DOE/EA-0812

ENVIRONMENTAL ASSESSMENT

FOR

INTERIM STORAGE OF PLUTONIUM COMPONENTS AT PANTEX

LETTERS RECEIVED ON THE PRE-APPROVAL ENVIRONMENTAL ASSESSMENT AND THE REVISED PRE-APPROVAL ENVIRONMENTAL ASSESSMENT AND PUBLIC MEETING

VOLUME II

JANUARY 1994

U.S. Department of Energy
Albuquerque Operations Office
Amarillo Area Office
Pantex Plant
P.O. Box 30030

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VOLUME II, SECTION II

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STATE OF TEXAS
OFFICE OF THE GOVERNOR
AUSTIN, TEXAS 78711

February 25, 1993

ANN W. RICHARDS
GOVERNOR

The Honorable Hazel R. O'Leary
Secretary of Energy
Washington, D.C. 20585

Dear Secretary O'Leary:

Enclosed are the comments my office has received to date regarding the U.S. Department of Energy's Predecisional Environmental Assessment for Interim Storage of Plutonium Components at the Pantex Nuclear Weapons facility.

The Texas Attorney General's Office will forward their comments to you under separate cover.

The state of Texas has made every effort to comply with the March 2, 1993 extended deadline provided by the U.S. Department of Energy. However, I have been notified that a few individuals do need additional time to complete their reviews. Therefore, I respectfully request that DOE establish a final deadline of March 16, 1993, to ensure that all interested parties are given every opportunity to have their concerns addressed.

There is no question that producing the environmental assessment was a long and painstaking effort requiring the dedication and skills of many talented individuals. Preparing an appropriate response to that document elicited the same level of effort.

Rather than attempting to summarize the comments, and thereby run the risk of either misinterpreting or failing to give them the full weight and attention they deserve, I am forwarding the comments to DOE exactly as they were received in this office. Thus, each submission stands alone and deserves a detailed response to the various concerns expressed in that document. I direct your particular attention to the comments prepared by Texas state agencies and universities.

POST OFFICE BOX 12428 AUSTIN, TEXAS 78711 (512) 463-2000 (VOICE)/(512) 475-3165 (TDD)

Nevertheless, one inescapable fact is readily apparent: A number of the assumptions and conclusions stated in the document simply cannot be verified without more information.

In addition, state officials believe that the methodologies used in the report addressing the potential impact of a plutonium release to the Ogallala Aquifer, and the section addressing the Aircraft Hazard Analysis, are so fundamentally flawed that they must be revisited. In their current form, it is impossible to determine whether the resulting conclusions are, in fact, valid. 1001/1 1001/2

Once you have had an opportunity to evaluate the enclosed comments, I am confident you will agree that significant portions of the assessment require further study. Therefore, any attempt to endorse or reject the assessment at this time would be premature.

I am most concerned about the 6-10 year interim storage period. Specifically, I want to know when this 10-year period officially begins and ends. I also need clear and definite information about what procedures will be followed if the plutonium is still sitting at Pantex at the end of the 10-year period. 1001/3

After my staff and other state officials have had an opportunity to review your answers to our questions, they would like the opportunity to meet with the appropriate DOE officials. The meeting held in January with individuals from your headquarters in Washington, the area office in Albuquerque and from the Pantex plant was very productive and beneficial.

If you have any questions or need additional information, please have your staff contact Roger Mulder in my office at 512/463-2198.

Thank you for your cooperation. There is no question that protecting the human health and safety and the environment of the Pantex community is a challenge, a goal, and a responsibility that all of us share.

Sincerely,

Ann Richards

ANN W. RICHARDS
Governor

TEXAS AIR CONTROL BOARD

February 19, 1993

Mr. Roger Mulder, Director
Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Austin, Texas 78711

RE: Methodology Used to Assess the Probability of Aircraft Impact with Zone 4 Pantex Nuclear Weapons Facility (Pantex) Structures

Dear Mr. Mulder:

Executive Summary

The "Environmental Assessment (EA) for Interim Storage of Plutonium Components at Pantex," dated December 1992, finds an airplane crash to be an incredible event, that is the probability of the event is less than one-in-a-million. The EA employs a method of reducing the probability of a serious credible event into unlikely specialized events. This, it is claimed, eliminates the need to report the potential consequences of the specialized events in the safety analysis. I believe the probability calculations developed for the total aircraft population should not be assumed to have the same validity at the subpopulation level.

I have reviewed the methodology used to assess the probability of aircraft impact with Zone 4 Pantex plant structures. This analysis is included as Appendix E in the EA. The modeling of an airplane crash into Zone 4 structures of the Pantex plant closely follows the methods developed in the 1976 Sandia report (reference 2 of Appendix E). However, the accident rates and effective areas used to calculate the probability of impact are greatly reduced from the values used in the 1976 Sandia National Laboratories (Sandia) report. Most importantly, the analysis performed in the Sandia report is used to assess the overall probability of aircraft impact with Zone 4 structures. The EA applies the same methodology and claims the estimates of probability are valid at the subpopulation level (specific types of aircraft). As the research and methodology were developed to estimate the probability for the general population of aircraft, the "stretching" of this analysis to estimate the probabilities for specific subclasses of aircraft substantially degrades the validity of the estimates generated.

Subdivision into Aircraft Subclasses is Used to Eliminate the Need to Consider the Impact of Certain Types of Aircraft with Zone 4 Structures 1002/1

Initially, the EA finds the probability that an aircraft will impact a Zone 4 structure to be greater than one-in-a-million. In other words, the chance of airplane impact with a structure scheduled for the interim storage of plutonium is calculated to be a credible event. However, the potential consequences of airplane impact with Zone 4 structures are not reported.

The probability of impact is developed by dividing aircraft into four classes: air carriers, military aircraft, aerial application, and general aviation. The probability of impact for any specific class of aircraft, except general aviation, is calculated to be less than one-in-a-million. Thus the EA concludes, it is unnecessary to consider any class of aircraft except for general aviation. This is a clear deviation from the 1976 Sandia report, which concludes only that the probability of aircraft impact is 4.7 in 100,000 (4.7E-05). The most critical objection to the methodology of the EA is that conclusions are drawn about the probability of subclasses of aircraft while the methodology followed is clearly developed for a population estimate. This technique of subdivision into aircraft classes is used in order to reduce credible events into incredible specific events. I am especially concerned about the validity of subpopulation estimates of probability since the environmental consequences of an incredible event do not have to be analyzed.

The probability of impact for a general aviation aircraft with a Zone 4 structure was calculated to be greater than one-in-a-million annually. Again, the method of subdivision into aircraft classes was applied. General aviation aircraft were subdivided into two classes: single engine aircraft and multi-engine aircraft. Multiple engine aircraft are then shown to have an impact probability which is incredible. It is possible to further subdivide the class of single-engine general aviation aircraft so that the impact of those subclasses of planes with the Pantex Zone 4 structures is an incredible event. However, the report instead references analyses by Jacob Engineering (Appendix C) which "suggest it is reasonable to exclude single-engine aircraft from further consideration in the accident analysis." Clearly, by employing a subdivision method, it is possible to reduce the probability of almost any event to an incredible level.

Zone 4 Effective Areas Reduced from 1976 Sandia Report 1002/2

In order to calculate the probability of a plane impacting into the Zone 4 structures, a formula was used which considers only the portion of Zone 4 where an aircraft could strike a magazine. The formula given is equal to the sum of the actual area the building occupies, a shadow area dependent on the subclass of aircraft considered and a skid area dependent on the subclass of aircraft. The areas used are smaller than the areas used in the 1976 Sandia report. This is due to a substantial reduction in the skid areas and the wingspans capable of doing damage to Zone 4 structures from the values used in the 1976 Sandia report. This reduces the "effective" area for over 60 percent (%) of the aircraft to less than one-tenth of a square kilometer. From the maps provided in the environmental assessment and references, it appears that Zone 4 covers at least one square kilometer. Thus, the Zone 4 areas where an airplane crash might cause damage has been reduced by 90% for most types of aircraft considered. This cannot be verified as the actual dimensions of Zone 4 and its structures were not provided in the environmental assessment.

Probability per Kilometer of an Aircraft Crash is Reduced from the 1976 Sandia Report 1002/3

A crucial element for calculating the probability of aircraft impact with a Zone 4 structure is the probability of an aircraft crash per kilometers flown. The type of aircraft crash considered is one in which the aircraft is significantly damaged since the assessment claims these are the only type of crashes which could impact a magazine. In addition, only crashes which occurred while the plane was inflight are considered. For every subclass of aircraft, the 1992 EA reports a substantially lower probability per kilometer of a significant inflight aircraft crash than the 1976 Sandia report (see Table 1).

Table 1 Estimates of the probability per kilometer of an aircraft crash from the Environmental Assessment are significantly less than those used in the 1976 Sandia Report.

Class of Aircraft	1976 Sandia Report	1992 EA
Air Carrier	3.2E-09	4.0E-10
General Aviation	2.0E-07	4.4E-08
Military Aircraft	1.6E-08	3.1E-09
Aerial Application	3.0E-07	1.8E-07(possible error)

The EA relies on fatal accident figures (provided by the National Transportation Safety Board [NTSB] in a memo from Lin and Tenney of Sandia National Laboratories, dated July 2, 1992, to R. E. Smith) upon which to base a new rate for the probability per kilometer of an inflight United States air carrier crash. This relationship is assumed despite a comment by Lin and Tenney that "the number of aircraft destroyed is not highly correlated to the number of fatal accidents." The EA reduces the mean fatal accident rate by the ratio 18/31 to provide an estimate of the inflight accident rate in which the accident is severe enough to seriously damage or destroy a Zone 4 magazine (page E-2). This method of estimation assumes a linear relationship between the known quantity (fatal accident rate) and the unknown quantity (inflight severe accident rate). This is not a valid assumption unless the two variables are correlated.

In order to estimate the probability per kilometer of a severe inflight general aviation crash, the NTSB data base was again referenced (memo from Lin of Sandia National Laboratories, dated August 13, 1992, to R. E. Smith). The EA generates a severe inflight accident rate for general aviation using the data provided by Lin (page E-2). The most critical assumption in calculating the accident rate is the average speed. The memo from Lin provides "average speeds" for the various classes of aircraft included in the general aviation group. However, the average speeds used in the EA are greater than the average speeds reported by Lin. These appear to be the only numbers from the memo that were changed for the EA. By adjusting the speeds upward, the estimated probability of a severe inflight crash is decreased. The EA does not provide justification for using the higher average speeds. Furthermore, the total accident rate per mile for general aviation and the total accident rate per mile for general aviation except single engine aircraft (Table E-6, last two columns) cannot be calculated from the information in the EA or the reference documents. Since this is a critical subclass of aircraft, additional documentation is necessary to justify the average speeds used in the calculations. At a minimum, the average speeds used in the calculations for the last two columns of Table E-6 should be provided. 1002/4

Note on Aerial Application Probability

1002/5

For aerial application, the EA claims the "accident rate for aerial application of (2.945E-02/100,000 km, 4.7E-07/mi) was retained (*from the 1976 Sandia report*) for analysis" (page E-7). However, on page E-22 a different accident rate is recorded. It appears the accident rate per kilometer was recorded as the accident rate per mile.

General Notes

1002/6

After reviewing the reference material provided by the author of "Appendix E, Aircraft Hazard Analysis," I can find no justification for using three significant figures.

A reference on page E-20 is off by one section. Specifically, the probability equation is defined in Section E.2 not E.2.1. 1002/7

According to the reference material (reference 8 of Appendix E) used to generate Table E-2. Summary of Aircraft Accidents - U. S. General Aviation, the number of fatalities and serious injuries in 1978 was 1,146, not 1,145, and in 1986, the number of fatalities and serious injuries was 790 and not 748. 1002/8

In Table E-3. General Aviation Hours Flown (Millions) by Aircraft Class, the number of hours flown for single engine aircraft in 1988 should have been 21.2, not 21.1, according to the reference material (see reference 8 of Appendix E). In 1988, the total number of hours flown for all general aviation aircraft should be 27.1, rather than 21.1, according to the reference material. 1002/9

The Table E-5. General Aviation Aircraft Destroyed Inflight Per 100,000 Hours by Class has a column for the Total. It appears from the text that this column should contain the sum of the preceding four columns. The numbers that appear in the Total column are not equal to the sum of the preceding columns. Likewise, the Modified Total w/o Single Engine Aircraft does not appear to contain the sums of the previous columns. 1002/10

Table E-7. Summary of Military Aircraft Crash Rates. The reference (a memo authored by Lin from Sandia National Laboratories, dated August 25, 1992) used to create Table E-7 reports the number of miles flown for the C-5 type of military aircraft to be 517 million miles. In the table, the number of miles flown for the C-5 type of military aircraft is reported to be 414.4 million miles. 1002/11

The definition of an incredible event is based upon an annual probability of occurrence. I am concerned that this may offer a false sense of security. The probability of an event occurring during the anticipated 10 years of storage is much greater than the probability an event will occur during the one year period used for calculation. For example, the 1002/12

annual probability of a military aircraft impacting a Zone 4 structure is estimated in the EA to be 2.5E-07. Thus, over a 10 year storage period, the probability of a Zone 4 structure being seriously impacted by military aircraft climbs to 2.5E-06. That is, over a 10 year period, the chance of military aircraft impacting a Zone 4 structure is much greater than one-in-a-million.

Sincerely,

Alison A. Miller
Pantex Project
Air Quality Assessment Program

cc: Mr. Richard Ratliff, Texas Department of Health, Bureau of Radiation Control, Austin
Ms. Nancy Olinger, Office of the Attorney General, Austin
Mr. Gerry Bolmer, Texas Water Commission, Austin
Mr. Ray Quijano, Texas Department of Public Safety, Division of Emergency Management, Austin
Judge Jay Roselius, County Judge, Carson County, Panhandle
Dr. Tom Gustavson, Bureau of Economic Geology, Austin
Mr. Walt Kelley, City of Amarillo, Amarillo

DEPARTMENT OF PHYSICS
THE UNIVERSITY OF TEXAS AT AUSTIN

Austin, Texas 78712-1081 • (512) 471-1153

12 January 1993

Mr. Roger Mulder, Director
Special Projects
Environmental Policy Division
Office of the Governor
Austin, Texas 78711

Dear Mr. Mulder:

I appreciate the opportunity to comment on the Environmental Assessment related to the Pantex Nuclear Weapons Plant. The decision to significantly increase the amount of plutonium stored at this facility is an important one and the environmental impacts of this decision need to be carefully assessed. Unfortunately one cannot judge from the document provided whether or not this has been done. 1003/1

The report provided creates the impression of providing a detailed analysis (often quoting results to three significant figures!) while at the same time withholding some of the essential data on which those calculations are based. The public is therefore presented with what appear to be detailed calculations, on the basis of which well-informed judgments might be reached, when in fact this is not the case.

There may be valid security concerns which preclude including such information as the dimensions of the structures in which the plutonium is stored or the amount of plutonium contained in each pit. If so, two reasonable options are available:

1) present only the results of the analysis (*i.e.* trust me!) or

2) present the details of the calculation in a classified document which could be reviewed by individuals having the appropriate clearances.

The report as it stands appears to be a full and open discussion of the problem when in fact it is not.

On a more detailed note, I believe the analysis presented of aircraft accidents is fundamentally flawed. While aircraft accidents might occur at a rate estimated to be more than 10^{-6} per year, analysis of the impact of air carrier or military accidents was not included on the basis that this **subgroup** had a probability estimated to be less than 10^{-6} per year. This procedure of dividing an accident class into subgroups in order to reduce the probability of each subgroup below that necessary for inclusion is surely unjustified. (When carried to its logical conclusion one could divide the class of aircraft accidents to a subgroup which consisted of MD-88 aircraft, carrying exactly 121 passengers flown by a captain named Kruger on Thursday!) Risk analysis should be performed on the basis of 1003/2

probability times consequences. Excluding low probability events (below some threshold) which could have catastrophic consequences is clearly wrong. 1003/3

I hope you find these comments useful. If you would like to discuss this issue further please call me at (512)471-1053.

Sincerely,

Thomas A. Griffy

Thomas A. Griffy
Professor of Physics

TAG:dlw

U.S Department
of Transportation
Federal Aviation Administration

Amarillo ATCT
Rt 3, Box 579
Amarillo, Texas
79107

January 28, 1993

93 FEB -1 PM 4:03
RADIATION CONTROL

Joseph A. Martillotti
Bureau of Radiation Control
Pantex Special Project Coordinator
Division of Compliance and Inspection
1100 West 49th Street
Austin, Texas 78756-3189

Mr. Martillotti:

During the months of January, February and March, 1991, under the "Freedom of Information Act", I provided information to a contractor for the Department of Energy. This information was limited to Amarillo Air Traffic Control Towers' monthly traffic count logs and the Daily Flight Progress Strips on aircraft operating in our airspace. 1004/1

The Aircraft Hazard Analysis Data on pages 6-5 through 6-8 and Appendix E of the Environmental Assessment prepared by the United States Department of Energy has no resemblance to the data provided by this office. Therefore, I am unable to comment on any information contained in the Assessment. For your information, the total aircraft operations for the Amarillo area in the CY 1992 was 91,800. Any further restrictions to flight or changes of airspace to the Pantex Prohibitive area would have an immediate and adverse impact on the utilization of Amarillo International Airport.

If you have any questions, please do not hesitate to call.

C. Ross Schulke

C. Ross Schulke
Air Traffic Manager

cc: ASW-530
WTX-500

# of pages ▷	
To ROGER MILDER	From JOE MARTILLOTTI
Co. OFFICE of THE GOVERNOR	Co. TDH / BRC
Dept. ENVIRON. POLICY DIVISION	Phone # (512) 834-6688
Fax # 463-1975	Fax # 834-6690

Edward Warren: First American Aloft

Route 2, Box 11
Panhandle, Texas 79068
February 8, 1992

Roger Mulder
Director of Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box12428
Capitol Station
Austin, Texas 78711

Dear Roger:

The enclosed comments were made by our son after he carefully reviewed the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex site in Carson County.

James Michael (Mike) Osborne received his BSAE from Texas A&M University in 1987. His 5½ years of experience in the aerospace engineering field include propulsion specialist for General Dynamics in Ft. Worth on F 16 and F 11 military aircraft; Gulfstream in Savanah, Geogia; and Senior Engineer in Propulsion for Learjet in Wichita, Kansas. Mike has his private pilot's license.

Mike was raised on the farm immediately to the north of the plant and directly under the flight approach and take-off path of the Amarillo International Airport where all military aircraft practice landing with touch and go practices as well having been a SAC base for the Air Force during Mike's childhood. Mike has seen many aircraft of all kinds flying directly overhead and over the Pantex plant.

He noted that the EA did not address Helecopters that fly over the site. All types of military helecopters can be seen on a regular bases. This type of aircraft does not crash by skidding. They crash by falling straight down. 1005/1

Mike also noted that no mention of the about 1955 emergency landing of a B 25 on the site near the present burning ground after the plane ran out of fuel. 1005/2

Please consider Mike's remarks carefully as you review the EA.

Thank you.

Sincerely,

Jeri Osborne

COMMENTS ON AIRCRAFT HAZARD ANALYSIS

Upon reviewing the Aircraft Hazard Analysis (Section E) a number of fallacies become readily apparent.

Firstly, there appear to be numerous mathematical errors within the tables presented. While it may be that the values presented in those tables have been adjusted through the use of factors, this is not readily apparent from the column headings. Many of the mathematical errors are in a conservative direction, but their existence seriously clouds the credibility of the report itself. Further review of the references quoted in support this analysis would be required in order to determine if the statistics presented are valid.

Secondly, the term "General Aviation" is grossly misused in the Aircraft Hazard Analysis. Traditionally, "General Aviation" has been used to describe all aeronautical activity that is neither military nor civil, that pertaining to airlines. Typically, agricultural aviation is also excluded from that heading. General aviation is made up of aircraft ranging in size from the 1600 lb Cessna 150/152 and smaller up through the 73600 lb Gulfstream IV. The 3500 lb aircraft used in the Aircraft Hazard Analysis is hardly representative of General Aviation as it currently exists. 1005/3

Thirdly, the definition of the takeoff and landing phases of flight as being within 5 kilometers of the airport in highly misleading. By using this definition of the takeoff and landing phases as being those within 5 kilometers of the runway, the analysis is able to take advantage of the lower occurrence of accidents for the "inflight" phase. This ignores the fact that a high percentage of the flights over the Pantex plant are by aircraft making straight-in approaches to the NE-SW runway at Amarillo International Airport. These flights consist of military training flights, as well as military cargo flights by C-5A, C-5B, C-141B and C-130 aircraft. Few light aircraft actually pass over the plant while on approach to the NE-SW runway at Amarillo International Airport due to the zone of prohibited airspace and due to normal operational requirements. Typically, these aircraft do not make straight-in approaches, but rather, fly a much smaller traffic pattern.

The combined effect of the mis-definition of General Aviation and the operation of larger military aircraft over the Pantex plant implies an exposure to accidents involving much heavier aircraft. A 3500 lb aircraft with a 500 lb engine is representative of single-engine aircraft only. The Beechcraft 300LW is also representative of General Aviation. This aircraft is a twin-engine turbo-prop up to 14000 lbs and being driven by two engines weighing 465 lbs each without accessories. The Learjet Model 35 is a twin-engine turbofan weighing up to 18500 lbs and powered by two engines weighing 734 lbs each without accessories. The Gulfstream IV mentioned above weighs up to 73600 lbs and is powered by two turbofan engines each weighing 3100 lbs without accessories.

At this point it should also be noted that the military cargo aircraft that routinely operate over Pantex operate at much higher weights. The C-130 turboprop weighs up to 155000 lbs and is driven by four engines each weighing approximately 1800 lbs. The C-141B weighs up to 343000 lbs and is powered by four turbofans weighing in excess of 4300 lbs each. Finally, the C-5B weighs up to 837000 lbs and uses four turbofans weighing more than 7900 lbs each.

Further, the Aircraft Hazard Analysis seems to consider only accidents in which the aircraft slides to a stop, a condition consistent with takeoff or landing incidents. No effort is made to analyze higher angle impacts resulting in energy dissipation through cartwheeling (Sioux City, Iowa DC-10 accident) or the cratering resulting from high impact angles. Due to the 1005/4

distance from the runway (quoted as being 13.6 km), aircraft passing over the Pantex plant and following a standard 3 degree glide slope will be at an altitude of approximately 2300 feet above ground level. This is not conducive to a sliding impact, but rather a high angle impact with resulting vertical penetration of components into the crash site. In this type of accident, the low-pressure rotor shafts of turbine engines have been known to penetrate several feet of granite.

The aircraft speed of 80 mph at the time of the accident, as quoted in the Aircraft Hazard Analyis is also highly unrealistic. This is stated to be derived by multiplying the landing speed of a single-engine aircraft by 1.3. It should be noted that FAR Part 23 requires single-engine aircraft to have a stall speed of not greater than 61 knots Indicated Airspeed (KIAS), or 70 mph. Multiplying this value by 1.3 results in a speed of 79.3 KIAS or 91 mph. This is approximately the lowest speed that would be anticipated. Multi-engined aircraft typically stall at higher speeds, and most turbofan aircraft stall at speeds in excess of 100 KIAS or 115 mphwhen operating at light weights. At heavy weights, the stall speed may rise to more than 150 KIAS or 173 mph. These speeds are only consistent with low angle impacts. High angle impacts may occur at speeds exceding the maximum operational speed of the aircraft. 1005/5

Additionally, no mention is made of the effects of a post-crash fire or explosion in the Aircraft Safety Analysis. In the event of an accident involving a large turbine-engined aircraft, several thousand gallons of jet fuel would be available for combustion. This is not addressed. 1005/6

Finally, the military aircraft accident rates fail to include a number of major accidents. The C-5 is listed as having had no crashes when, in fact, two are easily recalled. The first of these in the 1970's involved a C-5, departing from the Republic of Vietnam, and carrying a large number of orphaned children. During the climb to altitude, several minutes after takeoff, a door seal failed and eventually resulted in the uncontrolled descent and crash landing of the aircraft. The second, more recent accident took place near Ramstein AFB in Germany and was associated with Operation Desert Shield. 1005/7

The B-1B is also listed as having had no accidents. Disregarding the loss of one proto-type at Edwards AFB due to the failure to maintain proper center-of-gravity during a stall test, three operational aircraft have been lost to date. The first, in Colorado, was due to a bird strike while operating at low level and was a high-energy impact. The second, at Dyess AFB in Abilene, TX was due to the catastrophic failure of the low-pressure rotor of one of the four engines. The third was in late 1992 in the Davis Mountains of Texas.

At approximately the same time as the third B-1B accident, two C-141 aircraft were involved in a mid-air collision at high altitude over Montana. Both aircraft were destroyed. These accidents involve military aircraft of types that routinely fly over the Pantex plant and are not addressed in the Aircraft Hazard Analysis.

In summary, the Aircraft Hazard Analysis contains numerous errors and omissions. Throughout the document, mathematical errors are found. Speeds are quoted in mph when they are actually in knots, roughly a 15% error in in non-conservative direction. The impact energies considered are low in magnitude by as much as 32% due to the use of incorrect units of velocity (based upon the velocity-squared term in the equation for kinetic energy). This does not address the unrealistically small aircraft and light weights or the low impact velocities used in the analysis. No effort was made to address the penetration by high-density engine rotating components or post-crash fire. Overall, considerable work is required to produce an acceptable analysis of hazards posed by aircraft. This Aircraft Hazards Analysis does not provide a comprehensive or accurate picture of the danger posed by aircraft to material stored at the Pantex plant. 1005/8 1005/9

Learjet

Nothing else comes close.

BUREAU OF ECONOMIC GEOLOGY

THE UNIVERSITY OF TEXAS AT AUSTIN

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10100 Burnet Road · Austin, Texas 78758-4497

February 25, 1993

Mr. Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
Austin, TX 78711

Dear Roger:

As requested in your letter, we have reviewed the "Environmental Assessment for Interim Storage of Plutonium Components at Pantex." Our remarks address Section 7 therein and an included report titled "Potential Ogallala Aquifer Impacts of a Hypothetical Plutonium Dispersal Accident in Zone 4 of the Pantex Plant" by Turin and others (1992).

Scientists assigned to the Pantex Project have attempted to provide a constructive and, to the extent feasible, thorough review of this important document. We have not sought to address all elements of the Turin analysis, particularly those dealing with plutonium chemistry, dosage, and toxicity; these are matters we do not ordinarily deal with and thus are largely outside our area of expertise. Rather, our principal focus is on a central element of the report, vadose zone flow and contaminant transport, which is the major focus of our ongoing Pantex study. We have raised several questions and have included suggestions for improving the report. Two sets of comments are included in the attached review: (1) comments on technical issues, which critically review four of the five assumptions upon which this ground-water impact analysis is based and (2) specific comments, which are identified by page and line number.

In our view, the Turin report requires revision, for, in our judgment, four of the five assumptions that were used in preparing the ground-water impact study need further supporting analysis as outlined in the attached comments.

If you have any questions, please call me at (512) 471-1534.

Sincerely yours,

Auburn L. Mitchell

Auburn L. Mitchell
Acting Associate Director

ALM:lch
Attachment

cc: W. L. Fisher
J. A. Raney
T. C. Gustavson
P. C. Bennett
K. A. Rainwater

SUMMARY

This review of "Potential Ogallala Aquifer Impacts of a Hypothetical Plutonium Dispersal Accident in Zone 4 of the Pantex Plant" by H. J. Turin, I. R. Triay, W. R. Hansen, and W. J. Wenzel, is divided into two sections. The first section addresses technical issues and concerns about the conceptual model of the hypothetical accident. The second section lists specific technical comments.

Turin and others (1992) (see also Section 7 in the EA Summary) describe a hypothetical accident in which plutonium is released into the atmosphere, dispersed by wind, and deposited on the land surface. Transport rates are then calculated for movement of the released plutonium to the Ogallala aquifer. The authors state that "...we have consistently made conservative assumptions to maximize the probability of identifying any real threats to the Ogallala Aquifer" (Turin and others, 1992, p. 2). In our opinion, some elements of this report are not conservative or are in need of revision as outlined below. Conversely, as we also point out below, some elements of the analysis may be more conservative than recognized.

Technical Issues

I. Cleanup to the Level of 0.2 $\mu Ci/m^2$ Following the Hypothetical Accident

1006/1

The first assumption (listed on page 7-1 of the EA report and on page 1 of Turin and others, 1992) is that "Surface soils would be decontaminated to levels no greater than 0.2 $\mu Ci/m^2$ following the hypothetical accident. (Previous experience indicates that this level is achievable)." Neither the EA nor Turin and others (1992) provide support for this critical assumption, and numerous questions about it can be raised. First, the potential for soil and ground-water contamination at initial post-accident levels during the cleanup period cannot be summarily excluded. Accordingly, documentation should be provided on the anticipated range of initial contamination levels at the

surface prior to decontamination. Further, the basis for concluding that a maximum post-cleanup radiation level of 0.2 $\mu Ci/m^2$ is achievable should be provided. If this assumption is based on previous remediation efforts, the report should discuss such prior cleanups and show that they are applicable to the Pantex Plant area.

Second, the length of time taken for cleanup is important to assessing plutonium concentrations in soils, and in particular playas, during this period[1]. The inference that cleanup will be performed in a timely fashion using methods based on past experience for released plutonium needs explanation. Will soil removal be required? If so, this task could be substantial. For example, if the accident occurred as described but with contamination spread over only 1/5 of 1 percent of the 50-mi- (80-km-) radius, then the following volumes of contaminated soil would result. If only the top 4 inches (10 cm) of soil had to be removed during decontamination of this 15.7 mi^2 (40 km^2) area, the volume of soil would equal approximately 5,000,000 yd^3 (4,500,000 m^3). If 250 trucks with a carrying capacity of 10 yd^3 (7.6 m^3) were used, and each truck could make 12 round trips per day to a temporary disposal facility, then the total cleanup time required would be 160 days.

Because of the time likely required to achieve decontamination to the desired level throughout the affected area, it appears unrealistic to assume that no plutonium concentration above 0.2 $\mu Ci/m^2$ will occur in soils prior to decontamination or during cleanup. For example, if the cleanup period extends as long as one year, a rainfall event with a 5-year return interval would have a 20% chance of being equaled or exceeded in that one-year period. According to Becker and Purtymun (1982) in a previous study of the Pantex Plant region, there is a recurrence interval of 5 years for a 2.9-in (7.36 cm) rainfall event in a 6-hour period and a 3.7-in (9.40 cm) rainfall event in a 24-hour period. Any precipitation event that produced significant surface runoff, such as a 5-year return-interval storm, would result in concentration of plutonium contamination because of the

[1] These comments regarding the potential for rainfall runoff to concentrate plutonium prior to and during cleanup do not consider the effect of applying substances (fixants) to the land surface to hold the plutonium in place. If fixants will be applied, the report should discuss their effectiveness in holding plutonium in place under rainfall conditions based on prior use or tests.

closed drainage typical of the region. In sum, the cleanup effort could require some time, during which contaminated soil would be exposed to rainfall/recharge events. Runoff could possibly concentrate contaminants in playas, and contamination could extend to the subsurface. Thus, the conceptual model described for this hypothetical accident is presently unsubstantiated with regard to the implication that cleanup could be completed prior to movement of plutonium into the subsurface and with regard to the initial concentration of 0.2 $\mu Ci/m^2$ of plutonium.

II. Plutonium Concentrations in Soils

1006/2

The second assumption (listed on page 7-1 of the EA report and on page 1 of Turin and others, 1992) is "Surface transport processes may increase soil concentrations ten-fold to 2.0 $\mu Ci/m^2$, before infiltration takes place." The assumption that only a tenfold increase in contaminant levels for playa basins in the area of the Pantex Plant is questionable. Data from an investigation by Becker and Purtymun (1982) of the 10 playa basins on or immediately adjacent to the Pantex Plant indicate a significantly higher concentration factor. Becker and Purtymun's method for determining concentration potential is based on the ratio of surface area of the playa (drainage) basin to the surface area of the playa floor (collection point for the basin). They reported measured areas for 10 basins (Turin's Basin No. 7 had zero acres recorded for the playa floor and is thus ignored in the following statistics). The minimum basin-to-playa ratio reported, and therefore the minimum concentration factor, was 12 (for their Basin No. 10). Thus, the concentration ratio of 10 is neither conservative nor equivalent to the actual minimum measured ratio. The maximum ratio was 29 (for their Basin No. 3). The mean ratio for the nine basins is 21, with a standard deviation of 8. Therefore, if a "conservative" value is used for the potential concentration of contaminants, a minimum factor of 25 to 30 should be selected, assuming an antecedent moisture concentration of saturation and no infiltration of precipitation.

To accurately determine a more statistically defensible "conservative" concentration factor, an effort could be made to compute the ratio of playa-basin surface area to playa-floor surface area for

all of the basins in the 80-km radius of the hypothetical accident area. This could be done by comparing the area of Randall Clay soils (playa floors) to the area of upland soil. Soil data are available in county soil surveys published by the USDA Soil Conservation Service.

III. Flow and Contaminant Transport Through Playas

1006/3

The third assumption (listed on page 7-1 of the EA report and on page 1 of Turin and others, 1992) states that "Recharge to the Ogallala Aquifer is focused at playa lake beds. Playa lake recharge rates are approximately 3 cm/yr, ten times the High Plains average." The assumption that recharge to the Ogallala aquifer is focused in playa lake beds is probably valid.[2] However, in our view, the 3 cm/yr playa lake recharge rate, which is reported to be 10 times the High Plains' average recharge rate, is probably invalid for this contaminant transport analysis.

A. In Contaminant Transport Analysis, a "Site Specific" Recharge Rate Should Be Used Rather Than Regionally Averaged Recharge Values

Turin and others (1992) point out that local variability in recharge rates may be quite high, but these values may be averaged over larger areas to provide a representative recharge rate for the entire landscape. This approach is suitable for estimating regional ground-water resources, but it is *not* valid for evaluation of site-specific ground-water contamination. In contaminant transport analyses it is important to know not only the rate at which water is recharged to an aquifer but also the rate and concentration at which contaminants move down to the aquifer. Gee and Hillel (1988) discuss the fallacy of averaging, and Gee and others (1991) discuss the importance of preferred pathways that may bypass much of the vadose zone and transport contaminants directly to an underlying aquifer. If most of a region's recharge occurs beneath only 3 to 4 percent of the land surface, then the much higher focused recharge rate actually would transport a greater mass of contaminants at greater velocities than would be predicted from regionally averaged recharge values.

---

[2] Preliminary results of hydrological studies at the Pantex Plant suggest that ditches might also have been important sources of recharge during the Plant's history.

The methodologies and recharge values listed in the Turin report are not appropriate for several reasons. For example, most of the recharge rates reported in Turin and others (1992) are based on very little quantitative data (Wood and Petraitis, 1984), or on a ground-water flow model calibration (Knowles, 1984; Luckey, 1984)[3] . Recharge rates based on the chloride mass balance approach (Stone and McGurk, 1985) are subject to the assumptions of one-dimensional piston-type flow and of precipitation as the only source of chloride (Scanlon, 1991). Because surface runoff into the playas provides another source of chloride such as irrigation return waters, recharge estimates based on the chloride mass balance approach in playa settings are minimum estimates. Therefore, the recharge values provided by Stone and McGurk (1985) should be used only as *minimum* estimates and not as absolute values, as in the EA. In addition, the potential existence of preferential flow pathways beneath playas may invalidate the application of the chloride mass balance approach beyond estimating minimum recharge rates.

The method used by Nativ (1988) and Nativ and Riggio (1990) in calculating recharge rates, which ranged from 1.3 to 8 cm/yr, is probably the most applicable for this study. This range in recharge rate is based on "bomb" tritium[4] found in shallow Ogallala aquifer wells in Lubbock County. Turin and others (1992) accept the methods used and recharge rates reported in Nativ (1988) and Nativ and Riggio (1990) but point out that the higher rates were recognized in areas far south of the Pantex Plant. However, as discussed next, Nativ (1988) also reports elevated tritium in a well near the Pantex Plant.

B. A Proposed "Site Specific" Recharge Rate Based On Known Tritium Levels In Wells On or Near Pantex Plant 1006/4

Nativ (1988) reports elevated tritium in a well in Carson County, immediately north of the Pantex Plant in the Amarillo Well Field (Well No. 627, TWC No. 06-44-207) and in a well in

[3] The comment at page 6 of the Turin report that the narrowness of the range in estimated recharge rates suggests that the numbers are accurate, is clearly not applicable when evaluating contaminant transport. In reality, the narrowness of range probably means that previous workers have not adequately considered natural variation.

[4] "Bomb" tritium is derived from atmospheric testing of nuclear weapons during the late 1950's and early 1960. The presence of elevated tritium levels in ground water indicates, because of tritium's short half life, that those waters were recharged during the last 40 years.

northern Armstrong County. Therefore, on the basis of these data alone, there is clearly some recharge in progress at rates capable of transporting tritium to the water table at depths of at least 200 to 500 ft (161 to 152 m), and this recharge has been occurring within the last 40 years. In the Pantex Plant area, Bureau scientists found elevated tritium in all wells producing from a perched aquifer. Tritium levels in these wells range from 0.4 tritium (TU) (in well OW-WR-44) to 44 TU (in a private well 1.9 mi south of the Pantex Plant).

Nativ (1988) estimated that water sampled in 1985 with a tritium content of 73 TU was probably from a precipitation event that occurred between 1966 and 1967. Nativ (1988) calculated recharge rates based on the equation

$$\text{recharge rate} = \frac{\text{Thickness of unsaturated section X moisture content}}{\text{Time since recharge event}}.$$

Because Turin and others (1992) accepted the validity of methods used by Nativ (1988) and Nativ and Riggio (1990), it is appropriate to apply this same method to calculate a "conservative" site-specific recharge rate for the Pantex Plant area based on the tritium levels reported for wells in the perched aquifer in the area. Two technical considerations complicate the selection of time intervals for recharge events based on current tritium levels. The first problem is that the input function for tritium today has dropped to a level that is nearly at prebomb background levels. Second, there is no simple method for taking into account mixing of younger waters recharging vertically with older water moving along the natural system. For example, a water sample with 5 TU might derive from a single source of water with 5 TU or from several sources by mixing 5 parts water with 100 TU and 95 parts water with no tritium; or infinite other combinations could apply.

Most of the tritium values reported for perched ground water in the Pantex area are too low (for example, less than 8 TU) to relate to the tritium-decay curve. In the well with 44 TU, however, a conversion can be made so that this water can be applied to Nativ's (1988) tritium-decay curve. The most reasonable time period for a recharge event with this tritium input function (44 TU in 1992 is approximately equal to 65 TU in 1985, the date at which Nativ's [1988] samples

were collected) is 1966 to 1967. Thus, an elapsed time from recharge event to arrival in the perched aquifer at this well could be approximately 25 years. The average volumetric moisture content, as measured by Bureau scientists in several boreholes in the area, ranges from about 0.1 to 0.2 m^3, higher moisture contents being observed near the surface. The unsaturated zone at this well is reported to be approximately 200 ft (61 m) thick. Unsaturated thickness above some perched aquifers are as great as 260 ft (79 m). Using a range in moisture content of 0.1 to 0.2, thickness of an unsaturated zone ranging from 200 to 260 ft (61 to 79 m), and a time since recharge ranging from 25 to 40 years results in a range in recharge rates from 0.5 to 2.1 ft/yr (15.2 to 63.3 cm/yr).

C. Calculation of a "Conservative" Velocity for Determining Contaminant Transport in the Vicinity of Pantex 1006/5

The above site-specific recharge range describes the volume rate of transfer of water to the aquifer, not the velocity at which a water molecule moves through the unsaturated zone. Velocity, which is critical in determining contaminant transport, is calculated by dividing the thickness of the unsaturated zone, 200 to 260 ft (61 to 79 m), by the time since recharge, 25–40 years. Given these values, the velocity beneath the Pantex Plant is approximately 5 to 10 ft/yr (150 to 300 cm/yr).

In addition to "bomb" tritium levels observed at depth, recharge experiments conducted at the Bushland Agricultural Research Station demonstrate the potential for subsurface velocities substantially exceeding those assumed in the Turin report. Recharge experiments were performed in basins that had been excavated to a depth of 3.9 ft (1.2 m) to remove the Pullman soil and expose the unconsolidated caliche layer (Aronovici and others, 1970). Infiltration rates beneath the basins were on the order $\simeq$ 3.3 ft/d $\simeq$ 1,200 ft/yr (100 cm/d $\simeq$ 36,500 cm/yr).

In sum, our view is that for purposes of this site-specific ground-water analysis, contaminant transport concepts, which consider the velocity of water movement through the unsaturated zone, should be used rather than volumetric-oriented ground-water resources concepts, which focus on the rate at which water is recharged to an aquifer. For the Pantex Plant area, tritium-dating

methodology indicates water may move at significantly higher rates in the subsurface than assumed in the Turin report.

IV. Water Table at 50 ft

We concur with the conservative values stated in the fourth assumption of the EA report.

V. Plutonium Sorption/Preferential Flow Paths 1006/6

The fifth assumption (listed on page 7-2 of the EA report and on page 1 of Turin and others, 1992) states that "The entire unsaturated zone exhibits a plutonium sorption coefficient of 100 mL/g, approximating the sorption of clean Ogallala sand." There are several issues here. First, it is our view that actual retardation of plutonium filtrating through the Pullman and Randall soils is, in the absence of preferential flow, going to be substantially greater than that reported. Actual mobility, however, would have to be evaluated in terms of preferential flow through fractures or root tubules, which these batch-equilibrium sorption coefficients do not consider. Thus, this assumption, while conservative to the extent of its reach, does not fully address the issue of plutonium behavior either at the surface or in the subsurface.

A. Plutonium Sorption Coefficient for Porous Media

The experiments reported to validate this assumption are based on plutonium sorption studies performed on Pullman soil and Ogallala sediment and did not consider the Randall clay soil. Unfortunately, the actual K_d reported from these experiments cannot be directly evaluated. The authors report using the 75 to 500 μm size fraction for their experiments. This size fraction, although somewhat representative of Ogallala sediments, is inappropriate for evaluating sorption of inorganic solutes. This size fraction is dominated by framework silicates, and, if the sample is not disaggregated first, by soil aggregates of some unknown structure.

Most importantly, however, sorption is dominated by the clay fraction, in which particle size is generally less than a few microns. Based on our evaluation of the Pullman and Randall soils, the specific surface areas of the bulk soil are approximately 20 to 40 m^2/g, whereas specific surface areas of the size fraction used in the Turin report experiments are approximately 0.01 to 0.05 m^2/g, or three orders of magnitude smaller. Thus, in the absence of preferential flow, actual retardation of plutonium infiltrating through Pullman and Randall soils is going to be substantially greater than that reported, based on the experiment's size fraction. This part of the Turin analysis is, therefore, extremely conservative. However, we again emphasize that these results are valid only in the absence of preferential flow.

B. Preferential Flow Paths

1006/7

The report by Turin and others (1992) does not fully describe the potential for preferential flow of recharging waters and retardation of plutonium moving through the Ogallala and Blackwater Draw Formations. Cores from these formations and from playa-filling sediments contain abundant open root tubules that are typically 0.04 in (1 mm) in diameter but range up to 0.3 in (8 mm) in diameter. Root tubules are commonly lined with a thin layer of illuvial clay. Cores through the Randall Clay commonly contain fractures, some filled with silt and very fine sand and some with oxidized zones. Both root tubules and fractures are sites through which preferential flow and infiltration can occur. Root tubules are preserved throughout the fine-grained eolian facies of both the Blackwater Draw and Ogallala Formations. The presence of open tubules and fractures indicates that pathways exist through which downward flow is accelerated and contact with sediments is reduced, thus lessening the potential for sorption of radionuclides. Such pathways may explain the high flow rates discussed in Aronovici and others (1970). As noted in the attached specific comments, the subject of preferential flow should be examined in much greater detail.

