would be reduced due to safety features built into the design of the proposed new facility.

7.0 INTENTIONAL DESTRUCTIVE ACTS

A fundamental principle of DOE's Safeguards and Security Program is a graded approach to the protection of its employees and assets. This approach is embodied in the relevant threat considerations and designations of facilities. DOE intends that the highest level of protection be given to security interests where loss, theft, compromise, or unauthorized use would adversely affect national security, the health and safety of employees and the public, or the environment.

Scenarios for intentional destructive acts at the proposed new facility (e.g. terrorism, internal sabotage, and internal theft) have been evaluated and determined to have a low potential to impact security, public health and safety due to the high-level security procedures.

The Pantex Plant, much like all other Category I facilities, employs a robust protection strategy designed to protect a variety of Departmental assets. Included in those departmental assets are High Explosives. The protection strategy is designed to protect the facility from both insider threats as well as outsider threats and is documented in PLN-SSSP. This plan is formally submitted and approved annually, by NPO, pursuant to applicable orders and directives.

8.0 AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED

Cultural/Historic:

The Pantex Plant has a Programmatic Agreement/Cultural Resource Management Plan that involved extensive consultation with the State Historic Preservation Office so additional consultation for the site location or demolitions for this project were not necessary.

Based on personal contact in the past and a Native American Treaty search in 1996, no Native American tribes have an interest in the area of the Pantex Plant.

Special Status/Wildlife and Plants: To be determined after a Draft EA can be provided to the Texas Parks & Wildlife Department and the U.S. Fish & Wildlife Service (FWS) for review.

Water Quality Management Plan, WQMP #156-030044: To be determined after a Draft EA can be provided to the Texas State Soil and Water Conservation Board for determination of changes to land use at Pantex.

If finalized and approved, the EA and FONSI can be found at the following website: http://www.pantex.com/mission/Pages/Environmental-Compliance-Documents.aspx.

9.0 REFERENCES

7 CFR 657	U.S. Code of Federal Regulation, Title 7, Agriculture, Part 657, *Prime and Unique Farmlands*
10 CFR 851	U.S. Code of Federal Regulations, Title 10, Energy, Part 851, *Worker Safety and Health Program*
10 CFR 1021	U.S. Code of Federal Regulations, Title 10, Energy, Part 1021, *National Environmental Policy Act Implementing Procedures*
10 CFR 1022	U.S. Code of Federal Regulations, Title 10, Energy, Part 1022, *Compliance with Flood Plain/Wetlands Environmental Review Requirements*
30 TAC 106	Texas Administrative Code, Title 30, Environmental Quality, Part 1, Texas Commission on Environmental Quality, Chapter 106, *Permits By Rule*, Subchapter A, *General Requirements*, §Rule 106.1, *Purpose*
40 CFR 61.92	U.S. Code of Federal Regulations, Title 40, Protection of the Environment, Chapter I, Environmental Protection Agency, Subchapter C, Air Programs, Part 69, Special Exemptions from Requirements of the Clean Air Act, Subpart A, Guam, Section 69.12, *Continuing Exemptions*
40 CFR 1500-1508	U.S. Code of Federal Regulations, Title 40, Protection of the Environment, Parts 1500-1508, *Council on Environmental Quality*
Argonne, 1995	Argonne National Laboratory and Battelle Memorial Institute, *RCRA Facility Investigation Report for the Groundwater in Zone 12 at the USDOE Pantex Plant.* December
ASER 2013	U.S. Department of Energy, NNSA, Pantex Site Operations, Amarillo, Texas, *2013 Annual Site Environmental Report for Pantex Plant,* September 2014. http://www.pantex.com/mission/Documents/Site%20Environmental%20Reports/Final%202013%20Pantex%20ASER%20Report.pdf?bcsi_scan_1d3328e92538c68e=1+KQw9l+Bnt0b7iYw0rWGVINEXMGAAAA72ULBg==&bcsi_scan_filename=Final%202013%20Pantex%20ASER%20Report.pdf
BLS, 2014	U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Injuries and Illnesses and Fatal Injuries Profile*, https://www.bls.gov/
CNS Pantex	*30% Design Submittal Design Analysis (HE S&E)*, October 2016
CNS Pantex	*Alternatives Analysis Report for the Pantex Plant High Explosive Science, Technology, and Engineering (HE ST&E) Project Revision D,* December 2013
CNS Pantex	*Conceptual Design Report for Pantex Plant High Explosive Science & Engineering (HE S&E) Project,* May 2014

CNS Pantex — *Construction Management Master Specifications Division 1 (Environmental Protection),* Chapter 3 – Vegetation, Rev. 13, December 4, 2014

CNS Pantex — *Environmental Information Document in Support of the National Environmental Policy Act Documents for Pantex Plant*, January 2007

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Appendix A

COMMENT RESPONSE MATRIX

COMMENT RESPONSE MATRIX
ENVIRONMENTAL ASSESSMENT DOCUMENTATION FOR THE
HIGH EXPLOSIVE SCIENCE AND ENGINEERING FACILITY
PANTEX PLANT
January 2016

Comments received on September 28, 2015 in the form of a letter, dated September 21, 2015 and sent by e-mail to Mr. Steven Wyatt, NPO Public Affairs Manager, from The Peace Farm (Amarillo, TX) and the Nuclear Watch New Mexico. All comments have been addressed individually.

General Comments

This Environmental Assessment lacks enough information to make a truly informed decision. Due to its limited data, we request that this EA be withdrawn, rewritten with the necessary data, and re-released. An EA should be all about assessing the particular environmental impacts of a particular project. The EA should not just assume that all is well just because the Environmental impacts might be the same as, or less than, before.

For instance, the amounts and types of wastes generated in the HE S&E Facility are not specified. All that is given is the vague statement, "Operational impacts would not change from current waste management practices." The same lack of data occurs elsewhere, such as in discussing utilities. Instead of given the utilities amounts for the proposed new facility, all we are provided is this, "Exact numbers quantifying current utility usage from the various buildings involved in the existing HE operations is not available due to lack of meters on individual buildings at Pantex." Please give the numbers.

Much information for the HE S&E Facility is lacking, such as:
What production rate are all these impacts based upon?
How many construction workers will it take for how many years to build it?
How many Pantex workers will primarily work there? What are the socioeconomic impacts?
The amounts and types of wastes generated at the proposed new facility must be given. What production rate is this based upon?
The amounts and types of wastes generated at each of the old facilities must be given individually. What production rate is this based upon?
What is the projected utility use for the proposed HE S&E?

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1	How many endangered species (e.g., Texas Horned Lizards) might be encountered during construction?	No endangered species would be expected to be found on or near the construction site of the HE S&E Facility. Omitting species officially designated as extirpated (black-footed ferret and gray wolf[1]), there are two species listed on the state and federal Endangered Species lists known to occur in the Pantex vicinity. The Interior Least Tern (*Sterna antillarum athalassos*) is a breeder in riverine habitats not found in, nor around Pantex, and has never been recorded on the facility at any time of the year (for example, during migration). The Whooping Crane (*Grus americana*) is considered a 'casual migrant and vagrant winter visitor' in the region (Seyffert 2001)[2] and the only sighting at Pantex is of three birds in-flight, overhead in 1996. The construction site –an upland/inter-playa grassland site— offers no habitat for these two species and is an area already in/adjacent to the developed portion of the Plant. The Texas horned lizard (*Phrynosoma cornutum*), while not an endangered species, is a species designated by Texas as 'Threatened.' As with anywhere, horned lizard encounters are a possibility at the construction site, but it is not a site identified by our research as having good numbers of horned lizards. Wildlife input within the Pantex National Environmental Policy Act Review Process focus on Texas horned lizards and their habitat, and our employees and contractors have multiple avenues of awareness-training to watch for, protect, and report horned lizard sightings. If a horned lizard was encountered during construction, and deemed in harm's way, it would be moved outside the project boundary. 1 Also, not among the Pantex All-Time Mammal list. 2 Seyffert K. D. 2001. Birds of the Texas Panhandle: their status, distribution and history. Texas A&M University Press. College Station. 501 pp.
2	We note that the projected Total Project Cost for the High Explosive Science and Engineering is $153.6 million. NNSA FY 2016 Congressional Budget Request, page 278. Since this is a major systems acquisition over $100 million NNSA should proceed to preparing an environmental	Funding levels for a project do not drive the requirement to do an environmental assessment vs. an environmental impact statement. 10 CFR 1021 has specific categories of actions that prescribe the level of NEPA documentation needed for proposed projects.