Specific Comments

Page	Line		
3	13-14	The statement that the Ogallala Formation has been eroded and is no longer present along the Canadian and Pecos Rivers is incorrect. The Ogallala Formation is present in the Canadian River Valley for at least 70 mi northeast of the Pantex Plant.	1006/8
6	8-9	The statement is made that "Local recharge rates in the playa basins must therefore significantly exceed the regional averages cited above." This relationship between playas and recharge supports use of specific recharge rates instead of regional averages.	1006/9
6	19-20	The statement is made that "no recent contour maps showing depth-to-water for the study area were available." It should be noted that Bureau researchers simultaneously submitted to DOE (1) a report on perched aquifers at the Pantex Plant (referenced in Turin and others, 1992) and (2) a report containing potentiometric-surface maps of the Ogallala aquifer through 1991 (not referenced in Turin and others [1992]).	1006/10
7	4	At steady state, the Ogallala outcrop areas along the margins of the Canadian River and Palo Duro Canyon were clearly discharge zones. With the continued lowering of Ogallala water levels in some areas, a reversal in gradients may occur and what were previously discharge zones may in fact convert to recharge zones.	1006/11
7	20	Considering the differences in geology, hydrology, climate, and vegetation, the comparison between the Trinity site and the Pantex Plant seems inappropriate.	1006/12
9	11	It is regrettable that Pullman soils and Ogallala sediments were collected but Randall soils with their higher clay content were not.	1006/13

13-14 More detail is needed concerning advection-dispersion simulations to allow full evaluation of the results. For example, the specific boundary and initial conditions and flow and transport parameters used in the simulations are not described. 1006/14

18 Preferential Flow section: A much more detailed evaluation of preferential flow should be presented because this is a critical issue with respect to recharge beneath playas. Numerical simulation of preferential flow should include mobile and immobile water. Using twice the calculated water velocity is not a sufficiently conservative assumption. A review article by Beven and Germann (1982) cites velocity ratios between matrix and macropore flow between 100:1 and 400:1. The subsurface beneath playas is particularly conducive to preferential flow because the soils are close to saturation and are subject to a ponded upper boundary when playas contain water. Because this is the most likely area of recharge and is critical for contaminant transport, the subject of preferential flow should be examined in much greater detail. 1006/15

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Texas Department of Health

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Robert A. MacLean, M.D.
Deputy Commissioner

February 25, 1993

Mr. Roger Mulder
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Austin, Texas 78711

Dear Mr. Mulder:

Enclosed are the Bureau of Radiation Control comments on the draft Environmental Assessment for Interim Storage of Plutonium Components at Pantex.

The assessment concludes that the proposed action impacts only potential increased radiation exposures to workers, and that there should be no distinguishable additional impacts on the general public as a result of normal operations. DOE's assertion relating to the proposed action may be correct, but it should not be concluded that there is no risk resulting from Zone 4 operations. There have been, and will continue to be, conditions at the Pantex Plant which require planning and preparations to protect the public health and safety, and surveillance to protect the environment.

Within the assessment, there are a number of areas which require clarification and or correction. We believe it appropriate for the state to request the opportunity to review and provide input to any changes the DOE makes to the document prior to publication and the succeeding steps in the NEPA process.

If I can be of any further assistance, please do not hesitate to call.

Sincerely,

Joseph A. Martillotti
Pantex Project Coordinator
Division of Compliance and Inspection
Bureau of Radiation Control

Page 3-1, Lines 29 -32: It is noted that assembled weapons and components will continue to be staged in a number of the SAC magazines. The proposed action does little to diminish the potential threat to public health and safety and the environment from these items. 1007/1

Page 3-1, Lines 35-36: The statement "DOE Orders and procedures for insuring safe and secure storage of the pits would continue to be followed rigorously." is misleading and is contradicted by paragraph 6.1.1.1, which states that "...inspections and inventories **would** occur a minimum of once every 18 months..." (emphasis added). During a DOE briefing conducted on January 14, 1993, this was verified as a departure from the current bi-monthly minimum physical inventory requirement. 1007/2

Page 3-2, Line 23-29: The discussion of the shielded forklift with passive guidance system is written in the present tense, as though it exists and is in use today. 1007/3

Page 4-2, Lines 6-10: The "Note" in italics is misleading. It suggests that any alternative involving shipment will require repackaging into a shipping container at Pantex and repackaging into a suitable storage container at the alternate site. Page 3-2, lines 3-7 indicate that pits may be stored in Type B shipping containers. It would appear that in any case, the radiological exposure to workers would be approximately the same as when pits were routinely returned to Rocky Flats Plant. 1007/4

Page 4-3, Lines 3-6: This passage seems to indicate that construction has been halted at the Nuclear Materials Storage Facility due to lack of funding from DOE, and that if construction was resumed, it would take four to five years to complete. 1007/5

Page 4-3, Lines 27-33: Beginning with "The nuclear weapons complex mission....", the discussion shows that serious consideration was not given to this option. It would seem that storage of pits, as described in this document, should not aggravate or complicate the massive environmental restoration and remediation efforts required at Hanford. The storage of parts 1007/6

removed from weapons (presumably not ready for insertion into new weapons without some preparation) does not clearly appear to be a defense only mission.

Page 4-4, Lines 29-38: Concerns expressed in this passage would not necessarily be valid if the pits were packaged and shipped to an alternate location in suitable transportation/storage containers, as is suggested on Page 3-2. 1007/7

Page 4-5, Paragraph 4.4: This report does not indicate that DOD facilities were seriously studied, only that they were "considered" and determined to be "not currently available". It is difficult to visualize what may be different between Pantex SAC and Modified-Richmond facilities and DOD facilities designed to protect and store weapon assemblies. The DOD facilities certainly would provide the physical storage space and the security forces should be comparable to Pantex capabilities. Transportation of components would seem to be less hazardous than assembled weapon delivery, and represents no significant change from previous Rocky Flats components shipments. Table 4-1, Section 4.4 affirms that apparently very little consideration was given to this issue,bsy the total absence of information. If there is any information available, it should be provided here for scrutiny. 1007/8

Page 6-1, Paragraph 6.1.1.1: This passage reflects a diversion from previous DOE Security and Safeguards requirements to mitigate substantial increase in worker radiological exposures. The statement on Page 3-1, Lines 36-37, "The DOE Orders and procedures for ensuring safe and secure storage of the pits would continue to be followed rigorously." needs to be reconciled here. It should also be noted that the "approval" contained in DOE/SA-124 Memorandum, Dated January 12, 1993, Subject, "Request for Exception of the Bimonthly Minimum Physical Inventory Frequency Requirement at the Pantex Facility" relates only to 18 Igloos. It is interesting to note that the "effective date" is not a date certain, but rather a "floating" date starting (or re-starting) within 30 days after a physical inventory of the contents of each igloo has been accomplished. 1007/9

Page 6-2, Chart: This gives the appearance that corrosion inspections are not required for containers in the horizontal palletized stacking configuration. 1007/10

Page 6-5, Paragraph 6.2.5: The Aircraft Hazard Analysis is purported to be conservative in nature, but much effort has been expended to reduce the calculated probability of an occurrence from unlikely to extremely unlikely. The stated purpose of this document was to determine environmental impacts, if any, from storing more pits in an igloo than before. At issue is the fact that the maximum amount of plutonium permitted per Modified-Richmond magazine has not increased, while the maximum number of igloos containing only plutonium pits will increase. The amount of plutonium proposed for storage in the SAC magazines is consistent with the previous limit on the Modified-Richmond magazines. There is also a corresponding decrease in the number of igloos available to stage weapon assemblies and other nuclear explosive components, which remain the most serious threat from Zone 4 activities. These igloos, in addition to some specific Zone 12 facilities, continue to present the most serious potential off-site consequences if involved in an initiating event. 1007/11

Page 6-7, Table 6-1: Note 3 refers to Tables 7-2A and 7-2B; should be 6-2A and 6-2B. 1007/12

Page C-10, Line 14: It is unclear why 3500 lbs is paired with 117fps. Just above, on lines 8 and 9, 117fps (80mph) is paired with 6200lbs.(Possible error) 1007/13

Page E-9, Lines 7-10: Aircraft take-off and landings have been excluded by this assumption. This does not appear to be conservative in approach, as most commercial and military aircraft operating to the north of the Amarillo Airport can be observed to fly very close to, if not directly over, the Pantex Plant. 1007/14

Page E-24, Table E-12: The TOTAL column contains erroneous data. 1007/15

Page E-25, Table E-13: Use of three significant figures here appears to be unjustified. Therefore, 6.63E-07 may be rounded up and expressed as 1.0E-06. 1007/16

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

February 1, 1993

Mr. Roger Mulder, Director, Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Austin, Texas 78711

Re: Environmental Assessment (EA)

Dear Mr. Mulder:

This office received the draft EA from your office on December 31, 1992. The following comments are the result of the initial review of this document.

Comment: Executive Summary: page vii fourth paragraph. 1008/1

Reference is made to capacities of the magazine, the statement of "up to 20,000 pits" appears to be an inference rather than a declaration... Capacities of magazines mentioned well exceeds 20,000 pits.
Question: What is the maximum capacity of Storage?

Comment: Executive Summary: page vii fifth paragraph. 1008/2

"...would not result in additional generation or management of wastes."
Question: Is this referring to a pit as a waste?

Comment: 2.0 PURPOSE AND NEED FOR THE PROPOSED ACTION: p.2-1 third paragraph. 1008/3

"4...This is expected to be within a timeframe of 6-10 years.
Question: What if the 10 year goal is exceeded? What effect will NEPA have on this goal commencement?

REPLY TO: DISTRICT 1 / 3918 CANYON DRIVE / AMARILLO, TEXAS 79109-4996 / AREA CODE 806/353-9251

P.O. Box 13087 • 1700 North Congress Avenue • Austin, Texas 78711-3087 • 512/463-7830

Comment: 3.0 PROPOSED ACTION: p.3-1 Third Paragraph. 1008/4

"...hold up to 384 or 392 pits, in the single-layer vertical or horizontal palletized multiple stacking configurations respectively.
Question: Figure 3.4 exhibits 460 pit capacity for horizontal palletized multiple stacking. Which number is the capacity to be used?

Comment: 3.0 PROPOSED ACTION: p.3-2 Second paragraph. 1008/5

"Variations and/or a combination of these arrangements may be used.
Question: Is this a "disclaimer" or "loophole" that can be used to deviate from arrangements previously proposed in this document?

If you have any questions, please contact me in the District 1 office at 806/353-9251.

Sincerely,

Boyd Deaver

Boyd Deaver
Pantex Grant Program Manager

BD:ls

cc: Ken Ramirez, Deputy Executive Director
Office of Legal Services & Compliance

DIVISION OF EMERGENCY MANAGEMENT

TEXAS DEPARTMENT OF PUBLIC SAFETY

ANN W. RICHARDS
Governor

5805 N. Lamar Blvd.
Box 4087
Austin, Texas 78773-0001
Duty Hours 512 465-2138
Nonduty Hours 512 465-2000
FAX 512 465-2444

JAMES R. WILSON
Director
TOM MILLWEE
Coordinator

February 22, 1993

Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
201 East 14th Street, Room 205
Austin, Texas 78701

Dear Mr. Mulder:

Thank you for the opportunity to review the Environmental Assessment regarding the Interim Storage of Plutonium Components at Pantex. The increased amount of storage of plutonium pits raises some issues that must be addressed. While the statistical probabilities may conclude that there is no increased risk to the local population as a direct result of the increased storage of plutonium pits, the public perception of increased risk must be considered in addressing this issue. 1009/1

Pantex has not had a public information program in effect to educate and prepare the population on the hazards posed by a radiological release. DOE is now preparing to tell the local population that an increase in the number of plutonium pits stored in zone 4 igloos will pose no additional risk to the local populace. Unless a public information program is in place, the result may be public hysteria. The increased level of plutonium storage must be accompanied by a comprehensive public information program that will withstand public and political scrutiny. We remain unconvinced that the public will believe that an increased storage level of plutonium pits will not cause additional risk.

The data provided by the Amarillo Air Traffic Manager differs from the aircraft hazard analysis pages 6-5 through 6-8. The variance on the number of aircraft flying into Amarillo must be reconciled. The projected increase in plutonium pits must be compared with the projected aircraft traffic during the interim storage period. Using invalid data will render an invalid conclusion. 1009/2

The probability of an aircraft crashing into an igloo in zone 4 may be an incredible event. However, with respect to the increased dismantlement program, the synergistic impact of every aspect of the dismantlement program must be considered. The potential risk from the increased number of units, their movement, the transportation of these units, the increased disassembly and storage, must be assessed. The overall impact may result in a finding of a credible event. 1009/3

We do not have the documentation or the resources to validate the finding of the predecisional environmental assessment. We expect reasonable assurance that the statistical probabilities are valid and therefore yield to the experts. We cannot endorse the study without additional information. However, we strongly recommend a comprehensive public information program if the interim storage of plutonium components at Pantex is to occur.

Sincerely,

Tom Millwee
Chief

STM/RQ/mdd

CITY OF AMARILLO

COUNTIES OF
POTTER AND RANDALL

EMERGENCY MANAGEMENT

February 8, 1993

Mr. Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Austin, Texas 78711

Dear Roger:

Review of the Environmental Assessment reveals two areas of concern that warrants further explanation or discussion. The additional information will be needed to aid in local emergency planing and public awareness.

1. The maximum tornado winds shown in the assessment are 220 mph. This wind speed falls in the range of a category F4 tornado (wind range 207-260 mph). This past year an F4 level tornado struck Fritch, Texas, a community approximately 20 miles NE of the plant. During recent years we have spotted and tracked several tornados near the plant. More emphasis needs to be placed on the effects of the maximum winds of an F4 level tornado (260 mph) and consideration needs to be given to an F5 level (winds 261-318 mph) tornado. A new engineering study needs to be completed on the older storage areas in sector 4. The threat is listed in the assessment as extremely unlikely yet the plant has very extensive tornado plans and elaborate spotting techniques and equipment. 1010/1

2. Even though a large plane accident is not considered creditable and not discussed in table 6-1, more information is needed to insure adequate planning and to give the assessment creditability with the public. The information used to determine the probability of this type accident seems to be questionable and needs to be reevaluated. Since a large aircraft accident is the only type of incident that can have extensive off site consequences more data must be provided in the assessment. At a minimum the following areas should be covered in the study or unclassified supporting documents: 1010/2

P.O. Box 1971 Phone (806) 378-3022 Amarillo, Texas 79186-0001

The number of military flights that pass directly over area with specific data on the type of aircraft.

The qualifications of the pilots in command of these aircraft. This area is used for a lot of training flights. 1010/3

The accident history of the type of military aircraft being flown in this area. 1010/4

A matrix of possible contamination levels that can be expected, off-site, based on the number of ruptured pits. This data should be presented in progressive levels of 25 to the maximum number that will be stored in any one area. 1010/5

Maximum health effects of an off-site release. 1010/6

Environmental effects and risk levels of maximum possible release. 1010/7

Possibility of terrorist of actions involving an aircraft. 1010/8

These comments are submitted with the intent to obtain additional information to enhance our planning efforts. I see no reason why DOE should not be allowed to increase the amount of plutonium at the plant as long as: 1010/9

The data used to prepare the assessment is validated by the State agencies that are part of the AIP.

DOE continues to include local government in all phases of emergency planning.

State and Local agency inspections continue.

Sincerely,

Walt Kelley

Walt Kelley
EM Coord.

P.O. Box 1118
Mississippi State, MS 39762

February 18, 1993

Roger Mulder
Director of Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Capitol Station
Austin, Texas 78711

Dear Mr. Mulder:

I am an agricultural engineer specializing in soil and water conservation engineering. I earned my Bachelor of Science and Master of Science degrees at Texas A&M University, and I expect to receive my Doctorate in Agricultural and Biological Engineering at Mississippi State University this summer. My work experience includes research in modeling soil erosion, modeling soil-water relations, and analyzing dust emission data collected from feedlots and agricultural processing facilities. I am currently employed by the United States Department of Agriculture - Agricultural Research Service, where I am involved with field research and computer modeling of soil-water movement and distribution.

I have reviewed the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. I understand the importance of locating an appropriate storage facility for the plutonium. However, I question whether the D.O.E. environmental assessment adequately addresses the health and safety of the people or the long-term economy of the Texas panhandle. I would like to bring to your attention some specific concerns I had in response to the D.O.E. environmental assessment.

The report states that the intention of the D.O.E. project is to provide temporary storage for the plutonium pits. The difficulty in finding a permanent storage or disposal site for the plutonium is obvious. In other words, if these "temporary" storage plans are approved, the pits will likely move into the Texas panhandle to stay. 1011/1

Do the designers of the storage configurations know that it is safe to store these quantities of plutonium in such a small area? Is there danger of nuclear reaction due to "critical mass"? 1011/2

The report does not address the hazards of air-borne dusts and gases. Dusts are only mentioned in reference to their potential to contribute to groundwater contamination. What about the public health risks associated with ingestion or inhalation of 1011/3

radioactive or chemical dusts and/or gases? Has the Texas Air Control Board been appropriately consulted with respect to these dangers? I question the accuracy of the average annual wind rose, located on page 5-10, Figure 5.8, in the report. I found no reference cited for the data in the figure. An error or misrepresentation of such data can result in inappropriately placed air quality samplers, and consequently, errors in air quality measurements. 1011/4

The groundwater contamination models were run with the assumption that, in the event of a plutonium release, any contaminated soil would be de-contaminated to a 0.2μKCi/L. In the event of a release of radioactive dust, how large of area would be affected? What costs in human safety, agricultural productivity, and environmental quality would be associated with such a clean-up operation? Is it possible that contaminated surface soils would have to be removed from a large area? How would these contaminated soils be treated or disposed? 1011/5

The report indicates that the containerized plutonium pits will be inspected on an 18-month schedule. There is a comment on page 6-1 of the report that some minor releases of air pollutants during these inspections. 1011/6

Inventory and inspection operations described by the report have allowed one minute per container. Does this include locating and moving the containers to an area where they can be visually inspected? From the stacking configurations described in the report, I was not able to visualize how the inspectors could locate and inspect the individual pits at a rate of one per minute, especially if the pits must be moved with a forklift. If inspection time and handling requirements are underestimated, are the associated risks also underestimated?

The potential risks of groundwater contamination were evaluated by the Los Alamos National Laboratory - a D.O.E. facility. Are their findings assumed to be objective? Can we accept the results without question? 1011/7

The groundwater risk assessment does not address any organic solvents, heavy metals, or other potential groundwater hazards. If I recall correctly, the United States Environmental Protection Agency reported several years ago that they had found evidence of heavy metal and organic chemical contamination of the soil and water environment associated with previous Pantex operations. 1011/8

Even if no environmental contamination occurs, will increased operations at Pantex require excessive water use, thus contributing to depletion (mining) of the Ogallala Aquifer? 1011/9

Has the Texas Water Commission been duly advised of the potential risks to surface water and groundwater resources? 1011/10

The environmental assessment report states that the D.O.E., "as with all Federal agencies", will be responsible for cleanup of any contamination. Who would enforce this policy and ensure that the cleanup would be accomplished in a timely manner? What are their cleanup contingency plans? 1011/11

In the report, Potential Ogallala Aquifer Impacts of a Hypothetical Plutonium Dispersal Accident in Zone 4 of the Pantex Plant, compiled by the Los Alamos National Laboratory, there were several points I find questionable. 1011/12

1. According to the report, research has shown that recharge rates below playa lakes in the area have been estimated between 1.3 and 8 cm/year (page 8). The report indicates that a "conservative" recharge estimate of 3 cm/year was used in the modeling project. Why was the 8 cm/year estimate not used?

2. The authors of the report indicated that preferential flow is expected to have negligible contribution to the aquifer contamination risk. The Pullman clay loam and Randall clay soils, containing appreciable amounts of montmorillonitic clay, are subject to cracking which increases opportunity for preferential flow. Mobility of potential groundwater pollutants downward through the soil is often dependent upon the chemical properties of contaminants, the soil properties, and the interactions between the contaminants, soil, and water in the system. Organic matter content, cation exchange capacity, moisture content, and pH of the soil, as well as pre-existent soil structure and condition, can affect the transport of potential pollutants toward the aquifer. These issues are not adequately addressed by the Los Alamos report. 1011/13 1011/14

3. The group at Los Alamos used a computer model to estimate plutonium transport rate by advection-dispersion analysis. In order to account for preferential flow, the investigators increased the assumed flow velocity by a factor of 2. In the report, they cited research which had found accelerated solute transport rates at 5 times the predicted rates. Why did the investigators choose a factor of 2 instead of the more conservative factor of 5 in the model runs? Why were the accelerated rates not applied with the piston flow model? 1011/15

4. Experiments conducted at Los Alamos to estimate the plutonium sorption characteristics of the Pullman soil used only the A (upper) Horizon of the Pullman soil. These samples were air-dried and sieved to obtain particles in a given range (Appendix A). Sieving eliminates the soil's characteristic structure (aggregates, etc.) from the tests. Since the A horizon was all that was tested, sorption properties of lower horizons are not known. Can we reasonably assume that undisturbed field soils will behave like the samples tested in the experiments? 1011/16

As a research engineer involved in modeling of soil-water flow, 1011/17
I must point out that models are only as good as the data and assumptions that are put into them. They can only provide estimates of soil water behavior according to the understanding of the model developer. The performance of a model in a particular application is limited by the quality of data used to describe the specific site conditions to the model.

I recognize that my questions are directed to increase conservatism in estimates of groundwater pollution risk. I feel that in a project of such great importance, and with such great potential for damage to the environment and to the people in the Texas panhandle, that this conservatism is appropriate. It is reasonable to expect the D.O.E. to provide best-case and worst-case scenarios. It is reasonable to investigate the history of Pantex's environmental stewardship.

The health effects of long-term, low-level radiation exposure are 1011/18
not known. If an accident occurs at the Pantex facility, the
economy of the entire area is at risk. 1011/19

I thank you for your consideration of these issues. If you wish to contact me for further information, please contact me at (601) 324-4341 or at (601) 323-0871.

Respectfully,

Dana O Porter

Dana O. Porter

January 16, 1993

Mr. Roger Mulder
Director Special Projects
Post Office Box 12428
Austin, Texas 78711

Dear Mr. Mulder,

On January 2, 1993, I received the Environmental Assessment for Interim Storage of Plutonium Components at Pantex", a draft of the Environmental Assessment prepared by the United States Department of Energy regarding to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas.

The plutonium already stored at the Pantex Plant concerns me deeply and I most respectfully object to the storing of additional plutonium at this site.

On Thursday, July 25, 1991, The Environmental Protection Agency added the Pantex Weapons Plant to a list of hazardous waste sites posing the greatest threat to human health and our environment. Pantex was one of 22 sites nationwide that the Environmental Protection Agency proposed adding to its Superfund National

1012/1

Priorities List. The General Accounting 1012/2
Office, the investigating arm of Congress, earlier in 1991 said Pantex had one of the worst occupational safety records in the Department of Defense Weapons complex. The total number of sites nationwide that were targeted for clean up were one thousand, two hundred and eleven. Pantex was quickly removed from the list, unjustly so, and remained a hazardous waste site posing a threat to our health and welfare in this area.

According to the Los Alamos report, 1012/3
"Plutonium transport through the un-saturated zone is a major risk, under evaluated, and is primarily controlled by the degree of plutonium sorption onto local soils and aquifer materials. Members of the Los Alamos Laboratory Earth and Environmental Science Division described in their report, the potential for Ogallala Aquifer contamination should plutonium be released to the environment within an 80 km. (Kilometer) radius of Pantex Plant. As in an accident that disperse plutonium into the environment,

active ground water recharge projects should be shut down, if possible, and I doubt seriously if there would be any man power left to shut down these projects which would have remained.

There are approximately 433,630 people living in the twenty-seven counties surrounding Pantex Plant. These people are proud of their heritage and bountiful crops of wheat, corn, other grains and vegetables. The many ranchers, over 80 feed-lot operators and many packing companies for processing and shipping. These farmers and ranchers furnish our nation with 76% of all beef consumed. These are the people who have traded in Amarillo for many years and have kept Amarillo's economy stable for generations. 1012/4

Reasons for opposing the plutonium storage that is at Pantex, and opposing any more plutonium for storage:

In the event of an accident caused by rocket or plane crash, landing or taking off from the Amarillo Air Terminal which is much too close to a Nuclear Plant with plutonium storage.

Contamination of the Ogallala Aquifer,

leaving plutonium on the water table which will be deadly for 7,000 years. If we are so unfortunate to be down wind from an accident, we would be in the plume of plutonium dispersal, and it would be too late for any emergency care for our people. This is a reality, and is causing much stress, plus physical and mental problems among healthy people.

Our climate is not suitable for plutonium storage such as that at Pantex. During a 24 hour period, usually in the Spring or Fall, we can have an extreme temperature of hot weather and then extremely cold, and vice versa. This process could cause any container to rust after condensation, or cause a lot of moisture in your plutonium storage places. Our climate can be fine some days, but then we have violent tornadoes with hail, straight winds and strong thunder storms. During high winds, we prefer not to have grass fires. 1012/5

The reason which stands out above the others listed is that we would prefer to live the only life God gave 1012/6

see on a peaceful, healthful atmosphere. The plutonium storage in the Panhandle of Texas will endanger many — we have some of the people who have terrible diseases because of plutonium and different types of cancers. We want to protect this generation and healthy generations to come.

In closing, I would be grateful for the United Department of Energy, through the Office of the Governor, State of Texas, to examine and consider the valid reasons for my objection to storing plutonium at Pantex Plant.

Respectfully yours,

Margie K. Hazlett
427 Union
Borger, Texas 79007

Borger News-Herald

10 pages BORGER, HUTCHINSON COUNTY, TEXAS Friday, July 26, 1991

EPA adds Amarillo weapons plant to list of waste sites

WASHINGTON (AP) — The nvironmental Protection Agency is dding Pantex, the nation's final assembly plant for nuclear bombs and issile warheads, to a list of hazardus waste sites posing the greatest reat to human health and the nvironment.

Pantex was one of 22 sites nationwide that the EPA proposed adding to its Superfund National Priorities List on Thursday. With the addition of Pantex, Texas would have 29 sites on the Superfund cleanup list.

Located northeast of Amarillo, Pantex is a World War II-era ordnance facility operated by a contractor for the Energy Department. It sits atop the Ogallala aquifer, practically the only source of drinking water for Texas' largest irrigated farming region.

According to EPA, past and present waste practices at Pantex include burning of chemical wastes in unlined pits, burial of wastes in unlined landfills, and discharging of plant waste waters into on-site surface waters.

In 1988, an Energy Department contractor detected solvents and toxic heavy metals that included known and suspected carcinogens in waste waters discharged to unlined ditches and surface impoundments on the site, EPA said.

Solvents were also found in soil underlying a chemical burn pit and uranium was found in the soil underlying plant firing grounds, EPA said.

EPA said the solvent toluene is present at 329 feet below the surface in soils underlying the p while the Ogallala occurs at a dep of 390 to 420 feet beneath the si

EPA also said surface water r noff from the plant is diverted surface impoundments and freshw ter wetlands. The Texas Tech Ag cultural Research Station uses su face water from one of the in poundments to irrigate crops and f watering livestock.

Because Pantex is a federal facility, the Energy Department would be responsible for the cleanup, but the EPA would review and approve the cleanup plan, said EPA spokesman Roger Meacham in Dallas.

There was no immediate comment from DOE, said spokesman Larry Hart.

Please see PANTEX, Page 2

Pantex

Continued from Page 1

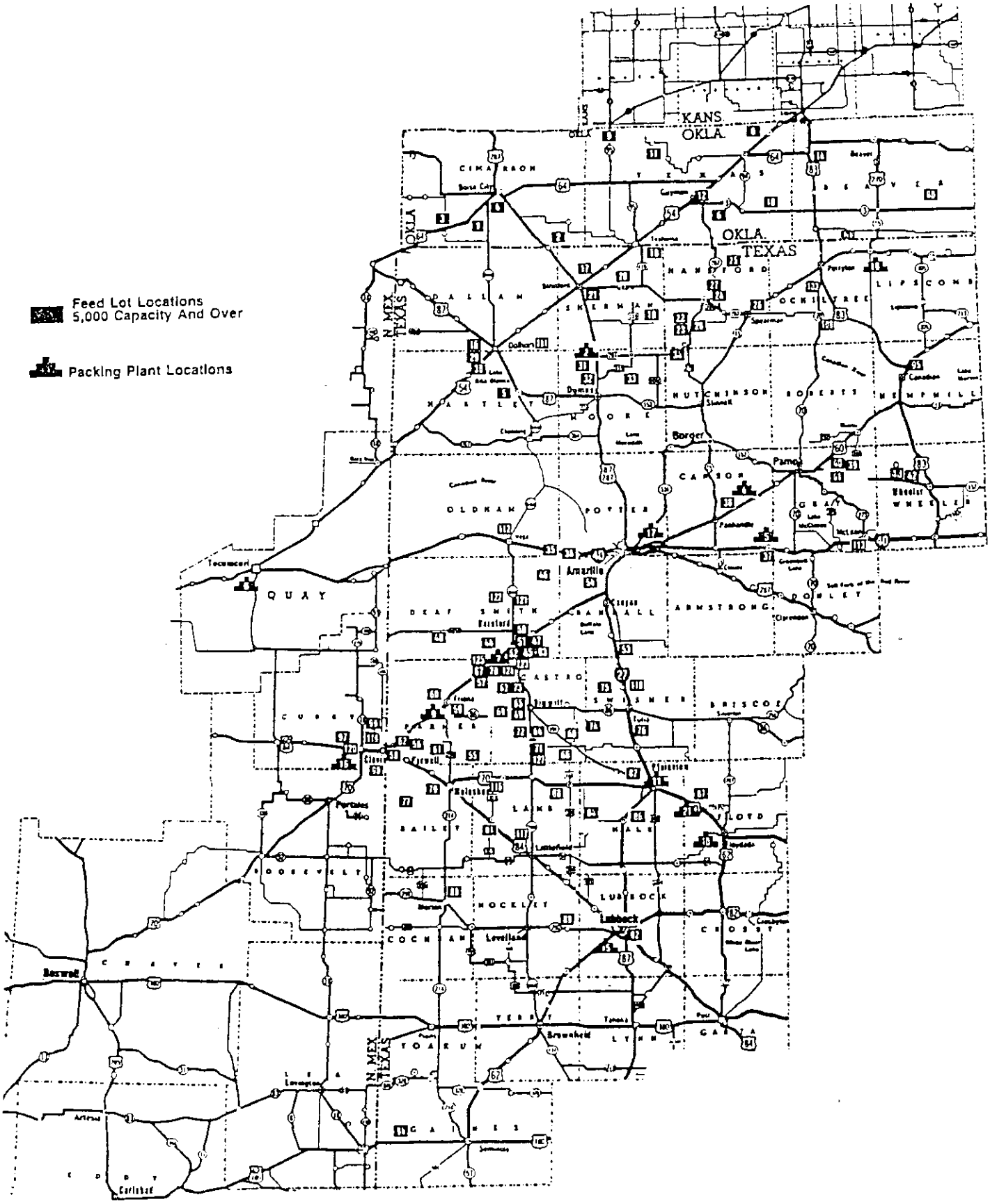
The EPA's decision to add Pantex to the Superfund list is the latest in a string of questions the federal government or congressional investigators have raised about safety, health and the environment at Pantex.

The General Accounting Office, the investigative arm of Congress, earlier this year said Pantex had one of the worst occupational safety records in the DOE weapons complex. In 1989, a DOE team of experts said it had found significant health, safety and environmental deficiencies, including problems with the plant's radiation protection program.

DOE and the plant's contractor, Mason & Hanger - Silas Mason Company Inc., have since taken action to improve safety guidelines and training for radiation staff, GAO said in its report.

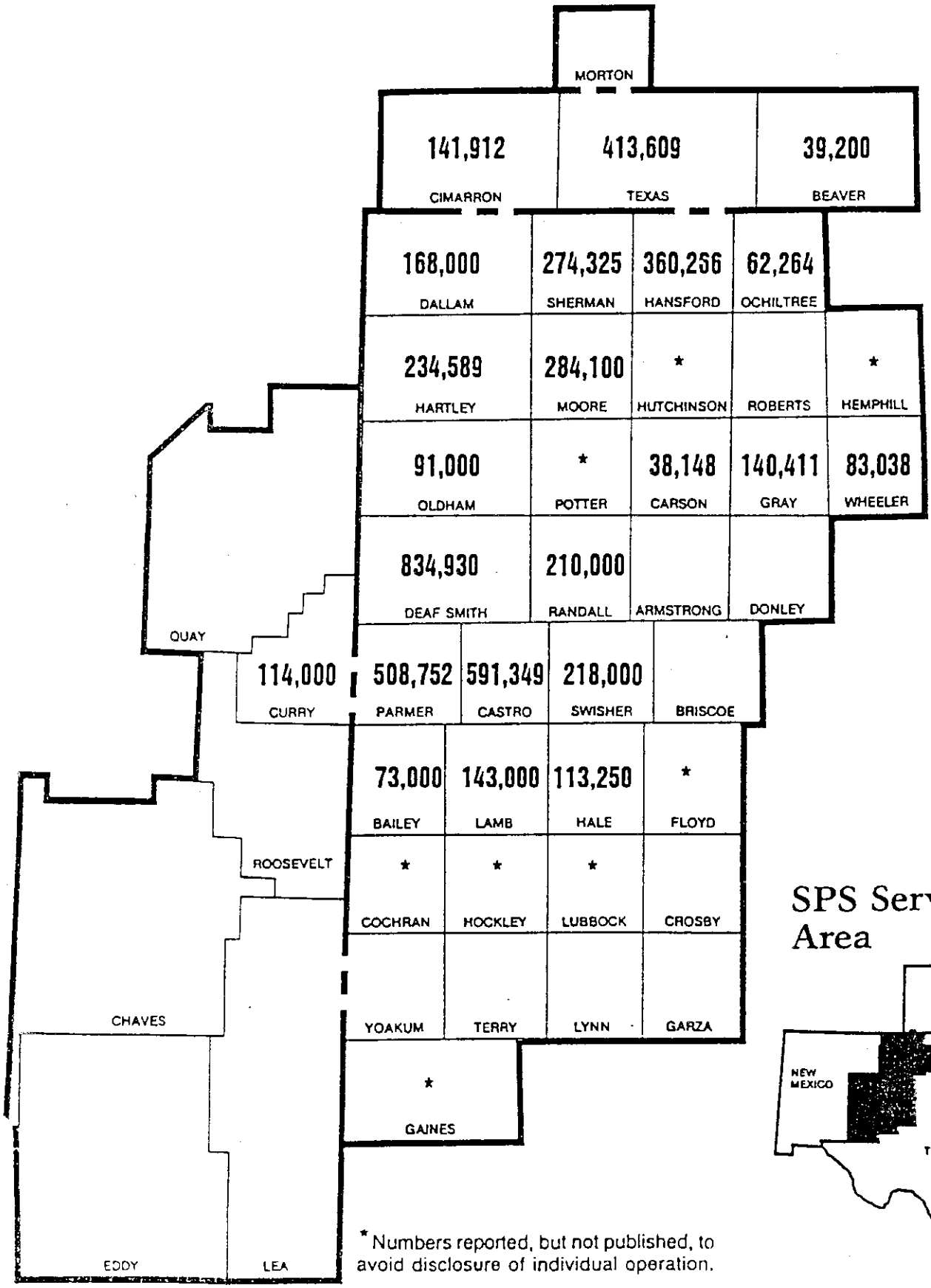
The 22 additions to the superfund list Thursday bring to the total number of sites nationwide targeted for cleanup to 1,211.

Feedlot & Packing Plant Locations



Feedlots — 1990

Cattle Fed in Southwestern Public Service Area — 5,570,203

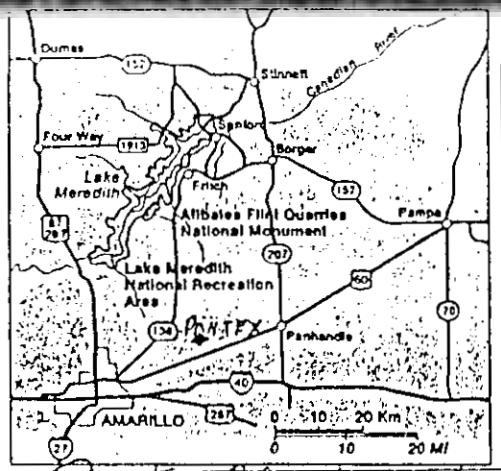


SPS Service Area

* Numbers reported, but not published, to avoid disclosure of individual operation.

Lake Meredith

and Alibates Flint Quarries



Major Recreation Areas

Sanford-Yake offers a marina operated by the park concessioner; indoor and outdoor fishing docks, courtesy dock, dryland boat storage, dump station, public telephone, and limited groceries and fishing supplies. The launch ramp here remains usable the longest as lake level drops.
Sanford Dam offers fishing from its face. The only supervised swimming at Lake Meredith is available below the dam in summer.

Bugbee is a small area with good fishing.
Blue East, reached by boat only, offers good waterskiing and camping sites.
Blue Creek Bridge offers a picnic area and off-road vehicle use in the creek bed only. Motorcyclists must wear helmets.
Blue West provides access to Blue Creek, a panorama of the lake, deep-water launching ramp (usable at lake level above 70 feet), and courtesy dock.

Plum Creek offers shoreline camping and boat launching at lake level above 95 feet.
Rosita offers 4-wheel-drive and off-road vehicle use. All bikers must use helmets. Access is via U.S. 87-287. Outside Rosita, stay on established roadway. Chicken Creek marks the lower limits of the Rosita ORV area.
Alibates Flint Quarries—see other side.

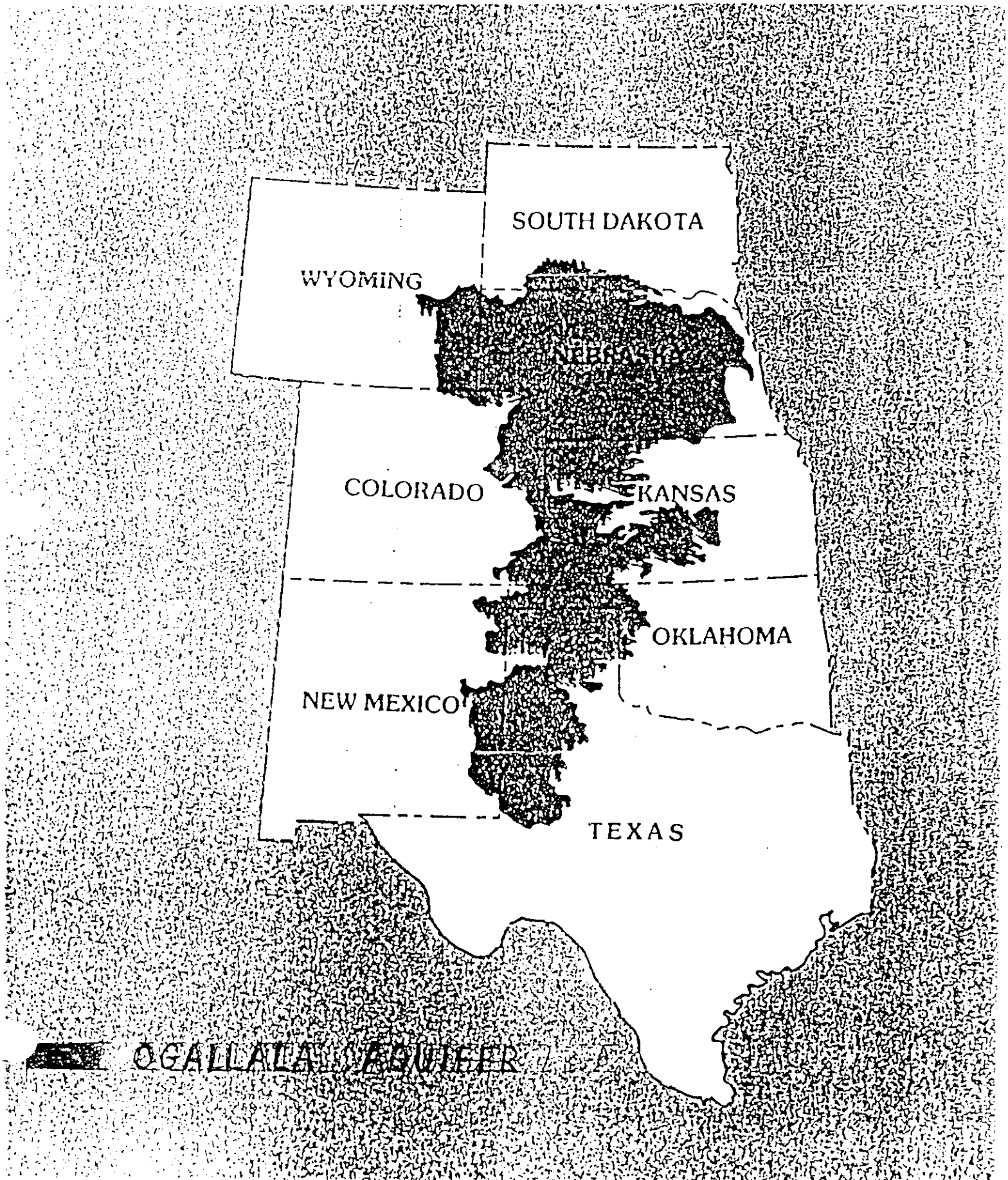
McBride Canyon, Mullinaw Creek offers canyon picnic areas, restored 1903 McBride House, and river-flats hunter access to the upper reservoir.
Bates Canyon offers bank fishing, shoreline camping, and shallow-water launch ramp at lake level above 85 feet.
Harbor Bay access roads is near the Fritch city limit. Boat launch is usable between lake levels of 79 and 89 feet only.

Fritch Fortress offers short access to main lake from launch but is subject to high winds. Courtesy dock. Deep-water launch ramp is usable at lake level above 71 feet.
Cedar Canyon offers good waterskiing, courtesy dock, and launch ramp usable at lake level above 69 feet.

Pantex Plant is too close to Lake Meredith National Recreation Area. We cannot take a risk in contaminating this lake and area which is important to the area

Contrasting spectacularly with its surroundings, Lake Meredith lies on the dry and windswept High Plains of the Texas Panhandle in a region known as Llano Estacado, or Staked Plain. Through this plain—as flat as any surface in the world—the Canadian River has cut and recut 200-foot canyons called breaks. Lake Meredith was created by Sanford Dam on the Canadian River and now fills many breaks whose walls are crowned with white limestone caprock, scenic buttes, pinnacles, and red-brown, wind-eroded coves. Above lie the mesquite, prickly pear, yucca, and grasses of arid plains. And up the sheltered creek beds stand cottonwoods, soapberry, and sandbar willows. Historically, the Canadian River allowed woodlands from the east to extend their range along its banks deep into the otherwise arid plains region. Humans have lived on the harsh Llano Estacado for about 12,000 years. Anglo settlement did not begin until 1876, with a railroad following in 1887 to serve cattle ranching. Discovery of oil and natural gas fields in this region caused a boom in this century. Water, grasslands, oil, and gas: natural resources comprise the region's economic base. Lake Meredith is named for its chief proponent, A. A. Meredith. Dam construction began in 1962. The National Park Service administers the recreation area under a cooperative agreement with the Bureau of Reclamation. Sanford Dam supplies water for 11 Texas Panhandle cities including Amarillo and Lubbock via 322 miles of pipeline, 10 pumping plants, 3 regulating reservoirs, and chlorination facilities. It is run by the Canadian River Municipal Water Authority formed by the 11 cities. Lake Meredith serves the region as a water recreation area. Shoreline and camping areas vary in size and accessibility with changes in lakewater levels, depending on rainfall, which varies from year to year.