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	impact statement and provide the necessary information as commented on above. A new Site-Wide Environmental Impact Statement (SWEIS) is needed. The NNSA proposal for a High Explosive Science and Engineering Facility obviously represents a major site-wide revision and consolidation of the Pantex Plant as there will eventually be 15 unused buildings to decontaminate and decommission. While we strongly fault this draft environmental assessment for its lack of information, the greater transgression is that there is not a current Site-Wide Environmental Impact Statement containing basic, updated site information from which this EA can tiered.	The Pantex Site-Wide Environmental Impact Statement is not new but the mission of Pantex has not changed since it was approved. Consolidating existing operations into a newer, more modern facility and demolishing buildings does not constitute a need for a new SWEIS. Environmental assessments are not tiered to EIS's.
3	At this point the Mixed Oxide Program to dispose of the excess plutonium pits at Pantex is unlikely to go forward. Where are the excess pits going to go? Does the ceiling of 20,000 excess pit agreed to with the State of Texas need to be increased?	Determining where excess pits would go or if the ceiling number for pits at Pantex needs to be increased are programmatic decisions. There is currently no proposal to increase the ceiling of 20,000 excess pits; in any case, an increase of this nature beyond the scope of this EA.
4	What are accident/ force majeure scenarios? One of the authors of these comments personally witnessed aerial refueling of fighter jets above Pantex (in other words above many thousands of plutonium pits) while practicing touch-and-go landings at the Amarillo airport. Is that still allowed?	Accident scenarios analyzed in the 1996 Pantex SWEIS were used in preparing this EA. Information on military operations involving aircraft may be available from the appropriate Department of Defense agency, and information regarding airport operations may be available from the Amarillo Airport and/or the Federal Aviation Administration.
5	Please make all reference documents available to the public.	Hyperlinks have been made available to references where applicable. Other references are not releasable to the public or not available electronically.
6	***2.2 PROJECT DESCRIPTION*** *Operations that are presently located in 15 separate facilities with seven connecting ramps, measuring approximately 81,552 square feet (ft2.), would be consolidated into a common facility where operations would be streamlined, technology sharing made possible, and technical communications improved.* Please name the 15 facilities being replaced, where they are located and approximate dates for their demolition.	The facilities currently planned to be demolished are: Bldgs. 11-2, 11-5, 11-14, 11-16, 11-17, 11-17A, 11-18, 11-19, 11-22, 11-27, 11-28, 11-29, 11-38, 11-45, 11-47, 11-54, 11-54A, plus connecting several ramps. These are all located in Zone 11. Demolition is tied to the initial budget request for this project. Currently, it appears that funding for this project will not be available until around 2020, with approximately two years planned

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		for construction (by the Corps of Engineers), and demolition to follow, beginning around 2025 through 2030.
7	*The proposed facility consists of approximately 72,000 ft2 and generally includes construction of three structures and support areas:* Please state the safety-class features being used in the new facility.	Because this is a research facility and not a production facility; no system within the building will be safety class; however, the High Pressure Fire Loop (HPFL) will be safety class up to the Post Indicator Valve (PIV).
8	*Utilities:* *Surveys for new utilities include (but are not limited to) natural gas, compressed air, high-pressure fire, water, sanitary sewer, potable water, electricity, LAN, telephone, public address system (PAS), and maintenance communication system.* Please state the amounts of natural gas, water, and electricity to be used annually.	The upper bound of usage for the facility is as follows: projected annual natural gas use is 22,586 therms/year; projected annual water use is 2.559 Million Gallons; and projected annual electrical use is 990,142 MWh. The projected total energy consumption per annum is 5,638 MMbtu. As you quoted, Section 3.2.10 of the EA states, "Exact numbers quantifying current utility usage from the various buildings involved in the existing HE operations is not available due to lack of meters on individual buildings at Pantex." The buildings to be demolished are old and metering does not exist. Utility usage to be used for the new facility is unknown until it is operational and recording the data from the meters that will be installed. In addition, it should be noted that the facility has been designed to comply with Leadership in Energy and Environmental Design (LEED) and Laboratories for the 21st Century (Labs21) requirements and will be complaint with relevant portions of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 90.1 and will thus use less energy than that indicated above. Scope 1 and Scope 2 Greenhouse Gas emissions associated with providing utilities to the facility will additionally be reduced by the use of solar water heaters within the facility and the reconfiguration and/or expansion of the Pantex Renewable Energy Project.
9	***Table 1. Initial Screening of Alternatives Dismissed From Further Consideration*** *Existing Facilities could not be upgraded sufficiently to meet a 50-year service life and also provide a safe and secure operating environment.*	The General Services Administration's (GSA) document "Facilities Standards for the Public Buildings Service" is a mandatory facilities standard which applies to design and construction of new federal

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	Were [sic] does the 50 years come from?	facilities. The "50 year full service life" is the lowest permissible level regarding new construction's design-to-demolition standard.
10	We find it interesting that Environmental Justice and Floodplains/Wetlands are two aspects judged to have little potential for impact and are discussed in even less detail when there is very little detail, in fact, in the environmental assessment to begin with. Moreover, contrary to NNSA's statement, we believe there are both minorities and people of low income living within 5 miles of the Pantex Plant. For example, we can calculate from google earth that the Highland Park High School is 3.6 miles from the southwest corner of the Pantex Plant. Although it's not the same a "living" there, surely there are minority and low-income children at that high school.	The initial research for the Environmental Justice portion of the Pantex SWEIS indicated that Pantex Plant is surrounded by rural tracts of white majority populations, and minority or low-income populations are located either in the Amarillo Urban area (~17 miles away) or the outer fringes of the Region of Influence. "Overall, the minority and low-income populations in the Pantex Plant ROI are not disproportionately affected by the Proposed Action." Calculating from Google Earth, the closest **operational area** at the Pantex Plant is approximately 6 miles from Highland Park School. The "3.6 miles" mentioned in your comment is the southwest corner of Texas Tech property, not DOE property. It is approximately 4.75 miles to DOE property.
11	*Floodplains/Wetlands: The proposed project site is not within the 100-year floodplain. The site can be categorized as upland and does not support wetlands. No floodplains or wetlands would be impacted during the construction or operation of this project.* On July 7 and 8, 2010, Pantex received a record 11 inches of rain in 12 hours, comparable to a 2,000-year storm for the area. So is the proposed project within the 2,000 year flood zone? See http://www.energy.gov/sites/prod/files/Pantex%20Facility%2010---Year%20Natural%20Phenomena%20Flood%20Hazard%20Analysis_1.pdf	Title 10 Code of Federal Regulations, Part 1022 (10 CFR 1022), Compliance with Floodplain and Wetland Environmental Review Requirements, which implements Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands states in Subpart B, Procedures for Floodplain and Wetland Reviews §1022.11(b) "DOE shall determine whether a proposed action would be located within a base or critical action floodplain consistent with the most authoritative information available relative to site conditions from the following sources, as appropriate: (2) Information from land-administering agency (e.g., Bureau of Land Management), or from other government agencies with floodplain-determination expertise (e.g., U. S. Army Corps of Engineers ...). The proposed project addressed in this EA is located in the watershed drainage of Playa 4, which has a base floodplain (100-year floodplain) elevation of 3,505.5 feet above mean sea level and a critical action floodplain (500-year floodplain) of 3,506.5 feet above mean sea level, as determined by the U. S. Army Corps of Engineers. The proposed project is located in a relatively flat area at an elevation of approximately 3,540 feet above mean sea level, and

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		therefore approximately 33.5 feet above the critical action floodplain. The proposed action **would not** be within a floodplain as described by the requirements of 10 CFR 1022.
12	Also, the Pantex Boundary has been expanded to include 12 Playa Basins. What are the effects of surface water runoff at Pantex in the large storms? Please consider the effects of climate change that could increase flood risk.	This EA is project specific, and the scope does not include addressing the expanded Plant boundary or any additional playa basins associated with the expansion. The proposed action **would not** be within a floodplain as described by the requirements of 10 CFR 1022.
13	**3.1 REGIONAL SETTING** *Environmental issues related to the local geology fall mainly into four general areas: (1) how the extent and characteristics of the geologic materials affect the flow of groundwater and the fate of contaminants that might be carried in the groundwater; (2) the potential for local or regional earthquakes to cause engineered structures to fail and initiate a release of hazardous materials; (3) the potential for dissolution of salt beds in the subsurface to disrupt overlying materials or the ground surface; and (4) the engineering properties of near-surface materials that affect how structures are built and how they perform.* These four environmental issues are mentioned but not discussed in this EA. Please do so. Moreover, the data on these issues should be in a new Site-Wide Environmental Impact Statement (SWEIS) from which this EA and future Pantex NEPA documents are tiered.	1) Detailed information is further discussed in the Environmental Assessment, Section 3.1 Regional Setting, pages 10 through 13. 2) The DOE Standard 1212-2012, Explosives Safety requires that "New permanent explosives facilities shall comply fully with Unified Facilities Criteria (UFC) 3-340-02, *Structures to Resist the Effects of Accidental Explosions* and DOE/TIC-11268, *A Manual for the Prediction of Blast and Fragment Loading of Structures…*" It further requires that "a primary hazard analysis shall be performed." Seismic events are considered during this analysis. UFC 3-340-02 requires that "Seismic loads will be calculated according to the Uniform Building Code for the given area." From an Explosives Safety standpoint; given the proposed siting of the HE S&E Building, the structural requirements for that building, and the limited amounts of explosives to be allowed in that building, the scenario would be rare where a local or regional earthquake could cause the structure to fail where it would initiate a release of hazardous materials (explosives) effecting anything outside the property line as governed by DOE Standard 1212-2012. 3) *"Salt dissolution is another active process in the High Plains area. However, no surficial expression of sinkholes or fractures associated with salt dissolution have been identified in Carson County (Gustavson 1981:10). Potential impacts due to subsidence (resulting in sinkholes and/or surface rupture) are considered negligible, because salt dissolution is a slow process relative to*