Cover photo by Laurence S. Parent


SOUTH DAKOTA
WYOMING
NEBRASKA
COLORADO
KANSAS
OKLAHOMA
NEW MEXICO
TEXAS
OGALLALA AQUIFER

February 15, 1993

Mr. Roger Mudder
Director, Special Projects
P.O. Box 12428
Austin, Texas 78711

Dear Mr. Mudder,

I previously forwarded to you my comments concerning plutonium storage at Pantex Plant. I understood that these comments were due in the near future. One thing that has not been available is the Texas Department of Health's publication, Environmental Monitoring Annual Report for 1990-1991. Any revisit or reassignment should be postponed until such time when this report is completed, printed, distributed and ample time for reading it, so that a knowledgeable assessment can be made. A complete assessment is of utmost importance, as it will affect the Texas Panhandle citizens for generations. 1013/1

I would appreciate being informed of any extension beyond February 28, 1993, that could be granted.

Sincerely,

Margee K. Hazlett
427 Union, Borger, Texas 79007

Sam Day
2206 Fox Ave.
Madison, WI 53711
January 15, 1993

Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Capitol Station
Austin, TX 78711

Re: Environmental Assessment, Plutonium Storage, Pantex

Dear Roger Mulder:

I write as a director of Nukewatch, a nonprofit public interest group which conducts educational programs about the dangers of nuclear weapons and nuclear war. One of these programs tracks and publicizes the movement of unmarked U.S. Department of Energy nuclear weapons convoys over the streets and highways of Texas and other states. Most of these convoys originate and terminate at the Pantex plant near Amarillo, which is the final assembly point for all these weapons of mass destruction.

Paradoxically, Nukewatch's goal of educating the public about nuclear dangers would best be served by the Department of Energy's proposal to store 20,000 or more nuclear weapon plutonium pits at Pantex. The concentration of so much destructive and deadly material in one place would facilitate our job, especially in the Amarillo area, of educating the public about the local impact of nuclear weapons production. Such an outcome would help us in our work of making Amarillans and other Texans more aware of the use to which their soil is being put in the manufacture and storage of weapons of mass destruction. 1014/1

We believe, however, that6 the public interest would be better served by taking an alternative step more likely to lead from storage to destruction of plutonium residues of the nuclear weapons now earmarked for disassembly. Rather than store the plutonium pits at Pantex, where they could readily be used later for new nuclear 8weapons or for plutonium-based breeder reactors, it would be better to store them at the Savannah River Plant, where facilities now exist for vitrification of the plutonium in a way which makes recovery of the plutonium virtually impossible.

We strongly suggest as part of this proposal that plutonium storage capacity not be increased anywhere and that plutonium reprocessing/vitrification capacity be expeditiously enhanced at the Savannah River Plant or some other appropriate site so that non-retrievable disposal of the plutonium can keep pace with retirement of the weapons. Thus, we can "lock in" the results of current and future SALT agreements and nuclear disarmament accords.

When ratified by the U.S. Senate, SALT and other nuclear weapons reduction treaties will constitute a clear mandate to destroy nuclear weapons, not to hold their key elements--the plutonium pits--in indefinite "interim storage" for possible later re-assembly into nuclear weapons. Any storage proposal which fails to provide for simultaneous non-retrievable disposal appears to border on negation of the START agreements.

Sincerely,

SAMUEL H. DAY, JR.

February 20, 1993

Mr. Roger Mulder
Director, Special Projects
Environmental Policy Division
P.O. Box 12428
Austin, TX 78711

Dear Mr. Mulder:

Having been provided a copy of the Environmental Assessment for Interim Storage of Plutonium Components at Pantex, I read it thoroughly and made notes about the things I had questions about. My comments are enclosed with this letter.

Sincerely,

Addis Charless, Jr.
Member of PANAL

\Pg. 1-1: The statement that PX has conducted its activities in a safe and responsible manner belies the facts of elevated cancer rates of downwinders and retired PX personnel, eligibility for being considered as a Superfund site, and pollutants existing in the soil to a depth of 329 feet-a scant 40 feet above the Ogallala aquifer. 1015/1 1015/2

Pg. 2-1: The estimated interim storage period of 6-10 years is questionable if only for the DOE's assurances in times past of a "temporary" anything. 1015/3

Pg. 3-2: Some proposed multiple stacking configurations have in mathematical formulas approached 80%-90% of criticality. 1015/4

Pg.4-3: Hanford, with modifications, could store approximately 10,000 pits. Some knowledgeable persons have suggested that Hanford may become a "national sacrifice zone". Would not Hanford then be a more appropriate storage site? If suitable for no other purpose, why not put the pits there? 1015/5

Pg. 4-5: Storage capacity at PX would be reached by the 4th quarter of '93 to the 2nd quarter of of '94. The AEDC has offered $5.5 million for additional land purchases to be deeded to the DOE-how many families might this affect? This has come about after it was stated that no additional land would be needed for PX expansion. 1015/6

Pg. 4-6: Table 4-1 does not mention Kirtland AFB/Monzano Mtn. as a possible storage site despite their storage capabilities. Why was the above complex not considered? 1015/7

Pg. 5-1: PX storage magazines employ natural ventilation. Any accidental leakages would be vented to the atmosphere for dispersal by the winds to who-knows-where: the Canadian river, Lake Meredith, the assorted playa lakes of the area, and by subsequent percolation/infiltration, most likely into the Ogallala aquifer. 1015/8

Pg. 5-2: Scientists are continually lowering the levels that are deemed to be safe, and arguments abound that in the long run, no levels of radiation are truly safe. Witness the current concerns being voiced about naturally occuring radon accumulations in our area's basements. 1015/9

Pg. 6-4: If annual collective worker radiation doses increase but Federal individual worker exposure limits are not exceeded, it logically follows that even more workers will be at risk for radiation-induced cancer. 1015/10

Pg. 6-5: If a forklift accident occurs, conservative calculations show .57 mg of Pu escaping to the atmosphere. A lethal inhaled dose of Pu is a scant one-billionth of a gram. 1015/11

Pg. 6-6: The light aircraft penetration probabilities were all modeled on low-speed/low-angle-of attack scenarios. Not considered was a high-speed/perpendicular angle-of-attack scenario induced by vertigo such as occurred near my residence a few years ago. The aircraft engine in the above incident penetrated a hardland slope to a depth of 3-5 feet. 1015/12

Also not considered was a similar situation involving commercial multi-engined craft or heavy military craft which seem to be in abundance in our air space.

Pg. A-2: Table A-1 states the possibility of internal fire as being "not possible or plausible at this site or facility". However, an earlier statement in this EA document considered a forklift acident scenario in which Pu escaped its confinement. Since Pu is pyrophoric (burns on contact with air), a very real internal fire possibility exists. 1015/13

Additionally, chemical/toxic gas releases have occurred, the incidents having not been made public until well after the fact, if at all. 1015/14

Potential Ogallala Aquifer Impacts...: The "preferential flow" arena is by the EA's own admission an unknown regarding flow rates to and effects on the Ogallala aquifer. 1015/15

Miscellaneous:

Pu is in this EA addressed as 45 years or more old, as if by this advanced age it is relatively innocous. However, 45-year-old Pu has spent but 1/5,333rd of its total life before it is an inert substance. 1015/16

Breakdown/decay/sister products of Pu have half-lives of up to 28 billion years.

Since we do not know the long term chemical form of Pu in this ecosystem, we've absolutely no idea of its effects on the ecosystem. To assume the initial form of Pu to be an oxide might be correct, or it may be a gross fallacy with a horrible unthought of effect.

If, because the pits are at PX and where better to have a reprocessing facility than where the pits already are, PX becomes a reprocessing facility for Pu, what will become of the waste thus generated? For every cubic unit of Pu reprocessed, 17 million cubic units of toxic waste are generated. 1015/17

Despite claims by director Steve Walton of the AEDC that vast amounats of water exist for use by industry, such is not the case. Even now, the Canadian River Municipal Water Authority is purchasing Southwestern Public Service Co.'s water rights in Roberts Countay to provide adequate water for its southernmost customers. 1015/18

If so large a number of pits is to be stored at PX, does that fact not make PX a prime target for terrorists bent on having Pu at any cost? 1015/19

Route 2, Box 11
Panhandle, TX 79068
February 16, 1993

Roger Mulder
Director of Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Capitol Station
Austin, Texas 78711

Dear Mr. Mulder:

My husband and I live on and farm 960 acres directly across FM 293 from the north side of Pantex. We are downwind of the activities that occur at the Department of Energy site in Carson County. My husband was raised on the farm and remembers when the Pantex site was first taken from his neighbors. I have lived here 31 years while we raised our family of three children. I hold a Master of Science degree and have served on numerous councils, task forces, and committees on both regional and state levels. I have been an observer of the "Pantex mentality" and the "Pantex work ethic" for many years. I have often seen "damned if I care" attitude portrayed by the workers at the plant. 1016/1

I have reviewed the Environmental Assessment For Interum Storage of Plutonium Components At Pantex and found that its inadequacy to be typical of the "Pantex attitude". The plan does not adequately address the health and safety of either the workers or the peoples living near the plant. The plan contains much false information and lack of accurate information to conclude the storage of plutoium in any amount to be safe. Examples of this are "none of the other DOE sites is considered reasonable"Executive Summary p. vii. Yet section 4 contains several possibilities. The plan also assumes the worst possible hazard would be the skidding crash of a light aircraft weighing 3500 pounds. The accompaning information in section E to support that assumption contains many inaccuracies. Most aircraft flying directly over the site are of the large military aircraft such as the B-1, C-130, C-141B, F-111, T-38, which are practicing "touch and goes" at the former SAC base Amarillo International Airport. By the time the larger aircraft are over Pantex, they are committed to land. Large military helicopters fly directly over the area regularly too. Any aircraft that is likely to crash on Pantex is most likely to be a high angle impact instead of the 3 degree skidding crash. Fuel spills and subsequent fire or explosion resulting from such a crash are not adequatly addressed. 1016/2 1016/3 1016/4 1016/5 1016/6

There is nothing about the storage that really needs to be classified. The storage and management of all plutonium must be review throughout 1016/7

the DOE complex should be addressed through an environmental impact statement for all facilities.

The EA only addresses storage in Zone 4 magazines. Are there other places on the site to store Pu? If so, why aren't they being addressed? 1016/8

Radiation is not adequately addressed. The exposure of workers will be much greater with realistic time frames for inspection. There is no way workers can make a full visual inspection of storage containers in one minute, especially taking into account the removing and replacement of the container (F-1.3.). The long term exposure of low levels of radiation to workers and/are peoples living nearby are are not addressed. A one time exposure is a lot different than an exposure of low levels 24 hours a day for months and years. What are the cumulative effects? DOE must answer. Doe must do a full EIS. 1016/9 1016/10

Is there independent quality control on the containers? What are "other approved containers"? The EA must address these questions. 1016/11

What does DOE plan to do with the Pu after six to ten years? Are they planning a reprocessing facility at the Pantex site? The amount of water available will not be sufficient for this. If the transportation of the Pu is too dangerous to move, how safe can the transportation of bringing the warheads to Pantex be? Maybe it's best to just dismantle them and store the components right where they are. 1016/12 1016/13 1016/14

At what point will natural deterioration of the containers, Pu, and storage area occure? How will radiation effect the containers and the storage area? Will radiation cause more rapid deterioration of the concrete, the steel, or even the gravel and dirt of the magazines? 1016/15

If the Pu would have to be repackaged into Type B shipping containers for shipping (4.1), why can they not be stored in the Type B containers as stated by 3-2. 1016/16

Section 4.4 c states "decentralization of storage could effect a net increase in the expected radiological worker exposure over the proposed action... Ah ha, there is danger to the workers and to the public after all. The entire EA tells us there is no danger of excess exposure at Pantex, but here we learn the same Pu in smaller amounts at other sites creates a danger. Which is it? DOE must do a full EIS to know. 1016/17

As Dana O. Porter soil and water conservation engineering specialist at Mississippi State University says, the EA is lacking in basic information that the DOE needs to accurately determine the safety of the proposed storage of Pu at Pantex. The scope is too narrow. Extremes of the weather are very conservative. Section 5-1 states 1016/18

the prevailing wind direction is from the south-southwest with an average wind speed of 14 mph with occasional gusts of up to 70 mph. The weather bureau at National Weather Service says th annual average is 13.1 mph at a 230 degree true direction. Wind gusts have been recorded in excess of 100 mph. On September 3, 1968, a wind guage on the Pantex site registered 113 mph before it broke. We have observed numerous tornadoes, funnel clouds, and massive wall clouds both near and over the plant. In June, 1992, a tornado crossed from our tail water pit into the plant before lifting near Firing Site 4. Two very large wall clouds were seen over the plant and our home the same week. In May, 1991, a tornado moved from just west of Panhandle directly toward the east gate of Pantex before lifting just before it got there.

Also, section 5.1 atates that surface runoff flows into several playa lakes on the site. Runoff also comes out of the plant on the north into the barrow ditches that drain into the Pratt lake one-half mile to the north of the plant. Pratt lake also catches lots of water running down the draw by the old sewage plant. Debris is often caught on the barbed wire fence in the draw. 1016/19

Section 6.1.2. states that "the expected level of penetrating radiation would result in no measurable effect or exposure to an individual occupying a position for an entire year at the nearest Pantex site boundary. Such a level would be indistinguishable from natural background radiation." Since this "individual" is either me or a member of my family, I question if the Pantex operations and storage of Pu and other radioactive activities may be adding to the background radiation. How does long term exposure to low levels affect us? 1016/20

Appendix A-1 does not mention a possible terrorist or high priority military attact. With the storage of Pu, manufacturing of HE, and capability of assembling weapons, would not Pantex be a prime site for these events? A-5 does not mention any possibly of an explosion caused by a forklift penetrating a container causing great heat by friction or the possibly of an exploding battery or other electrically short. 1016/21 1016/22

The report mentions the "conservative" figures numerous times as in the recharge rates of the Ogallala Aquifer. Why weren't the higher rates used? If the rates of 1.3 to 8cm/year, why use 3 cm/year? If the higher rate is possible, it should be used. 1016/23

In Appendix E, numerous mathmatical errors are on the "conservative"side. These tend to bring the credibility and validity of the EA into question. 1016/24

We believe the United States Department of Energy must proceed to initiate an environmental impact statement (EIS) on the issue of plutonium storage and management at Pantex and throughout the DOE and DOD complexes. The questions raised because of the inadequacy and inaccracies of the draft must be answered prior to the storage for even the six to ten years proposed. We must 1016/25

be certain, without a doubt, that the interim storage of plutonium at Pantex is completely safe for the workers at the plant, the peoples living nearby and in the area of the plant, and for the Ogallala Aquifer and perched water zones. The highly productive agricultural lands and livestock must be safe also.

To ensure the safety of the peoples and of the environment, we request that the DOE post a bond in the amount of at least $200,000,000. This bond would be used to help pay damages in case of contamination or destruction of any private property, crops, livestock, as well as bodily injury or death of a person or persons outside the parimeter of the plant. Property owners and/or their heirs must be compensated for their loses. 1016/26

Thank you.

Jeri Osborne

Route 2, Box 11
Panhandle, Texas 79068
Feb. 15, 1993

I am Jim Osborne. I live just across the Farm Road 293 north of Pantex. I farm 960 acres just north of the Pantex Plant. I own part of the land and rent part of it. I would like to respond to the Environmental Assessment for Plutonium Storage.

After reading the EA, I visited with a former Pantex employee who also read the EA. He told me that at the time he worked there, they were only allowed to store 32 or 40 pits per igloo instead of the 270 to 400 04 440 pits they are proposing to store or stage now. He said he felt that monitoring on an 18 month basis is not nearly often enough and that the number of containers proposed to be monitored is not nearly enough. He also wants to know if the pits are to be segregated according to type for storage or will they be stored randomly? He said there is not way that workmen can remove, inspect and restore a container per minute. He said it would take hours and hours to remove all the containers to get to one near the rear of an igloo and that worker exposure would be too great. He also said that the new stainless steel containers shown to the media are apparently brand new and most pits are stored in the od style carbon steel containers that will rust and deteriate faster. He said the packing material shown to the media is all new to him and apparently both the stainless steel containers and the packing material are new since the EA was written. 1017/1 1017/2 1017/3 1017/4 1017/5

In regard to Appendix A- Screening of potential accident initiating events:

Internal Explosions --Plutonium pits implode; not explode. Forklift batteries may explode. 1017/6

Internal Fires --Plutonium is combustible in the presence of oxygen. How about electrical fires from an electric forklift? 1017/7
How about heating and or air conditioning in Work area Bay #8 where storage is now being done?
How about wooden pallets? They burn.

Lightening Strikes --How about static electricity from nearby lighening strikes and static electricity from wind? 1017/8

Loss of Power --Would gasoline or deisel powered generators be used to light the storage area if power is lost from commercial supplies? 1017/9

Missiles -- How about guided missiles from enemy forces or from terrorists? It appears to me that 20,000 pits would make the storage area a very high priority target. 1017/10

How about missils from a test firing or from an HE press accident? We know these kinds of accidents have happened in the past. We know of at least three. 1017/11

Sand storms and Dust storms -- How about static electricity? How about missiles from high winds? The day before Labor Day (Sept. 3, 1968 or 1969) we had a wind storm that took a four mile wide swath of high voltage electrical lines and poles and roofs from homes and machine sheds and barns. One Pantex employee at that time told me that the wind speed indicator at the plant registered 113 mph before it broke. Also there were reports of as many as 7 funnel clouds reported in that storm. He said after he saw a 55 gallon drum go over the administration building that it was time to go to the basement. 1017/12

Transportation Accident: -- Electric fork lifts may catch fire --Batteries may explode from either fire or overload. Trucks could be involved incollisions, catch fire or be turned over by high winds. 1017/13

C 1.2 SAC Magazines What if a terrorist dropped an explosive such as a grenade down the ventilation pipe? 1017/14

C.2 Aircraft --The EA uses as an example a 3500 pound aircraft at 80 miles per hour. What about a 200,000 pound aircraft at 500 or 600 mph? 1017/15

I heard an F111 crashing into a mountain. The plane weighs approxmately 75,000 pounds and flies at speeds in excess of 600 mph. The body of the plane basically stayed on the side of mountain but the engine shaft augered itself 150 feet through solid granite.

Fork Lift Accident --If, as the EA suggests, the container is punctured and the pit crushed, plutonium would be exposed to air. Friction from the fork lift tine penetration of the pit could cause spontaneous combustion. The workers would be exposed to fire and smoke as well as plutonium dusts. Presuming that the door of the magaxine was open, the surrounding area and people could also be exposed. 1017/16

Storing Pits in Assembly Bay #8 --Electrical power for lights, air conditioning and heating is present in the work bays. 1017/17

Work Bay #1 --Still not cleaned up since the tritium leak in 1989. I understand that they have tried to clean it up, but it still will not meet specs and they are talking about tearing it down. 1017/18

I know one breech block from a 16 inch naval gun has been blown up. I have heard that at least three high explosive presses were also blown up over the years. These accidents could provide missiles for penetration of the igloos and possible fires. 1017/19

I would like to call for an Environmental Impact Statement. 1017/20

I don't think there is enough water available for reprocessing in this area. Amarillo has drilled at least 7 dry holes in their water field in northern Potter County. The Carson County field where the city is now pumping its water is rapidly declining. Our static level in our wells had dropped four feet this past year and at least one of the Amarillo wells dropped 12 feet. 1017/21

I would also like for DOE to post a $200,000,000 bond to be forfeited in case of contamination or destruction of any private property, crops, or livestock or bodily injury or death of a person or persons outside the parimeter of the plant. This bond should pay property owners or their heirs for losses incurred. 1017/22

Thank you.

Jim Osborne

Jim Osborne

Bob Bullock
Lieutenant Governor of Texas

The Capitol
Austin, Texas 78711-2068
(512) 463-0001

January 20, 1993

Mr. Richard A. Claytor
Assistant Secretary for Defense Programs
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Richard:

Two members of my staff attended the Department of Energy briefing for the State of Texas on January 14, 1993, and told me that your agency did an excellent job presenting complex information. They also said that you invited further questions. And I have some.

The briefing included a technical presentation regarding the risks of plutonium contamination to the Ogallala Aquifer, but did not cover contamination of surface water. I would appreciate information regarding the risks and the potential consequences of contamination to surface water and soil. 1018/1

Since increasing the number of pits will necessitate additional handling and transportation, I would like information about any increased risk of human error or accident resulting in localized spillage or contamination. 1018/2

I would also like information regarding the proposed consolidated nuclear unit, its functions, and the criteria that will be used in deciding its location. Thank you for your time and courtesy. 1018/3

Sincerely,

BOB BULLOCK
Lieutenant Governor

BB:sww

OPERATION COMMONSENSE

January 20, 1993

Mr. Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
Austin, Texas 78711

Dear Roger,

I recently received a copy of the Environmental Assessment regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. You asked for comments on the assessment documents, and while this letter will address the subject, it is not meant to be comprehensive due to time constraints. This environmental assessment sets forth operations more properly designated as a new mission, from holding plutonium in inventory for current use, to holding it in storage with no planned use. I believe this is a very important distinction, and might well require additional disclosure and public comment. 1019/1

Our concerns are solely with the impact of your plans on Amarillo and the surrounding area. It is obvious from the assessment that this new mission has not been previously tested and that the storage plans set forth involve varying degrees of risk and uncertainty. There appear to be differences in the relative degrees of protection provided by the two types of storage containers for the plutonium pits. There also remains a critical need for detailed analysis of the comparitive stability of the 18 Modified-Richmond magazines vs. the 42 Steel Arch Construction (SAC) magazines and the overall adequacy of magazines built 50 years ago to hold conventional bombs. Moreover, differences in the density of storage (number of pits) in each magazine could impact the degree of risk as well as the ease and safety for inspection tasks. The risk assessment analysis also appears to have overlooked the most likely danger, that of an attack on the arsenal by an enemy or terrorist. Additionally, incremental risks created by 1019/2 1019/3 1019/4 1019/5 1019/6

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extending the storage period longer than 10 years is not assessed, nor is the method of indemnification provided this community that the period will not be longer than 10 years. Temporary storage fails to be credible without the designation of a permanent storage site, if past histories are to be believed.

Our interest is simple and straightforward. We want first and foremost to assure that the risks to the community are acceptable. The dangers that have been brought to many communities by the weapons plants have been clearly established, and it is only reasonable that we consider that history in our own assessment of this operation. The community's confidence in assurances of safety can only be confirmed with independent monitoring and the willing acceptance by DOE of applicable laws of our land. We must all be comfortable that a supervisory structure is in place that will provide technical oversight as well as community liason. A clear delineation of this need will require a cooperative effort involving DOE, the State, and our community. 1019/7

While I believe most of us in the community can be convinced of the safety of the plan, there will be many outside the community who will be hesitant to locate in this area because they are wary of the unknown or unproven. There will be little doubt that the future growth of business in Amarillo and the surrounding area will suffer with the public knowledge of the storage of these pits. This probability creates the need for DOE to assert an active and effective role in planning an assisting Amarillo in maintaining the growth we have every right to expect, notwithstanding the plutonium storage plans. Active help from DOE in directing certain highly desirable non-nuclear government operations here or funding to assist us in recruiting new businesses is appropiate and necessary. 1019/8

Roger, your role and that of the Governor are critical to the success and acceptance of this mission. Funding provided the State by DOE should not be allowed to exceed actual expenditures by the State. This policy will prevent any conflict of interest from developing between the financial interest of the State and the safety needs of the Panhandle. Your role can and should be that of facilitator and enforcer of guidelines necessary to a safe mission.

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It is our hope that Pantex, including future missions, might remain always a welcome member of our community. This possibility can become a reality through the implementation of a two point stategy set forth in this letter. We will be responsible for doing everything within our power to work with the State and DOE to accomodate our mutual needs. We are looking forward to opening a dialogue that will result in a positive future for all of us.

Sincerely,

W.H. O'Brien

cc: Vicky Battley
Steve Guidice
interested parties

P.O. Box 9618 * Amarillo, Texas 79105 * 806-372-3877 * Fax 806-372-7207

State of New Mexico
ENVIRONMENT DEPARTMENT
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BRUCE KING
GOVERNOR

JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

February 4, 1993

Roger Mulder, Director
Special Projects Group
Environmental Policy Division
State of Texas
Office of the Governor
Austin, Texas 78711

RE: EA for Interim Storage of Plutonium Components at Pantex

Dear Mr. Mulder:

The Hazardous and Radioactive Materials Bureau of State of New Mexico's Environment Department has reviewed the Department of Energy's Environmental Assessment for the Interim Storage of Plutonium Components at Pantex. Given that the proposed activity evaluated by this assessment is an enlargement of activities which have been on-going at the site for the past 40 years, the document seems to adequately addresses any associated environmental impacts. The proposed action seems to be the most favorable of the alternatives considered for interim storage. Of greater interest to the state of New Mexico is the long-term storage/disposal options being considered for these components, as presently under consideration in the Programmatic EIS for the Nuclear Weapons Complex Reconfiguration. The state of New Mexico would appreciate any future documentation on plans for long term storage including transportation impacts. 1020/1

Thank you for providing an opportunity to comment on this proposal. There is much to be gained through our states cooperation in resolving environmental problems.

Sincerely,

Benito J. Garcia, Chief
Hazardous and Radioactive Materials Bureau

BJG:JWP

cc: Ray Powell, Special Asst. to Governor
Kathleen Sisneros, Director, Water and Waste Mngmnt,NMED
Neil Weber, DOE Oversight,NMED
John Parker, Mixed Waste Section, HRMB-NMED

PSR

PHYSICIANS FOR SOCIAL RESPONSIBILITY

An affiliate of International Physicians for the Prevention of Nuclear War, winner of the 1985 Nobel Peace Prize

25 January 1993

Roger Mulder
Director, Special Projects
Environmental Policy Division
State of Texas
PO Box 12428
Austin, Texas 78711

Dear Mr. Mulder,

I respond to your draft of an Environmental Assessment prepared by the U.S.Department of Energy (DOE), a proposal to increase the storage of plutonium (Pu) at the Pantex Nuclear Weapons Plant sent to Governor Richards. Thank you for inviting me to comment. I hope my comments are somhow useful but, quite frankly, responding in 45 days really pushed my ability to read, digest and criticize a very complicated proposal, much less prepare a response.

First of all, we should remember that a reduction from more than 20,000 nuclear warheads to somewhat less than 10,000 as ordered by the President still leaves the world with enough explosives to make the planet uninhabitable and unrecognizable. We should also remind ourselves that we Texans have had Pantex in our State for many decades without showing much concern for the hazards of preparing for war. Therefore, we should approach this problem with humility and vigor. We should consider ourselves as part of a dreadful problem which we are dumping on future generations of animals, plants and humans and thus demand of ourselves very tight restrictions on what is done at Pantex.

We should insist that the storage of plutonium (Pu) in Texas should be TEMPORARY. The DOE mentions six to ten years but the text gives no details of how this will be terminated, no discription of research going on to prepare for storage elsewhere. We are planning to store 84,000 pounds of a deadly poison which will remain deadly for thousands of years. While Pu is stored at Pantex, it should be very visible and under close scrutiny by Federal Government officials, Texas officials, and local Amarillo and neighboring county officials as well as concerned citizens. Personally, I would hope the Governor would really stress citizen involvement. We should know that breeder technology and Pu fuel cycle nuclear programs are not working well because of safety and economic problems so we can anticipate a big increase in the inventory of Pu in other forms than warheads. We should not set Texas up for this kind of storage. Are you aware that Hanford originally prepared "interim storage" which then became the de facto standard for storage for the U.S. The limits of TEMPORARY should be very carefully spelled out. 1021/1 1021/2 1021/3 1021/4

One reason why citizen and local government interest is so crucial is that the DOE has been working for five decades in a shroud of secrecy and a war threat mentality spending their time preparing weapons and much less time, quite insufficient time, on the protection of the environment. When the DOE reports 1021/5

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• National Office: 1000 - 16th Street, N.W., #810, Washington, D.C. 20036 - Telephone: (202) 785-3777 •

that Pantex has been run in a "safe and responsible fashion for 40 years", they conveniently leave out the management of the plants at Rocky Flats in Colorado and Hanford in Washington. The DOE has a bad reputation for environmental and health hazards. Remember, considerations other than safety will be considered, e.g. timeliness, cost and efficincy in using space already available.

We are aware of massive safety problems at various other DOE sites, problems which will take decades to clean up, billions of dollars, and probably a number of injuries to personnel. Knowing that, do we want the DOE to store Pu pits in magazines when Pantex does not have expertise in this? Governor Richards should wonder, why experiment with Texas? Why not experiment at Rocky Flats where the pollution levels are already severe? Or Hanford? Or half a dozen places where the DOE has polluted? Or, why not some place where the military has polluted? 1021/6

DOE writes that radiation exposure of workers will be controlled as currently done with procedures and monitoring to insure DOE present standards are maintained so therefore no adverse health effects among workers should be expected. In their search for the possibility of accidents, they mention aircraft crashes, forklift accidents, earthquakes, tornadoes and missiles, all of which are listed as requiring quantitative analysis. There is no mention of a psychotic terrorist or a thief wishing to sell Pu to the Japanese. 1021/7

The DOE points out that using the safer method of storage will fill up the present storage areas this year while the less safe method will fill it up by the summer of 1994. That horizontal, palletized multiple stacking has not been used before in either the Modified Richmond or the steel arch constructed magazines rather implies that the DOE has not previously thought about storage of Pu pits, does it not? No mention is found in their text of any research about long term storage or destroying ~~the~~ modifying Pu, all projects which a responsible DOE would have done decades ago if their sense of responsibility had been toward the environment rather than toward military power. The DOE has not used EPA or OSHA standards for their work. 1021/8 1021/9 1021/10

DOE could use other sites as well as Pantex but this would add the hazard of transportation. I find this interesting since they have said this hazard is virtually zero for years. The advantage of storing at multiple sites and doing it visibly, however, would be that numerous communities would then become involved in this dreadful problem. Do you have nightmares thinking of having to trust the Government with the storage of Pu for a half-life of 26,000 years? This risk of trusting our Government is clarified by a marvelous euphemism on page 4.3, "The primary mission of Hanford is environmental restoration." This same DOE has supported legislation to relax environmental protection laws governing the removal of toxic wastes. Change the words and the problem goes away. The same DOE has stifled research and whistle-blowing among employees. Secretary Watkins has said he "never got his arms around" the problems at DOE. DOE now plans for some oversight by outside organizations, the Department of Health and Human Services and the Department of Health for the State of Texas, for example,which sounds great but the DOE is not accustomed to outside scrutiny so this should be spelled out very carefully. In their text it is not spelled out at all. 1021/11 1021/12

Their reference to threats to the Ogallala aquifer is internal DOE research by Turin et al from the Los Alamos National Laboratories so it is no wonder they concluded no risk would occur to the aquifer. The DOE cites no local criticism. 1021/13

There is no reference to Coy Overstreat who has been collecting cases of atomic radiation victims for years. The search for potential problems seems thoughtful but there is no mention of previous complications. I would recommend the Governor insist upon a careful evaluation of all previous accidents, injuries and environmental abuses which have occurred at Pantex and other DOE plants before permitting even one Pu pit to be stored in Texas. 1021/14

There is no mention of security, yet Pantex has had security problems in the past. What are their plans to prevent a terrorist attack? Or a thief who wishes to steal a Pu pit? I am sure the black market would have good prices for Pu pits. Let me repeat that research on the disposal and security of Pu and Pu pits should have been under way for decades. This problem is chronic and is not going to go away. Therefore, we should slow the DOE down and demand more thorough preparations and research before doing anything. I know that this will leave us with bombs sitting in their silos but, if the State of Texas can make these silos public and keep the Pu pits in the minds of alert citizens, we will have performed a real service for all the world. Keep in mind that storing these pits at Pantex permits the Government to restart making bombs again before anyone had time to wonder why trucks were carrying Pu pits back to Texas again. 1021/15 1021/16

I have mentioned that research cited has come from DOE sponsored laboratories and is therefore suspect. I recommend some outside reading: 1021/17

1. Peter Gray (editor): FACING REALITY: the future of the U.S. Nuclear Weapons Complex, a project of the Tides Foundation, San Francisco (copies may be obtained from the Nuclear Safety Campaign, 1914 North 34th street, suite 407, Seattle, WA 98103).

2. Anthony Robbins, Arjun Makhijani, Katherine Yih: RADIOACTIVE HEAVEN AND EARTH: the health and environmental effects of nuclear weapons testing in, on, and above the earth. Apex Press, N.Y. 1991.

3. H.Jack Geiger & David Rush: DEAD RECKONING: a critical review of the Department of Energy's epidemiological research. Physicians for Social Responsibility 1992.

4. Arjun Makhijani and Scott Saleska: HIGH LEVEL DOLLARS, LOW LEVEL SENSE: a critique of present policy for the management of long-lived radioactive waste and discussion on an alternative approach. Apex Press, 1992.

5. Nicholas Lenssen: NUCLEAR WASTE: the problem that won't go away. Worldwatch Paper 106, December 1991.

6. Howard Hu, Arjun Makhijani, Katherine Yih: PLUTONIUM, deadly gold of the nuclear age. International Physicians Press, 1992.

I conclude that the 40 years of "responsible and safe" work done at Pantex cannot be extrapolated to a future of ten years of storage of Pu. I also conclude that the DOE has a long history of secrecy and willingness to take risks which have harmed the environment and the health of workers and neighbors. So, go SLOW! We should involve the Peace Farm, the Red River Peace Network (which has a team being developed right now) and the Texas Nuclear Responsibility Network. 1021/18

PEACE!

Lawrence Egbert

Lawrence D. Egbert, MD, MPH
PSR/Dallas Coordinator

HEAL
Hanford Education
Action League

February 11, 1993

Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
P. O. Box 12428
Austin, TX 78711

Comments on the Environmental Assessment for Interim Storage of Plutonium Components at Pantex (DOE/EA-0812)

Dear Mr. Mulder,

Thank you for providing HEAL with a copy of the Pantex EA and inviting our comments. First, some general comments concerning public participation and involvement:

• The deadline for comment was not specified in your letter of December 21, 1992. When did the 45-day period begin and end? Why did you not inform all potential commenters that the period had been extended to 60 days?

• I feel it is improper for any state government to act as an intermediary for the federal government. Yes, the Department of Energy has a very serious credibility problem; but this situation is not solved by having a state act as a shield. Because of our objection to this, HEAL is sending a copy of these comments directly to the Energy Department.

• The Department of Energy should have prepared an Environmental Impact Statement (EIS) instead of the EA. The proposed action constitutes a change in mission for the Pantex facility (i.e. interim storage) and, as such, constitutes a major federal action which requires an EIS under the National Environmental Policy Act (NEPA). 1022/1

Specific Comments

p. viii -- HEAL agrees with the Department in that "the reintroduction of a weapons complex mission (at Hanford) would not be reasonable or appropriate."

p. 2-1 -- Both here and elsewhere in the EA (e.g. compare number on p. vii with those on p. 3-1), there are numerous inconsistencies in the number of pits to be stored at Pantex. In addition, this same problem of inconsistency involves the storage capacity of Pantex and DOE's proposed storage levels at Pantex. The Department of Energy, in coordination with the President and the Department of Defense, should declassify the Nuclear Stockpile Memorandum. It can no longer be argued that keeping this information from the American public is in the national interest. The Russian government knows because of the provisions in the recent START agreements. 1022/2 1022/3

1720 N. Ash • Spokane, Washington 99205 • (509) 326-3370 • FAX (509) 326-2932

p. 3-1 -- DOE has failed to sufficiently define what it means by interim. 1022/4

p. 4-1 to 4-7 -- DOE has not presented an adequate examination of the alternatives, especially regarding the possible security risks of having only one interim storage facility. Moreover, DOE has failed to consider the alternative of the construction of a new DOE facility, or several of them. 1022/5 1022/6

p. 6-4 -- DOE has failed to provide the public with sufficient information to assess the Department's safety analysis. DOE has refused to make available to the public the most recent version of the Pantex Safety Analysis Report. Additionally, the recent recommendation (93-1, dated January 21, 1993) of the Defense Nuclear Facilities Safety Board (DNFSB) raises the possibility that nuclear safety might be deficient in those operations involving the disassembly of nuclear weapons. The Board specifically cited its concern of nuclear safety at Pantex. 1022/7 1022/8

In conclusion, DOE should prepare an EIS to provide for a more thorough examination of all alternatives, more extensive public participation, and sufficient time for citizens to prepare comments and the Department to review nuclear safety at Pantex (DNFSB recommendation 93-1). Such a delay for EIS preparation need not prevent the United States from continuing to withdraw nuclear weapons from active deployment as set forth in recent agreements and initiatives. The delay would also provide time for public review of the dismantlement study now underway by the Office of Technology Assessment.

Sincerely,

James Thomas
Research Director

Jay Robert Roselius
County Judge

CARSON COUNTY

Box 369 Panhandle, Texas 806 - 537-3622

March 10, 1993

Mr. Roger Mulder
Environmental Policy Division
Office of the Governor
Sam Houston State Office Building
P. O. Box 12428
Austin, Texas 78701

Dear Mr. Mulder,

I have seen pages and pages of comments concerning the interim storage of plutonium pits at the Pantex Plant. Most of these comments and concerns are the same as mine, and I would only be repetitious if I commented on them. These concerns have been addressed by authorities in the different areas. People who we must place our trust. People from state agencies, federal agencies and private industries.

However, I would request that authorities from these different agencies be assembled together in their area of expertise and address and formulate the best possible response to the following areas which seem to me to be the areas of most concern when considering all of the various comments. The areas are as follows: 1024/1

1. The chance of contaminating the Ogallala Aquifer.
2. The data used to reach a decision on a plane crash into a bunker/magazine or other strategic location. 1024/2
3. The question of sabotage/terrorist attack on a bunker/magazine or other strategic location. This could cause a release that would make an environmental impact. 1024/3
4. What impact would tornadic winds have on a bunker/magazine or other strategic location. 1024/4

Respectfully submitted for consideration.

Sincerely,

JAY R. ROSELIUS, County Judge
Carson County, Texas 79068

JRR/wh

2612 Mockingbird Lane
Amarillo, Texas 79109
February 16, 1993

Mr. Roger Mulder
Governor's Office
Policy Council 12426
Austin, Texas 73711

Dear Mr. Mulder:

1025/1

As residents of Amarillo, Texas, we are deeply concerned about the activities at the DOE Pantex Plant near our city. To have bombs assembled there was at best very worrisome but to have a massive disassembly of these bombs and the storage of the highly toxic plutonium plus other fissionable material seems intolerable. We are most anxious that the activities at Pantex be examined and monitored and that the storage of plutonium be especially studied. Proper environment studies are crucial and the plant should be open to outside expert inspection.

Does the Panhandle want the title of Plutonium Storage for the western world? Just how much is known about the storage, how long can it be stored here and why can't this whole subject be opened to public scrutiny?

Sincerely,

William and Mary
Klingensmith

February 19, 1993

RECEIVED

MAR 15 1993

Governor's Energy Office

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

As a responsible citizen committed to preserving the quality of life for all future generations I am gravely concerned about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1026/1

Because I believe that the quality of a Democracy depends on the participation of informed citizens, it is my opinion that this Environmental Assessment (EA) does not adequately address the full range of the issue.

Since historically plutonium pits have been refabricated and reused, the proposal to store the pits for any period of time is a significant new action that should be analyzed in its own right, and all reasonable alternatives and environmental impacts should be considered now.

The draft EA declares that the plutonium pits will be stored at Pantex for the next 6 - 10 years. There appears to be no basis for these figures. Where the pits will go after the ten year period was not discussed. Further, it does not provide assurance that pits will not be stored for more than ten years. 1026/2

All of the reasonable alternatives were not considered and inadequate attention was given to existing available DOE or DOD facilities. As taxpayers we have spent millions of dollars providing warhead and pit storage facilities at Kirtland Air Force Base (Albuquerque, NM., and the Sierra Army Depot in California. 1026/3

The draft EA does not analyze the environmental effects of pit storage for more than ten years. 1026/4
There is no discussion on the stability of plutonium pits during interim or long-term storage. 1026/5

The effect on the workers is not adequately addressed in this draft document. It does not explicitly analyze doses to workers who handle the pits in the disassembly areas and those transporting them from disassembly areas to Zone 4. It does not calculate the doses for the maximally exposed worker, or the doses to workers if inspections are required more frequently than every 18 months. Not discussed is the increased worker exposures compared with the current operations, yet it appears those exposures will be several times current levels. 1026/6 1026/7

Rather than issuing a final environmental assessment and a Finding of No Significant Impact (FONSI), the Department of Energy should proceed to initiating an environmental impact statement (EIS) on the issue of plutonium management at Pantex. 1026/8

Sincerely,

Tamara Sedgwick

****

** Topic: OTA Briefing on Plutonium, Written 6:04 pm Feb 16, 1993 by fbp in cdp:nuc.facilities ** To: MPN, From: Steve Schwartz, Re: Summary of OTA Plutonium Workshop, Date: February 10, 1993

Office of Technology Assessment (OTA) - Plutonium Storage Workshop

Peter Johnson (leader of the OTA team studying "Nuclear Weapons Dismantlement-and its Aftermath): Opened the session by stating that some form of interim storage of plutonium from retired warheads (i.e. 6-20 years) is needed pending a final decision on what to do with it. He then asked team member German (pronounced Herman) Reyes to brief the group on OTA's research-to-date.

German Reyes: Pit storage at Pantex under existing configurations will run out in late 1993 or early 1994. DOE has proposed to alleviate this situation with an EA on a new configuration option.

If Pantex proves inadequate, there is capacity at other sites--

o Rocky Flats can only handle its own waste and residues;
o Savannah River has two suitable buildings;
o Hanford can store up to 3,000 pits, but this would contradict DOE's stated intention to end the defense mission there;
o Communications from DOE suggest that underground storage at Kirtland AFB (NM) or Sierra Army Depot (CA) could be utilized.

DOE insists that the new and increased pit retirement/storage mission is merely "business as usual" but OTA has found that while the dismantlement process won't be fundamentally altered, the rate of dismantlement and the

storage of thousands of pits will change the role of Pantex:
o the total number of pits stored at Pantex will significantly increase, from 6-8,000 up to 20,000);
o DOE's new storage configuration has never been tested and raises serious worker health and safety as well as public acceptance issues;
o the greater number of pits will result in worker radiation exposures 2-8 times higher than at present, especially from the gamma exposure via Am-241 decay and neutron generation. DOE's proposed use of shielded forklifts and robotics must be evaluated;
o moreover, should DOE experiment now with a new configuration before a final decision has been made on whether or not to use it;
o does DOE need to do a safety analysis report specifically on increased worker exposures under the proposed changes?