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		human activities (Gustavson 1980)" **and Section 4.5.2.2 Impacts of New Facility Construction and Upgrades states:** *"Impacts to all new facility construction and upgrades due to potential erosion, subsidence, and seismic hazards would be the same as those addressed in Section 4.5.2.1."* 4) The Army Corps of Engineer's Scope of Work requires the Design Engineer consultant to conduct an in-depth drilling and testing program to provide all geotechnical data as required to complete the foundation and pavement designs for the facility. The Foundation and Pavement Design Analysis report will include all boring information, laboratory test results, design calculations, and supporting documentation. Test soil borings will be performed beneath the footprint of the proposed structures. The implementation of data of the above mentioned issues into a new SWEIS is outside the scope of this EA.
14	***3.2.3 Air Quality and Climate Change*** *Operations at the proposed new facility would not introduce any new processes to the Plant, so additional modeling of concentrations for criteria and toxic pollutants using Plant emissions for ongoing operations would be unnecessary. Presently, the emissions of the 14 separate facilities currently operating are de minimis. (Pickett, D., 2015).* Fine. But what is the quantity of emissions, and what is their composition? How are they monitored? What about the 15th facility mentioned in 2.2 PROJECT DESCRIPTION? "Operations that are presently located in 15 separate facilities with seven connecting ramps, measuring approximately 81,552 square feet (ft2.), would be consolidated into a common facility...)	Detailed information has been added to the Environmental Assessment, Section 3.2.3 Air Quality and Climate Change, page 16 and 17. Revision has been made to this EA regarding the number of facilities. The number of facilities is 17 and is first mentioned on page 3 Section 3.0. Table 1 on page 4 describes all 17 facilities and lists their operations.
15	***3.2.7 Human Health*** *Environmental Consequences of Proposed Action: The types of activities during the construction of the new HE S&E facility include building an access road to the facility and normal construction of the buildings. The*	Occupants would include 26 employees in the HE Laboratory and 98 in the Technology Development & Deployment Laboratories so a total of 124 employees in the HE S&E Facility.