DOE's ability to accurately track plutonium to ensure there are no criticality problems is unclear.

DOE's lack of a clear timetable for long-term storage has increased public skepticism about "short term" storage at Pantex.

Criticality issues are not confined to Pantex. At Rocky Flats there are numerous potential problems, made worse by the fact that there are only 2 criticality safety engineers for the entire plant.

Some 20 percent of the entire U.S. plutonium inventory is in scrap/residue form, largely at SRS, Hanford, Los Alamos and Rocky Flats (which has the most). At Rocky Flats there is more than 00,000 pounds of solid residues containing some 6,000 pounds of plutonium, plus an additional 14,000 liters of liquid waste containing additional plutonium.

The limited number and size of approved shipping containers for this type of waste (there is only 1 approved container, capable of holding 2 liters of material) may seriously hamper removing this material from its current storage sites (this applies only to the type of waste with a low specific level of radioactivity). Los Alamos, for example, would have to purchase 10,000 such drums to meet current shipping criteria (which limit how much combustible material may co-mingle with plutonium).

General Discussion

Jesse Cleveland (USGS, Denver and former member of the Advisory Committee on Nuclear Facility Safety): I'm concerned that OTA is discounting storage options at other DOE sites (e.g, Hanford or INEL) because DOE has indicated that is not the preferred option. By using existing sites, we could maybe get there faster than starting from scratch. Also, if the storage medium is in pit form, that's retrievable, and not just by us.

Peter Johnson: Our consideration of alternative storage sites utilized DOE's own analyses, but of course those are not set in concrete. We're assuming interim storage as pits because other options are possible but will take time to fully implement.

Dewey Large (Scientific Ecology Group, Inc): It may be worthwhile to study the development of the MRS. That may hold some solutions for this problem.

Joel Gingold (S.M. Stoller Corp.): MRS may be feasible, but the problem is that nobody wants it. I'm not sure that the public reaction to pure plutonium storage would be better or worse than that for spent fuel. And if we can't do it for spent fuel, it won't work for plutonium pits. Keep the focus on the current DOE plutonium sites and put it where people have been living with the weapons for a long time and may perceive a tangible benefit to being a storage site.

Dave Hafemeister (Sen. Governmental Affairs Committee): If you're concerned about security risks from storing whole pits, why not spray a borated plastic/resin into the pit? That would alleviate some criticality problems and would present any would- be thief with a significant obstacle to immediate use as a bomb.

Victor Trebulis (Director of DOE's Office of Civilian Radioactive Waste Management Storage Division): I manage the MRS for DOE. MRS is only intended for spent fuel. Using it for pits would only increase the public's perception problems. Many county and tribal studies have concluded that MRS would be safe and of benefit to them, but the problems seem to be of the perception kind, and come from those who have less direct involvement with the potential site. We're still hoping to find a voluntary site.

Peter Johnson: We're only looking at the MRS to see if there's anything we can learn/use from it.

Charles Haughney (Chief, Source and Containment Devices Branch, Nuclear Regulatory Commission): Victor is right, our regulations are only for spent fuel. In any case, using a spent fuel cask for pit storage, even with some modifications, would be overkill since there is far more intense radiation from spent fuel than from pits.

John Trout (U.S. Army Corps of Engineers, Omaha District): As a result of the Nunn-Lugar language [in the FY92 defense bill], we are assisting the Russians with the design of their storage facility for plutonium and HEU. The Russians have indicated that their plutonium will be stored as either pits or ingots. They are very much interested in this being a long-term, permanent facility. While the U.S. has only committed funds for design work, the Russians seem to assume that we'll help build it too.

Lisa Chan (DOE Weapons Complex Reconfiguration Office): The PEIS will consider long-term storage issues. We expect a draft PEIS by late '93/early '94, with a record of decision by the fall of '94. Our assumption is that storage will be in the form of pits.

Dave Hafemeister: Well, that's sort of dumb, isn't it, because if you decide to mix the plutonium with waste you don't need to build long-term storage facilities?

Lisa Chan: The PEIS on not site-specific. We're looking at requirements first and then we'll look and see if we have the facilities we need or if we need to build them.

Louis Willett (DOE Defense Programs, Office of Weapons and Materials Planning): The work of the plutonium task force is largely completed, but the report is behind schedule and is still undergoing internal review. The scope is near-term storage up to when Complex-21 kicks in. Among the things it considered were: interim storage, stockpile support and residue disposition.

John Herczeg (DOE Nuclear Energy): A separate report of the task force looks at storage options and will be issued by Sol Rosen (NE's Director of International Programs). The most important considerations we identified in that report were safeguards, environmental impacts and economics. Everything else was deemed secondary. I can't characterize this as a DOE report, since is has not be formally approved/released, but it concludes that the best way to safeguard the plutonium is to invoke broad policies of nonproliferation and consider it as spent fuel. The focus is on the options that produce the most environmentally benign consequences.

Tara O'Toole (OTA): We've found that in making plutonium less of a security risk, you increase worker radiation risks/exposures.

John Herczeg: What is "most acceptable from a political standpoint" is to either radiate or "spike" the plutonium and store it as spent fuel. The goal is to "render it non-usable" within certain environmental considerations. Isotopic poisoning, for example, was found to be unacceptable.

Paul Cunningham (Los Alamos National Laboratory): OTA needs to get some criticality expertise. This is not an issue at Pantex. Criticality is overstressed. Plutonium in ingots is not pyrophoric so long as its temperature does not reach 400 degrees Fahrenheit. Gamma rays emitted by Am-241 decay are "relatively soft" and easy to shield against. The neutron

fields generated by a large number of pits is a bigger problem.

My position on this (and I can't speak for the lab) is that this will be a long process to decide what we should ultimately do with this plutonium. We should think about who we're making it difficult to retrieve from. Don't make our waste problems even bigger by adding plutonium to the mix.

"I advocate that we do as little with this material as possible." Storage in pit form creates the least waste and worker exposure. Pits are well known, quality controlled items; we know a great deal about them. Yes, there's a lot of plutonium coming out of the stockpile, but by the time Complex-21 comes on-line this will be dwarfed by the inventories of commercial plutonium. Just look at where Japan is heading. As for diluting plutonium, we won't gain much [in nonproliferation]. We know how to recover plutonium from any form we can put it in.

And mixing plutonium in with waste will "create a legacy we can't manage." Pits are compact and they store and last very well in hermetically sealed containers. With the pits in their storage and shipping containers, you can't create a critical array of pits in any configuration in the Pantex igloos.

Duane Schmoker (Pacific Nuclear Fuel Services, Inc.): As with the MRS, public perception is the key, right up there with technology considerations. I am assuming this won't be done in secret--although maybe it will for security considerations--but the times are changing. DOE also has an effort underway [since 1989] to identity a voluntary site to accept TRU wastes [as a result of many Governors refusing DOE's request to move Rocky Flats waste to DOE facilities in their states].

Emilia Govan (OTA): Can you foresee doing a full EIS on pit storage at Pantex?

Ted Doury (DOE Defense Programs, Director Pantex Facility Management Division): [After a long pause] "I think that's a possible outcome." I helped do the EA and I don't believe there are any technical issues that would force us to do an EIS.

German Reyes: We asked because the EA has very-little information on the capabilities of the other sites to handle the plutonium.

Bill Shuler (Assistant to the Acting Assistant Secretary of Defense for Atomic Energy): Is OTA trying to provide just an analysis or will you issue recommendations?

Peter Johnson: This is just an interim report on where we are today. The final report has not been written. We will have some recommendations and options in the final report, which will examine everything related to warhead dismantlement.

Bill Shuler: Taking an existing facility and making it transparent [open to inspection for arms control purposes] is harder than building a new facility with transparency in mind.

Mark Percival (DOE Office of Arms Control): We have a draft report on transparency at Pantex that consists of guidance for DOE but not recommendations. I can't tell you more about it until Vic Alessi (Director) releases it.

John Herczeg: DOE has asked the labs and now five vendors to study burning plutonium in a reactor. But there needs to be several years of R&D just to demonstrate the technology, so burning could only really begin in about 20-25 years (factoring in time to comply with environmental regulations). The first report from Livermore also took as an assumption that whatever was recommended would have to be acceptable in Russia. The fission task force (headed by Sol Rosen) will issue a separate report on this at some future date.

Paul Cunningham: Accelerator technology is the only way to totally eliminate the plutonium. The physics are sound, we know this will work, it's just an engineering problem.

[For the afternoon session, which I did not attend (but which Tom

Clements of Greenpeace, Tom Zamora-Collins of Friends of the Earth and Steve Dolley of the Nuclear Control Institute did), the group discussed future plutonium storage approaches. Items for discussion included:

- Types and conditions of materials to be stored and policies to be followed
- Requirements and design criteria that need to be developed
- Research and testing needed
- Environmental impacts to be investigated
- Site selection process to be developed
- Health and safety studies required
- Security, monitoring and materials accounting studies needed
- Facility construction and operation requirements

****

From Don Gardner

822 Oak
Dalhart, TX 79022
March 5, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

As a Texas citizen I am concerned about the storage of nuclear material at the Pantex Nuclear Weapons Plant near Amarillo, Texas.

Have the following questions been adequately answered? 1027/1
Has worker safety in all divisions of the plant been adequately studied? If so have the recommended safety precautions been taken? Have dangers to surrounding farmland and agricultural workers been studied? Are there safeguards for the land, it's productive qualities and it's agricultural value?

I understand that this is interim storage for a period 1027/2
of 6 to 10 years. What happens to the plutonium and other nuclear materials after ten years? Are there available 1027/3
sights for storage of nuclear materials farther from populated areas? How can both the United States and Texas governments guarantee the safety of citizens living near and in Amarillo? 1027/4

I respectfully urge you to make sure that Texas citizens are protected from proven and potential hazards.

Respectfully,

Portie Dees

March 2, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, Texas 78711

I am enclosing information that was sent to the residents of the city of Panhandle with their water bills. Panhandle is located in Carson County ten miles to the east of Pantex. Farm to Market highway 293 borders both the Pantex plant and the city of Panhandle on the north.

One can be sure that if the city of Panhandle has the potential of being hit by a tornado, the Pantex plant is also vulnerable to a hit. 1030/1

Numerous very devastating tornadoes have struck near the plant. In late June, 1992, the city of Fritch, about 15 miles to the north of the plant was very hard hit. The city of Amarillo has been hit. White Deer has had three hits. A farm was destroyed 4 miles to the north of the plant. Tornadoes have been spotted on all sides of the plant. In September, 1968, a rather large storm with numerous tornadoes and funnel clouds moved from the north onto the plant site. A wind guage on the site broke at 114 mph. in 1991, a large tornado headed directly toward the east gate from Panhandle, lifting just before it reached the plant. In June, 1993, at least three tornadoes were spotted on the north side of the plant. One moved onto the site, lifted at Firing site 5.

We believe the possibility of a devastating tornado striking the Pantex plant is too great threat for Pantex to be considered as an intrium storage site for plutonium. Missiles hurled by the very high winds of a tornado are capable of penetrating the storage areas. There would not have to be a direct strike for massive destruction.

We request a full environmental impact statement (EIS) with the possibility of a large tornado be done on the issue of plutonium storage at the Pantex plant. 1030/2

Sincerely,

Judy Osborne

IT'S TORNADO SEASON (AGAIN)!

More than 750 tornadoes strike the United States each year with most of them occurring in the months of April, May and June. If you know a tornado is approaching, the best thing you can do to protect yourself is act quickly.

If you're outside, don't try to outrun the storm. The National Oceanic and Atmospheric Administration (NOAA) and the Federal Emergency Management Agency recommend that you leave your car for indoor shelter if there is time. If you're caught in the open, lie in a depression or ditch, curl up to protect your vital organs, and cover your head with your arms.

Seek inside shelter, preferable a cellar, underground excavation or steel-framed or reinforced concrete buildings of substantial construction.

If you're inside, stay away from windows and exterior doors. You want to avoid flying debris and collapsing walls. Inside a house, seek shelter in a well-constructed basement or small, enclosed spaces such as stairwells, closets or bathrooms near the center of the building. In an office building stay inside a hallway or on the lowest floor.

Although in the past it was recommended that you open windows to equalize inside and outside atmospheric pressure this is no longer suggested by NOAA. An open window can let strong, destructive winds inside, and wind-driven rain can destroy paint, carpets, floors and furnishings. If a tornado gets close enough to a structure to cause extreme atmospheric pressure changes, chances are the strong tornado winds will have already caused the most significant damage.

Preparation is a very important key to surviving a tornado. Every family member should know where the safest areas of the home are and to move to these areas at the first sign of danger.

The following shelters are available to Panhandle residents who seek shelter from severe weather: Carson County Courthouse (enter the north door and go to the basement floor) and the Panhandle High School weight room (this is only available when school is not in session) located under the vocational building east of the field house (enter through the west side door of the building.

The City of Panhandle's Emergency Warning System consists of emergency warning sirens and a cable television interrupt capability. The Cable Television Emergency Notification System includes access to all television sets connected to cable TV that are powered on. When activated, your screen will go blank (no matter what channel is selected) and an alert tone will sound followed by emergency information (or a test message).

The City uses three emergency warning sirens to notify citizens of threatening weather or disaster situations. The sirens are activated for three minutes (except for tests) in one continuous sound. This is the alert tone. The next sound identifies the type of emergency. A high/low tone means a tornado or a hazardous material incident is threatening the City. When the sirens stop, the immediate danger has passed. There will NEVER be a signal for "all clear."

The cable television and siren system is tested on the last Friday of each month between 4:30 p.m. and 5:00 p.m. Various siren tones are sounded. If weather conditions are threatening, the test will not be conducted. A schedule of dates and times of warning system testing is listed in the Calendar of Events section of the City Hall Update newsletter. Also, a news release is given to the Panhandle Herald for publication on the Thursday before each scheduled test.

HOW STRONG IS A TORNADO?

F0	(40-72 mph):	Some damage to chimneys, tree branches broken, damage to sign boards, television antennas damaged, damage to power lines and power poles.
F1	(73-112 mph):	Peels surfaces from roofs, windows broken, mobile homes pushed off foundations or overturned, moving vehicles pushed off roads.
F2	(113-157 mph):	Roofs torn from frame houses, mobile homes destroyed, large trees uprooted.
F3	(158-206 mph):	Roofs and some walls torn from well-constructed homes, trains overturned, heavy cars lifted and thrown.
F4	(207-260 mph):	Well-constructed homes are leveled.
F5	(261-318 mph):	Strong frame houses are lifted off their foundations and carried considerable distance and disintegrate.

It's still cold outside, but now is the time for making preparations for the spring severe weather season. Below are some helpful definitions.

THUNDERSTORM - A storm accompanied by thunder and may contain lightning, gusty winds, heavy rain and hail.

SEVERE THUNDERSTORM - A thunderstorm that produces winds of 58 mph or greater, or 3/4 inch hail or larger. This type of storm may also produce torrential rain (more than an inch in one hour) and possibly tornados.

WALL CLOUD - An abrupt lowering cloud base which usually forms in the rain-free base area of a thunderstorm. The wall cloud may develop in the south-west portion (right rear) of the storm. Many wall clouds exhibit rapid upward motion and rotation. A persistent, rotating wall cloud usually develops before a tornado.

FUNNEL - A cloud pendant or inverted cloud cone which extends from the base of the thunderstorm, but is not in contact with the ground.

TORNADO - A violently rotating narrow column of air in contact with the ground and extending from a thunderstorm base.

GUST FRONT - The leading edge of rain-cooled sinking air in contact with the ground and extending from a thunderstorm base.

DOWNBURST - A stong downdraft of air which produces an outburst of damaging winds on or near the ground. These winds may cause tornado-like damage.

DRYLINE - A boundary separating hot dry air to the west from warm moist air to the east. Thunderstorms often develop along or near a dryline.

CAP or "LID" - A hot dry layer of air between warm moist surface air and cool dry air aloft. The cap may inhibit or delay the onset of thunder-storms.

SEVERE WEATHER WATCHES - Watches identify an area where severe weather might form. It only indicates where and when the severe weather prob-abilities are highest. It should not be confused with a warning.

SEVERE WEATHER WARNINGS - Severe weather is imminent and you should take immediate action to protect yourself and property.

HOW LARGE IS HAIL?

Hail of 3/4 inch in diameter or greater classifies a storm as severe

Pea Size - 1/4 inch	Golfball size - 1 3/4 inch
Penny or Dime size - 3/4 inch	Baseball size - 2 3/4 inch
Quarter size - 1 inch	Softball size - 4 1/2 inch

HOW FAR ARE YOU FROM A THUNDERSTORM?

Flash to Bang method: When you see a lightning bolt, begin counting. Sound travels one mile in about five seconds. Therefore, if you saw lightning and hear thunder 25 seconds later, the storm was five miles away.

[Information from The Dryline, the newsletter of the National Weather Service Office in Amarillo, Winter, 1992]

3805 Overlook
Amarillo, TX 79119
March 1, 1993

Roger Mulder
Director, Special Projects
Environmental Policy Division
Post Office Box 12428
Austin, TX 78711

Dear Mr. Mulder:

The Environmental Assessment prepared by the U. S. Department of Energy regarding the proposal to increase the storage of plutonium pits at the Pantex Plant near Amarillo, Texas, is inadequate in many respects. Several of the most significant are:

1. Length of storage is estimated to be 6 to 10 years. In reality, there are no plans being considered for longterm storage. What is the basis for the 6 to 10 year estimate? 1031/1

2. Alternative storage facilities such as those at Kirkland Air Force Base and Sierra Army Depot are not mentioned in the Environmental Assessment. These facilities are already constructed and should receive public consideration. 1031/2

3. Deterioration of the pits and storage containers over the long term should receive intensive study. 1031/3

4. Transportation to and from the Pantex site, and between all facilities, is not adequately addressed. 1031/4

5. The very real danger of an airplane crash causing a major fire is not honestly examined. 1031/5

Therefore, I request that the Department of Energy prepare an environmental impact statement on the issue of plutonium management in the United States and that full public hearings be held. This EIS should consider the problem as a whole, not as an isolated operation at Pantex, and include the safety of workers, long term storage methods and facilities, transportation, the eventual uses and/or disposal of plutonium and other chemical and nuclear materials. 1031/6

There should be thorough long range planning and a carefully considered, integrated, nationwide policy on this extremely critical issue.

Sincerely yours,

Louise Daniel

Louise Daniel

February 19, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

As a responsible citizen committed to preserving the quality of life for all future generations I am gravely concerned about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1032/1

Because I believe that the quality of a Democracy depends on the participation of informed citizens, it is my opinion that this Environmental Assessment (EA) does not adequately address the full range of the issue.

Since historically plutonium pits have been refabricated and reused, the proposal to store the pits for any period of time is a significant new action that should be analyzed in its own right, and all reasonable alternatives and environmental impacts should be considered now.

The draft EA declares that the plutonium pits will be stored at Pantex for the next 6 - 10 years. There appears to be no basis for these figures. Where the pits will go after the ten year period was not discussed. Further, it does not provide assurance that pits will not be stored for more than ten years. 1032/2

All of the reasonable alternatives were not considered and inadequate attention was given to existing available DOE or DOD facilities. As taxpayers we have spent millions of dollars providing warhead and pit storage facilities at Kirtland Air Force Base (Albuquerque, NM., and the Sierra Army Depot in California. 1032/3

The draft EA does not analyze the environmental effects of pit storage for more than ten years. There is no discussion on the stability of plutonium pits during interim or long-term storage. 1032/4 1032/5

The effect on the workers is not adequately addressed in this draft document. It does not explicitly analyze doses to workers who handle the pits in the disassembly areas and those transporting them from disassembly areas to Zone 4. It does not calculate the doses for the maximally exposed worker, or the doses to workers if inspections are required more frequently pthan every 18 months. Not discussed is the increased worker exposures compared with the current operations, yet it appears those exposures will be several times current levels. 1032/6 1032/7

Rather than issuing a final environmental assessment and a Finding of No Significant Impact (FONSI), the Department of Energy should proceed to initiating an environmental impact statement (EIS) on the issue of plutonium management at Pantex. 1032/8

Sincerely,

Though this is a letter drafted [illegible] which I am a member, it expresses my concerns as you may know, worker contract negotiations are in progress (health issues & insurance are main concern).

Debby K. Barnard
Rt 6, Box 231-A 1032/9
Amarillo, TX 79124

February 19, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

As a responsible citizen committed to preserving the quality of life for all future generations I am gravely concerned about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1033/1

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Sincerely,

[author block illegible]
Rt 2 Box 83
Stamford, Texas 79553

NEWS ARTICLES ATTACHED
AMARILLO DAILY NEWS
2-20-93

Pantex officials: Workers 'staged' pits improperly

By JIM McBRIDE
Globe-News

Workers at the Pantex Plant violated plant procedure last week by temporarily leaving plutonium pits in an improper location, officials said Friday.

Pantex, located about 17 miles northeast of Amarillo in Carson County, is the nation's primary assembly and disassembly facility for nuclear warheads. It is operated for the Energy Department by contractor Mason & Hanger-Silas Mason Co.

Tom Walton, an Energy Department spokesman at Pantex, said the incident occurred Feb. 11 when workers finishing a shift failed to put pit storage containers on an automated loading device that would have moved them to an adjacent location where they would have been "staged" before transfer to interim storage in Zone 4 igloos. The violation occurred in the Zone 12 south production area after the pits had been removed from weapons and placed in special containers, he said.

"They were not put on the machine and taken in like they should have been. So it was definitely a procedural breakdown," Walton said. "The procedure as written does not allow to leave these sitting there at the end of the shift. They are supposed to be put up."

Walton noted that the two rooms are very close to each other. No workers were exposed to radiation during the incident, and there were no security or waste-management problems because of the event, he said.

"As far as the pits themselves, they were as secure as those in the room next to them," he said.

A pit, the core of a weapon used to trigger a nuclear chain reaction, is composed of plutonium metal surrounded by a hermetically sealed, non-radioactive outer case.

At the plant, pits are staged temporarily in some locations after they are removed from weapons. Then they are moved under tight security by truck to igloos in Zone 4 for interim storage. A draft environmental assessment of increased storage of pits in Zone 4 calls for storage of the special nuclear material for 6 to 10 years. State officials now are studying the draft to make comments on the document before it is approved by the Energy Department.

A.J. Eggenberger, vice chairman of the Defense Nuclear Facilities Safety Board, a congressional nuclear safety watchdog group, said board staff members were touring the site last week when one of them noticed that the pits were not placed in the proper location.

THE FOLLOWING INDIVIDUALS SUBMITTED THE INCLUDED FORM LETTER

Andrea Alpar
Amarillo, Texas

Virginia Arttro
Hereford, Texas

Mr. & Mrs. J.B. Atkerson
Amarillo, Texas

K. Averett
Amarillo, Texas

Janie Banner
Hereford, Texas

Betty C. Barnard
Amarillo, Texas

Rev. Darryl Birkenfeld
Hereford, Texas

G. G. Campbell
Amarillo, Texas

Beulah Lee R. Carter
Amarillo, Texas

Douglas Coffee
Pampa, Texas

Peggy G. Croney
Amarillo, Texas

Mr. & Mr. Danny Detten
Panhandle, Texas

William C. Elsik
Houston, Texas

Blake L. English
Amarillo, Texas

Allen Finegold
Amarillo, Texas

Jack and Shell Geckerr
Amarillo, Texas

Tim O. Gilbert
Amarillo, Texas

Steven L. Gilmore
Amarillo, Texas

Jo Ann & Tony Hawtzi
Amarillo, Texas

H. J. Hughes
Panhandle, Texas

James Jones
Amarillo, Texas

Teresa Jones
Amarillo, Texas

Fay Knapp
Panhandle, Texas

Albert Lopez
Amarillo, Texas

Wendy Marsh
Amarillo, Texas

Elaine McDougal
Hereford, Texas

Teresa McFaul
Amarillo, Texas

Don McReynolds
Lubbock, Texas

Tracy Meadows
Amarillo, Texas

James P. Murphy
Amarillo, Texas

F. R. O'Brien
Amarillo, Texas

F. Rose Oney
Amarillo, Texas

B. Frank Rapstine
Amarillo, Texas

Bette Jo Roberts
Amarillo, Texas

Marla Rodgers
Amarillo, Texas

Norbert Schiegel
Shamrock, Texas

B. M. Shvain
Amarillo, Texas

J. P. Smith
Phalba, Smith

Mildred Frost Smith
Amarillo, Texas

Karen Son
Pampa, Texas

Christine Stephens
Jermyn, Texas 76459

Jeannine & Duane Wendel
Amarillo, Texas

J. Williams
Panhandle, Texas

Diana Wood
Amarillo, Texas

Bob & Kay Younger
Amarillo, Texas

February 19, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

As a responsible citizen committed to preserving the quality of life for all future generations I am gravely concerned about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1034/1

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The draft EA does not analyze the environmental effects of pit storage for more than ten years. 1034/4
There is no discussion on the stability of plutonium pits during interim or long-term storage. 1034/5

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Rather than issuing a final environmental assessment and a Finding of No Significant Impact (FONSI), the Department of Energy should proceed to initiating an environmental impact statement (EIS) on the issue of plutonium management at Pantex. 1034/8

Sincerely,

February 19, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

As a responsible citizen committed to preserving the quality of life for all future generations I am gravely concerned about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1035/1

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Rather than issuing a final environmental assessment and a Finding of No Significant Impact (FONSI), the Department of Energy should proceed to initiating an environmental impact statement (EIS) on the issue of plutonium management at Pantex. 1035/8

Sincerely,

I am very, very concerned about the health the citizens in the Panhandle. There are 1035/9
veral severe environmental polluters that believe are causing extremely high rcentages of cancer and immune system disease

#1. Hoechst Celanese - Pampa, Texas
a. has polluted the air & water for 40 years
b. even our creek in our parks in Pampa
c. 4 million pounds of benzene dumped on us every year; plus many other chemicals (toxic

#2 Phillips Petroleum Plant - Borger, Texas
(I have no statistics on this plant, but I assume it is as bad or worse than H. Celanese in Pampa
→ could very well be contaminating Lake Meredith (the Panhandle's water supply

#3 Pantex - Amarillo 1035/10
a. Pantex has kept important environmental facts from the public
b. burns 300,000 pounds of nuclear explosi every year which we breathe 1035/11
c. stores plutonium which may be 1035/12 emitting harmful or deadly radiation

tigate

ieer

INSTITUTE FOR ENERGY AN
ENVIRONMENTAL RESEARC

Washington, D.C. office:
6935 Laurel Avenue
Takoma Park, MD 20912

Phone: (301) 270-5500
FAX (301) 270-3029

March 1, 1993

Roger Mulder
Director of Special Projects
Office of the Governor
P.O. Box 12428
Austin, TX 78711

Dear Mr. Mulder,

A few weeks ago you sent me the draft EA on pit storage at the Pantex plant for my comments. They are being faxed to you with this note. A separate copy is being mailed to you by two-day mail, in case you should need an original. I am also sending a copy of these comments to Beverly Gattis and Don Gardner who both put you in contact with me.

I hope that you find these comments helpful. If you have any questions please let me know.

Yours Sincerely

Arjun Makhijani, Ph.D.
President

cc: Beverly Gattis
Don Gardner

ieer

INSTITUTE FOR ENERGY AN
ENVIRONMENTAL RESEARCH

Washington, D.C. office:
6935 Laurel Avenue
Takoma Park, MD 20912

Phone: (301) 270-5500
FAX (301) 270-3029

Comments of Arjun Makhijani, Ph.D. on the Predecisional Environmental Assessment for Interim Storage of Plutonium Components at Pantex, DOE/EA-0812, December 1992.

March 1, 1993

I. General Comments

1036/1

The stated purpose of the proposed action in the EA "is to provide interim storage of pits removed from nuclear weapons in response to the President's nuclear weapons reduction initiative." (p. 2-1) The proposed action would expand the capacity for storage of pits from the current 6,800 (p.3-1) to 20,000 or more pits. The EA claims that there is considerable urgency in implementing this expansion because the DOE may have to cease disassembly activities "as early as the fourth quarter of 1993" if the proposed action is not implemented (p 2-1).

The EA does not provide the information required to independently verify the claim of urgency or the overall goal for expansion of capacity that DOE seeks under the proposed action. Two items are at issue:

First, the EA does not provide any figure for the actual number of pits in storage as of December 1992. There is only a chart for "projected" storage capacity requirements (p. 2-2) that starts in the fourth quarter of 1992 in the range of about 3,500 to about 3,800 pits. The EA does not state whether this is an actual figure or was a projection for 1992 based on an assumed disassembly rate of 2,000 weapons per year. The projected date when current storage capacity may run out must be based on actual figures for pits currently in storage. Second, information must also be provided on how the disassembly figure of 2,000 weapons per year was arrived at, and how it might vary, in light of past rates of dismantlement and assembly combined.

II. Interim Storage Period

1036/2

The EA claims that pit storage at Pantex will be for 6 to 10 years and that long-term storage or disposition options will be implemented after this. It provides no justification for the length of this interim storage period and no information on how it was calculated.

The EA states that long-term options will be decided as part of the Programmatic Environmental Impact Statement (PEIS) on the Reconfiguration of the Weapons Complex. Since even a draft of this decision (which is supposed to take public comments on the draft

1036/3

into account), it is quite mysterious how the DOE arrived at the estimate that interim storage would be for a 6 to 10 year period. The EA should provide a clear and complete justification for this figure, including any assumptions about final disposition and the pace of final disposition measures assumed in estimating the interim storage period.

The EA also makes the inappropriate comment that plutonium pits from warheads that are no longer needed in the U.S. arsenal are "valuable national assets." (p. 2-1) Such a conclusion prejudges a possible decision in the Reconfiguration of PEIS that the surplus plutonium is a waste, due to the security and environmental threats it poses. Due consideration must be given to the proliferation implications of any decision to treat it as an asset in the United States, since that would result in reinforcing corresponding decisions in the former Soviet Union, other nuclear weapons powers, and aspiring nuclear weapons powers. 1036/4

III. Container Types 1036/5

The EA mentions two different types of containers: carbon steel and stainless steel. It provides no discussion of the relative merits of these containers, how many of each will be used, and what the effects of various assumptions about the use of these containers be on the dismantlement rates and on worker health and safety. In addition, the EA does not discuss the relative merits of each type of container with respect to a number of crucial issues, such as corrosion rates, inspection frequency, verification issues, and severity of some accidents, notably those involving possible rupture of containers. The EA also does not provide the information necessary for an independent evaluation of the containers using such criteria. The EA should also discuss the experience of corrosion and worker doses with these two types of containers, as well as the maximum length of time that a pit has been stored in each type.

IV. Inspections and Inventory-Taking Procedures 1036/6

The EA claims that a 100 percent inspection of the single-layer vertical configuration will take one minute per container, including removal, inspection and returning containers to the magazines. It does not provide any basis for this estimate, nor the variation in the amounts of time for containers in different parts of the magazine. This information is essential since both the soundness of the inspection and the doses to workers depend directly on this time estimate.

Further, aisle space would have to be cleared in order to inspect the containers in the rear of the magazine. This would require taking the containers to other magazines and stacking them appropriately, finishing the inspections and then retrieving and restacking the containers. Indeed, it would appear that all rows from front to back but one would have to be cleared and the containers stored elsewhere in order to inspect the containers in the last rows (parallel to the sides and stretching back from the door.)

It strains the imagination that all these operations, including thorough inspections, could be carried out at the rate of one minute per container. Further, such procedures raise verification questions, since the moving and stacking of containers rapidly from one magazine to another increases the opportunites for possible diversion.

The EA should provide detailed descriptions of all inspection procedures and the evidence from actual operating records that such inspection times are realistic for magazines that are full. It is also necessary for the EA to specify how much experience there is with inspections with full igloos in vertical configurations. Careful verification of DOE's inspection procedures is necessary to calculate compliance with dose limits, since workers will be in a highly radioactive environment, with neutron dose rates in the tens of millirems per hour and gamma dose rates in the hundreds of millirems per hour.

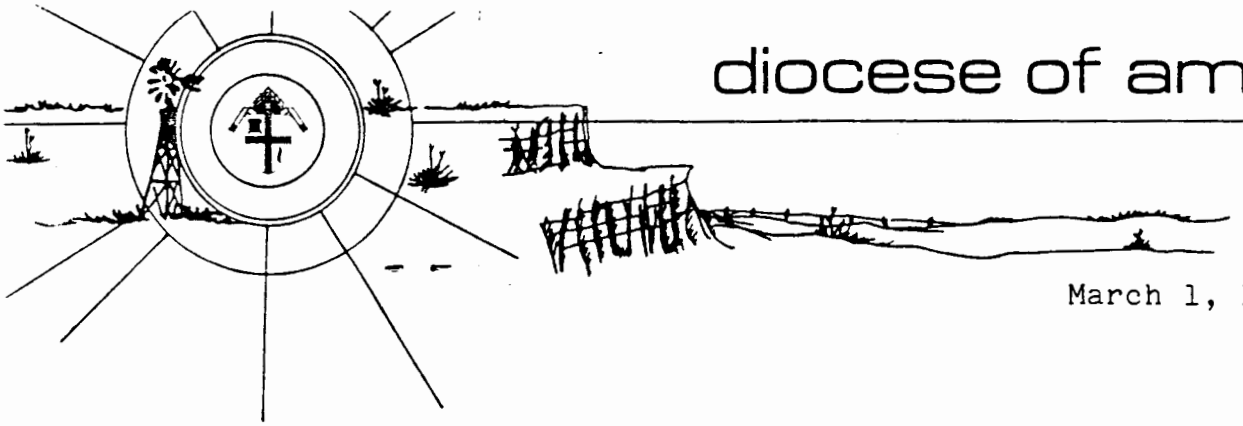
Finally, taking inventories of pits also raises similar questions. Since the magazines do not have lighting, physical verification of all of the inventory in a full, vertically stacked magazine would be quite time consuming. Yet the estimated time for such an inventory is not much greater than the estimated time to inventory a horizontally-stacked, modified Richmond magazine, where all the containers would be in relatively easily view (90 minutes for the horizontally-stacked versus 140 minutes for the vertically stacked).

The rates of inspection and inventory-taking are critical to estimating worker doses. They are also central to estimating whether Pantex can meet the worker dose limits without compromising other goals, such as thoroughness of inspections. In this context, it is also important for the EA to include further information on other radiation to which the inspection and inventory workers would be subjected under normal or non-routine circumstances.

V. Accident Scenarios 1036/7

Calculations of the effects of an accidental explosion of high explosives on the Modified Richmond and SAC magazines are based on the assumption that the blast can be represented as a triangular wave distributed load on the roof of the structure in questions. These calculations indicate that the combination of blast and dead load on the roof of the Modified Richmond magazine would be about 65% of the estimated yield strength of the beam.

Since the results of the stress calculations are dependent on pressure waveform and on the distribution of the load, the DOE should do a sensitivity analysis that includes waveforms with sharper rise profiles (such as exponential or parabolic) and non-uniform load distributions across the roof. Similar sensitivity analyses should also be done for other aspects of calculating the consequences of an accidental explosion. This is critically needed for the doors of the SAC magazine, since the calculated ductility ratio with the assumed waveform and load distribution indicates significant deformations may occur with the assumed waveforms.



diocese of amarillo

March 1, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin TX 78711

I am gravely concerned about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1037/1

It is my opinion that this Environmental Assessment (EA) does not adequately address the full range of the issue.

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DIOCESAN PASTORAL CENTER AMARILLO, TX 79117-5644
P.O. BOX 5644 806-383-2243

1037/8

Rather than issuing a final environmental assessment and a Finding of No Significant Impact (FONSI), the Department of Energy should proceed to initiating and environmental impact statement (EIS) on the issue of plutonium management at Pantex.

Sincerely,

Leroy T. Matthiesen

Bishop Leroy T. Matthiesen

Arrowhead Mills®

February 26, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P. O. Box 12428
Austin, TX 78711

As a responsible citizen committed to preserving the quality of life for all future generations, I am gravely concerned abou the Environmental Assessment prepared by the United States Department of Energy regarding the propposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1038/1

Because I believe that the quality of a Democracy depends on the participation of informed citizens, it is my opinion that this Environmental Assessment (EA) does not adequately address the full range of the issue.

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1038/4

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Rather than issuing a final environmental assessment and a Finding of No Significant Impact (FONSI), the Department of Energy should proceed to initiating an environmental impact statement (EIS) on the issue of plutonium management at Pantex. 1038/8

Sincerely,

ARROWHEAD MILLS, INC.

Boyd M. Foster
President

BMF:ef

Box 2059 • Hereford, Texas, USA 79045-2059 Recycled Paper Tel 806-364-0730 • Fax 806-364-8242

THE TEXAS NUCLEAR WASTE TASK FORCE
The Texas Corn Producers, Women Involved in Farm Economics,
The Texas Chapter of The National Assn. of Social Workers,
The United Methodist Women of the Northwest Texas Conference,
The Texas Farmers Union, STAND of Tulia, STAND of Amarillo,
POWER of Hereford and Vega, The Texas Conference of Churches

March 10, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, Texas 78711

Dear Governor Richards,

The Texas Nuclear Waste Task Force is a coalition of ten organizations sharing the common goal of preserving a high quality of life and seeking the safest, most reasonable approach to the storage of hazardous and radioactive materials. We are presently very concerned about the Department of Energy's Environmental Assessment regarding the proposal to increase plutonium storage at the Pantex Plant near Amarillo, Texas. 1039/1

The EA's basis is seriously flawed because it categorically presumes that plutonium storage at Pantex will be temporary, limited to ten years. This premise does not take into account the immense obstacles to siting an alternative storage facility.

Any realistic proposal for the storage of plutonium pits should take into consideration the uncertainty of storage time at any DOE or Department of Defense facility. Furthermore, if long-term storage should become a reality, additional buildings would likely be necessary, a possibility not addressed in the present EA. The cost, logistics and environmental impacts of these structures should be studied, accordingly. 1039/2

The existing EA does not examine reasonable storage alternatives and we do not believe this issue was given sufficient priority. The potential sites mentioned in the EA are now serving other DOD or DOE missions. Also, they have a limited storage capacity, which would probably not be adequate for the the considerable quantities of plutonium to be stored at Pantex. 1039/3

Further complicating this issue are the political realities that other states have established opposition to storage and/or transportation of radioactive materials within their borders. This factor raises the importance of the EA's need to consider the likelihood of pit storage becoming long-term or permanent. 1039/4

DOE's draft EA does not adequately address the effect on Pantex workers. It does not explicitly consider doses of radiation to workers who handle the pits in the disassembly area and those transporting pits from disassembly to Zone 4. Specifically, the EA does not calculate the doses for the **maximally exposed** worker, or the doses to workers if inspections are 1039/5 1039/6

required more frequently than every 18 months. Also not discussed is the **increased** worker exposures compared with the current operations, yet it appears those exposures will be several times current levels.

We are deeply concerned at DOE's Finding of No Significant Impact (FONSI), considering the critical nature of this proposal. Rather than issuing a final environmental assessment, the Department of Energy should proceed to initiating an **Environmental Impact Statement (EIS)** on the issue of plutonium management at Pantex. 1039/7

We recognize and appreciate that the State of Texas is our strongest ally in assuring environmental integrity, public safety and the citizenry's right to know. We ask for your continued support in this issue, which is of lasting importance to present and future generations of Texans.

Sincerely,

Tonya Kleuskens

Tonya Kleuskens
Chairman, TNWTF

Texas Corn Growers Association

218 E. Bedford
Dimmitt, Texas 79027
Phone (806) 647-4224

March 9, 1993

United States Department of Energy
Office of the Governor, State of Texas
P.O. Box 12428
Austin, Texas 78711

To whom it may concern:

As President of the Texas Corn Growers Association and Executive Director of the Texas Corn Producers Board, I am writing about our concerns about the Environmental Assessment prepared by the United States Department of Energy regarding the proposal to increase the storage of plutonium at the Pantex Nuclear Weapons Plant near Amarillo, Texas. 1040/1

We do not feel that the Environmental Assessment adequately addresses these issues that are created at this site. I have been associated with the Department of Energy for several years now and I certainly do not trust their analysis and statements on what is actually going on at this location. We feel that reasonable alternatives of environmental impact should be considered now.

One big problem is that the draft of the Environmental Assessment does not analyze the environmental effects of pit storage for more than ten years. They do not even bother to discuss the stability of plutonium pits during interim or long-term storage. 1040/2 1040/3

When the Department of Energy moved everything from Rocky Flats, Colorado into Pantex, they stated that Pantex would not be a permanent storage site. This concerns us greatly because the D.O.E.'s credibility has been very bad for the people in the Panhandle area. We live less than 100 miles from this site in a very large agricultural area. We produce all types of crops and this is also the largest cattle feeding area in the world. The environment has a tremendous effect on not only the livestock and crops but especially the human beings that live here. 1040/4

Thank you for your time.

Sincerely yours,

Carl L. King

Carl L. King
President, Texas Corn Growers Association
Executive Director, Texas Corn Producers Board

CLK/rcd

Military Production Network

A national alliance of organizations working to address
issues of nuclear weapons production and waste clean-up

March 12, 1993

Mr. Roger Mulder
Director, Special Projects
Office of the Governor
Post Office Box 12428
Austin, TX 78711

Re: Predecisional Environmental Assessment (EA) for Interim Storage of Plutonium Components at Pantex, December 1992, DOE/EA-0812

Dear Mr. Mulder:

We have several concerns about issues raised in the above referenced EA, as well as additional concerns about other aspects of the Department of Energy's (DOE) dismantlement program. We very much appreciate your sending us a copy of the EA and your willingness to forward our comments to DOE. However, we hope that in the future DOE will make its preliminary EA's available to the public at the same time they are made available to state governments. 1041/1

The Military Production Network (MPN) is a national alliance of organizations working to address issues of nuclear weapons production and waste cleanup. The MPN has been very active in DOE's two, ongoing Programmatic Environmental Impact Statements (PEIS) and many other DOE decision making processes. We are committed to full public participation in decisions regarding nuclear warhead dismantlement and to independent regulation and verification of the dismantlement process.

The success of announced arms control agreements is critical to our nation's future, and DOE's dismantlement program is vital to the success of these agreements. We believe it is possible to conduct the dismantlement program in a way that enhances public confidence in DOE and builds the foundation for many of the difficult, long-term decisions which must be made about disposition of retired warhead materials. 1041/2

Unfortunately, the predecisional EA on plutonium storage at Pantex does not move us toward this positive future. Moreover, DOE's lack of a coherent policy for complying with the National Environmental Policy Act (NEPA) in regard to its dismantlement program causes us concern. Each of these areas is discussed below.

The Predecisional EA.

1) The storage period assumed in the proposed action is not supported by credible analysis.

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The predecisional EA states: "The proposed action is to provide additional storage for an interim time period, expected to within (sic) 6-10 years, for up to 20,000 pits and does not constitute a decision to store pits at the Pantex Plant for the long term." (p. vii) The only basis presented for this "interim" storage period is the time required to complete DOE's Reconfiguration Programmatic Environmental Impact Statement (R-PEIS) and additional site specific NEPA review and documentation. (pp. 2-1 & 3-1)

However, the schedule for completing the R-PEIS has slipped over the last year, and there is currently no publicly available schedule for even beginning site specific NEPA reviews to implement decisions reached in the R-PEIS.