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	operational aspect of the facility is to develop and sustain diagnostic tools for the evaluation of technology development of HE. There would be no radiological impacts or radiological hazards within the facility. How many people would work here?	
16	***3.2.8 Transportation/Traffic*** *Environmental Consequences of Proposed Action: ...Upon completion and start-up of the proposed facility, there could be a slight reduction in Plant traffic, and an accompanying reduction in fuel use and vehicle maintenance costs, by consolidating existing operations from several facilities in various zones into a single facility.* How many people would work here?	Occupants would include 26 employees in the HE Laboratory and 98 in the Technology Development & Deployment Laboratories so a total of 124 employees in the HE S&E Facility.
17	***3.2.9 Waste*** *...Operational impacts would not change from current waste management practices. The same types of waste would be generated by the proposed new facility as that generated by existing HE facilities, since the processes would be the same. Current waste generation numbers are not available for specific HE S&E operations. Volume and/or weights of waste generated from the various facilities are available but the waste cannot be separated into one single process. It is conceivable that reductions in maintenance at the proposed new facility would result in a slight reduction of generated waste, but that premise can only be quantified through time...* The amounts and types of wastes generated at the proposed new facility must be given. What production rate is this based upon?	The types of wastes that would be potentially generated in the new facility could include: batteries (alkaline, lithium, and lead-acid), scrap metal, scrap HE, hazardous and non-hazardous laboratory liquids and solids with residual HE. Table 2 on page 9 gives estimates for waste for the proposed HE S& E facility.
18	***3.2.10 Utilities Infrastructure*** *Environmental Consequences of Proposed Action: ...* *The Site-Wide Environmental Impact Statement (SWEIS) evaluated alternatives related to continued operations of Pantex Plant. Utility usage was evaluated for water, wastewater treatment, steam, electricity, and natural gas. The Supplement Analysis for the Final Environmental Statement for the Continued Operation of the Pantex*	The upper bound of usage for the facility is as follows: projected annual natural gas use is 22,586 therms/year; projected annual water use is 2.559 Million Gallons; and projected annual electrical use is 990,142 kWh/year. The projected total energy consumption per annum is 5,638 MMbtu.

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	Plant and Associated Storage of Nuclear Weapon Components (SA), DOE/EIS-0225/SA-12, stated that utility usage would remain within the range evaluated in the SWEIS and within the capacities of the current utility system. Usage by the proposed new facility should not exceed the ranges of utility usage evaluated in the SA, since the activities occurring in the new facilities would be a consolidation of current activities and no new activities would be introduced. However, new and improved energy-saving equipment, devices, and procedures would be in place at the proposed new facility and could result in reductions in energy use during HE S&E activities. Exact numbers quantifying current utility usage from the various buildings involved in the existing HE operations is not available due to lack of meters on individual buildings at Pantex. Please put the date in front of the SWEIS when it is referred to. We believe that the 1996 SWEIS is referred to here. So the logic of this section appears to be: The 1996 SWEIS analyzed utility usage. The 2013 supplement analysis estimated that utility usage would be under the 1996 estimate in 2012 through 2016. The proposed HE S&E Facility, since it replaces 15 existing facilities, should not exceed the estimated 2012 through 2016 utility usage. But it might be less. We really need some numbers here. The utility usage numbers for 2014 must be out by now. Please include those. Please give the estimated number for annual utility usage for the proposed HE S&E Facility.	As you quoted, Section 3.2.10 of the EA states, "Exact numbers quantifying current utility usage from the various buildings involved in the existing HE operations is not available due to lack of meters on individual buildings at Pantex." The buildings to be demolished are old and metering does not exist. Utility usage to be used for the new facility is unknown until it is operational and recording the data from the meters that will be installed. In addition, it should be noted that the facility has been designed to comply with Leadership in Energy and Environmental Design (LEED) and Laboratories for the 21st Century (Labs21) requirements and will be complaint with relevant portions of the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 90.1 and will thus use less energy than that indicated above. Scope 1 and Scope 2 Greenhouse Gas emissions associated with providing utilities to the facility will additionally be reduced by the use of solar water heaters within the facility and the reconfiguration and/or expansion of the Pantex Renewable Energy Project.
19	*Environmental Consequences of Proposed Action: The majority of construction materials and temporary construction workers would most likely be drawn from the local community. As a result, permanent increases in population would not occur and housing and community services would not be permanently impacted. The increase in economic activity would be temporary and would subside with project completion.* How many workers will it take for how many years to build it? How many Pantex workers will primarily work at the High Explosive Science and Engineering Facility?	Approximately 26 employees in the HE laboratory and approximately 98 in TD&DL. It is estimated that it would take approximately 100 workers at peak construction and approximately 2.5 years to build.

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20	***4.0 CUMULATIVE EFFECTS*** ***4.1 Water Resources*** *Water use during construction is generally associated with dust suppression, soil compaction, and the mixing of concrete. These uses are temporary and short-term. Occupancy of buildings would require long-term use of water resources similar to the normal use of office buildings. The incremental impact of the proposed action, when added to those from actions of a similar nature, would be minor.* How much water will be used for construction? How much water will be used for operations?	Water usage was 101.94 million gallons for the entire Pantex Plant. Without the metering for each of the current HE buildings, the water usage for the proposed HE S& E facility would be difficult to estimate. Water usage for construction would also be difficult to estimate but would only include dust suppression, mixing of concrete, and soil compaction and would be short-term.