Also, it is not clear from the R-PEIS Implementation Plan (IP) (DOE/EIS-0161IP, February 1992) that dismantlement is to be addressed in the manner the predecisional EA implies. Dismantlement activities were not widely considered during the R-PEIS scoping periods, and the R-PEIS IP contains few references to the subject.

The IP indicates little more than that the future DOE complex will "[m]aintain the capability to decommission the large number of weapons expected to be retired during stockpile downsizing or replacement," and that the R-PEIS will evaluate "impacts of managing wastes generated by...assembly/disassembly of nuclear weapons." (R-PEIS IP, pp. ES-8 & 2-3) In our review of the IP, it is not at all clear that the R-PEIS will in fact consider proposals for long-term storage or disposition of plutonium, as the predecisional EA states. (p. 2-1) If the final EA relies on the R-PEIS, then DOE must first supplement the IP with a detailed description of how issues related to dismantlement will be addressed.

Finally, history demonstrates that interim or temporary storage facilities for nuclear materials tend to become long-term storage sites. This is clearly illustrated by the experience at numerous DOE and commercial waste storage locations. This issue is not addressed in the predecisional EA. The final EA should clearly explain the steps DOE will take to ensure that Pantex does not become another de facto long-term storage facility. 1041/3

2) Inadequate information is provided on alternatives for storing plutonium components at other DOE sites. 1041/4

The predecisional EA provides only scant details on why facilities at the Los Alamos National Laboratory (LANL), Savannah River Site (SRS), and Hanford Site would be unable to store some portion of the components. Part of the justification offered for not pursuing plutonium component storage at these facilities is that:

> "The nuclear weapons complex is undergoing numerous changes to include environmental restoration and consolidation of its nuclear material to facilitate restoration and to enhance safeguards and security. The complex has limited storage capacity, and each site's capability to store material (pits and SNM in various other forms) must be examined. There are many ongoing programs where the storage capability at the above sites are currently being assessed. Consolidation of material and

subsequent inventory reduction at the RFP, reduction of the inventory at LLNL, and clean out of processing canyons at SRS are a few that vie for the existing or potential storage capacity at SRS, LANL, and Hanford." (p. 4-4)

The predecisional EA does not describe, and none of the referenced documents appear to discuss, any of the "many ongoing programs" referred to above. At the very least, the final EA should list these programs and provide ample information on the capacities of existing storage facilities as well as storage needs to allow independent verification of the conclusions presented.

3) The predecisional EA does not adequately explain why Department of Defense (DOD) sites cannot store some or all the plutonium components from retired warheads. 1041/5

The premise in the EA is simply that no DOD facility is "currently available" to DOE for use as an interim storage facility. Consequently, the EA implies that there would be unspecified delays and that needed modifications "would inevitably entail some degree of environmental impacts." (p. 4-5) However, there is no evidence presented for any of these conclusions.

The final EA should indicate which DOD facilities have been considered as possible storage sites and provide a credible rationale for whether they could meet the identified need. Also, the final EA should address the ability of DOD sites to store disabled warheads if delays arise in disassembly operations at Pantex.

4) The predecisional EA inappropriately refers to plutonium components from retired warheads as "valuable national assets." (p. 2-1) 1041/6

The decision whether to treat plutonium from retired warheads as an asset or a waste is critical to plans for its long-term storage and disposition. This decision should be arrived at through an open process with ample opportunity for meaningful public participation. DOE should not -- in this EA or any other document -- presuppose this important national policy decision.

DOE should address each of the above stated concerns in the final EA and supporting documents. We also request that if DOE decides to issue a Finding of No Significant Impact (FONSI) for this EA, a public comment period of no less than 45 days should be held, and comments received should be meaningfully considered before a final decision is reached. Also, the EA and all documents referenced by it should be made publicly available at the time the FONSI is published for public comment. 1041/7

Dismantlement and NEPA. 1041/8

In addition to our concerns about the predecisional EA itself, we are troubled by DOE's overall approach to NEPA compliance in regard to its dismantlement program. As described above, there are discrepancies between the way the treatment of dismantlement is described in the R-PEIS Implementation Plan and the predecisional EA.

DOE needs to clarify how dismantlement and related efforts will be addressed in the R-PEIS, as well as in the Environmental Restoration and Waste Management PEIS. If DOE's goal is -- as the predecisional EA implies -- to use the PEIS process as the mechanism for evaluating long-term storage and disposition of plutonium from retired warheads, then an additional scoping period for the PEIS's may be necessary. Also, DOE should ensure that the PEIS process allows a fair evaluation of whether to treat surplus plutonium as a waste or an asset, and full consideration of all other long-term issues associated with dismantlement.

For the short-term, DOE appears to be pursuing NEPA compliance through separate reviews of related activities. The predecisional EA on plutonium component storage at Pantex is an example of this. Related activities include increased shipments of warheads to Pantex, disposition of high explosives and other non-nuclear materials from retired warheads, shipment to and expanded storage of highly-enriched uranium at Oak Ridge, shipment to and storage of radioisotope thermoelectric generators at LANL, and expanded shipment to and processing of tritium reservoirs at SRS.

All activities which support DOE's dismantlement program should be evaluated in a single NEPA document. This approach would facilitate a consistent and thorough review of the many activities, public understanding of and involvement in the decision making process, and full compliance with NEPA.

Dismantling as many as 20,000 warheads -- and transporting, storing, and disposing of the resulting materials -- is a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, we believe an Environmental Impact Statement (EIS) is the appropriate level of NEPA review. Such an EIS should be conducted with ample opportunity for public participation in the scoping process and review of a draft EIS before a final decision is made. If DOE does not agree that an EIS is called for at this time, then we ask that the Department immediately begin preparation of an EA on its dismantlement program and that that EA be circulated for public comment in order that the Department's position be subject to public review and comment.

If you, your staff, or DOE officials have any questions regarding these issues please contact Beverly Gattis, Serious Texans Against Nuclear Dumping, at 806/358-2622 or Brian Costner, Energy Research Foundation, at 803/256-7298. Thank you.

Sincerely,

Beverly Gattis

Beverly Gattis, on behalf of:

American Friends Service Committee
Denver, Colorado

Citizen Alert
Reno, Nevada

Coalition for Health Concern
Benton, Kentucky

Concerned Citizens for Nuclear Safety
Santa Fe, New Mexico

Energy Research Foundation
Columbia, South Carolina

Environmental Defense Institute
Troy, Idaho

Fernald Residents for Environmental Safety and Health (FRESH)
Ross, Ohio

Florida Coalition for Peace and Justice
Orlando, Florida

Greenpeace
Washington, D.C.

Hanford Education Action League
Spokane, Washington

Institute for Energy & Environmental Research
Takoma Park, Maryland

National Peace Action
Washington, D.C.

Knolls Action Project
Albany, New York

New Mexico Alliance
Albuquerque, New Mexico

Northwest Environmental Advocates
Portland, Oregon

Nuclear Safety Campaign
Seattle, Washington

Oak Ridge Environmental Peace Alliance
Knoxville, Tennessee

SAVE TEXAS AGRICULTURE AND RESOURCES
7105 W. 34th Street, Suite F
Amarillo, Texas 79109

March 12, 1993

Roger Mulder
Director, Special Projects
Office of the Governor
P.O. Box 12428
Austin, TX 78711

RE: Predecisional Environmental Assessment for Interim Storage of Plutonium Components at Pantex

Dear Mr. Mulder:

The following comments are submitted by STAR (Save Texas Agriculture and Resources), a coalition of four organizations concerned about the effects of operations at the Department of Energy (DOE) Pantex Plant on the people and resources of the Panhandle. Representing thousands of members, STAR is composed of: Panhandle Area Neighbors and Landowners (PANAL), the Peace Farm, Serious Texans Against Nuclear Dumping (STAND) of Amarillo, and the Texas Nuclear Waste Task Force (TNWTF). The TNWTF is itself an umbrella coalition of ten organizations, the three largest being Texas Farmers Union, Texas Corn Producers and Texas Conference of Churches. STAR calls for full public disclosure of all information necessary for sound decision making regarding the past, present and future operations of the Pantex facility, and for substantive public participation in those decisions. 1042/1

In summary, we find major legal and substantive deficiencies in the Predecisional Environmental Assessment (hereafter "draft EA"). The draft EA is insufficient and cannot be used as the basis for a Finding of No Significant Impact (FONSI), which is clearly DOE's plan.

We believe that DOE's proposal addresses only a small portion of the new but fundamental reality driving the changes at Pantex. The unparalleled situation of dismantlement of up to 20,000 warheads, and the immediate need to begin accommodating the work load and variety of materials which that generates, is the essential change affecting Pantex and other nuclear weapons complex sites. This constitutes a major federal action significantly affecting the quality of the human environment and requires issuance of an environmental impact statement (EIS). 1042/2

Such an EIS should be issued in draft form for extended public comment. The draft should include all reasonable alternatives to the proposed actions as well as realistic analysis of environmental effects, as required by NEPA, before a final EIS is issued. DOE should

complete that process, including issuing a Record of Decision (ROD), before proceeding even with the action presented in the draft EA.

Major comments

1. We strongly object to DOE's misuse of the National Environmental Policy Act (NEPA). We believe that DOE's proposal to dismantle 20,000 warheads, store plutonium pits at Pantex, and ship highly enriched uranium (HEU) and tritium to other DOE facilities is a major federal action significantly affecting the quality of the human environment that requires issuance of an environmental impact statement (EIS) which comprehensively discusses the entire proposal and all reasonable alternatives.

A. DOE's proposed action is so narrowly defined that it constitutes illegal segmentation, contrary to the requirements of NEPA [See, for example, Sierra Club v. Callaway, 499 F.2d 982 (5th Cir. 1974), Taxpayers Watchdog, Inc. v. Stanley, 819 F.2d 294 (D.C.Cir. 1987)]. 1042/3

The draft EA says the proposed action is "to provide for the interim storage of up to 20,000 pits, pending the implementation of the ROD on the Nuclear Weapons Complex Reconfiguration PEIS. This is expected to be completed within a time frame of 6-10 years" (p. 3-1).

There are several problems with that description:

1) The total scope of the proposed action is not included. The 20,000 pits come from an unprecedented dismantlement of warheads which inevitably will yield significantly increased quantities of many materials. This unprecedented dismantlement has not been subjected to NEPA analysis. There has been no NEPA analysis of what to do with any of the resulting materials -- not only plutonium pits, but also HEU, tritium, high explosives and non-nuclear components.

2) Even within the limits of DOE's proposal as currently stated, the positive and negative aspects of plutonium pit storage in one location or multiple locations should be discussed. Total existing storage capabilities at all facilities should be described.

However, the fundamental assumption underlying the proposed action is to do all dismantlement and interim storage at Pantex. Therefore, the dismantlement capabilities of other DOE facilities should be discussed in the EIS.

3) The 6 to 10 year time frame is totally arbitrary and is an unreliable basis for any decision making. On July 6, 1992, then DOE Secretary Watkins wrote Attorney General Dan Morales that the draft PEIS would be available for public comment by the end of 1992. That schedule was not kept, nor does any reliable schedule for the PEIS exist. If issuance of the draft PEIS, which is totally in DOE's control, is so uncertain, then implementation of a PEIS ROD, which may be more controlled by the courts or Congress than DOE, cannot be relied upon at all. 1042/4

In an EIS, DOE should fully discuss the useful lifetime of all existing and proposed storage facilities so that decisions about the length of time for storage would have some realistic basis, not DOE speculation.

B. The draft EA does not discuss all reasonable alternatives, as required by NEPA and the CEQ regulations (40 CFR 1502.14(a)). 1042/5
The discussion of alternatives is the heart of any NEPA document, yet the draft EA does not adequately analyze the alternatives that it mentions.

Alternative 4.2, combining storage at Pantex and other DOE facilities, is rejected 1) without an adequate discussion of why other facilities at those sites could not be converted to pit storage (just as facilities at Pantex have to be converted) and 2) without adequately describing those "numerous changes" underway at other facilities. Moreover, a more detailed discussion of why other DOE facilities can not store any pits is necessary.

Alternative 4.3, supplementing Pantex storage with other facilities, is not wholly discussed. While supplemental storage at LANL and Hanford is mentioned, the discussion of storage is limited to SRS. As with Alternative 4.2, a much more detailed discussion of the storage capability of all DOE facilities is required.

Alternative 4.4, using Department of Defense (DOD) facilities, is wholly inaccurate. The federal government has spent millions of dollars developing pit storage capabilities at Kirtland Air Force Base near Albuquerque, New Mexico. However, there is no specific mention of that facility in the draft EA. Other DOD facilities have significant warhead storage capability. A detailed discussion of why none of those facilities could be used for interim storage is necessary. What will happen with those facilities when they are not used to store warheads? 1042/6

In addition, the draft EA must discuss other reasonable alternatives, including: 1042/7

a. Storing disarmed warheads;
b. Shipping all plutonium pits to other locations, just as tritium and highly enriched uranium are now transported off site;
c. Providing one or more facilities that are open for international inspection;
d. Establishing one or more disposal facilities;
e. Storing pits at Pantex for a specific time period, with strict enforcement of the time limit and penalties to ensure removal by the end of the time limit;
f. Storing pits in other areas of Pantex in addition to Zone 4; and
g. Others that DOE thinks are reasonable.

2. An adequate NEPA document would fully discuss the long-term hazards of plutonium storage at Pantex. 1042/8

The 6 to 10 year "interim storage" period is without support in the draft EA. Thus, an adequate EA would describe long-term hazards of plutonium storage in order to adequately inform the decision maker and the public of the necessity to develop alternative storage and disposal facilities.

The only basis that the draft EA states for that 6 to 10 year time frame is that within that time decisions could be implemented from the Reconfiguration PEIS Record of Decision (R-PEIS/ROD) (pp. 2-1 and 3-1). However, the R-PEIS Implementation Plan (DOE/EIS-01611P, February 1992), does not clearly state that any decisions related to

long-term storage or disposition of plutonium will be made in the ROD. In fact, dismantlement is only briefly mentioned in the R-PEIS Implementation Plan (see pages ES-8, 2-3, and 3-9). Thus, if the final EA is going to rely on the R-PEIS, the latter document must be supplemented with a detailed description of how storage and disposal, as well as other dismantlement issues, will be addressed.

Moreover, the schedule for issuance of the R-PEIS itself is totally unknown. Secretary Watkins's July 6, 1992 letter to Attorney General Morales stated that the draft R-PEIS would be available for public review by the end of 1992. Secretary Watkins did not meet that schedule, and to our knowledge Secretary O'Leary has not established any schedule for the R- PEIS.

Clearly, the draft EA cannot use the R-PEIS as the basis for any decisions to be made now. Instead, the EA must provide the basis for any time frame used for interim storage. In addition, the EA must fully discuss DOE's history of not meeting deadlines for "interim storage." For example, Idaho has been promised for years that transuranic wastes that were brought from Rocky Flats to the Idaho National Engineering Laboratory (INEL) were for "interim storage," supposedly no more than 10 years. However, some of those wastes have been at INEL for more than 20 years, and DOE still has no reliable schedule as to when, if ever, those wastes will go to a disposal facility. 1042/9

As another example, DOE has stated for years its intention to have a permanent repository for spent fuel and high-level waste available by 1998. Even with congressional approval for work at Yucca Mountain, Nevada, DOE is more than a decade behind meeting that 1998 date.

Similarly, even if the R-PEIS/ROD states a preference for having one long-term storage or disposal facility, there is no precedent for having such a facility available within a decade. At least one additional NEPA process would be required for such a facility and congressional authorization and appropriation would be necessary.

Thus, an adequate NEPA document must realistically discuss the long-term hazards of pit storage. Issues that must be specifically discussed include: 1042/10

a. Stability of plutonium pits during long-term storage, based on actual experience (if any) and realistic projections;
b. Deterioration of storage containers over 10 years or longer and the need to develop new storage containers that meet independent certification requirements;
c. Activities from all dismantlement activities, including optimum and maximum rates for dismantling warheads; transporting materials off site; and storing and disposing of materials on site, including multiple handling of pits (including moving or shifting them during storage); 1042/11
d. Disclosure of effects on workers of realistic accidents from disassembly, on-site transportation, failures in storage facilities, and exposures from "normal" operations, including increased exposures from disassembly, materials handling, doses from more frequent and more lengthy inspections, maximally exposed worker, and discussion of having few workers having relatively higher doses

versus more workers having more minimal exposures;

e. Expected lifetime of Modified-Richmond and SAC facilities, including effects of increased radiation, and their expected performance from the two new proposed storage configurations and "maximum packing;" 1042/12

f. High consequence, low probability accidents -- airplane crash, criticality accident, and major release during disassembly; and 1042/13

g. On-site storage versus transportation risks and costs for plutonium, highly enriched uranium, and tritium.

3. Even over the short run, the draft EA inadequately describes the risks to workers and the public from managing and storing plutonium pits.

While the draft EA has numerous pages supposedly devoted to worker exposure issues (parts of Chapter 6 and Appendix F), the discussion is based on wholly inadequate information. Much worker exposure is totally ignored, that which is discussed is underestimated, and basic approaches to worker safety are totally missing. Moreover, the Final Safety Analysis Report, Pantex Plant Zone 4 Magazines, the basic document describing the anticipated exposures has not been made available to the public. Prior to the issuance of the final EA, or a draft EIS, the SAR must be publicly available. Any national security aspects can be segregated in a classified appendix. 1042/14

The draft EA contains no discussion of worker exposures during dismantlement and at any other time prior to the inspections in the interim storage facilities. In fact, significant exposures could occur during dismantlement, during storage prior to arrival at Zone 4, during transport of the pits from the disassembly facilities to Zone 4, and in loading the pits into the Modified-Richmond and SAC buildings. 1042/15

Questions that must be addressed in the EA include:
- How many workers are involved in those operations;
- What is the duration of exposures;
- What are the potential maximum exposures;
- What kind of accidents can occur during disassembly, storage, and shipment to Zone 4,
- What kind of accidents could occur during loading pits into the Modified-Richmond and SAC magazines;
- Will the differing storage configurations in the two types of storage buildings require different training for workers to avoid accidents;
- What kind of cumulative exposures can workers receive for participating in various activities, or will each operation have its own specialized work force?

Worker exposure information in Appendix F is based on one inspection in each magazine every 18 months. No basis is given for why that is the appropriate frequency of inspection. The EA must present a detailed discussion of why more frequent inspections are not necessary. It must also discuss why more frequent inspections would not be required in later years, when radiation exposure could result in container or building deterioration. Further, the EA should present comparative data as to the level of exposures if inspections are required every month or every six months. 1042/16 1042/17

The basic information about the length of worker exposure is highly suspect. The draft EA states that for the Modified-Richmond magazines (single-layer vertical configuration) each inspection would require 70 minutes and for the horizontal palletized stacking 45 minutes for each side, and for the SAC each inspection would require 140 minutes for single-layer configuration and 90 minutes for the horizontal palletized configuration.

Unanswered in the draft EA are basic questions, including: 1042/18

- What kind of lighting will be provided for the inspections since the magazines apparently have no lighting;
- If each container will be removed from the magazines in case of single-layer vertical stacking (as stated on p. F-2), what kind of accidents could occur, what exposures will occur, and how long would such moving actually take (certainly longer than the few seconds estimated); 1042/19
- During removal how many pits would be outside at any one time, what types of accidents could occur (including from weather related events), how many times would a pit actually be handled -- i.e., moving pits to allow aisle space to reach the rear of the magazine; how could just two workers properly keep track of and log the pits to ensure that they are each returned to their assigned storage location -- if additional workers are required, additional exposures will result; 1042/20
- What is the actual accident history and exposure rates for inspections under current storage configurations; 1042/21
- If the pits will not be handled or moved during inspections as is implied for horizontal palletized stacking, how will corrosion or leaks in "hidden" areas be identified; 1042/22
- What types and levels of gas buildup can occur inside the pit storage containers; 1042/23
- If storage containers are punctured, what amount of plutonium dust could be released, with what effect on workers, what emergency response measures will be put into place to treat workers so exposed? 1042/24

Further, basic information about the DOE approach to worker safety is not included in the draft EA. Will a few workers be charged with doing all inspections, thereby increasing doses to a few workers, or will many workers conduct inspections, thereby increasing the number of workers receiving some exposures but limiting exposures to individuals? Related questions are whether having a few highly trained workers make inspections quicker and more efficient, thereby reducing exposures, or whether having teams of more than two workers would reduce the time and resulting exposures from inspections. Other questions are: Are the same workers responsible for moving pits from the disassembly bays to the storage facilities and then doing inspections? If so, what are the cumulative exposures? 1042/25

Specific comments

1. List of preparers. Council on Environmental Quality (CEQ) regulations (40 CFR 1502.17) require listing of preparers of an EIS. The final EA should have such a listing even though it is not required by regulation. 1042/26

2. ES-vii. The first sentence states that the primary mission of Pantex is assembly and disassembly of weapons. Why is plutonium storage not considered to be a new mission, requiring an EIS? 1042/27

The stated purpose of the EA is to evaluate environmental impacts of additional pit storage. However, there is no discussion of some storage related activities, including transporting pits from disassembly bays to Zone IV and the actual loading of pits into the magazines. 1042/28

The 18 Modified-Richmond magazines capacity would increase from 370 to a maximum of 440 pits and the SAC magazines could hold up to 384 pits. However, page 3-1 states that the Modified-Richmond would increase from 378 to 440 pits and the SAC could hold 384 or 392 or 406 pits (according to footnote 2). Which numbers are correct? Using the maximum figures shows that more than 24,000 pits (not 20,000 pits) could be stored. The EA should discuss if storage for more than 20,000 pits is eventually necessary, how could Pantex accommodate such an increase? 1042/29

3. Page 1-1. The draft EA states that Pantex workload requirements "is (sic) expected to be similar to that experienced in the past for all assembly/disassembly operations." Questions that should be answered include: What were the historic peak years for disassembly, and for assembly/disassembly? What types of disassembly accidents have occurred with what exposures to workers and releases into the environment? 1042/30

Footnote 1 states that 50,000 nuclear weapons have been dismantled in the last 40 years. How many were done at Pantex? How many were done at other facilities? What other facilities were used? Can those facilities be used for at least some of the proposed dismantlement?

Footnote 2 describes staging. What is the maximum time that pits have been stored at Pantex? Where were they stored? With what results? What types of accidents have occurred during transportation, with what exposures to individuals, with what releases into the environment?

4. Page 1-2. The implication is that pits have been stored at Pantex since December 1989. How many pits? What kind of inspections have been done? What measured exposures have workers received? What accidents have occurred? Does the 6 to 10 year interim storage time frame start from 1989, from 1993, or what date? Will pits stored longest be moved first once some other storage or disposal facility is available? 1042/31 1042/32

5. Page 2-1. The draft EA states that without additional storage, disassembly would cease by as early as the fourth quarter of 1993. Would such cessation in any way violate the terms of negotiated arms agreements? What contingency plans exist or are being developed to avert such a cessation? 1042/33

If 20,000 pits are stored at Pantex by 2003, how long would it take to ship that entire inventory to another location? What NEPA analysis or safety analysis has been done of the relative risk of continuous shipment off-site for 10 years versus accelerated shipment in higher volumes after the large inventory has been accumulated? 1042/34

6. Page 2-2. Figure 2.1 indicates that in the three years since RFP stopped processing pits (December 1989 to 4th Quarter 1992), Pantex has accumulated between 3,300 and 3,800 pits. How many are actually stored at Pantex? Have any pits been shipped off-site 1042/35

since December 1989? If so, how many and to what location(s)? (See also: issues raised in comments about page 1-2.)

7. Page 3-1. Footnote 1 states that using the 18 Modified-Richmond magazines for up to 6,800 pits (or 378 each) "is not currently the operationally preferred configuration" but does not explain why that is so. 1042/36

Footnote 2 states that the 406 pits/magazine single-layer vertical configuration "will not be considered for use" but does not provide any basis for that statement.

8. Page 3-2. "The majority of the stored components in Zone 4 would be packaged in AL-R8 containers... but other approved containers" may be used. The EA should provide much more information about the AL-R8 containers, including: 1042/37
- description, including size, weight, composition (compare with page 6-1 description of "carbon or stainless steel drum")
- how many currently exist,
- how old they are,
- how many new containers will be built,
- what kind of independent certification will be required,
- what the demonstrated optimum lifetime has been,
- what kind of deterioration/corrosion has occurred with the existing inventory?

Similarly, much more information about "other approved containers" is necessary, including:
- detailed information on the specific containers to be used,
- what kind of independent certification will be required,
- whether combined storage/transportation containers can be used,
- the time frame within which such containers will be available?

Variations or combinations of potential storage configurations are mentioned. What are the costs and risks of such variations? Why are aisles not required? How can inventories be done without aisles unless virtually the entire magazine is taken outside? 1042/38

The draft EA discusses the shielded electric forklift, but does not provide important information, including: 1042/39
- how many of those forklifts are currently in use,
- what are measured reduced exposures to workers,
- what is the accident history of those forklifts compared to unshielded forklifts?

The draft EA mentions the AGVs, but does not describe:
- when such vehicles could be available,
- the calculated reductions in time for inspections or reduced worker exposures,
- what kind of testing has been done with prototype vehicles and with what results,
- how the barcodes would be placed on pits already stored.

"Individual pit containers could rest on casters rather than on the concrete floor of magazines," but Figure 3.2 (page 3-4) says that having six rows of pits on casters is "operationally preferred." The EA must provide an analysis of why such a configuration is 1042/40

operationally preferred. For each configuration, the EA must provide an analysis of how inspections would be done, including how much movement of pit containers would be necessary, how two workers could ensure that each container was returned to its assigned location, how much time the configuration takes to load and unload and the calculated exposures. For containers on casters, the EA must describe the operational experience with casters, how frequently casters break or containers fall off.

For palletized multiple stacking, the EA must describe how frequently the pallets would be changed, the history of damage and breaking of the pallets, accident scenarios including possible releases when pallets break and containers are dropped. It must describe the structural integrity of each pit container, its design specifications including weight-bearing ability, actual history of containers supporting triple stacking (as shown in Figure 3.4). 1042/41

9. Pages 3-3 to 3-8. All of the figures are deficient for several reasons: 1042/42

- no scale is given
- the containers are not specified (AL-R8 or others)
- the figures are inconsistent with the narrative. For example, Figure 3.6 shows the bounding single-layer configuration in the SAC magazine is 420 containers, whereas page 3-1, footnote 2 says maximum packed capacity is 406 pits. Figure 3.2 shows 336 pits as the "operationally preferred" configuration for Modified-Richmond magazines, whereas page 3-1 says that storage would increase from existing 378 pits to 440 pits. In contrast Figure 3.5 shows 378 pits as the "bounding" configuration.

Clearly, either the figures are wrong, the text is wrong, or both are wrong. In any case, the discrepancies must be resolved and explained.

10. Page 4-1. The draft EA states: "For the other alternatives, in each case there were additional costs, transportation requirements, and facility modifications or infrastructure requirements." No evidence is provided to support such a statement. At a minimum, the EA must detail the costs of the preferred alternative and of each proposed alternative, describe the transportation requirements and why procedures used in the past are not adequate, and describe the types and costs of facility modifications. 1042/43

11. Page 4-2. The Note stating that additional repackaging would be required for off-site shipment must be explained. What differences are required for repacking now as compared to when pits were being shipped to Rocky Flats? Are the "Type B shipping containers" going to be certified by the Nuclear Regulatory Commission? Why could pits not be shipped in the AL-R8 containers? 1042/44

12. Page 4-4. In c), the claim is made that decentralized storage "could effect a net increase in expected radiological worker exposure," but no basis is given for the statement. Specific calculations should be presented and the discussion should differentiate between cumulative exposures to a lesser number of workers versus lower exposures to a larger number of workers. 1042/45

13. Page 4-5. The statement that "no DoD facility is currently available" for pit storage appears to be false, since news reports indicate that pit storage is immediately available at Kirtland Air Force Base, near Albuquerque, New Mexico. In any case, the capabilities of the Kirtland facility must be discussed in detail in the EA. 1042/46

There is no basis provided for the statement that "the storage of pits at DoD facilities would offer no environmental advantage over the proposed action." To support that statement additional analysis and answers to questions include: do each of the potential DoD facilities have a greater or lesser likelihood of a catastrophic airplane crash than Pantex? Do any of the other facilities sit on an aquifer similarly important as the Ogallala? Would the potential storage facilities at other locations allow for inspections that would require less movement of pits and/or quicker inspections so as to reduce worker exposure?

14. Page 6-1. The statement that "routine operations of the No-Action Alternative are similar to those for the proposed action" would appear to be false and is at odds with other statements in the draft EA about worker exposure impacts. Even for non-radiological impacts, common warehouse/industrial accidents and injuries will be higher with the proposed action than with no action. 1042/47

The few sentences in Section 6.1.1 are the most detailed description of the pit and storage container, but do not provide adequate or complete information (see also: comments about page 3-2). 1042/48

15. Page 6-2. Some of the specific assumptions for the proposed action alternative do not appear to be conservative: 1042/49

- inventory inspections should be calculated on a more frequent basis than once every 18 months; to be consistent with assumptions used for the no-action alternative and to make reasonable comparisons, inventory inspections should be each month (see page 6-3).
- since the maximum Modified-Richmond capacity is 440 pits (page 3-1), 220 pits per side could not be inspected in 70 minutes. Unless better information about actual inspection rates is available, a conservative assumption should be that the time required is at least twice that specified;
- inspecting 392 pits in a SAC (maximum capacity specified on page 3-1) is assumed to take 140 minutes, the same amount of time given for inspecting 440 pits in a two-sided Modified-Richmond magazine. Inspecting more than ten percent more pits should take at least more than ten percent more time.
- horizontal palletized stacking is assumed to take about one-third less time than for single-layer stacking. Justification and actual calculations are needed to justify that difference;
- corrosion inspections are specified only for single-layer vertical configuration. However, container and pallet integrity inspections are necessary for palletized storage and must be assumed in calculations.
- two hours for storage facilities to be open is not conservative based on 140 minutes each (which itself is not conservative). In terms of number of workers to be affected, more than two workers per inspection should be used and two workers should be assumed to inspect only one magazine per day.

- capacities assumed are not consistent with those stated in other places in the draft EA. Consistent numbers should be used throughout.
- radiation dose rates are not adequately supported; actual historically measured rates and calculations, and conservative extrapolations from those data, should be used.

The statement that shielded forklifts and AGVs "would further reduce worker exposure" should be supported by actual calculations and analysis. If such vehicles do have that effect, the EA should specifically describe the health effects and justification for storing pits without using such vehicles.

16. Page 6-3. Some assumptions used for the no-action alternative do not appear to be conservative:
- 70 minutes inventory inspection time is not well supported (see comments about page 6-2);
- corrosion inspections only once in 18 months;
- see also comments about page 6-2 for other assumptions.

17. Page 6-5. The discussion of a forklift accident does not use the most conservative assumptions, including for the amount of plutonium dust available and the actual inhalation by a worker. Thus, the statements that there would be no health effect to the worker and no consequences to the public are not adequately supported. 1042/50

If you, your staff, or DOE have any questions regarding these issues please contact Beverly Gattis, STAND of Amarillo, at 806/358-2622, or Don Hancock, Southwest Research and Information Center, at 505/262-1862.

Thank you for your consideration of these issues.

Sincerely,

Beverly Gattis

Beverly Gattis, on behalf of:

Panhandle Area Neighbors and Landowners (PANAL)
Panhandle, Texas

The Peace Farm
Panhandle, Texas

Serious Texans Against Nuclear Dumping (STAND) of Amarillo, Inc.
Amarillo, Texas

Texas Nuclear Waste Task Force
Hereford, Texas

the Peace Farm
HCR 2 Box 25
Panhandle, Texas 79068
806-335-1715

March 12, 1993

Roger Mulder
Director, Special Projects
Office of the Governor
P.O. Box 12428
Austin, TX 78711

COMMENTS
ON THE PREDECISIONAL ENVIRONMENTAL ASSESSMENT
FOR INTERIM STORAGE OF PLUTONIUM PITS AT PANTEX

The Peace Farm is a membership-based organization whose mission is to create an environment for peace through peaceful means, to assert that peace can exist only where there is justice, and to develop an ecological model for nonviolent social change. It has about 750 members, some 550 of whom are Texas residents, with slightly less than 200 in the Texas Panhandle. The following comments were accepted in draft form at a Board of Directors' meeting February 21, 1993.

ROLE OF INTERIM STORAGE

The Peace Farm believes that priority should be given to moving as rapidly as possible from dismantlement of nuclear warheads to international verification and permanent disposal of the pits in such a way as to make reassembly of warheads or other use in military of civilian economies as unfeasible as possible. In this regard, we see the proposed interim storage of pits as signaling ambiguity to the commitment of permanently ending the nuclear arms race or to ending nuclear proliferation.

We recognize that final disposition of the plutonium should involve a broad public debate and public decision. This decision should be based on as full a public disclosure of all information as possible regarding the stockpiles of pits, remaining warheads and other special nuclear materials as is consistent with legitimate national security concerns, but national security should no longer be used as a shield to limit debate and public decision making.

LIMITING INTERIM STORAGE

Interim storage, in so far as it is a necessary part of the process, should be interim--as defined in the Environmental Assessment--and limited to the 6-10 year time period referenced in the document. 1043/1

To assure that this timeframe is met, there should be:

* a strict and open accounting with the State of Texas for the pits
* a requirement for quarterly reports to the state for any

pits held in interim storage longer than 10 years, including their intended disposition and timeline for that disposition

* provision for financial penalties for pits held in interim storage longer than 10 years. Otherwise, any pits exceeding the time limit should be reclassified as waste and come under a full review process and environmental impact statement for longterm storage. If the pits are to remain on site as a valuable national resource, their international market value should be determined and that value added to "in lieu of taxes" provisions, paid annually to the State and to Carson County.

Additionally, the EA proposal for interim storage of all plutonium pits at Pantex has rather summarily dismissed a number of other possibilities, which should be fully explored in the document. These include a dispersed storage, using several Department of Energy sites, utilization of Department of Defense sites, particularly Kirtland AFB. 1043/2

LONG-TERM STORAGE

Because of the irreplaceable value of the Ogalallah Aquifer and the agricultural productivity of the area, Pantex should not be considered as a site for longterm storage of the pits, final disposition, or any plutonium processing activities. The burden of proof for any of these activities should be on DOE to assure that this is the most suitable alternative in terms of environmental safety and security, and that in event of a catastrophe, this is the site for which consequences would be least. 1043/3

COMPENSATION

There should be a provision for compensation for any real or perceived loss in property value caused by interim storage of a large quantity of plutonium pits and a provision for compensation for loss of value, real or perceived, to agricultural products of the area caused by any activity associated with dismantling. 1043/4

SCOPE OF DOCUMENT

The EA should include the full scope of dismantling activities at Pantex, including increased worker exposure to radiation and other hazardous materials throughout the dismantling process, transportation on and off site, any increase in chemicals used to clean work areas, tools and clothing, and any increased disposal of high explosive material associated with increased dismantling. It should also include analysis of the increased handling and short-term storage of other nuclear materials involved in the dismantling process. 1043/5

HAZARDS AND ACCIDENTS

Hazards are dealt with speciously in the current document, and should be dealt with fully when there is risk of catastrophic harm, even if the likelihood itself is very low. The document should include effects of interim storage on structures and surrounding soil overburden. It should include an assessment of any risks involved in transit from dismantling to storage and transit accidents, and of the consequences of accidents in monitoring procedures or in the event of corrosion, either of containers or structures themselves.

RECOMMENDATION

The Peace Farm believes that the State of Texas should not accept a Finding of No Significant Impact on the basis of the EA, and should require a full Environmental Impact Statement that covers the entire range of dismantling and interim storage activities at Pantex. 1043/6

At the same time, the State should urge that the long-delayed Programmatic Environmental Impact Statement should be reopened to include dismantling and storage on the scale at which it now occuring, or an additional system-wide EIS should be initiated to cover effects of dismantling activities throughout the complex and options for final disposition of plutonium, tritium and highly enriched uranium. 1043/7

We would also like to expres: our appreciation to the State for its role in facilitating public comment on the EA.

Sincerely,

Mavis Belisle

Mavis Belisle
Director, Peace Farm

March 15, 1993

Roger Mulder
Director of Special Projects
Environmental Policy Division
P.O. Box 12428
Austin, Texas 78711

Dear Mr. Mulder,

My letter of January 16, 1993, was not a complete evaluation and I would like to supplement the facts and ideas of this letter referring to the draft of the Environmental Assessment prepared by the Department of Energy regarding the proposal to increase the plutonium at the Pantex Nuclear Weapons Plant, near Amarillo, Texas.

In this nation which supports freedom of speech, I feel that it is my democratic obligation to express my sincere views and comments on the proposed plutonium pit storage at the Pantex Plant, which was designed solely for assembling and disassembly of nuclear warheads, missiles and conventional bombs during World War II. Prior to now, only a few assembled bombs and disassembled parts were stored at Pantex until they could be

1044/1

transferred to a proper, safe facility which stores plutonium pits underground, so the temperature of the containers will have an environment of more constant temperature.

I oppose the storage plan the Department of Energy has outlined for plutonium containers in the old, obsolete and unsafe Modified-Richmond and S.A.C. (steel arch construction) huts or igloo type buildings. The increase in storage capacity for each Modified-Richmond magazine involves the use of a multiple stacking configuration of the pits within the magazine. S.A.C. magazines have not been used previously for holding pits, and the multiple stacking arrangement has not been used previously in S.A.C. or Modified-Richmond magazines. These methods of storage will be extremely dangerous for both workers and the public, as the pit containers in the vertical arrangement will be wall to wall and there is no way an inspector could inspect containers in the back, for the plans show no walking room. Some arrangements have a very narrow middle aisle. The interior of the pit storage igloos have an awesome, unhealthy atmosphere and the inspectors

1044/2

1044/3

are allowed a very short time while inspecting the pit containers. Why were the majority of the pits stored in AL R8 containers? You commented that Type B containers were less dangerous and are certified for off-site transportation of pits under the Department of Energy's performance criteria adopted from Section 10 of the Federal Regulations Part 71 (10 CFR 71). 1044/4

As taxpayers we commend the DOE's decision to plan carefully and use suitable places for pit storage which will eliminate problems down through the years ahead. We have financed many facilities for the armed race. Some of the facilities are: the warhead and pit storage at Kirtland Air Force Base (Albuquerque, New Mexico), the Sierra Army Depot in California, the new unused plant for plutonium reprocessing called the New Special Production Facility at the Savannah River Plant, and a new unused Plant built in Rocky Flats in 1983. Some experts believe plutonium pits would be relatively safer at the Department of Defense's military bases where security is better and the storages suitable and safe. When Pantex finishes its disassembly work, I respectfully ask you to move the pit storage 1044/5

to a safer site where it will be guarded well and may be used in the pit reuse experiments. Hopefully there will be a good purpose for nuclear components, such as the nuclear hospital equipment we now have.

From 1981 to 1986, Pantex had a burning pit in which solvents and uranium were found and were present at 329 below the surface in soils underlying the pit, while the Ogallala Aquifer occurs at a depth of 390 to 420 beneath the site. These years when the Department of Energy did not tell us about these dangerous pollutants coming from the burn pits has had a great impact on the Panhandle of Texas. I will enclose a summary of "Texas Background Radiation Levels determined by Thermoluminescent Dosimeter (T.D) Monitoring" in the "1990 Environmental Monitoring Results". The 1988-89 surveillance program already showed considerable contamination of the soil, surface water, vegetation, sediment, and crops such as sorghum and winter wheat. Also a passive integration of gamma radiation was obvious in this report. In the 1988-1989 Environmental Surveillance Program, Gamma scan (suspected radionuclides: U238); Gross alpha; gross beta; H-3 were present in the

1044/6

soil, surface water, vegetation, sorghum and winter wheat. Surface water showed all of the above Analysis types with Pu-239 included. I am enclosing the 1990 "Summary of Texas Background Radiation Levels" as determined by Thermluminescent dosimeter-(TLD) monitoring. Potter County includes Amarillo, Texas, which is only 7.68 miles from Pantex. The Amarillo Air Terminal is only 8.16 miles from the Pantex Plant. The run ways are even closer than this mileage. No city or town should be this close to Pantex; nor should the busy air terminal be in the vicinity of Pantex, as most of the air traffic included passenger planes and a great number of military aircraft shooting running take-offs and landing. 1044/7

The storage of pit plutonium will be extremely hazardous and life threatening to the citizens of our entire Panhandle Area, and will have a destructive impact on the Ogallala Aquifer, our environment, our agriculture and livestock industries. 1044/8

Thanking you for your attention to my evaluation, I remain,

Sincerely yours

Margie K. Hazlett +5- 427 Union, Borger, Texas 79007

Summary of Texas Background Radiation Levels as Determined by Thermoluminescent Dosimeter (TLD) Monitoring

Site No	Station No	County	1st Qtr mrem per 91 days	2nd Qtr mrem per 91 days	3rd Qtr mrem per 91 days	4th Qtr mrem per 91 days	Year Total mrem	Notes
021	6	BRAZORIA	26.2	14.2	24.4	21.9	86.7	BACKGROUND TLD
020	6L	BRAZORIA	37.6	17.8	18.6	21.9	95.9	BACKGROUND TLD
026	11	BRAZORIA	19.2	15.5	15.9	20.5	71.1	BACKGROUND TLD
025	6Z	BRAZORIA	29.2	14.2	24.4	21.9	86.7	BACKGROUND TLD
001	14	BRAZOS	37.0	0.0	11.0	16.7	64.7	BACKGROUND TLD - Q1: MISSING
007	8C	ECTOR	21.4	14.0	18.0	22.9	76.3	BACKGROUND TLD
006	8Z	ECTOR	21.4	14.0	18.0	22.8	76.3	BACKGROUND TLD
027	7	GALVESTON	10.5	17.9	16.1	22.6	67.1	BACKGROUND TLD
016	6	GALVESTON	17.8	18.7	21.9	37.6	96.0	BACKGROUND TLD
023	24	HARRIS	29.5	18.5	16.4	21.1	85.5	BACKGROUND TLD
017	1	HARRIS	27.5	16.8	15.3	18.5	78.1	BACKGROUND TLD
018	24	HARRIS	29.5	18.5	16.4	21.1	85.5	BACKGROUND TLD
014	7	HARRIS	26.3	15.1	15.6	22.6	80.6	BACKGROUND TLD
013	7	HARRIS	26.3	15.1	16.6	22.6	80.6	BACKGROUND TLD
011	1	HUNTSVILLE	26.2	16.7	17.6	22.1	82.6	BACKGROUND TLD
034	10	HARRIS	17.3	12.5	14.0	25.8	69.6	BACKGROUND TLD
033	10	HARRIS	17.3	12.5	14.0	25.8	69.6	BACKGROUND TLD
036	10	HARRIS	17.3	12.5	14.0	25.8	69.6	BACKGROUND TLD
037	17	KINNEY	19.5	17.9	10.7	14.2	62.3	BACKGROUND TLD
041	11	KLEBURG	14.0	9.7	25.7	16.5	65.9	BACKGROUND TLD
039	1	LIVE OAK	20.7	14.3	14.5	15.6	65.1	BACKGROUND TLD
012	45	MATAGORDA	19.1	16.3	15.9	15.2	66.5	BACKGROUND TLD
009	8C	MIDLAND	21.4	14.0	18.0	22.9	76.3	BACKGROUND TLD
010	8	MIDLAND	21.4	14.0	18.0	22.9	76.3	BACKGROUND TLD
008	8C	MIDLAND	21.4	14.0	18.0	22.9	76.3	BACKGROUND TLD
005	24	POTTER	30.7	47.6	21.3	26.4	126.0	BACKGROUND TLD
031	45	SOMERVELL	29.3	16.2	14.2	15.2	74.9	BACKGROUND TLD
004	A20	TRAVIS	20.0	15.4	0.0	0.0	35.4	BACKGROUND TLD
002	20T	TRAVIS	10.4	14.1	14.3	15.6	54.4	BACKGROUND TLD
003	20T	TRAVIS	10.4	14.1	14.3	15.6	54.4	BACKGROUND TLD
004	B20	WILLIAMSON	0.0	0.0	15.4	12.5	27.9	BACKGROUND TLD

Friday, February 19, 1993

Lab conducts tests on a pit from Pantex

By JIM McBRIDE
Globe-News Special Projects Writer

Engineers at Lawrence Livermore National Laboratory in California have started a new series of tests on a plutonium pit from the Pantex Plant to determine why its metal covering cracked during a disassembly operation, a laboratory spokesmansaid.

"It's totally cut apart. All of the special nuclear material has been removed and right now it is undergoing a series of metallurgical tests to see if they can find out the cause of the crack," said David Schwoegler, assistant news bureau manager for Lawrence Livermore, an Energy Department laboratory near San Francisco that specializes in weapons design and research.

Pantex, located about 17 miles northeast of Amarillo, is the nation's primary assembly and disassembly plant for nuclear weapons. It is operated for the Energy Department by contractor Mason & Hanger-Silas Mason Co.

No workers were contaminated during the incident, which occurred on Nov. 12, officials said.

The event occurred while workers were dismantling a W-48 weapon, a 155mm nuclear artillery shell, officials said.

Workers were removing high explosives from a pit when the sealed metal sphere containing the plutonium developed a hairline crack, officials said.

A pit, the core of a weapon used to trigger a nuclear chain reaction, is composed of plutonium metal surrounded by a hermetically sealed, nonradioactive outer case.

Within minutes of the incident, health physicists had monitored workers and the work area, triple-bagged the unit and placed it in a container, said Tom Walton, an Energy Department spokesman at Pantex.

Walton said the assembly cell contamination was caused by plutonium particles, but no nuclear materials were released outside the work station inside the assembly cell.

The areas involved were decontaminated and low-level radioactive waste from the incident is expected to be shipped to the Nevada Test Site for disposal, Walton said.

Amarillo Daily News Friday, February 19, 1993

Amarillo Daily News Saturday, February 20, 19

Pantex officials: Workers 'staged' pits improperly

By JIM McBRIDE
Globe-News

Workers at the Pantex Plant violated plant procedure last week by temporarily leaving plutonium pits in an improper location, officials said Friday.

Pantex, located about 17 miles northeast of Amarillo in Carson County, is the nation's primary assembly and disassembly facility for nuclear warheads. It is operated for the Energy Department by contractor Mason & Hanger-Silas Mason Co.

Tom Walton, an Energy Department spokesman at Pantex, said the incident occurred Feb. 11 when workers finishing a shift failed to put pit storage containers on an automated loading device that would have moved them to an adjacent location where they would have been "staged" before transfer to interim storage in Zone 4 igloos. The violation occurred in the Zone 12 south production area after the pits had been removed from weapons and placed in special containers, he said.

"They were not put on the machine and taken in like they should have been. So it was definitely a procedural breakdown," Walton said. "The procedure as written does not allow to leave these sitting there at the end of the shift. They are supposed to be put up."

Walton noted that the two rooms are very close to each other. No workers were exposed to radiation during the incident, and there were no security or waste-management problems because of the event, he said.

"As far as the pits themselves, they were as secure as those in the room next to them," he said.

A pit, the core of a weapon used to trigger a nuclear chain reaction, is composed of plutonium metal surrounded by a hermetically sealed, non-radioactive outer case.

At the plant, pits are staged temporarily in some locations after they are removed from weapons. Then they are moved under tight security by truck to igloos in Zone 4 for interim storage. A draft environmental assessment of increased storage of pits in Zone 4 calls for storage of the special nuclear material for 6 to 10 years. State officials now are studying the draft to make comments on the document before it is approved by the Energy Department.

A.J. Eggenberger, vice chairman of the Defense Nuclear Facilities Safety Board, a congressional nuclear safety watchdog group, said board staff members were touring the site last week when one of them noticed that the pits were not placed in the proper location.

'Hidden' industry contributes $14 billion to area's economy

You could almost call cattle feeding a "hidden" industry. Not many realize how large it is, how many people it employs, or how significant it is to the economy.

In fact, not many realize that this industry, with its headquarters in Amarillo, produces more than one-quarter of the nation's fed beef.

"Cattle feeding in Texas, Oklahoma and New Mexico," said Joe Hathoot of Canadian, 1992 president of Texas Cattle Feeders Association, "generates $14 billion every year for our local and regional economy."

To arrive at those figures, Hathoot calculated the total value of the cattle fed in the TCFA area in 1991 and then applied an economic multiplier to determine total economic impact.

"Based on TCFA data, the average price for fed cattle in the TCFA area in 1991 was $74.56 per hundredweight and the average live weight was 1,128 pounds," he said.

"That means the 6 million fed cattle produced in the TCFA area in 1991 had a value of $5.05 billion," Hathoot said.

Using a 2.82 multiplier supplied by Dr. Steve Amosson, agriculture economist with the Texas Agricultural Extension Service in Amarillo, Hathoot calculated the total value of cattle fed in the TCFA area to be $14.2 billion.

But it hasn't always been that way, he said.

"Back in 1967, when TCFA was formed, Texas wasn't even considered a major cattle-feeding state. We marketed only 1.6 million fed cattle. However, the industry grew rapidly and, in 1984, Texas became the first state to ever market more than 5 million fed cattle.

"Today, when you add the fed cattle production in Oklahoma and New Mexico, the total comes to more than 6 million – about 27 percent of the fed beef produced in the U.S."

The industry is particularly important to the Texas Panhandle and neighboring western Oklahoma and eastern New Mexico, Hathoot said.

"About 80 percent of the region's fed cattle production – 5 million head – can be found in the Panhandle of Texas, western Oklahoma and eastern New Mexico."

Hathoot said the typical Texas Panhandle feedlot has about a 20,000-head capacity.

The typical yard employs about 1.1 people per 1,000 head on feed, he said, meaning the typical feed yard employs 22 people directly.

"An employee spends about 90 percent of his or her disposable income and virtually all is spent regionally," Amosson said. "That means if a feed yard employee makes $20,000, he or his family will spend it at the local supermarket, department store or service station."

But the impact doesn't stop there. According to the revenue estimating division of the state comptroller's office, for every job generated directly by the cattle feeding industry, another 7.73 jobs are created elsewhere.

"That means a single, average-size feed yard in the TCFA area will generate enough economic activity to provide jobs for another 170 people," Hathoot said.

"And since our region has about 2.5 million head on feed at any given time during the year, the cattle feeding industry in Texas, Oklahoma and New Mexico has a direct employment of 2,750 people, provides economic stimulus to create another 21,250 jobs, for a total of 24,000 jobs."

Hathoot said that number can be a significant economic base for the many small- and medium-size communities throughout TCFA cattle-feeding country.

Included in the many jobs that a feed yard generates are truck drivers, packing plant employees, and computer sales and support personnel.

"Take truck drivers, for instance," Hathoot said. "A single 20,000-head feed yard will require more than 3,600 truckloads of feed stuffs and cattle a year. That means 10 semitrucks a day roll in and out of a single feed yard."

Hathoot, however, takes particular pride in the significant role that cattle feeders play in feeding a hungry world.

TCFA works to promote quality beef

Texas Cattle Feeders Association knows consumer perceptions can make or break a product, and it has initiated efforts to ensure that the beef industry offers a quality, wholesome product, said Richard McDonald, TCFA executive vice president.

TCFA, recognizing the potential image problem, led the way in establishing the industry's quality-assurance efforts when it released its Beef Quality Assurance Program in 1986 – the first of its kind in the cattle industry, McDonald said.

The program is aimed at giving consumers the assurance they want that beef is a safe, wholesome food, McDonald said.

TCFA's quality-assurance program has been the model for programs in 30 other states so far, he said, and has met with wide acceptance by TCFA feed yard members.

The program includes an agreement to follow normal good management practices, backed with testing at the feed yard and packinghouse, he said. It identifies feed sources, feed medications, individual treatment, pesticides, maintenance records and any action should a violation occur.

The program is a cooperative effort between the feed yard and government agencies and is monitored by periodic sampling of carcasses at packing plants by Federal Safety Inspection Service, McDonald said.

STAND of Amarillo, Inc.
7105 W. 34th – Suite F
Amarillo, TX 79109
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March 22, 1993

Roger Mulder
Director, Special Projects
Environmental Policy Division
Office of the Governor
P.O. Box 12428
Austin, Texas 78711

re: Predecisional Environmental Assessment for Interim Storage of Plutonium Components at Pantex (DOE/EA-0812)

Dear Mr. Mulder:

Thank you for the opportunity to offer the following comments about the Predecisional Environmental Assessment for Interim Storage of Plutonium Components at Pantex (hereafter "draft EA") on behalf of Serious Texans Against Nuclear Dumping (STAND) of Amarillo, Inc. STAND is a non-profit membership organization concerned about the effects of operations involving nuclear materials on the people and resources of the Panhandle.

STAND is committed to full public participation in the decision-making processes involving the Department of Energy's (DOE) nuclear weapons complex (hereafter "complex"). It also believes that sound public policy can be achieved only when that public participation is substantive and based on full access to all relevant information. The only exceptions to full disclosure should be limited to information which poses legitimate national security concerns, such as protection of weapons design data. 1045/1

STAND finds there are major legal and substantive deficiencies in the draft EA. The draft EA is insufficient to support a Finding of No Significant Impact because the information presented is inadequate. We believe the draft EA fails, as well, in its approach to the basic issues and NEPA processes involved.

Most importantly, we find the scope of the draft EA to be so narrowly defined that it cannot responsibly address the issues effecting Pantex. The proposed dismantlement of up to 20,000 warheads, and the immediate need for the complex to accommodate both the work and variety of materials generated, is the fundamental situation driving the changes involving Pantex and other sites.

Additionally, the proposed dismantlement is already underway. It is proceeding without the benefit of any integrated evaluation of the demands of the work or facilities needed for the interim disposition of the variety and quantities of materials inevitably produced.

The unprecedented dismantlement of up to 20,000 nuclear warheads, and its inevitable ramifications, constitutes a major federal action significantly affecting the quality of the human environment and requires issuance of an environmental impact statement (EIS).

Major comments

1) The scope of the draft EA must fully respond both to the nature of current dismantlement work affecting Pantex, and to interim disposition not only of plutonium pits but of all other materials which inevitably will result. Significant circumstances which must be taken into account are:

a) Both the number of warheads to be dismantled and the pace scheduled for dismantlement is unprecedented.

b) There is no current defense program need for the pits. Long-term future need is anticipated to be small, conceivably even zero. What used to be a closed-loop cycle of plutonium reprocessing and re-use no longer exists.

c) There is a breakdown of the historic pattern of materials flow within the complex. The facility which used to receive and reprocess/recycle the plutonium pits from Pantex, the Rocky Flats Plant, is closed; no other such facility currently exists in the complex.

In the past (as recently as 1991) Pantex officials stated uncategorically that pits were "staged," not stored, at Pantex. Though citizens always assume staging is an extremely flexible proposition convenient to DOE, it is, even by the definition in the draft EA, inherently different from storage.

> "Staging is the temporary holding of materials (weapons or components) as they await the next step in their process flow (i.e. disassembly or transport off-site). There is no set time limit for staging since movement of materials (for transport, disassembly, etc.) is dependent on scheduling, upstream process flow stream conditions, resource availability, etc." (p. 1-1)

With no interim "upstream process flow" available, years of storage will be required. This is a fundamental change in work and mission for Pantex.

e) Though the draft EA focuses on plutonium pits, the unprecedented dismantlement yields a variety of other materials which must be temporarily staged or stored in areas able to provide proper security.

Existing storage space qualified to provide proper safeguards and security is limited. These materials require such space not only at Pantex, but compete for the limited space available in other parts of the complex.

Pantex itself must accommodate at least: 1) special nuclear material (SNM) such as highly enriched uranium (HEU), or other closely held material such as tritium, 2) warheads awaiting dismantlement, 3) other weapons components, 4) mixed waste containing SNM or closely held material, 5) warheads needing maintenance/evaluation. The draft EA does not adequately discuss the space neeeded to accommodate these materials.

For the complex in general, the draft EA states, "The complex has limited storage capacity, and each site's capability to store material (pits and SNM in various other forms) must be maximized...." The draft EA continues by referring to "many ongoing programs" to assess current storage, and explains that other residues, wastes and material "vie for the existing or potential storage capacity...." (p. 4-4) The explanations are clearly intended to create a sense of inevitability and necessity for acceptance of the draft EA's proposed action of intensified pit storage at Pantex.

However, the explanation just as clearly establishes that there is an urgent need for integrated evaluation of the demands on the complex. The effect of adding materials from dismantlement to already existing materials is straining the storage facilities needed to house them. The storage needs are interrelated, but evaluations are going forward in a fragmented manner.

2) The draft EA does not present realistic time frames for when current storage capacity will be reached, yet timing is portrayed as urgent. 1045/3

a) The draft EA could, but does not, present sufficient information about the number of pits already accumulated at Pantex so that an accurate starting inventory can be established. Information from other DOE sources (see attached document 1: U.S DOE Pantex Plant Nuclear Weapons Disassembly History FY 1980 thru FY 1992) indicate that actual dismantlements resulting in pits potentially remaining at Pantex are: FY 1990 - 1151; FY 1991 - 1595; FY 1992 - 1303.

b) There is insufficient information provided in the draft EA to substantiate any of the statements about when capacity would be reached, such as, "Capacity, at currently projected dismantlement schedules could be reached as early as 4th calendar quarter of 1993." (p. 3-1)

Since 1990, the highest annual rate of disassembly, for either retirement or evaluation, appears never to have exceeded 1757. (see attached document 1) Historical records seem to indicate that DOE's goal of maintaining a disassembly rate of 2,000 weapons per year may be overly ambitious.

Clearly the actual rate of dismantlement is variable, and should be, since different weapons systems have different requirements, etc. More importantly, the primary consideration of the Plant must be worker and operational safety.

In order to establish a better basis for planning, free of exaggerated time constraints, the establishment of both a clear starting point and an achievable rate of dismantlement is necessary, and offers no threat to national security. Indeed, it enhances safety by supporting informed decision-making which is not driven unnecessarily by a false sense of urgency.

3) The draft EA does not establish a clear sense of DOE's prioritization of the different environmental (as defined by NEPA) impacts.

Worker exposure is acknowledged to be the principal impact (viii). However, discussion of alternatives in the draft EA never clarifies whether or not any of the alternatives might offer more worker protection than another. It is as if, no matter where the storage location is, the rates of exposure will be the same -- though this is never substantiated in the text. 1045/4

Given that approach, one of the justifications for not accepting alternative 4.4, "Interim Storage at a DOD facility," is that, if any modifications were necessary, "these modifications would inevitably entail some degree of environmental impacts of the type generally associated with construction activities." (p. 4-5)

The draft EA should establish a general ranking of priorities so that decision-making can distinguish among important differences. Lessening worker exposure could indeed justify other concessions or expenses.

4) The draft EA does not completely discuss all the alternatives it presents.

As a most obvious example, in the discussion of Los Alamos National Laboratory (LANL) it lists existing pit storage at TA-41 and TA-55. TA-41 is eliminated because "it does not meet current DOE requirements for ES&H, security, and conduct of operations, and programmatic requirements do not justify the costs required to make needed changes." (p. 4-3) Some of the problems with this discussion are: 1045/5

a) TA-55 is never mentioned again, and remains unevaluated.

b) The extent of modifications needed for TA-41 is not explained.

c) The rationale based on "programmatic requirements do not justify the costs..." is insufficient. Programmatic requirements are only for dismantlement "in an environmentally responsible way that is also timely, cost effective, and uses to the maximum extent practicable, existing facilities and infrastructure." (p. 2-1) Depending on what modifications TA-41 needs, it could be that ES&H benefits might justify the changes when programmatic objectives might not.

5) The draft EA does not present all reasonable alternatives.

As one obvious example: there is no "Supplement No-Action Alternative Storage with Storage at other DOD Sites." 1045/6

Given both the need for dismantlement to proceed in a timely but safe way, as well as an equally valid and urgent need that any decision protect worker safety and public health to the maximum extent, all reasonable alternatives must be available and evaluated to provide flexibility in decision making.

6) The draft EA does not discuss all the plutonium storage locations at the Pantex Plant itself.

The title of the draft EA seems to encompass the entire Plant (Interim Storage of Plutonium Components at Pantex) yet only Zone 4 is ever discussed. In reality there are at least two other locations at Pantex which store plutonium for various lengths of time: Cell 8 and 12-26 Vault, both in Zone 12. 1045/7

In addition, there is another facility currently under construction in Zone 12, referred to as Special Nuclear Material Staging Facility, which might be capable of holding as many as 4,880 pits. (see attached document 2, "DOE Plutonium Strategy Task Force, Steering Committee Meeting, January 30, 1992 (Predecisional), p.26)

None of this storage is taken into account in the Draft EA discussion. Nor has there ever, to STAND's knowledge, been any mention of an intended EA process evaluating the new Zone 12 SNM facility, yet that facility could store more pits than Zone 4 is currently allowed to do.

Though Cell 8 and 12-26 might be used only to briefly stage pits until they are transferred to a storage area, this should be discussed in the text of the draft EA.

The SNM Staging Facility, however, must undoubtedly be considered as relevant to the draft EA's proposed action. It will provide such a significant amount of storage that it changes the entire picture of pit storage time frames, options and capacity as portrayed in the draft EA.

Such a significant facility also deserves at least the same amount of careful evaluation process as is being applied to Zone 4 igloos.

7) The draft EA must accurately portray the history of dismantlement and pit storage at Pantex. There are many instances where this is not the case, but the following two examples are particularly pertinent:

a) In the Executive Summary DOE consistently uses the term storage. The purpose of the EA is even stated as, "to evaluate the environmental impacts of additional interim storage of pits at Pantex..." (p. vii) 1045/8

As previously discussed in comment 1d, pit storage is new to Pantex. If "additional interim storage" is true in any sense, it is only because it has become unavoidable given the current condition of the complex and the change in the world situation. To portray it as merely more of the same, a usual part of Pantex's work, is inaccurate. Pit storage has transpired because it has been unavoidable. Being unavoidable does not mean that it is not a significant change from either past practice or past mission which must be evaluated as such.

In addition, because it is a NEPA process, the final version of this draft EA will become a public document. As such, it is logical that most people will have access to and read the Executive Summary. The summary must be scrupulously written and accurately reflect the significant points of the whole. Section 1.1, Introduction and Background, makes the distinction between staging and storage.

b) The text of the draft EA gives a false impression of the number of dismantlements conducted in the past at Pantex when it uses a footnote within the statement "The primary mission of the DOE Pantex Plant is the assembly and disassembly of nuclear weapons." (p. 1-1) The footnote to the word "disassembly" reads: "Over 50,000 nuclear weapons have been dismantled in the last forty years."

Clearly the impression is that all 50,000 dismantlements took place at Pantex. However, during the August 20, 1992 public meeting of the Defense Nuclear Facility Safety Board, when a Board member pursued this same statement, the Pantex official admitted that of the 50,000 dismantlements only an estimated 10,000 to 15,000 had been done at Pantex.

8) As a public process (made possible at this point only by the efforts of the state of Texas) which will produce a public document, it is important that there is some definition of terms. 1045/9

a) Both NEPA and DOE use certain words and phrases with a particular intent. For example, an "environmental" impact as defined by NEPA is very broad, encompassing far more than the usual implication of the word. For the DOE, there are numerous terms such as "DOE orders" or "safeguards and security" which have a consistent definition for DOE which should be clarified for the general reader.

The draft EA offers listings of Acronyms (p. iv) and Abbreviations - Units and Measures (p. vi). To enhance the public understanding of what is actually being said, a listing and clarification of terminology should be added as well.

b) In addition, the EA must be careful not to confuse issues by using a similar set of words which could give one impression but which could just as easily refer to something else.

For instance, "The DOE Orders and procedures for ensuring safe and secure storage of the pits would continue to be followed rigorously." (p. 3-1) One standard term for DOE is "safeguards and security," referring to the control of the material rather than safety in a health sense. "Safe and secure" leaves a reader in some doubt as to exactly what the DOE is "rigorously" committed to by that statement.

9) Finally, but of extreme importance, the draft EA fails to make clear the implications for worker exposure if the change from current pit storage to intensified pit storage begins to occur before automated systems are developed. Nor does the draft EA clearly commit to Best Management Practices if the decision is delayed. In fact, it does not clearly commit to best management practices even if the intensified storage is approved. 1045/10

In Section 3.0 describing the proposed action, it states that proposed action storage in either type of magazine would be, "in one of two configurations: multiple stacking...and/or a single layer..." It then continues, "These two configurations represent the bounding cases for the number of pits that would be held in a single Modified-Richmond or SAC magazine." (p. 3-2)

No where in the draft EA does DOE commit to not using the single-layer configurations depicted in Figures 3.5 and 3.6, both described as "(Bounding)," yet both depicting and adding up to the maximum packing arrangement. However, on page 4-1 the discussion warns of maximum packing, and states:

> "Actual best management practice to facilitate required safeguards and security activities and reduce worker exposure to radiation could dictate use of other storage configurations that would provide less pit storage capacity."

In addition, the proposed action which would seem to allow DOE ample room for storage, still hedges.

> "Individual pit containers could rest on casters rather than on the concrete floor of the magazines, and aisles may also be used. This would facilitate inventory operations, ensure worker safety, and accommodate operational needs." (p. 3-2)

Wording such as "could" and "may" for procedures which ensure worker safety and benefit other needs is unacceptable in this document -- particularly when outlining the proposed storage option.

In closing, though there are many other significant points, they often fall into areas beyond our resources or have been covered by other comments. These STAND comments are not to be regarded as the limit of our interest or concerns.

If you, your staff, or DOE officials have any questions regarding these issues please contact Beverly Gattis, STAND of Amarillo, at 806/358-2622. Thank you.

Sincerely,

Beverly Gattis

Beverly Gattis
President

U.S. DEPARTMENT OF ENERGY PANTEX PLANT

NUCLEAR WEAPONS DISASSEMBLY HISTORY
FY1980 THRU FY 1992

FY CY	*Retirement Disassembly For Disposal	**Evaluation Disassembly-Disposed of	***Evaluation Disassembly Reassembled	Total Disassembly
1980	535	197	150	882
1981	1,416	161	180	1,757
1982	1,360	175	189	1,724
1983	960	160	256	1,376
1984	860	134	217	1,211
1985	927	148	251	1,326
1986	574	---	291	865
1987	1,068	121	220	1,409
1988	510	71	234	815
1989 (Began Sept 1989 shutdown)	1,134	74	118	1,326
1990	1,056	95	185	1,339
1991	1,546	49	112	1,707
1992	1,274	29	46	1,349
Total	13,223	1,414	2,449	17,086

3,876 (173) 4,049

* Nuclear weapons retired from the stockpile and returned to Pantex Plant for disassembly and disposal.

** Nuclear weapons returned to Pantex Plant for disassembly and evaluation that were disposed of rather than reassembled.

*** Nuclear weapons returned to Pantex Plant for disassembly and evaluation that were then reassembled and returned to the stockpile.

Note: 1966 breakdown not available for nuclear weapons returned to Pantex Plant for evaluation that were disposed of rather than reassembled.

FAXed by Tom Walton, Pantex Jan. 19, 1993

PREDECISIONAL

DEPARTMENT OF ENERGY'S PLUTONIUM STRATEGY TASK FORCE

STEERING COMMITTEE MEETING JANUARY 30, 1992

Chartered by
RADM W. G. Ellis
Deputy Assistant Secretary for Military Application
Defense Programs

Chaired by
Charles G. Halsted
Director, Office of Weapons and Materials Planning

With Support From
Lamb Associates, Inc.
Don Ofte, Director, Plutonium Strategy Task Force

PIT STAGING CAPACITY - PANTEX

LOCATION	NET POSITIONS	CUMULATIVE POSITIONS	COMMENTS
Cell 8	250	250	Available - In Use To Be Replaced By SNM Staging Facility
12-26 Vault	150	400	Available - In Use To Be Replaced By SNM Staging Facility
Zone 4 Igloos	4080	4480	Available - In Use (Single Stack)
SNM Staging Facility	400	4880	Available 7/93
Zone 4 Igloos	2720*	7600*	Double Stack - Requires SAR Approval and S&S Agreements
Weapons Staging Igloos	3200*	12400* 15600*	Single Stack - Requires SAR Approval Double Stack - Requires SAR Approval and S&S Agreements

*Rapid Implementation Possible

Office of the Attorney General
State of Texas

DAN MORALES
ATTORNEY GENERAL

March 19, 1993

The Honorable Hazel O'Leary
Secretary of Energy
Washington, D.C. 20585

Re: Environmental Assessment for the Interim Storage of Plutonium Components at the Pantex Plant

Dear Secretary O'Leary:

The Office of the Attorney General ("OAG") has reviewed the draft environmental assessment ("EA") for the "interim" storage of plutonium components at the Pantex plant. We appreciate the opportunity to review the draft EA and look forward to working with the Department of Energy ("DOE") to ensure that the operation of the Pantex plant does not threaten the health and safety of its workers and neighbors and the natural resources of the Panhandle area. 1046/1

I strongly believe, however, that the draft EA is deficient and that until an environmental impact statement ("EIS") is completed, DOE will not be in compliance with the National Environmental Policy Act of 1969 ("NEPA"). The EIS process would ensure the full input of the public and ensure that DOE would take a "hard look" at the environmental and socio-economic consequences of its proposed activities, consider viable alternatives to the method currently chosen by DOE, and ensure that the adverse environmental and socio-economic consequences of its actions are minimized.

I have been deeply concerned about the activities at Pantex since I first came into office in 1991.[1] While I remain proud of the work done by the workers at Pantex, I also remain profoundly concerned that generations of Texans will be forced to live with a decision regarding the storage of thousands of pounds of plutonium made behind closed doors.

As you know, DOE has operated in the past pursuant to a policy of "decide, announce, defend." I believe that addressing this legacy is one of

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[1] For your convenience, I have enclosed copies of all of the correspondence I sent to your predecessor, Secretary Watkins. See Attachment A.

your greatest challenges. Your office, reflecting the new direction of a new administration, has an historic opportunity to break with the past 12 years and to ensure that DOE does not continue with an exclusionary vision of how it ought to accomplish its mission.

DOE's conclusions regarding environmental impacts in the draft EA reflect the extremely--and impermissible--narrow crafting of the issue assessed by the draft EA rather than the reality of dismantling thousands of nuclear warheads over the coming years and storing, it would appear, nearly 50 tons of plutonium at a single site for an unknown period of time. Moreover, I believe that the conclusions constitute a post hoc rationalization of a DOE decision to turn Pantex into the de facto storage facility for plutonium, rather than the product of a "hard look" at the consequences of DOE's dismantling and storage activities it desires to undertake at Pantex.

More specifically, the draft EA is deficient for the following reasons:

(1) DOE has failed to adequately consider viable alternatives to increasing the storage capacity at Pantex;

(2) DOE has improperly segmented the dismantling and storage activities undertaken and to be undertaken at Pantex; and

(3) DOE has failed to adequately assess the risk of dismantling thousands of nuclear warheads and storing the plutonium pits at Pantex.

I. DOE has failed to adequately consider viable alternatives to increasing the storage capacity at Pantex. 1046/2

DOE's analysis of alternatives to the proposed action of expanded interim storage is extremely superficial at best. This failure to seriously analyze the alternatives indicates that DOE has already determined to go forward with increased interim storage at the Pantex plant and that the draft EA was produced simply to pay lip service to the requirements of the National Environmental Policy Act.

II. DOE has improperly segmented the dismantling and storage activities undertaken and to be undertaken at Pantex. 1046/3

DOE has improperly segmented the analysis of its proposed increased activities at Pantex. While the possible environmental effects of increased interim storage are discussed, the draft EA completely ignores the environmental consequences resulting from the increase in

dismantling activities necessitating the increased storage. The draft EA should include, inter alia, a comprehensive analysis of the increase in waste generated at the plant as a result of the increased dismantlement activities.

For example, in past DOE budget requests and in the Pantex Plant's Environmental Restoration and Waste Management Five Year Plan for Fiscal Year 1993, the Department refers to a high explosives incinerator (see page 6-31 of FY 1993 Five Year Plan). Given that the need for this incinerator necessarily relates to the increased dismantlement activities at Pantex, it would appear that the potential environmental impacts from the incinerator should have been discussed in the EA.

We also note that in the DOE budget request for FY 1993 that DOE requested funds for a "Hazardous Waste Treatment and Processing Facility."[2] According to DOE's description provided to OMB:

> This facility will permit the treatment and declassification of low-level radioactive waste (depleted uranium, tritium and thorium), hazardous waste, solvents, mixed waste, and classified metal components generated at Pantex Plant.

Again, it would appear that the potential environmental impacts from the waste treatment facility, in the event DOE pursues construction of the facility, should have been discussed in the EA.

Furthermore, the **cumulative** environmental effects associated with the increase in movement of warheads into Pantex, the generation of waste products, and the movement and storage of plutonium pits should have been more adequately analyzed.

III. DOE has failed to adequately assess the risk of dismantling thousands of nuclear warheads and storing the plutonium pits at Pantex. 1046/4

DOE has failed to adequately address safety and risk issues in the draft EA. This is a fundamental deficiency of the draft EA.

A. Lack of Meaningful Safety Policy.

DOE has long been criticized for its failure in developing a set of comprehensive and satisfactory safety procedures, i.e., a "safety policy," for its nuclear weapons facilities. Without such an overarching, meaningful safety policy against which to measure fundamental safety policy decisions at its sites, it is difficult to understand how the DOE

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[2] See Attachment B.

under your predecessor was able to adequately develop the "Safety Analysis Report" (or "SAR") which preceded the draft EA and upon which much of the analysis of the draft EA was based. Moreover, it is difficult to understand how, if the draft EA would have properly analyzed the complete range of dismantlement activities at Pantex, DOE could adequately develop SARS for each of the activities associated with the dismantlement and storage of the nuclear weapons.

As stated by the Office of Technology Assessment:[3]

> In its Final Report on DOE Nuclear Facilities, the DOE Advisory Committee on Nuclear Facility Safety ["ACNFS"] noted that the job of solving the operational and safety problems at the DOE weapons complex is "far from complete" and that some of the problems "will take into the next century" to correct.[4]

Although DOE did issue a new Nuclear Safety Policy in September 1991, DOE was subsequently criticized by the ACNFS in its final report for substituting nebulous language such as "continuous improvement" for measurable standards; for paying little attention to the largely chemical nature of the risk at some DOE facilities; and for inadequately treating the inevitable conflict between safety and production responsibilities by simply asserting that they are "compatible." The ACNFS's report stated that DOE needs to spell out how safety goals will be achieved, how priorities will be set, how self-assessments will be judged, and how progress and success will be measured.[5]

At this time, we are not confident that DOE under your predecessor provided sufficient guidance to its regional and field offices for them to make meaningful decisions about acceptable risks, risk assessment methodology, and procedures and policies to identify and minimize safety risks. Such decisions would, of course, be

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[3] OTA Assessment Proposal: Managing Nuclear Materials from Warheads, Feb. 1, 1992; submitted to Senate Committee on Governmental Affairs.

[4] [Footnote in original.] Advisory Committee on Nuclear Facility Safety, "Final Report on DOE Nuclear Facilities," report prepared for the Secretary of Energy, U.S. Department of Energy, Washington, D.C., Nov. 1991, p.11. The ACNFS vigorously advocated the development of a department-wide safety policy which would allow different parts of the DOE to make internally consistent decisions between possibly conflicting values such as safety and production.

[5] See, Statement by J. Dexter Peach, Assistant Comptroller General, General Accounting Office, given at Hearing before the Senate Committee on Governmental Affairs of Nuclear Disarmament on Department of Energy, Feb. 25, 1992 ("Hearing"), p. 5.

reflected in the SAR or SARS providing the basis or bases of the EA or EAs. I believe that production of an EIS would ensure the public that important risk and safety issues were clearly and fully analyzed.

More specifically, the draft EA does little to allay our concerns about the potential safety problems that could arise from DOE's proposed activities. Of particular concern to us is the analyses in the draft EA of the probability of an airplane crash with Zone 4 Pantex plant structures and the potential impacts on the Ogallala Aquifer from a plutonium dispersal accident in Zone 4. We refer you to the comments submitted by the Texas Air Control Board and the Texas Department of Public Safety (Division of Emergency Management). Furthermore, we refer you to several issues raised by the City of Amarillo and the Counties of Potter and Randall regarding potential effects of the maximum winds of a category F4 tornado, as well as the possibility of terrorist actions involving an aircraft.

In analyzing both the potential airplane crash and impacts on the Ogallala aquifer of a dispersal accident, it is apparent that DOE relied on inaccurate assumptions and employed inappropriate methodologies. **Given the seriousness of the deficiencies in these analyses, this office cannot have any confidence in DOE's ultimate conclusions concerning the possible environmental impacts of interim storage at the Pantex plant.**

1046/5

B. Lack of Resources to Ensure Safety.

It is not only the lack of a meaningful DOE safety policy against which to measure a safety analysis which makes the draft EA deficient, it is also the lack of an adequate analysis of whether Pantex has the necessary resources to undertake its new mission.[6] As stated by the GAO:

> Over the next several years, DOE must take custody of and dismantle thousands of nuclear weapons that the Department of Defense will retire. **The capability of DOE to safely dismantle so many weapons could present a problem and tax the capabilities of DOE resources at the Pantex Plant in Texas.** Storage of weapon components at

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[6] Until the last two years, the mission of Pantex was to construct and dismantle nuclear warheads. The components of dismantled weapons, including the plutonium pits, were shipped back to the facility from which they came originally. The mission of Pantex today--to dismantle thousands of warheads, store and manage the plutonium pits extracted therefrom, and to help maintain a nuclear weapon stockpile a fraction of the size which existed during the Cold War--is clearly different. Such a change in mission may in and of itself necessitate an EIS.

> the plant, the **projected workload** to accomplish this work, and the transportation of weapons to the plant are important issues that need to be examined carefully. (Emphasis added.)[7]

I believe the adequacy of resources issue needs to be more fully addressed.

1046/6

IV. Closing Comments

DOE provides no basis for the estimated interim storage time frame of 6-10 years. Given that DOE does not yet have a proposal for long-term plutonium disposition, the statement in the EA that the time required to implement decisions regarding long-term storage and/or disposition is expected to be within a 6-10 years time frame is not credible. I am concerned that the analysis of potential environmental impacts has been premised on an interim storage period that is unrealistic. If anything can be learned from DOE's civilian high-level waste site experience and the attempts by the states to locate low-level radioactive waste sites, it is that nuclear waste storage issues are very difficult to resolve and take far longer to resolve than first anticipated.

Many of the concerns raised in this letter are addressed in detail in the comments submitted to you by the Texas Air Control Board, the Bureau of Economic Geology, and the Texas Department of Health's Bureau of Radiation Control. Comments by other state agencies, individuals, and citizen groups identify other areas of concern in the draft EA. I am hopeful that the DOE will respond to each of these comments, especially those of the above-mentioned state agencies.

When DOE first proposed increased interim storage of plutonium pits at Pantex, I requested that your predecessor direct DOE to prepare an EIS that would address the impacts of the increased dismantlement and storage activities at Pantex. I respectfully repeat this request now. It is apparent from the draft EA that DOE will not run out of storage capacity at the Pantex plant until the fourth quarter of 1993, at the earliest. DOE has sufficient time to complete an EIS that will adequately address the potentially devastating environmental impacts that could result from the proposed increased interim storage.

The preparation of an EIS by DOE would demonstrate DOE's commitment under your guidance to fully protecting the health, safety,

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[7] Statement by Victor S. Rezendes, Director, Energy Issues, GAO, given at Hearing, p. 5.

and environment of this state and its citizens and would mark an historic new direction for DOE towards full and legitimizing public participation and open decision making. I welcome your suggestions as to how we might encourage and support your efforts in the future.

Sincerely,

Dan Morales

Dan Morales
Attorney General

PANAL
Panhandle Area Neighbors And Landowners
ICR 2 BOX 20 — PANHANDLE, TEXAS 79068 (806)335-1050

February 28, 1993

To the United States Department of Energy
Through the Office of the Governor, State of Texas
P.O. Box 12428
Austin, TX 78711

On behalf of the Panhandle Area Neighbors and Landowners (PANAL) we wish to address the issues involved in the Predecisional Environmental Assessment for Interim Storage of Plutonium Components at Pantex.

PANAL is composed of a wide diversity of people, from farmers and ranchers to teachers, geologists, lawyers, religious, clerical, small and large business people, bankers, doctors, etc.. PANAL is composed of a broad spectrum of concerned citizens, people who have a strong tie to the land and people with a sincere commitment to protecting the human environment for future generations.

Many of us are farmers, ranchers, landowners and families who surround the Pantex Plant, live downwind from the plant, or people who just believe in a democracy that includes involvement by all people. We are Democrats, Republicans, Independents and represent a variety of other agricultural, civic, church and community organizations.

For those of us who till the soil it is our belief that the manner in which we treat the land will in large measure determine the productivity of our labors. The soil, water and air must be conserved and protected from all possible contamination. We believe this and we have lived by this rule so that our children, grandchildren, great grandchildren, and all future generations to come, will have the opportunity to also enjoy the fruits of the land.

What we produce for this nation must always be the most wholesome, clean and safe food supply possible. The nation depends on us to provide such safe, healthy commodities, not only for our country, but to use as power with the other nations of the world.

After consideration of the DOE's predecisional EA we believe that our livelihood and our potential to produce quality food for the world is in jeopardy. The modeling used in this document was intended to justify the storage of plutonium pits at Pantex and has not taken into consideration the human environment or the $4 billion agricultural economy which is the lifeblood of this area. 1048/1

"Environmental impacts would be limited to radiation exposure of workers which would be controlled to insure that ALARA objectives are achieved"(vii), (3-2),(4-1); to assume no adverse health effects among workers is ludicrous. Workers will receive increased radiation doses in taking pits from Assembly Bay to Zone 4 - will these be the same workers? If there are fewer workers there will be higher doses, but if there are more workers there is less exposure, but more people are involved. 1048/2

In inventorying the pits, the estimates for worker radiation exposure are based on current inventory operations - these in no way are a guide for determining full worker exposure for the future operations. "Impacts of the proposed action were assessed and found to be limited to worker exposures to radiation" (viii,4-4,6-1) - we demand for the workers that this proposed action be further examined - no one person's life is expendable.

For the workers who handle the pits the radiation risks are not fully analyzed. The EA has failed to adequately address radiation exposure to the workers. "The workload requirements for increased weapons disassembly is expected to be similar...in the past" (1-1) how can this be when the workload is increased? 1048/3

"The Pantex Plant has conducted these activities in a safe and reasonable fashion for more than 40 years" (1-1) the SAR's, the GAO Report, the Tiger Team, the Adhearn Committee Report - are all these reports in error? Pantex has been nominated for a Superfund site, is this because the activities have been conducted safely and reasonable? Why is ER/WM now being addressed at Pantex if the above statement is true. 1048/4

In a statement made by Lowell F. Cranfill, President/Chief Steward, Metal Trades Council, Mason & Hanger, May 17, 1989, before the Subcommittee on Health and Safety, Committee on Education & Labor, U.S. House of Representatives, he states "I am very seriously concerned with the health and welfare of my friends and members of my union working at the Plant. I am also concerned with the Panhandle of Texas and the potential problems they may have in that area due to the toxic waste that are accumulating because of the spills and dumps from Pantex. I know that the Energy Department estimate last June was in excess of 700 million dollars to clear up the Pantex Plant. I do not know what the spills and dumps consist of. I solicit your aid in trying to find that out and help us clear up the plant. It is a serious and dangerous hazardous waste dump if that amount of money is to be spent in trying to clear it up. I would like to be involved in stopping the things that Pantex is doing that is causing the need for such expenditure." 1048/5

(2-1,4-2,4-3)"...long term storage or disposition of these valuable national assets will be made in the...PEIS" - why is this EA being done outside the PEIS/ROD? Justification needs to be made as to why they are referred to as national assets and not liabilities? To presume "assets" and not to address liabilities is in appropriate. 1048/6 1048/7

(2-1, 4-1, 4-3)"...DOE maybe required to cease the disassembly activities..." what is the rush? Under the treaties signed we're not obligated to dismantle immediately, there was no time limit specified. Why not ship warheads or pits to other sites - Pantex is not the only site available for dismantlement or storage, why were other DOE and DOD sites not adequately addressed? To state that no DOD facility is "currently available" must be proved. Not addressing the DOD facilities in full is a false conjecture. 1048/8

To come to the conclusion that "there is no environmental benefit to be gained in packaging and shipping some or all of the pits to any other location for interim storage purposes" (viii) has no credible basis from the information presented in the EA. 1048/9

(4-5, 4.4) Why is transportation of pits so much more dangerous than entire warhead or component parts? Is shipping and handling dangerous just for some materials? How dangerous is this stuff - DOE was shipping it before to RF, what is the difference now? If there is danger in transportation, why were these problems not addressed sufficiently? What about the transportation in to Pantex at the present time? Is this not dangerous also? 1048/10

(3-2, 4-2, A-3) "The majority...packaged in AL-R8 containers, but other approved containers may be used." What is the history of these containers? What are the "other approved containers"? A thorough discussion of containers is imperative. Can these containers be used for shipping and/or storage? What are the test results on any of these containers? Pits change over time, what happens to containers that change over time? With pits and containers changing over time, what are we looking at for the future? Do you have any idea how these will react, either individually or collectively, over time? 1048/11 1048/12

5.0... any serious dispersal of plutonium was not carefully examined. 5.2 ...does not talk about risks to the general off-site population. Off-site ionizing radiation was not even considered. No Emergency Preparedness plans were presented for off-site communities in the event of a hazardous or toxic release. 1048/13

6.2.5, Appendix E Aircraft Hazard Analysis does not present an accurate account of aircraft over Zone 4. Wednesday, February 24, 1993, we sat right here in our home on the west side of Pantex with the Special Project Directors of the OTA Study on Dismantlement and watched three C-5A's practice "touch and go" for three hours. These aircraft fly directly over Zone 4. We have observed military aircraft of all descriptions flying over Pantex for years. This is regular military practice. Army helicopters regularly fly over Pantex. We watch them, we know this is happening! What hazard analysis do you propose for these aircraft? 1048/14

7.0 Potential Impacts on the Ogallala Aquifer...does not address the possibility of cracks in the soil, from Texas Panhandle droughts, thereby creating faster pathways to the Ogallala. Why were DOE LANL studies used and not studies done by local geologists 1048/15

According to NEPA, our basic national charter for protection of the environment, "procedures must insure that environmental information is available to the citizens **before decisions are made and before actions are taken.**" Furthermore, it is stated that "ultimately, it **is not better documents but better decisions that** count." "Federal agencies shall encourage and facilitate **public involvement in decisions which affect the quality of the human environment.** We state this as a preface to our comments, because there is a lack of sufficient, accurate information provided to warrant the continuation of the present mission of the storage of plutonium at Pantex. Furthermore, the public is not involved in the decision making - we are only given a short time to "comment". Under NEPA all information must be presented and all reasonable alternatives must be defined. Alternatives are the heart of an EA, every alternative should be discussed. 1048/16

The focus presented in the Predecisional EA is too narrow, as only one option was discussed. The presentation does not legally address all alternatives. The only discussion is -STORAGE- as opposed to looking at the full picture, the entire scope of the plutonium issue or plutonium management, which is bigger than just storing pits at Pantex.

The Executive Summary, vii, and 3-1 states "SAC magazines have not been used previously for holding pits, and the multiple stacking configuration has not been used previously in SAC or Modified Richmond magazines." Our question is then why are you going to store plutonium, with a half life of 24,000 years in a structure which is not proven to be 100% safe for 'holding pits'? What consideration is being given to the possibility of contamination to the land, the air or the Ogallala? Is Zone 4 the only place the DOE intends to 'hold pits'? This is the only area discussed in the EA. What about the other structures, bays, etc.? 1048/17 1048/18 1048/19

"The proposed action is to provide additional storage for an interim time period, expected to within 6 - 10 years, for up to 20,000 pits....at the Pantex Plant" What will happen in 10 years - 15 years - 20 years, etc.? Where is the plutonium going at the end of 10 years - we want to know! This is not identified in the EA. Where or what is being planned for this plutonium after 20 years. 1048/20

DOE assumes there will be no problems, either human or mechanical at any time during storage. All potential problems associated with storage need to be addressed. 1048/21

For the EA to state that the proposed action would not result in additional generation or management of wastes (vii) - evades the original issue being - **dismantlement** - which is increasing so the pits can be stored at Pantex and there is additional waste being generated. The issue of waste management was not addressed in the EA. This is a major issue and needs to be fully explored. 1048/22

who have done in-depth studies on the Ogallala? LANL studies have not correctly addressed the full scope of the aquifer and the potential impacts. DOE's previous record of contamination to underground water supplies only reinforces the lack of accountability in DOE studies. 1048/23

7-2 ..."Field experiment ...suggests colloidal transport will not enhance radionuclide transport enough to significantly affect groundwater quality" **Hogwash,** "suggest", "not enough" and "significantly affect" have no place in a study of drinking water for the people of the area. We are being fed a document prepared by an agency that has no credibility in preserving present water supplies at any of their other facilities. 1048/24

To come to the final conclusion of "no significant threat to the Ogallala Aquifer from plutonium dispersal" is simply conjectural.

8.0 All issues should have been discussed openly with federal, state and local agencies with local citizen input. To only have kept the state agencies informed of the development of the document undermines the integrity of the work of the state agencies. 1048/25

DOE says they are committed to the environment, safety and health of workers and surrounding communities! Why push to dismantle warheads and expose the population to health and death risks? 1048/26

It is the opinion of the membership of PANAL that this mission requires a site specific environmental impact statement (EIS). It is our belief that an environmental assessment and FONSI is totally inadequate. Dismantling 20,000 warheads and storing plutonium pits at Pantex is a new purpose for Pantex (and a major federal action) which significantly affects the quality of the human environment. 1048/27

There is plenty of time to study every issue and alternative. A Pantex EIS needs to address all the issues related to Pantex, the alternatives, the capabilities of other facilities, plus any and all environmental effects not only on-site and to workers, but also off-site and to the agricultural economy. An EIS needs to address the entire plutonium management issue. We request a draft document for public participation, comment time and public hearings.

What we're going to do with plutonium pits needs to be ultimately done only after a comprehensive, credible accounting is done by all affected parties, state and federal agencies and technical experts. When will the policy be made for the future use of the pits.

Thank you for the opportunity to comment on this document.

Sincerely,

Doris and Phillip Smith

Doris and Phillip Smith
Chairmen

PANHANDLE 2000
P.O. Box 9480 Amarillo, Texas 79105 (806)373-7925

① Jim
② Lee
③ file

March 12, 1993

The Honorable Howard Canter
Deputy Assistant Secretary for Reconfiguration
Office of the Assistant Secretary for Defense Programs
United States Department of Energy
1000 Independence Avenue, S.W.
Room 4B-014
Washington, D.C. 20585

Dear Howard:

Texas governor Ann Richards recently forwarded to Secretary of Energy Hazel O'Leary the comments received by the State of Texas regarding the Environmental Assessment of the proposed interim storage of plutonium at the Pantex Plant in Amarillo, Texas. In her letter to Secretary O'Leary, Governor Richards requests an additional extension of the deadline for comments to be submitted to DOE on the Environmental Assessment to March 16, 1993. Panhandle 2000 supports the Governor's request for an extension, and would respectfully request that DOE favorably consider granting the extension. The extension will provide State agencies and other interested parties sufficient time to comment fully on the Environmental Assessment, and will allow all parties to feel as though they have had their "day in court" with DOE on this issue. Granting the extension will, in our opinion, foster support for DOE's final decision on interim storage, and will demonstrate that the cooperative relationship with the State of Texas DOE has established will continue in the new Administration. 1049/1

We at Panhandle 2000 clearly support DOE's preliminary decision to house the interim storage function at Pantex, and understand fully its importance in the context of the full-blown reconfiguration plans. After carefully reviewing the comments submitted to date, it is our opinion that the debate centers not on DOE's conclusion that no significant increase in risk will occur from the additional storage, but merely on the data and methodologies used by DOE in its analysis. Such a debate, while important, should not serve to impede DOE's plans regarding interim storage or final reconfiguration. pantex continues to enjoy strong support from State officials and residents, especially those from the Texas Panhandle. We look forward to a swift resolution of the issues discussed in the comments, and implementation of the plans for interim storage at Pantex. 1049/2

I also wish to express our support for the proposed plan to site a research facility at the "plutonium site" selected by DOE in the reconfiguration process. We are hopeful Secretary O'Leary will concur in this aspect of the reconfiguration plan and stand ready to assist you in accomplishing this end. The heads of the University of Texas, Texas A&M University, and Texas Tech University are formulating plans for a research consortium to assist DOE in its research efforts, especially if Pantex is chosen as the site for this research facility.

Finally, we have noted with interest the Secretary's recent decision to review the Nonnuclear Reconfiguration Cost Effectiveness Study. We are willing to assist DOE in the selection of the consultants charged with evaluating this decision if appropriate, and look forward to working with your office on this issue.

Thank you for your consideration of our views. Please contact me if I can be of help to you or your office. I hope to see you soon.

Yours very truly,

Jerome W. Johnson
Co-Chairman

JWJ/gb

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March 22, 1993

The Honorable Hazel R. O'Leary
Department of Energy
Washington, D.C. 20585

Dear Secretary O'Leary:

This letter is to commend you and your staff on the process you have implemented regarding the Department of Energy's Predecisional Environmental Assessment for Interim Storage of Plutonium Components at the Pantex Nuclear Weapons Facility in Amarillo, Texas. As the Texas Panhandle's state senator, I'm sensitive to the issues you face as you deliberate the future of our nuclear weapons complex, including Pantex. My constituents have the most to gain economically and lose environmentally from Pantex. To proceed with any DOE plans for Pantex, it's important for citizens of that area, and the officials who represent them, to have a high degree of confidence that DOE activities will be conducted in a safe, environmentally sound fashion. 1050/1

In the past, the public has been unable to have this kind of trust in DOE activities. I'm delighted to see the new administration is operating in an open, cooperative manner. This new openness is reflected in the approach your department took regarding the interim plutonium storage issue at Pantex. You invited comments not only from state agencies but also from other interested parties. To give everyone an opportunity to comment fully on the issue, you extended the deadline for comments not once, but twice, when requested by the state. The January 1993 briefing by top DOE staff for state officials and other parties on the interim storage issue was very informative and exhibited the new constructive dialogue encouraged by the department which is welcomed by the state. Finally, DOE's offer to respond to all comments before proceeding with the plans, although the department is not required to do so, build on the improved relationship between DOE and the state.

I respectfully encourage you to continue this healthy dialogue after DOE responds to the state's comments on the interim storage issue. Agreeing to sit down and discuss

differences, with the goal of resolving them, will ensure that the interests of both DOE and the state are protected. Further, this dialogue would serve to resolve outstanding issues in an expeditious manner and avoid a long, drawn-out "paper exchange." Although this dialogue may conclude with differences of opinion on some small issues, I'm confident that an accord can be achieved on the "big picture" items which will allow DOE to proceed after taking the comments into account. I would appreciate being involved in these meetings and will pledge my assistance and support to the process.

Thank you for your consideration of my views. I look forward to working with you in the future to ensure that Pantex remains an important, growing and environmentally sound facility for many years to come.

Yours Truly,

Teel Bivins
State Senator

TB/jh

cc: Governor Ann Richards
Lt. Governor Bob Bullock
Speaker of the House Pete Laney

Howard Canter
Deputy Assistant Secretary for Weapons Complex Reconfiguration
Office of the Assistant Secretary of Defense Programs
U.S. Department of Energy
1000 Independence Avenue, S.W., Room 4B-014
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Volume II, Section II

Letters Received During The Two-Week Comment Period Following The December 6, 1993 Public Meeting (December 6 to December 20, 1993)

Author/Organization	Dated
1. O'Brien/Operation Common Sense	December 6
2. Osborne	December 16
3. Gustavson/Bureau of Economic Geology, University of Texas	December 20
4. Hutchison/Oak Ridge Environmental Peace Alliance	December 20
5. Gilliland	December 13
6. Graham	December 16
7. Chandler	December 13
8. McReynolds/Panhandle Area Alliance	December 14
9. Rossman	December 13
10. Saunders	December 9
11. Saunders	December 17
12. Morrison	December 13
13. Harpole	December 13
14. Patterson/Amarillo Chamber of Commerce	December 15

Operation Commonsense

December 6, 1993

The Honorable Hazel R. O'Leary
Secretary Of Energy
Department of Energy
Washington, D.C. 20585

Dear Secretary O'Leary,

I have read the Department of Energy's response to comments received from the State of Texas regarding the Environmental Assessment for Interim Storage of Plutonium Components at Pantex. It is apparent from your Department's response and the wide popular support for dismantlement that there is little doubt this mission will move forward and we join in supporting that goal. Our interest is to ensure that the issues that create safety and environmental problems as detailed in recent reports from the General Accounting Office and the Office of Technology Assessment are properly considered, even though they might impact either the speed of dismantlement or the storage of the pits.

We believe the Department's decision not to provide a Environmental Impact Statement (EIS) on the Interim Storage is wrong and is the result of political considerations rather than careful application of the law. In an attempt to provide you with our basis for this statement, I enclose a legal brief addressing critical and relevant reasons why the law requires a EIS.

Box 9618 Amarillo, Texas 79105 - Phone 806-372-3877 Ext: 104 - Fax 372-7207

Your predecisional finding fails to properly address several significant areas: 1) The wide gulf between the University of Texas Department of Economic Geology's work on water mobility and recharge rates from the playa lakes to the underground aquifers and Los Alamos's characterization of those findings as "unreasonable and unrealistic".; 2) the failure to devote any detailed analysis to the possibility of terrorist attack. This ignores one of the foremost concerns of many experts; 3) The adequacy of the World War II bunkers for storage. Compared to nuclear store requirements as set forth by the Center for Energy and Environmental Studies at Princeton along with the Department of Nuclear Engineering at MIT, the bunkers are inadequate [see exhibit in our brief]; 4) The consideration of alternative sights for storage, either interim or longer term, is not adequately explored. Hanford, as well as DOD sites, have been mentioned often as desirable by some experts. This is not a complete list but should point out some areas that haven't been adequately explored.

We hope to meet with Department officials in order to explain in more detail our concerns. We will offer suggestions in a manner allowing the needs of the Department to be reconciled with the safety concerns of many citizens. We hope for a solution in the form of a storage plan that will allow dismantlement to proceed at a reasonable rate.

Sincerely,

W. H. O'Brien

Box 9618 Amarillo, Texas 79105 - Phone 806-372-3877 Ext: 104 - Fax 372-7207

OPERATION COMMONSENSE

Application of NEPA
To Interim Storage of Plutonium

APPLICATION OF NEPA
TO THE PROPOSED INTERIM STORAGE OF PLUTONIUM PITS
AT THE PANTEX NUCLEAR WEAPONS FACILITY
NEAR AMARILLO, TEXAS

SUBMITTED TO THE DEPARTMENT OF ENERGY
AT AN ENVIRONMENTAL ASSESSMENT HEARING
DECEMBER 6, 1993

SUBMITTED BY:

SUSAN CURRIE

IN COOPERATION WITH:

OPERATION COMMONSENSE

TABLE OF CONTENTS

I. INTRODUCTION

On December 17, 1992, the Department of Energy (DOE) submitted an Environmental Assessment (EA) for the proposed interim storage of 20,000 plutonium pits, scheduled to be disassembled from nuclear weapons, at Pantex nuclear weapons plant near Amarillo, Texas.[1] In its EA, the DOE claims that the plutonium pits will be temporarily stored at Pantex until a long-term storage facility is designated in the DOE's Nuclear Weapons Complex Reconfiguration Programmatic Impact Statement (PEIS).[2] According to the EA, the DOE cannot postpone disassembly until a long-term storage facility has been designated and constructed because presidential initiatives, enacted at the end of the Cold War, promise to reduce the nuclear weapons arsenal at a specified rate.[3] Contending that there can be no significant variance from this specified rate, the DOE argues that a temporary storage site must be utilized.

The DOE has chosen Pantex as the site for temporary storage. Pantex, managed and operated by Mason & Hanger-Silas Mason Company, Inc., has been in operation for more than forty years. Its mission includes the assembly, stockpile testing, maintenance, modification, and retirement of nuclear weapons.[4] Until 1989, Pantex worked closely with another nuclear

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[1] U.S. Dep't of Energy, EA-0812, Environmental Assessment for Interim Storage of Plutonium Components at Pantex (1992) [hereinafter EA].

[2] *Id.* at 2-1.

[3] *Id.* at 1-1. On this page of the assessment, the DOE states that the presidential initiative is to reduce the nuclear arsenal from 20,000 warheads to 10,000 by the year 2000. To meet this goal, the DOE has established a disassembly rate of 2,000 warheads per year.

[4] United States General Accounting Office, Report to the Chairman, Environment, Energy, and Natural Resources Subcommittee, Committee on Government Operations, House of Representatives, "Nuclear Health and Safety: More Attention to Health and Safety Needed at Pantex" (1991), at 2 [hereinafter GAO REPORT].

weapons facility, Rocky Flats near Denver, Colorado. The Rocky Flats facility manufactured pits which were sent to Pantex for assembly into nuclear weapons.[5] Pantex would, in turn, send disassembled pits to Rocky Flats for recovery and reprocessing of special nuclear material and fabrication into new pits.[6] In January of 1992, the Secretary of Energy permanently ceased reprocessing operations at Rocky Flats, and since the pits were no longer being reprocessed, the need for an alternative mode of disposal arose.[7] No such alternative has yet been designated, and the pits from disassembled weapons have remained at Pantex.[8]

The DOE's position is that the pits should remain at Pantex in interim storage because no other DOE or DOD facility can accommodate the pits on an interim basis safely and within the necessary time frame.[9] This argument is weak, however, because Pantex's management and safety record is marginal at best. Since 1989, Pantex has been criticized by OSHA and by a DOE Tiger Team——a group of specialists assembled to assess the environmental, safety, and health conditions at the plant——due to health and safety problems existing at the plant.[10] According to a 1991 General Accounting Office (GAO) report, the problems include: (1) incomplete safety analysis reports, (2) an inadequate radiation protection program, and (3)

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[5] EA, *supra* note 1.

[6] *Id.*

[7] EA, *supra* note 1, at 1-2.

[8] *Id.*

[9] EA, *supra* note 1, at 4-1.

[10] GAO REPORT, *supra* note 4, at 3.

violations of worker-protection standards.[11] Due to Mason & Hanger's unsafe procedures at the plant, the GAO report states that workers have negligently been exposed to radioactive elements.[12]

The report discusses three particularly grave violations. First, in 1989, a radiation specialist discovered that a worker had been contaminated with depleted uranium after coming into contact with some black dust.[13] In a subsequent investigation, it was discovered that several workers had been exposed to this black dust——unaware of its radioactivity——and nothing had ever been done about it.[14]

Second, in May of 1989, there was an accidental release of tritium during disassembly of a weapon, and several workers were exposed to tritium gas.[15] The decontamination of the disassembly facility will cost two to three million dollars.[16] After reviewing the accident, the Chairman of the Advisory Committee on Nuclear Facility Safety concluded that it should have been anticipated. In his report to the Secretary of Energy, he stated, "There appeared to be no plan to handle what must surely have be an anticipated accident. It is still unclear that effective control of the situation by an adequately prepared response team ever took place."[17] According

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[11] GAO REPORT, *supra* note 4, at 3-6.

[12] GAO REPORT, *supra* note 4, at 7.

[13] GAO REPORT, *supra* note 4, at 7.

[14] *Id.*

[15] *Id.*

[16] *Id.*

[17] *Id.*

to the GAO report, five workers were exposed to the tritium gas which could have been prevented with the proper equipment and procedures.[18]

The third incident occurred in October of 1990 when seven radiation technicians, who were not wearing the proper protective clothing, received uranium oxide contamination to their hands, shoes, and coveralls.[19] This incident, like the previous two, could have been prevented if the plant had taken safe and reasonable measures.

In addition, a 1993 GAO report concludes that the disassembly schedule is too ambitious due to the poor safety history of the plant.[20] According to Victor S. Rezendes, an audit manager at the GAO, "Pantex is probably one of the worst in terms of occupational safety and health of any of the facilities."[21] In addition, Kenneth E. Lightner, another GAO official, warns that operations at Pantex involve significant safety hazards due to the close proximity of high explosives to radioactive materials.[22] The report goes on to mention, as did the 1991 GAO report, that Pantex still has not completed the required safety analysis reports, submitting in total fewer than half, and that many of such reports would have addressed the disassembly of bombs.[23]

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[18] *Id.*

[19] GAO REPORT, *supra* note 4, at 8.

[20] United States General Accounting Office, Report to Chariman, Environment, Energy, and Natural Resources Subcommittee, Committeee on Government Operations, House of Representatives, "Nuclear Weapon Safety, Technical and Manpower Issues Slow DOE Disassembly Efforts " (1993),

[21] GAO REPORT, *supra* note 20.

[22] GAO REPORT, *supra* note 20.

[23] GAO REPORT, *supra* note 20.

Improper management and safety practices are not Pantex's only shortcomings——the plant is also a proposed superfund site. Hazardous solvents——including xylene, trichloroethylene, toluene, as well as many others——have contaminated the environment to the degree that the EPA is considering placing the plant on CERCLA's national priorities list.[24] Millions of dollars must be expended to bring the plant into compliance with current environmental mandates. And yet, in spite of these serious environmental problems, the DOE contends that Pantex has conducted its activities safely and reasonably throughout its forty-year existence.[25]

Further, the DOE claims that disassembly and storage of the 20,000 plutonium pits will have no significant impact on the environment, and that, therefore, they will not be required to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA). The only potential environmental impact conceded by the DOE is increased worker exposures which they claim will be mitigated.[26] The DOE concludes that, since there would be no environmental impacts, packaging and shipping the pits to another location would not be environmentally beneficial and, therefore, would not be cost-effective.[27]

Given the dangers that necessarily accompany an action involving the mass storage of highly dangerous, radioactive materials, and given Mason & Hanger's poor safety and environmental record, the DOE's argument that NEPA's EIS requirement does not apply is not

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[24] Federal Environmental Site Liability Records, Toxic Release Inventory System (TRIS), by Environmental Data resources, Inc. (1992).

[25] EA, *supra* note 1, at 1-1.

[26] EA, *supra* note 1, at 4-1.

[27] *Id.*

convincing. Several potential impacts are involved in the mass storage of the pits, many of which are not even mentioned in the EA, and those that the DOE purports to address are much more serious than admitted. The DOE should, at the least, be required to draft a detailed EIS that examines all potential risks honestly and thoroughly.

The responsibility and obligation of the DOE under NEPA is established by the historical purpose of NEPA and the case law interpreting the statute. This discussion focuses on the purpose and requirements of NEPA, the case law interpreting NEPA, and, in light of that law, the adequacy of the DOE's EA.

II. APPLICATION OF NEPA

A. Purpose of NEPA

The National Environmental Policy Act (NEPA) requires federal agencies to prepare EISs on actions which significantly affect the environment.[28] Enacted in 1969, NEPA has had a profound impact on the actions of federal agencies; for, prior to the enactment of NEPA, they generally were not required to consider environmental problems.[29] Prior to 1969, the environmental mandates that governed federal agencies were "mission-oriented."[30] According to a leading environmental scholar, this "mission-oriented" system had to change for the following reasons:

> . . . Existing agencies were established to supervise the development of our natural resources consistent with the ethic which has prevailed throughout this country's history and, thus, they tended to overstress the benefits of development and to explore insufficiently the less environmentally damaging

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[28] NEPA § 102(2)(C), 42 U.S.C. §4332 (1988).

[29] Mandelker, NEPA LAW AND LITIGATION, §1.01, at 1-1 (1992).

[30] Mandelker, §1.02, at 1-3.

alternatives to current methods of meeting their programmed objectives.[31]

So NEPA was enacted to regulate the decision-making of federal agencies.

NEPA does not contain strict environmental standards or prohibitions on environmental development; it requires federal agencies to consider the environmental impacts of their actions.[32] This appears to be the main purpose of NEPA. As Judge Skelly Wright, writing for the court in *Calvert Cliff's Coordinating Committee, Inc. v. Atomic Energy Commission*[33], held: "Perhaps the greatest importance of NEPA is to require . . . agencies to *consider* environmental issues just as they consider other matters within their mandates."[34]

The Supreme Court, in *Baltimore Gas and Electric Co. v. Natural Resources Defense Council*[35], elaborated on the purpose of NEPA:

> NEPA has twin aims. First, it "places upon the agency the obligation to consider every significant aspect of the environmental impact of a proposed action." . . . Second, it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process. . . . Congress in enacting NEPA, . . . required . . . that the agency take a "hard look" at the environmental consequences before taking a major action. . . . Congress did not enact NEPA, of course, so that an agency would contemplate the environmental impact of an action as an abstract exercise. Rather, Congress intended that the

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[31] Tarlton, "Balancing Environmental Considerations and Energy Demands: A Comment on Calvert Cliff's Coordinating Committee, Inc. v. AEC," 47 Ind. L.J. 645 (1972).

[32] NEPA, §105, 42 U.S.C. §4332 (1988).

[33] *Calvert Cliff's Coordinating Committee, Inc. v. Atomic Energy Comm'n*, 449 F.2d 1109 (D.C. Cir. 1971).

[34] *Id.* at 1112.

[35] *Baltimore Gas and Electric Co. v. Natural Resources Defense Council*, 462 U.S. 87 (1983).

"hard look" be incorporated as part of the agency's process of deciding whether to pursue a particular federal action.[36]

In *Robertson v. Methow Valley Citizens Council*,[37] the Supreme Court further elaborated on the purpose of NEPA stating that "... NEPA itself does not mandate particular results.... If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs.... NEPA merely prohibits uninformed——rather than unwise——agency action."[38]

B. Statutory Requirements of NEPA

1. The EA

a. Purpose

Federal agencies decide, in an informal, decision-making process, whether or not an EIS is required.[39] NEPA provides little guidance on this decision.[40] As a result, the Council of Environmental Quality (CEQ), created by NEPA, has passed regulations that elaborate on NEPA's minimal requirements and provide a multifaceted environmental review process.[41]

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[36] *Id.* at 97-98, 100-101; *See also Kleppe v. Sierra Club*, 427 U.S. 390, 409-410, nn. 18, 21 (1976).

[37] *Robertson v. Methow Valley Citizen's Council*, 490 U.S. 332 (1989).

[38] *Id.* at 350.

[39] Mandelker, §7.01; *See also* Scott, "Defining NEPA Out of Existence: Reflections on the Forest service Experiment with 'Case-by-case' Categorical Exclusion," 21 Envtl. L. 807, 811 (1991).

[40] Mandelker, §7.01.

[41] *Id.*; *See also* Scott, 21 Envtl. L. at 811.

The first stage of the review process is the preparation of an EA.[42] Agency's can skip this stage only if the proposed action is categorically excluded or the agency goes straight to the preparation of an EIS.[43] The purpose of the EA is to determine whether federal action has a "significant" impact on the environment.[44] If the agency determines that there is no "significant" impact, then a FONSI must be prepared. If, on the other hand, the EA concludes the impact would be "significant," then the agency must prepare an EIS.

b. Requirements

CEQ regulations define the EA as a "concise public document," the purpose of which is to "[b]riefly provide sufficient evidence and analysis for determining" whether to prepare an EIS or a finding of no significant impact (FONSI).[45] The majority of courts interpret this statute as requiring federal agencies to accurately identify the relevant environmental concerns and take a "hard look" at them.[46] Although this "hard look" requires the same kind of analysis that an EIS would require, the analysis does not have to be as detailed as that in an EIS.[47] Rather, the EA is

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[42] *Id.*

[43] *Id.* CEQ regulations define "categorical exclusion" as "a category of actions which do not individually or cumulatively have a significant effect on the human environment." 40 C.F.R. §1508.4. The effect of this definition is to make the criteria for determining if there is a significant impact equivalent to that for determining if the action is categorically excluded.

[44] 40 C.F.R. §§1508.9 & 1508.13; *See* Scott, 21 Envtl. L. at 811; *See also* Mandelker, §7.04[3], at 7-25.

[45] 40 C.F.R §1508.9.

[46] *Sierra Club v. United States Dep't of Trans.*, 753 F.2d 120 (D.C. Cir. 1985); *See supra* text accompanying note 32.

[47] Mandelker, §8.01, at 8-3, 8-4; *See also* Scott, 21 Envtl. L. at 811.

like a "'mini' impact statement, requiring enough of an investment of agency resources to carry out a preliminary environmental inquiry."[48]

Perhaps the most important part of the required analysis in an EA is the consideration of alternatives. Section 102(2)(E) of NEPA requires federal agencies to "study, develop, and describe appropriate alternatives to recommended courses of action in *any* proposal which involves unresolved conflicts concerning uses of available resources." Courts have interpreted this to mean that agencies must consider alternatives even though they do not have to prepare an impact statement——i.e., when only an EA is prepared.[49]

Since the requirement to consider alternatives under the EA is very similar——if not equivalent——to that under the EIS,[50] the law regarding alternatives will be discussed in more detail under the EIS subheadings, Scope and Requirements.

2. Finding of No Significant Impact (FONSI)

a. Purpose

If the agency determines in its EA that their proposal will have no "significant" environmental impact, then the agency must prepare a FONSI.[51] The purpose of the FONSI is to give the reasons why the agency decided not to prepare an EIS.

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[48] Mandelker, §8.01, at 8-3, 8-4; *See also* Scott, 21 Envtl. L. at 811 (Although sometimes called a "mini-EIS," the primary purpose of an EA is limited to providing information and analysis to facilitate the EIS threshold determination.)

[49] *E.g, National Wildlife Fed'n v. Appalachian Regional Comm'n*, 677 F.2d 883 (D.C. Cir. 1981); *Marquez-Colon v. Reagan*, 668 F.2d 611 (1st Cir. 1981); *Hanly v. Kleindienst (II)*, 471 F.2d 823 (2nd Cir. 1972).

[50] Mandelker, §9.05(1), at 9-37.

[51] 40 C.F.R. §1501.4(e).

b. Requirements

CEQ regulations define the FONSI as a document "presenting the reasons why an action . . . will not otherwise have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared."[52] Since courts have held that mere "perfunctory or conclusory language will not be deemed to constitute an adequate record and cannot serve to support the agency's decision not to prepare an EIS," the reasons must be supported by sufficient data.[53]

A FONSI is an example of informal decision making by agencies. If a FONSI is prepared, no further study of the environmental consequences of the agency's action is required.[54]

3. The EIS

a. Purpose

If an agency determines in its EA that its proposal will have a "significant effect on the human environment," an EIS must be prepared. One court described the purpose of the EIS as follows:

> [The EIS] permits the court to ascertain whether the agency has made a good faith effort to take into account the values NEPA seeks to safeguard. . . . [I]t serves as an environmental full disclosure law, providing information which Congress thought the public should have concerning the particular environmental costs involved in a project.[55]

At first glance, this looks a lot like the purpose of an EA.

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[52] 40 C.F.R. §1508.13.

[53] *Citizen Advocates for Responsible Expansion, Inc. (I-CARE) v. Dole*, 770 F.2d 423, 434 (5th Cir. 1985).

[54] *Sabine River Authority v. U.S. Dep't of Interior*, 951 F.2d 669, 677 (5th Cir. 1992).

[55] *Silva v. Lynn (II)*, 482 F.2d 1282 (1st Cir. 1973).

The main distinction between an EIS and an EA is that when an agency prepares an EIS, the issue on review is whether the agency adequately considered the environmental significance of its action.[56] But when an agency submits an EA and FONSI, the issue on review is whether the nature of the action is such that significant environmental impacts **could occur.**[57]

Courts have struggled to understand this distinction, though.[58] Perhaps the Seventh Circuit, in *Cronin v. U.S. Dep't of Agriculture*[59], most clearly distinguished the two in stating that the EA is a "rough-cut, low budget environmental impact statement designed to show whether a full-fledged environmental impact statement——which is very costly and time-consuming to prepare and has been the kiss of death to many a federal project——is necessary."

b. Scope

The scope of an EIS must be determined by the agency. Decisions on the scope will include whether to consider actions individually or along with other related actions, as well as which alternatives should be considered.[60] If the agency decides to consider several related actions, then it must prepare a "program" impact statement (PEIS). CEQ regulations help guide agencies on whether to prepare a PEIS when several actions are involved.[61]

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[56] Mandelker, §8.06[4][a], at 8-76.

[57] *Id.*

[58] *Id.*

[59] *Cronin v. U.S. Dep't of Agriculture*, 919 F.2d 439, 443 (7th Cir. 1990).

[60] Mandelker, §9.01.

[61] *See* 40 C.F.R. §1502.4(b). The regulations refer to "broad" federal actions rather than "program" impact statements. *See also* Mandelker, §9.02.

As to the alternatives requirement, it has been called the "heart"[62] and "linchpin"[63] of the EIS. Agencies grapple with this requirement because as the scope of alternatives widens, the more likely the proposal will be unattractive.[64]

NEPA contains two provisions which require the consideration of alternatives: §102(2)(E) and 102(2)(C)(iii). These will be discussed in more detail under the following section.

b. General Requirements

Under §102(2)(C) of NEPA, federal agencies must prepare an EIS for "major Federal actions significantly affecting the quality of the human environment." CEQ regulations require that the EIS discuss:

> (i) the environmental impact of the proposed action,
>
> (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
>
> (iii) alternatives to the proposed action,
>
> (iv) the relationship between long- and short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
>
> (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.[65]

The adequacy of an EIS depends on the agency's compliance with the above clauses.

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[62] 40 C.F.R. §1502.14.

[63] *Monroe County Conservation Council, Inc. v. Volpe*, 472 F.2d 693 (2nd. Cir. 1972).

[64] Mandelker, §9.05[1], at 9-37.

[65] NEPA §102(2)(C); *See* Mandelker, §2.04.

The first two clauses require that an agency consider the environmental effects of its actions. As to what "environmental effects" means, the CEQ has passed regulations defining the term.[66] It includes both direct and indirect impacts, as well as beneficial and detrimental impacts.[67] The scope of this term is discussed in more detail under "Review of a Decision Not to Prepare an EIS," subsection 4.

Clauses (iv) and (v) have been given less weight than intended and often have not even been given independent consideration.[68] One reason is that courts——in spite of §102(2)(C)'s statutory directive——have not applied the requirements either individually or cumulatively to agency discussions of environmental effects in impact statements.[69] They have opted, instead, for a "rule of reason" review,[70] which has resulted in the omission of specific and important considerations.[71] The Second Circuit, in *Sierra Club v. Corps of Engineers*[72], articulated this "rule of reason" standard of review as follows:

> [The EIS] must set forth sufficient information for the general public to make an informed evaluation, . . . and for the decisionmaker to "consider fully the environmental factors involved and to make a reasoned decision after balancing the risks of harm to the environment against the benefits to be derived from the proposed action." [The EIS gives] assurance that stubborn problems or serious

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[66] Mandelker, §2.04, at 2-11.

[67] 40 C.F.R. §1508.8.

[68] Mandelker, §§2.04, at 2-11, 10.10[1], at 10-65.

[69] Mandelker, §10.10[1], at 10-65.

[70] Mandelker, §10.05.

[71] *Id.*

[72] *Sierra Club v. Corps of Engineers*, 701 F.2d 1011 (2nd Cir. 1983).

criticisms have not been "swept under the rug."[73]

Due to this type of review, clauses (iv) and (v) have often been overlooked.

The third clause, however, has seldom been forgotten. Under this clause and, similarly, §102(2)(E), agencies are required——in both EISs and EAs——to consider alternatives to their proposal.[74] CEQ regulations require that agencies consider the proposal and the alternatives in comparative form, rigorously exploring and objectively evaluating each.[75] Under these sections, conclusory language is insufficient.[76]

As to the difference between sections 102(2)(C)(iii) and 102(2)(E), some argue that §102(2)(E) is the more stringent requirement. The Fifth Circuit, in *Environmental Defense Fund, Inc. v. Corps of Engineers*[77], held that the purpose of §102(2)(E) is——

> to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by different means.[78]

Section 102(2)(E) has been termed the most important requirement that agencies must meet if they do not prepare an EIS.[79] In addition, for agencies preparing an EIS, courts have suggested

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[73] *Id.* at 1029.

[74] Mandelker, §9.05[1], at 9-37.

[75] 40 C.F.R. §1502.14.

[76] *Id.*

[77] *Environmental Defense Fund, Inc. v. Corps of Engineers of U.S. Army*, 492 F.2d 1123 (5th Cir. 1974).

[78] *Id.* at 1135.

[79] Mandelker, §9.05[5], at 9-45.

that the required discussion under §102(2)(E) be incorporated into the impact statement.[80]

Under these two sections, analysis of certain types of alternatives is required——such as the "no-action" alternative. Under the "no-action" alternative, agencies must examine the environmental consequences of *not* undertaking their action.[81] This analysis is required in both EAs and EISs.[82]

As to other types of alternatives that must be discussed, two opposing decisions dominate the case law: *District of Columbia Court of Appeals, Natural Resources Defense Council, Inc. v. Morton*[83] and *Vermont Yankee Nuclear Power Corp. v. Natural Resource Defense Council, Inc.*[84] In *Morton*, the court took a "rule of reason" approach to alternatives, requiring agencies to discuss alternatives outside the agency's jurisdiction or not authorized by statute or administrative regulations.[85] The CEQ regulations support this position for the most part, only excluding consideration of alternatives requiring further legislative or executive measures. The regulations basically codify the leading court of appeals cases,[86] which state that agencies must consider "reasonable alternatives not within the jurisdiction of the lead

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[80] *See Environmental Defense Fund, Inc. v. Corps of Engineers of United States Army*, 470 F.2d 289 (8th Cir. 1972).

[81] 40 C.F.R. §1502.14(2).

[82] Mandelker, §10.09[3].

[83] *District of Columbia Court of Appeals, Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827 (D.C. Cir. 1972) [hereinafter *Morton*].

[84] *Vermont Yankee Nuclear Power Corp. v. Natural Resource Defense Council, Inc.*, 435 U.S. 519 (1978) [hereinafter *Vermont Yankee*].

[85] *Morton*, 458 F.2d 827.

[86] Mandelker, §9.05[4], at 9-44.

agency,"[87] and the no-action alternative.[88]

On the other hand, *Vermont Yankee*, although affirming the rule of reason approach, gave it a more restrictive interpretation, implying that agencies do not have to discuss "primary" alternatives——i.e., substitutes for agency actions that accomplish the same result in another manner——that are not within the jurisdiction of the agency.[89] In addition, the Court required proponents of alternatives to make a preliminary showing that an alternative merits review, before the agency must consider it.[90] This showing is often too onerous for proponents; agencies are usually the organizations with the expertise to suggest alternatives.[91]

Cases that have discussed adequacy of alternatives have usually adopted the more liberal rule of reason approach, sometimes limiting alternatives according to the purposes served by the federal action.[92] From this case law, basic guidelines have developed. Secondary alternatives——i.e., alternatives requiring that the proposal be carried out in a more environmentally sound way——are usually discussed.[93] And many cases also discuss primary alternatives——i.e., substitutes to the proposed action. However, the rule of reason in regard to primary alternatives has been limited. For example, courts have ruled that speculative

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[87] 40 C.F.R. §1502.14(c).

[88] 40 C.F.R. 1502.14(d).

[89] Mandelker, §9.05[3], at 9-43.

[90] Mandelker, §9.05[4], at 9-44.

[91] *Id.*

[92] Mandelker, §9.05[7]; *See also City of Angoon v. Hodel*, 803 F.2d 1016, 1021 (9th Cir. 1986).

[93] *Id.*

alternatives need not be discussed.[94] In *Seacoast Anti-Pollution League v. Nuclear Regulatory Commission*[95], the court held that the NRC was not required to consider out-of-state sites for a nuclear power plant because the environmental advantages of these sites were theoretical, as well as offset by environmental deficits.[96]

Other alternatives which do not have to be considered include:

- infeasible alternatives,[97]
- alternatives that are the responsibility of a local government,[98]
- remote or unrealistic alternatives,[99] and
- alternatives that require additional legislative or executive measures.[100]

Once an agency decides which alternatives to discuss, it must prepare a record of decision, specifying the alternatives that are "environmentally preferable."[101] Whether an

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[94] *Id.*

[95] *Seacoast Anti-Pollution League v. Nuclear Regulatory Commission*, 598 F.2d 1221 (1st Cir. 1979).

[96] *Id.*

[97] *Olmsted Citizens for Better Community v. United States*, 793 F.2d 201 (8th Cir. 1986)(need not consider new facility as alternative to conversion); *Friends of Endangered Species, Inc. v. Jantzen*, 596 F. Supp. 518 (N.D. Cal. 1984); *Badoni v. Higginson*, 455 F. Supp. 641 (D. Utah 1977). For more, see Mandelker, §9.05[7], n. 71.

[98] *Animal Defense Council v. Hodel*, 840 F.2d 1432 (9th Cir,. 1988)(groundwater recharge as alternative to water supply system).

[99] *Natural Resources Defense Council v. Morton, supra.*

[100] Only one court has required additional legislative measures——*Environmental Defense Fund, Inc. v. Froehlke*, 473 F.2d 346 (8th Cir. 1974). The rest have not required consideration of such alternatives. Mandelker, §9.05[7], 9-55.

[101] 40 C.F.R. 1502.2.(b).

alternative is "environmentally preferable" may depend on such factors as economic and technical considerations and agency statutory missions.[102]

C. Review of a Decision Not to Prepare an EIS

1. General

When an agency decides not to prepare an EIS, they often wind up in court defending their findings. This has resulted in an abundance of case law. The most frequently litigated issue in such cases——which is relevant to the DOE's FONSIs for the Pantex proposal——is whether the agency appropriately found that its action will not "significantly" impact the quality of the human environment.[103] Unfortunately, for several reasons, current case law provides little guidance on this matter.[104]

2. Standard of Review

One primary reason for the confusion——at least as to decisions prior to 1989——is that courts have struggled with the standard of review in regard to FONSIs because they involve mixed questions of law and fact.[105] Courts have discovered that the findings necessary to determine the legal meaning of the term "significant" are often findings of fact within the discretion of the agency.[106] This means that in order to legally interpret the word "significant,"

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[102] *Id.*

[103] Mandelker, §8.06[4][a], at 8-75.

[104] Mandelker, §8.01, at 8-3.

[105] Mandelker, §8.02[3], at 8-9.

[106] *Id.*

courts must review the agency's findings of fact.[107] As a result, courts have ended up applying a "reasonableness" standard of review, deciding issues of fact as well as law de novo.[108]

However, the Supreme Court, in *Marsh v. Oregon Natural Resources Council*[109], established that the arbitrary and capricious standard of review was the appropriate standard.[110] Then it deferred to the agency on the grounds that the determination of "significance" involved primarily issues of fact.[111] The Court explained that deference to the agency was proper because the dispute did not turn on either "the meaning of the term 'significant' or on the application of this legal standard to settled facts."[112]

The 9th Circuit in *Greenpeace Action v. Franklin*[113] interpreted *Marsh* to mean that, when the facts concerning the impact are disputed facts, and "specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive."[114] The court went on to state, "Once we are satisfied that an agency's exercise of discretion is truly

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[107] *Id.*

[108] *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360 (1989); Mandelker, §8.02[3], at 8-10.

[109] *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360 (1989).

[110] *Id.*

[111] *Id.*

[112] *Id.* at 376.

[113] *Greenpeace Action v. Franklin*, 982 F.2d 1342 (9th Cir. 1992).

[114] *Id.* at 1350.

informed, 'we must defer to that informed discretion.'"[115]

Whether an agency is "truly informed"——or, in many cases, being forthright——is probably one of the main reasons why courts have struggled over the years with the legal meaning of "significance" and why many have felt compelled in some cases to review some of the factual determinations de novo.[116] Unfortunately, *Marsh* may result in a one-sided determination, where agencies have nearly complete, unchecked power to pursue actions which, under a "reasonableness" standard, would never have withstood review.

3. "Significance"

A second reason that current case law provides little guidance on the requirements of FONSIs is that few courts discuss——or concur on, for that matter——the threshold level of "significance" that requires the preparation of an EIS.[117] CEQ regulations have attempted to define "significantly" as follows:

> "Significantly" as used in NEPA requires considerations of both context and intensity:
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> (a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected

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[115] *Id.*

[116] *See Save Our Ten Acres v. Kreger*, 472 F.2d 463, 466 (5th Cir. 1973)(". . . the spirit of the Act would die aborning if a facile, ex parte decision that the project was minor or did not significantly affect the environment were too well shielded from impartial review."). But in *Sabine River Authority v. U.S. Dep't of Interior*, 951 F.2d 669, 677 (5th Cir. 1992), the Fifth
Circuit ruled that, in light of the Supreme Court decision in *Marsh v. Oregon Natural Resources*, 490 U.S. 360 (1989), the appropriate standard of review in cases involving an agency's decision not to prepare an impact statement is the arbitrary and capricious standard.

[117] Mandelker, §8.06[4][a], at 8-76.

region, the affected interests, and the locality. Significance varies with the setting of the proposed action. . . .

(b) Intensity. This refers to the severity of the impact. . . . The following should be considered in evaluation of intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

(2) The degree to which the proposed action affects public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which effects on the quality of the human environment are likely to be highly uncertain or involve unique or unknown risks.

. . .

(9) The degree to which actions may adversely affect an endangered or threatened species or its habitat. . . .

(10) Whether the action threatens a violation of Federal, State, or local law. . . .[118]

Many courts, however, have shied away from these structured CEQ regulations and adopted more generalized tests for "significance"; as a result, the tests vary greatly.

Perhaps the most popular of such tests is that adopted by the court in *Hanly v. Kleindienst (II).*[119] In *Hanly*—decided before the CEQ regulations were passed but,

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[118] 40 C.F.R. §1508.27.

[119] *Hanly v. Kleindienst (II)*, 471 F.2d 823 (2nd Cir. 1972).

nonetheless, still followed——the majority adopted this two-part test:

> (1) The extent to which the action will cause adverse environmental effects in excess of those created by existing uses in the area affected by it, and (2) the absolute quantitative adverse environmental effects of the action itself, including the cumulative harm that results from its contribution to existing adverse conditions or uses in the affected area.[120]

The test emphasizes baseline factors and the cumulative impact of the action when considered alone and in relation to the overall environmental condition of the area. Although this test is probably the most widely followed, many courts have adopted completely different views of "significance," such as the D.C. Circuit and the Fifth Circuit.

The D.C. Circuit, since *Maryland-National Capital Park & Planning Comm'n v. U.S. Postal Service,*[121] requires an impact statement when the environmental effect is "arguably" significant. The court has the following four criteria for determining the adequacy of a FONSI:

> (1) whether the agency took a 'hard look' at the problem;
>
> (2) whether the agency identified the relevant areas of environmental concern;
>
> (3) as to the problems studied and identified, whether the agency made a convincing case that the impact was insignificant; and
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> (4) if there was an impact of true significance, whether the agency convincingly established that changes in the project reduced it to a minimum.[122]

These criteria focus more on the process the agency goes through to determine "significance"

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[120] *Id.* at 830-31.

[121] *Maryland-National Capital Park & Planning Comm'n v. U.S. Postal Service*, 487 F.2d 1029 (D.C. Cir. 1973).

[122] *Id.* at 1040.

than on the substantive definition of the term.[123]

The Fifth Circuit's definition of significance, set out in *Save Our Ten Acres v. Kreger*,[124] is even less comprehensive than the D.C. Circuit's. The court gave the following criteria:

> [I]f the court finds that the project may cause a significant degradation of some human environmental factor (even though other environmental factors are affected beneficially or not at all), the court should require the filing of an impact statement. . . .[125]

This implies that an effect can be "significant" even though it has limited environmental impact.[126] But the test is very general and remains unclear. Like the other tests, the 5th Circuit's fails to spell out sufficient, definite substantive criteria.

So courts and agencies alike struggle with the meaning of "significance" and there is little guidance in current case law.

4. "Effect"

Another recurring issue on review is what is included in the term "effect." CEQ regulations define the term broadly to include ecological, aesthetic, historic, cultural, economic, social, and health effects,[127] but often courts do not follow this guideline.

Direct "effects" of an action are usually held to be within NEPA, as well as secondary and indirect effects.[128] An indirect effect is defined as a "reasonably foreseeable" effect that is "later

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[123] Mandelker, §8.06[4][c], at 8-80.

[124] *Save Our Ten Acres, supra* note 116.

[125] *Id.* at 467.

[126] Mandelker, §8.06[4][c], at 8-80.

[127] 40 C.F.R. §1508.8.

[128] Mandelker, §8.07,

in time or farther removed in distance" than a direct effect.[129] Speculative indirect and secondary effects are generally not covered by the statute. Issues often arise, though, as to whether an effect is speculative.

Often, effects have a low probability of occurring but severe consequences in the event they do occur, such as nuclear accidents. CEQ regulations require an analysis of these low-probability/severe-consequences type of risks, provided such analysis is reasonable as defined by the regulations.[130] On review, surprisingly little attention has been paid to such risks.[131] Perhaps the leading case on low-probability risk analysis is *New York v. United States Department of Transportation.*[132] In this case, the court addressed risks in regard to the transportation of radioactive materials on public highways. The court undertook a "risk assessment," defined as an "estimate of both the consequences that might occur and the probability of their occurrence."[133] The court concluded that an agency was not exempted from having to prepare an impact statement because the effects of its proposal were "only a possibility"; but, in such cases, the agency should be accorded "some latitude" when determining whether an impact statement is necessary.[134] So just because the effects of an

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[129] 40 C.F.R. 1508.8(b).

[130] 40 C.F.R. §1502.22. This regulation replaces the previous "worst case analysis" requirement.

[131] Mandelker, §8.07[10].

[132] *City of New York v. United States Dep't of Transportation*, 715 F.2d 732 (2nd Cir. 1983).

[133] *Id.*

[134] *Id.*

action are uncertain does not automatically mean that an impact statement should not be prepared.

A second issue courts have addressed is whether NEPA covers psychological effects. In *Metropolitan Edison Company v. People Against Nuclear Energy*,[135] the Supreme Court established the following causation test for determining NEPA's applicability:

> To determine whether . . . [NEPA] requires consideration of a particular effect, we must look at the relationship between that effect and the change in the physical environment caused by the major federal action at issue.[136]

Applying this test, the Court concluded that the psychological effects of restarting the Three Mile Island nuclear reactor were not covered under NEPA. The Court reasoned that NEPA was limited to the physical environment and stated:

> . . . *risk* of an accident is not an effect on the physical world. In a causal chain from renewed operation of . . . [the nuclear reactor] to psychological health damage, the element of risk and its perception by PANE's members are necessary middle links. We believe that the element of risk lengthens the causal chain beyond the reach of NEPA.[137]

Just exactly what the court meant by this decision is unclear. It seems that all risks would fall under the same reasoning and, therefore, escape analysis. The Court attempted to distinguish this particular psychological effect by pointing out that risks of environmental change must be considered, but not effects caused by a reaction to the risk itself. However, in this case, nearby residents were being exposed to low-level radiation as a result of the restart of the

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[135] *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766 (1983).

[136] *Id.* at 773.

[137] *Id.* at 775.

reactor; this caused at least some of the psychological effects.[138] The psychological trauma was not merely a reaction to the risk. So the Supreme Court's argument is neither persuasive, nor clear. To give this case meaning, the result might be to exclude psychological effects altogether even though that does not appear to have been the Supreme Court's intent.

A third issue courts have often encountered is whether an impact statement is required if an action is controversial. This issue arose since, under the CEQ's definition of "significantly," agencies must consider the degree to which the effects are controversial. Courts have generally agreed, however, that requiring an impact statement due to the controversial nature of an action does not comport with the aims of NEPA.[139]

5. Alternatives

The adequacy of an agency's discussion of alternatives is often an issue on review. The case law on this topic is described, supra, under the EIS subsection, Requirements.

III. APPLICATION OF NEPA TO PANTEX NUCLEAR WEAPONS FACILITY

A. Proposal For Storage of Plutonium Pits

In three nuclear weapons policy declarations (dated September 27, 1991, January 21, 1992, and June 16, 1992), President Bush expressed his intent to reduce the nuclear weapons arsenal. These reductions were made into directives through joint DoD/DOE commitments, which promise to reduce the nuclear weapons stockpile from in excess of 20,000 warheads to fewer than 10,000 before the end of the century. This translates into a reduction of 2,000 per year. The DOE proposes to store all plutonium pits——composed of

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[138] *Id.*

[139] *Hanly v. Kleindienst (II), supra; See also* Mandelker, §8.07[11], at 8-103.

hermetically-sealed, metallic outer shells, surrounding a core of solid plutonium——at Pantex on an interim basis until a long-term storage facility is available.[140]

The DOE states that their proposal will result in the following:

- An increase in the number of pits stored, up to 20,000;
- A reallocation of the number and type of magazines that can be available for interim storage;
- A change in the historically used staging/storage configuration to allow increased operational flexibility and efficiency (multiple stacking);
- A storage period not to exceed the time required to implement the decisions in the PEIS/ROD regarding long-term storage and/or disposition. This is expected to be within a timeframe of 6-10 years.

Just exactly what the DOE means by the above four statements is unclear. The language that they use is misleading and ambiguous throughout the EA.

B. The EA Submitted by the DOE

1. General

The EA submitted by the DOE is questionable for several reasons in light of the NEPA law previously discussed. At least five main problems surface: (1) the DOE did not accurately identify many of the possible "significant" effects of their actions; (2) the DOE underestimated the "significance" of many environmental effects; (3) the DOE's discussion of alternatives was incomplete and unsatisfactory; (4) the DOE failed to clearly define the interim storage period; (5) the DOE should outline the proper regulatory authorities.

Each of these issues is addressed below.

2. Effects Not Addressed

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[140] EA, *supra* note 1, at 1-1.

As stated earlier, NEPA requires agencies to take a "hard look" at the environmental consequences of their actions.[141] This "hard look" includes accurately identifying the "significant" adverse environmental "effects."[142] As the CEQ regulations and case law have shown, the term "effects" consists of direct and indirect impacts, including immensely adverse environmental consequences that have a low probability of occurring. In the EA, they fail to identify several such environmental effects.

The accidents that the DOE purports to consider include earthquakes, external explosions, missiles, tornados, forklift accidents, and small aircraft crashes.[143] Other risks, though, like corrosion and internal fires, are erroneously dismissed as not "credible."[144]

As to corrosion, the DOE states that "there is no mechanism to cause corrosion that would lead to the degradation of the pit containers."[145] However, just recently, a "corrosion-resistant" metal shell surrounded by "positioning material (Celotex)" encasing a pit ruptured and began to leak plutonium. Workers had to be evacuated and the facilities decontaminated.[146] Since the inner metal shell was encased in a pit, it logically follows that forces other than physical impacts, i.e. corrosion, led to the accident. This risk should be addressed and the environmental impacts analyzed. With 20,000 plutonium pits being sent to

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[141] See *supra*, p. 8.

[142] *Id.*

[143] EA, *supra* note 1, at 6-4.

[144] *Id.* at A-3 & A-5.

[145] *Id.*

[146] Jim McBride, "Engineers Take Plutonium Pits Apart for Tests," *Amarillo Globe News,* 18 Feb. 1993.

one location, the potential for such leaks is great.

Similarly, internal fires should be discussed. The DOE states that no uncontained combustible materials are within the magazines, so this potential accident does not warrant discussion. But the DOE does not consider fires from objects, such as forklifts, that enter the storage igloos. There is no discussion of what exposure to abnormally high temperatures would do to the drums and their contents. This risk should also be discussed.

Most importantly, though, the DOE ignored what are perhaps the gravest impacts caused by this proposal: (1) the potential for terrorist attack, since almost all plutonium removed from nuclear weapons will be stored at one location and (2) the effect of a large airline crash into one of the magazines.

Given that the DOE's proposal contemplates stockpiling all plutonium pits—notoriously the most dangerous component of nuclear weapons—at one location, it is surprising, if not suspicious, that the DOE has omitted any discussion of the terrorist threat and the potential effect of a terrorist attack on the facility. Damage from missiles due to explosions in nearby facilities is evaluated, but there is no discussion of missiles detonated within or near the magazines or striking the structures from the air.

Strategically, the DOE's decision to store all plutonium in one location is highly questionable. Alternatives of delaying disassembly or at least distributing the storage among various facilities would be much wiser than storing all plutonium at one location and making the site an enormously attractive terrorist target. This concern was cited by John F. Ahearne, a nuclear expert who studied the nuclear weapons industry for four years as chairman of an independent advisory group. At a Senate hearing on the subject, Dr. Ahearne warned that

putting such quantities of plutonium at one site would present a terrorist threat.[147] He stated, "It seems imprudent to establish the concept here that it's quite acceptable to store large quantites of plutonium in one place."[148]

As Chief Judge George Edwards of the D.C. Circuit wrote in *NRDC v. NRC*,[149] "Both in storage and in transit, separated plutonium requires the most careful . . . measures . . . against theft by non-state actors." The D.C. Circuit ruled in *NRDC v. NRC* that the NRC abused its discretion in promulgating a set of rules establishing a system for assessing the environmental impact of the uranium fuel cycle. The court held that the rules subverted the purpose of NEPA, allowing scant consideration of the uncertainties of long-term isolation of high-level, transuranic waste, as well as health, socioeconomic, and cumulative effects of fuel cycle activities, including terrorism.[150] In his concurring opinion, Chief Judge Edwards warned:

> Terrorists might choose the nuclear industry as a target to exploit the mystique that surrounds nuclear weapons. The threat of nuclear terrorism may be used to extort money, secure the release of prisoners or publicize a particular cause. . . . [T]he United States confronts many hostile powers, some with vast wealth and the consequent ability to train and arm desperadoes or to bribe and corrupt personnel connected with either private or government aspects of the nuclear cycle. . . . I assume that theft by stealth or force of sufficient plutonium to fabricate a bomb and its subsequent employment by threats or fact of explosion would constitute a "release." In my view, the threat of such a "release" is anything but "insignificant."[151]

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[147] February 25, 1992 Senate hearing before Governmental Affairs Committee chaired by Senator John Glenn "Impact of Nuclear Disarmament on the Department of Energy"

[148] *Id.*

[149] *NRDC v. NRC*, 685 F.2d 459 (D.C. Circuit 1982).

[150] *Id.*

[151] *Id.* at 514-6.

The potential for terrorism at Pantex will rise dramatically if the DOE enacts its proposal and all 20,000 plutonium pits—almost the entire nation's store of plutonium—are stored there. As Chief Judge Edwards holds, the threat of terrorism is anything but insignificant. And, under the DOE's proposal for Pantex, the potential for terrorism could not be greater, especially since the DOE proposes to amass all plutonium pits at one site in above-ground igloos designed to hold far fewer pits and only on an inventory basis. If NEPA upholds its purpose, the DOE should consider this threat of terrorism in an EIS.

In addition, the DOE mentions the possibility of airline crashes into magazines but dismisses such effects as insignificant, evaluating the effects of light aircraft crashes but not military or commercial aircraft crashes. However, Pantex is located near the flight path to Amarillo's airport.[152] The DOE implies, though, that since 62% of the traffic is composed of light general aviation, only the possibility of light aircraft crashes needs to be evaluated.[153] They dismiss accidents involving larger aircraft as "beyond extremely unlikely."[154]

But the possibility of large aircraft crashes poses a real threat to the environment, especially given the large amounts of plutonium stored so densely in one location. And strangely, the DOE concedes this risk by evaluating what effects such an accident would have on the Ogallala Aquifer.[155] No doubt, however, the environmental effects to the land, people, and

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[152] *See* EA, *supra* note 1, Figure 5.1, "Pantex Plant Location," at 5-3. *See also* EA, Figure E-1, "Relationship of Flight Path to Impact Areas," at E-10.

[153] EA, *supra* note 1, at 6-6.

[154] *Id.*

[155] Los Alamos National Laboratory, "Potential Ogallala Aquifer Impacts of a Hypothetical Plutonium Dispersal Accident in Zone 4 of the Pantex Plant," p.2 (1992). This document is part of the EA.

water supplies would be devastating if such an accident occurred. As the EA states, a plutonium particulate plume would fall on much of the Southern and Central High Plains——i.e. a substantial portion of North Texas and parts of New Mexico.[156] Therefore, this risk is sufficient to require the DOE to prepare an EIS.

Water issues remain unresolved by the EA as the Los Alamos reply to State of Texas comments on water mobility and recharge rates as they might threaten underground water aquifers, are largely ignored. The Department of Economic Geology at the University of Texas has spent four years understanding and defining the areal extent and hydraulic continuity of the perched aquifer in the region of the Pantex plant and the possible implications to the Ogallala aquifer.[157] DOE dismisses this work out of hand as unreasonable and unrealistic.

The DOE also failed to evaluate the safety of the magazines at Pantex, constructed in World War II, in light of present-day requirements for a modern, safe nuclear store, such as those requirements set out in a study by the Center for Energy and Environmental Studies at Princeton and the Department of Nuclear Engineering at MIT. [Exhibit] Moreover, the stability of plutonium over long periods of time was not addressed. This poses an unknown threat since models defining the stability of plutonium over long periods of time have been inadequately tested.[158]

Lastly, the DOE ignored psychological effects to the community caused by the increased storage of pits. Perhaps this is because, as noted earlier, the Supreme Court ruled in

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[156] *Id.*

[157] July 1993 "Milestone Report / The Areal Extent and Hydraulic Continuity of Perched Ground Water in the Vicinity of the Pantex Plant" By W.F. Mullican III et.al.

[158] "Science and Global Security", 1992, Volume 3, pp. 1-53

Metropolitan Edison Company that reaction to risks is not an "effect," only reaction to environmental change is.[159] However, applied to the proposal for Pantex, the DOE states that under 1991 figures, people outside the boundaries of Pantex could be exposed to approximately .16mrem of excess radioactivity. So the proposal would cause an environmental change. The psychological effects on the community caused by this environmental change could easily be judged significant since recent studies show that exposure over an extended period of time to low-level radiation causes cancer.[160] Based on this scientific evidence, people in the community are justified in feeling fear and anxiety about the health effects of the DOE's proposal, and these psychological effects should be viewed as significant.

The impact to the business future of Amarillo and the Panhandle is illustrated with the results of a recent business survey done for Operation Commonsense by a Duke university pollster. [Exhibit B] The results establish a significant impact to future business development solely from the knowledge of the plutonium store and possible processing function.

3. The FONSIs

Experts disagree with the DOE's findings that certain effects of its proposal are not "significant." If the DOE's findings in this case are reviewed by the Fifth Circuit, the court, as it held in *Sabine River Authority v. U.S. Dep't of Interior*, would likely defer to the DOE on its findings.[161] This is because the harm that the DOE concedes——which is solely increased worker exposures——would be the only finding the court could question regarding

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[159] *See supra*, p. 30-31.

[160] Gibbons, *Science News*, "Low-level radiation: higher long- term risk? (cancer linked to ionizing radiation), v. 139, n. 12, p. 181 (Marsh 23, 1991).

[161] *See supra*, p. 28.

"significance," since all other inquiries require questioning the DOE's fact-finding.[162] And, in regard to worker exposures, the DOE claims that proper safety measures would adequately mitigate the harm, so a determination of "significance" would be unlikely.[163]

If the DOE's findings are reviewed by the D.C. Circuit, though, given that the court requires an impact statement when the impact is "arguably significant,"[164] the review might be more favorable.

4. Discussion of Alternatives

The DOE discusses alternatives to its proposal in section four of the EA, devoting only five pages to the topic. As previously noted, §102(2)(E) requires rigorous exploration and evaluation of alternatives even if no EIS has been prepared.[165]

However, the DOE devotes less than half a page to discussion of the no-action alternative, dismissing it as violating the weapons reduction initiatives.[166] The DOE does not discuss the consequences of ceasing disassembly pending the identification and approval of a long-term storage site. Halting disassembly until a safe storage facility is constructed might very likely be preferable to stuffing magazines at Pantex beyond their intended capacity in dangerous, make-do configurations.

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[162] Given the standard of review under *Marsh* as articulated by the 9th Circuit in *Greenpeace Action v. Franklin*, *supra*, page 23, the court could determine that the DOE's findings were "uninformed."

[163] *See* EA, *supra* note 1, Appendix F.

[164] *See* supra, p. 26-7.

[165] *See supra*, p. 16-17.

[166] EA, *supra* note 1, at 4-1 & 4-2.

In addition, the DOE cites inadequate reasons——e.g., time pressure and the convenience of leaving the pits at Pantex——to discount the other DOD and DOE facilities as possible storage sites. Throughout the EA, the DOE dismisses each facility, stating that they would all require modifications, and subsequently concludes that Pantex could accommodate all of them using a multiple stacking configuration. But the mere fact that other facilities would require modifications does not justify dismissing them as alternatives, especially since the Pantex facilities were not designed to store anywhere near the number of pits the DOE intends to store in them.

Also, the DOE contends that some facilities, such as Hanford, are such environmental disasters that it would not be "reasonable or appropriate" to send the pits there.[167] But Pantex is a candidate for CERCLA's NPL,[168] so if the environmental condition of a site is a factor in choosing a storage facility, Pantex should not be a preferred choice.

The DOE's discussion of alternatives is simply too brief. Each alternative should be evaluated in more detail as required by § 102(2)(E). For example, alternative modes of storage should be evaluated. Storing the pits above ground in igloos may create risks of accidents that don't exist for underground storage facilities. In addition, placing the facility above the largest aquifer in the United States obviously may not be the most prudent alternative.

5. Define the timetable for interim storage

The DOE proposal for interim storage fails to provide a reasonable standard for "interim". The proposal must provide a set timetable for dates the storage started and dates

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[167] *Id.* at 4-3.

[168] *See supra*, note 20.

the interim storage will stop. A final destination for the permanent storage should be provided within a reasonable and clearly defined timetable and penalties and recourse should be defined for failure to meet those deadlines.

6. Regulatory authorities

Regulatory authorties should be granted by DOE with complete unrestricted access to the Pantex plant. Additionally DOE should grant "shut down" authorities to those same regulatory agencies in the event any actions by DOE or DOE contractors should threaten the safety of the community. DOE and the Pantex Plant should be subject to the same laws applying to the commercial nuclear industry.

IV. CONCLUSION

The DOE's EA is inadequate. The DOE should be required to prepare an EIS, discussing, in detail, *every* potentially significant effect and feasible alternative. The seriousness of this proposal should not be overlooked. In the event of an accident, the location of Pantex, coupled with the mode of storage——being stored above ground, over the Ogallala aquifer, in experimental multiple stacking configurations——would mean that the property and citizens of the state of Texas and many in New Mexico would be severely harmed. These risks simply cannot be overlooked on the basis of convenience and deadlines. Although the operations of the DOE may be viewed as supremely important, no agency is above the law. If NEPA still upholds its stated purpose, proposals such as this should be suspended, pending a thorough and complete analysis in an EIS.

EXHIBIT A

Excerps from technical papers on plutonium storage/Center for Energy and Environmental Studies, Princeton Unversity Princeton. New Jersey/Department of Nuclear Engineering, Massachusetts Institute of Technology

VERIFICATION ARRANGEMENTS FOR A PLUTONIUM STORE

For a storage facility for plutonium in a single type of storage container, assuming that construction features afford significant containment, the safeguards provisions may be based upon verification of the amounts declared for each container and subsequent application of containment and surveillance to confirm the continued presence of the materials in the Store. Remeasurement and periodic re-examination of the facility structure, and equipment would be carried out. The following systems would be applied:

- Application of optical surveillance in the transfer areas and storage halls, incorporating pattern recognition, radiation and electromechanical sensors to trigger intelligent rerording and to facilitate systematic review, and incorporating redundant systems and/or components tc) enhance reliability,

- Neutron gate monitors at all entry and exit points to detect the presence of any plutonium passing the monitors and the direction of passage.

- Storage Container Assay Systems, based on high-level neutron coincidence assay methods, installed in the transfer routes and operated so as to measure the plutonium content of all containers transferred into the Store or transferred out, and to periodically remeasure the contents of selected containers to ensure that the verification systems had not be deceived or circumvented If the storage facility is to be automated, the Storage Container Assay system will operate continuously in an unattended mode following the arrangements used in some plutonium fabrication facilities. Note without isotopic verification, such measurements could provide assurance that after initial measurement there is no tampering with the contents.

- High resolution gamma ray spectroscopic analysis equipment, to confirm declared plutonium isotopics and americium content, (Note: the provisions

for isotopic verification may be changed to reflect the sensitivity of the materials if a determination were made that such measurements might disclose weapon data.)

- Bulk determination by weighing and sample taking for laboratory analysis of elemental and isotopic composition is normally required. however, the circumstances of storage and the sensitivity of the materials may affect whether such provisions would be applied for the storage of plutonium and/or HEU transferred from military inventories.

- A potential additional containment\surveillence system may be applied in the storage area, given the value of the materials in question. Such a system might be seals on individual containers (although the effort required to apply and service the seals is substantial), or area monitors which might be based on neutron field mapping or infrared mapping, for example.

Cost of Storage

Storage of plutonium will be costly. The storage facility must be able to resist penetration by explosives, have fire suppression and cooling systems (especially if the plutonium is in metal form), and be equipped with a variety of sensing systems, In addition, there will be continuing high labor costs due to the large guard force. However, very little specific information is publicly available on the costs of large plutonium stores such as those at La Hague and Sellafield. Costs of $1-2 per gram of plutonium per year have been published, but without further explanation. Information gleaned from interviews with utilities suggests that, in practice the prices charged by reprocessors for plutonium storage may be higher than this, even approaching $4 per gram per year,

Plutonium stores must, of course, be made relatively resistant to clandestine diversion by subnational groups. Strict physical and administrative control must be maintained by keeping a constant heavy guard, severely restricting access to the store and requiring that those who enter the store exit through portals equipped with detectors sensitive to the neutrons emitted by plutonium. Plutonium containers could be tagged and sealed after their contents have been assayed and their gamma

emissions measured to assure without a new assay being required that their contents have not been tampered with in storage. Such arrangements would effectively address subnational threats and, with regular international inspection, should inspire confidence in the international community that no state diversion is taking place.

EXHIBIT B

To: W. H. O'Brien
From: Adam Jones
Date: August 23, 1993
Subject: Operation Commonsense Business Poll

I have completed a survey of 51 businesses taken between August 16 and August 20th. The respondents were randomly selected among businesses with at least 100 employees from the Dun and Bradstreet directory. The poll surveyed companies with 150 employees up to 30,000 employees. The range of business types was broad, including a diversified assortment of commercial enterprises.

The purpose of the poll was to determine the positive and negative factors that would influence each company in their decision to move, expand, or relocate. Amarillo was not mentioned in the survey, but it is obvious that most of the positive factors are present in Amarillo. This poll presents some factors considered negative, included nuclear storage and plutonium processing, in an attempt to gauge the impact the acceptance of the plutonium option at Pantex might have on future business development.

The results of this poll clearly demonstrates that inclusion of the plutonium option in the Pantex expansion would have a serious impact for future business development. <u>According to the poll 72% of the businesses surveyed said the presence of a nuclear storage facility and plutonium processing plant would have a negative impact on their decision to expand or relocate in such an area. The presence of a nuclear storage facility and plutonium processing plant was given the highest negative rating among the businesses surveyed.</u>

Among the positive factors, businesses cited low worker's compensation costs, low local taxes, and inexpensive land and capital cost as the most important considerations when expanding or relocating. Access to an interstate highway, clean air and water, and low crime also received favorable responses.

Interestingly, the survey confirmed the entrance of environmental firms into the mix of businesses. Nuclear storage facility and plutonium processing plant actually received a couple of positive impact responses from companies involved in environmental restoration.

COMMENTS ON D.O.E. RESPONSE TO AIRCRAFT HAZARD ANALYSIS REVIEW

by

J. M. Osborne

I am writing in regard to the D.O.E. responses to comments on the Aircraft Hazards Analysis of the Environmental Assessment. In particular, I wish to clarify a number of points that were apparently not clear to the D.O.E. responders. Additionally, I would like to raise points that I previously neglected to raise in my comments.

I am an aerospace engineer specializing in propulsion and aircraft performance. I earned my Bachelor of Science degree at Texas A&M University and have worked in the aerospace industry since 1983. More specifically, I have worked in the general aviation industry since 1985 and have participated in a number of aircraft certification programs. I am currently employed by an aircraft manufacturer, where I am involved in aircraft and propulsion system performance analysis and the interpretation of flight test data.

The Aircraft Hazards Analysis focuses on the scenario of a light, general aviation aircraft weighing 3500 pounds and impacting at 80 miles per hour. My comments were that this scenario was unrealistic due to the mis-definition of general aviation and the use of incorrect units in defining aircraft stall speeds. As the D.O.E. response to my comments states, the 3500 pound aircraft was chosen due to the higher rate of in-flight accidents involving this category of aircraft. While it is correct that single-engine aircraft have a higher inflight accident rate than other categories of aircraft, my point still stands that the aircraft that routinely overfly the Pantex Plant are not in this category. Moreover, despite the contention that since the plant is more than 5 miles from the runway the only the inflight phase need be considered, the heavy transports and other military aircraft overflying the plant are indeed on approach to landing. At the point in time that the transports, in particular, pass over Pantex, they have lowered their landing gear, extended their flaps and slowed to their approach speed. These factors make them vulnerable to the kinds of accidents that occur during the landing phase of flight - even if they are 8 miles from the runway.

In addition, military combat and training aircraft utilizing Amarillo International Airport are not normally destined to terminate the flight in Amarillo. Though they may be handled as a single flight, the T-37 and T-38 trainers operating in the Amarillo International Airport control area are often executing practice approaches or touch and go landings resulting in numerous overflights of Pantex. The same can be said for many of the operations conducted by transport or combat aircraft in the Amarillo area.

The Aircraft Hazards Analysis bases the accident rate for military aircraft on data for a period from 1976 through early 1992, missing a number of major military accidents. Admittedly, these accidents due not fall in the analysis time constraint, but this fact alone does not change the fact that they occurred. No data are presented for F-16 aircraft in Appendix E of the Environmental Assessment, despite the large number of accidents involving these single-engine aircraft. Additionally, the B-1 accident at Edwards AFB in the early to mid 1980's (1984 ?) was not included. Though this was a B-1A, it was in B-1B configuration with some exceptions and should probably be included in the statistics.

In assessing the hazard presented by aircraft coming down within the boundaries of the Pantex plant, the impact angle was assumed to be 15 degrees, marginally consistent with a forced landing under controlled flight. No evident accounting for higher angle descents is made. The 15 degree angle impact was assumed to be followed by a slide which was, for purposes of analysis assumed to be on a smooth surface. From the discussion provided in the Aircraft Hazards Analysis, it appears that the data used was for aircraft sliding on sand or on concrete, consistent with accidents on gunnery ranges or wheels up landings, respectively. The statement is made that the area of the plant is made up of terrain that appears level in a macroscopic sense, but is in fact fairly rough. This is in conflict with currently recommended procedures in the event of a landing of an aircraft known to have its gear retracted. While it was at one

time suggested that landing beside the runway on the grass was best, current practice is to land on the runway to maximize the decelerating effects of friction. In short, low grasses such as those common to the Texas Panhandle offer lower coefficients of friction than those of a concrete runway or a sandy surface.

In responding to my comments, the D.O.E. responders refer to my mention of a standard 3-degree glide slope. Contrary to the apparent understanding of the D.O.E., I did not intend that to be used as an impact angle. This angle was used in order to deduce an expected altitude of 2300 feet above ground level for an aircraft on approach to the runway at Amarillo International Airport. As I stated, an aircraft descending from this altitude in an uncontrolled manner will likely impact at an angle much higher than 3 degrees or 15 degrees.

In my initial commentary, I pointed out the incorrect use of 80 miles per hour as a representative initial speed for a 3500 pound aircraft with the accompanying underestimation of impact energy. I recognize that a light weight aircraft that this discrepancy is probably insignificant. My point is that obvious errors such as this indicate a more general lack of understanding of the material involved in the analysis. Additionally, in revisiting the material while reading D.O.E. responses to my comments, I note that according to Appendix F for the Environmental Assessment, that penetration of the bunkers only requires an energy of 0.0000038 pound feet per second. If this is true, all of the analysis of penetration hazards due to aircraft or large insects falls apart. I would sincerely hope that the exponent in this case was meant to be a positive rather than a negative value.

Finally, I wish to bring up three additional points that I failed to discuss either in my initial commentary or in the public hearing in Amarillo on 30 September 1993. The first is the possibility for penetration of storage facilities by objects separating from aircraft overflying the plant. Included here would be landing gear components, such as wheels and tires, and podded engines. Both have been known to separate from aircraft in flight and not result in an accident. Normally an engine separation would be referred to in reporting as an accident due to the expense of damage being in excess of $500,000, but a wheel separation would likely be considered an incident. A 7900 pound engine falling from a C-5B at 2300 feet would certainly be capable of significant damage to a storage facility.

Secondly, the long runway at Amarillo International Airport makes it a very attractive destination for an aircraft forced to divert to an emergency field due to mechanical difficulties. Under such circumstances, a pilot will normally elect to make a very long final approach in order to avoid maneuvering at low altitudes and speeds. Such a scenario could put an aircraft in distress in a flight path passing over Pantex. Additionally, under these emergency conditions, the pilot may ignore the prohibited airspace adjacent to Pantex. These factors would imply a somewhat higher probability of an accident than for the country at large.

Lastly, I wish to question the designation of probability bands quoted in the Aircraft Hazards Analysis. In the analysis, accident rates of less than 10e-2 per year are considered "likely", less than this but more than 10e-4 are called "unlikely", and less than 10e-4 but more than 10e-6 is called "extremely unlikely". While I do not have a ready reference, I believe that, for aircraft certification purposes, "unlikely" is considered to be a probability of less than 10e-7 per flight hour, "highly unlikely" is less than 10e-9 and "extremely unlikely" is 10e-13. A reconciliation of these levels would be helpful.

In conclusion, while I realize that the chances of an aircraft accident with in the confines of Pantex are remote, I don't believe that the analysis performed in support of the Environmental Assessment is adequate to make the conclusions contained therein. The assumptions utilized were, primarily correct for air traffic in general, but the specific assumptions addressed above are faulty in the case of the Pantex area due to its proximity to an unusually long runway with a high level of training activity. I sincerely hope that my comments will be of use in improving the quality of analysis performed in future stages of the evaluation process.

aircraft hazards-

Page E-8 - wingtip analysis based upon 1/2 wing span.

Although the outer 1/2 of the wing does not have much mass, typically a tip strike can cause the whole aircraft to rotate hitting the tip-struck object [building] full force. ~~The fact that~~ Although it a wing tip may not cause much damage itself, the fact is that it is too close.

BUREAU OF ECONOMIC GEOLOGY
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December 20, 1993

U.S. Department of Energy
Pantex Program Office, DP-6.2
Washington, DC 20585

RE: Comments on the Environmental Assessment for Interim Storage of Plutonium at Pantex

To whom it may concern:

The following are comments from the Bureau of Economic Geology on the Environmental Assessment for Interim Storage of Plutonium Components at Pantex (November 1993).

EXECUTIVE SUMMARY (p. ES-10: Comment 1. Para. 2)

1. Who are the soil scientists that agree that plutonium is relatively immobile? Please provide references.
2. Where were their studies completed and were those soils comparable to High Plains soils in mineralogy and texture?
3. What are remediable depths?
4. What steps has the DOE initiated to identify and document preferential pathways that may exist in postulated area of contamination?

(P. ES-11: Comment 2. Para. 2)

The literature values used by Los Alamos Laboratory to estimate recharge rates are largely from earlier studies. Many of these studies did not recognize focused recharge through playas or did not accept this concept. In our opinion, a recharge rate of only 3 cm/yr is unreasonable.

(P. ES-11: Comment 3. Para 2)

1. Understanding the importance of preferential flow is critical to determining the depth of penetration of contaminants. Los Alamos National Laboratory based its assessment on 7 published studies, of which 6 reported acceleration factors of two or less. Were these studies completed in areas closely comparable to the High Plains in terms of soil and sediment structure, mineralogy, and texture? Please provide references.

(P. E-2)

The response to Comment 1 does not answer many of the Bureau's initial questions and request for additional information. For example:

1. We asked for the anticipated contamination levels prior to cleanup. These were not provided.
2. We asked for evidence illustrating that if prior cleanups have been successful, could this technology be applied to the Pantex area? Although successful cleanup may have been achieved at Johnson Atoll, Eniwetok, and the Nevada Test Site, these areas are not similar to the High Plains in terms of climate, soil, or physiography. Some discussion of the applicability of this technology would be helpful.
3. We requested some discussion on removal of contaminated soil. What is remediable depth? Since enormous volumes of soil might need to be removed, where would it be stored? How would it be removed? What would happen to livestock, farm buildings?

(P. E-4: Comment 2. Para. 2)
The playa basin area, which is used to determine a concentration ratio for drainage into playas, is not the same as 100 percent of upland surface and should not be confused with this much larger area.

(P. E-6: Para. 2 and 3)
The Nativ (1988) report is a published refereed report that was available to the public on January 20, 1989, and distributed to subscribers and libraries shortly thereafter. Therefore, it was available when the Turin Report was being prepared.

Sincerely yours,

Thomas C. Gustavson
Senior Research Scientist

TCG:lch

cc: R. Mulder, Governor's Office
J. Raney, BEG
R. Finley, BEG
QA

THE OAK RIDGE ENVIRONMENTAL PEACE ALLIANCE
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To U.S. DOE	From RALPH HUTCHISON
Co. DP 6.2	Co.
Dept.	Phone # 615 426 9096
Fax # 301 903 9471	Fax # 615 524 4479

December 20, 1993

United States Department of Energy
Pantex Program Office, DP-6.2
Washington, DC 20585

Dear Sir or madam:

I am submitting these comments in response to the Department of Energy's Pre-Approval Environmental Assessment of the storage of Plutonium Pits at Pantex, hoping they may assist the Department in making a judicious decision which enjoys the support of the public.

Comments on the Pre-approval Environmental Assessment
of the storage of Plutonium Pits at Pantex

Specific comments:

Vol. 1, p. 3-2

DOE proposes that a shielded forklift, now under development, would traverse a passive guidance system and be used for storage, retrieval, etc.: the operator would be shielded in a specially constructed cab.

It is not clear when this improvement will be available, nor is it clear if the Steel Arch Construction buildings will be modified prior to any storage to accomodate the passive guidance system.

It is also not clear what functions the operator is responsible for -- could the forklift be designed to be entirely remotely controlled, thereby reducing possible worker exposure even more?

It is also not clear how repairs would be made on the forklift should it become disabled while performing its duties inside the storage building. How would it be removed from the tracking system and withdrawn from the building -- what would estimated worker exposures be during such an operation?

Vol. 1, p. 3-2

The last paragraph on this page says the proposed action would not involve new facility construction...long-term or permanent storage, or disposal of plutonium components at the Pantex Plant.

The statement that this proposed action would not involve *long-term or permanent storage* is incredible on its face. DOE has no other plan or contingency for plutonium storage; DOE is already planning to move pits from other "interim" storage at Rocky Flats to Pantex.

In fact, it is far more likely than unlikely that Pantex will become a *de facto* long-term storage site; DOE's refusal to attach that term to the decision currently under consideration -- for political reasons as much as anything -- does not change the reality. It also undermines DOE's credibility.

Any serious suggestion that this decision does not support long-term storage at Pantex must outline that length and the capacities this EA will cover, establishing an upper limit for the NEPA coverage potential of this document. This should be accompanied by a schedule of future decisions about storage and a full description of the process by which such decisions should be made -- both the NEPA process and the other decision-making processes of DOE (political, fiscal, policy, etc.)

Vol. 1, p. 4-1

In paragraph 4.0, DOE introduces a discussion of the alternatives to the proposed action. Two programmatic objectives are described -- one is "the programmatic goal" and the second is "the other programmatic objective." It is appalling that protection of the environment and worker and public safety and health are not included in this introduction as programmatic goals. DOE's words here betray a skewed sense of priorities that must be corrected -- not only on paper for the EA -- but institutionally at the plant and throughout the Department of Energy.

Vol. 1, p. 4-5

Paragraph 4.3 considers supplementing storage at Pantex with storage at other DOE sites in a remarkably weak paragraph. DOE acknowledges that approximately 1,100 pits could be stored at Savannah River (which could relieve the current sense of crisis surrounding Pantex's diminishing capacity), and defends its decision not to further explore possible relief at Los Alamos and Hanford for two reasons: in 4.2 (c) "no environmental benefit would be derived..." and 4.3 "it can not be assured that this alternative could meet the need for near-term interim storage." The EA must provide a more comprehensive and honest evaluation of alternatives. The question is not simply whether or not environmental benefit (here meaning worker exposure) can be derived, but whether adverse environmental impacts can be avoided; the EA does not address this. The statement that "it can not be assured that this alternative would meet the need..." raises the obvious question: can DOE assure that this alternative would *not* meet the need? The EA must answer this question.

Vol. 1, p. 4-6

In consideration of other temporary storage options, footnote 11 offers this rationale: "Active conventional weapons storage facilities are not reasonable, because the Department of Defense mission would not be compatible with the Department of Energy's mission." This statement is the kind of bureaucratic mush which rightly offends the public. Because the assertion is used to discount a very real possible option for DOE's current dismantlement time crunch, it must be fully explained. The public deserves to know if mission incompatibilities truly make storage impossible at active conventional weapons facilities or if this is an option that policy people within both agencies could resolve with discussions and a decision. Surely the Department of Defense is partner in achieving the President's goals for weapons dismantlement and is committed to safety and security of all weapons systems -- conventional or nuclear. Tell us what's going on here; a footnote is insufficient.

Vol. 1, p. 4-8

DOE explains in a footnote that storing pits at a DOD site would require an additional expenditure for Type B shipping containers. It is not clear from the text or the footnote if such shipping containers will eventually be purchased for the pits anyway (so they can be shipped from deployment bases to Pantex, in which case the discussion here is moot) or if Type B containers are usually recycled for re-use.

Vol. 1, p. 4-9 (Table 4-1)

The right hand comments column in this table refers at one place to the "President's dismantlement objectives" and in a second place to the "President's weapons reduction initiatives." While I can imagine a difference, the EA should clearly spell out the difference between these two statements.

Vol. 1, p. 6-2 (Table 6-1)

The phrase "100 percent corrosion inspection" is misleading and must be corrected. In fact, DOE does not intend to inspect 100% of the containers for corrosion, but rather to do a random spot check; it is not clear that this spot check will be sufficient monitoring of the integrity of the containers.

Vol. 1, p. 6-2 and p. 6-3

In the last full paragraph on p. 6-2 and the second paragraph below the table on 6-3 the EA states "the natural incidence of fatal cancer in the total population is about 20 percent." This statement is misleading in the extreme and must be corrected. The causes of cancer are unknown, but appear to be many; science is only beginning to understand the role of genetics and the triggering mechanisms which may act in the body. How many cancers are "natural" and how many are stimulated by environmental insults, exposure to toxins, lifestyle choices, x-rays would at this point be pure speculation. Is lung cancer caused by cigarette smoking, "natural"? What would be unnatural?

The word "natural" must be struck in both instances and at any other places where this language is used. This sloppy language is an embarrassment to DOE and an offense to the public. It suggests DOE is desperate to minimize the risks it adds to our cumulative burdens and also desperate to minimize the public's clear understanding of considerations of health impacts.

In both the above cases, the stock paragraph states that "we're operating within guidelines," and does not actually indicate clearly what the exposure risk to a worker would be. The EA should give precise numbers and not try to cover itself with administrative jargon; the workers and the public have the right to decide for themselves what is acceptable, not to be reassured by an agency that they needn't worry.

Vol. 1, p. 6-4

In paragraph 6.2, dealing with abnormal events/accidents associated with the Proposed Action, DOE applies the art of Risk Assessment to plutonium pit storage at Pantex.

The best Risk Assessment practitioners acknowledge at the outset that theirs is a "soft science;" Not only are the formulae used to calculate risk often generated from best guesses, but the information then plugged into the formulae is also often the contractor's best guess. At the end of the process, the formula provides us with the exponential quantification of the unquantifiable. Any assurance the public might hope to feel as a result of this process is further undercut by the application of comparative risk analysis, where we throw issues of consent out the window, mix apples and ocean liners, and further pare the list of possible risks.

For the Pantex EA, the magical "one in a million" acceptability ceiling is invoked. DOE should note that this ceiling has been arbitrarily determined by agencies responsible for public health and safety and has not been subjected to public consent.

DOE further applies its formulae to potential abnormal events/accidents and eliminates from further consideration any which come out less than one in a million.

Our own life experiences, to say nothing of history, demonstrate that one in a million events occur regularly. When we are talking about something as critical as the security of plutonium pits, one in a million is not safe enough.

DOE suggests that because the potential for a large plane crashing into a pit storage igloo is calculated to be less than one in a million, such a possible crash can be discounted. This is nonsense. In addition to failure to adequately calculate the amount of air traffic into the Amarillo airport, including training exercises by the military, DOE has not considered that at least one forced landing of a heavy aircraft has already occurred at Pantex.

Furthermore, Amarillo's air traffic officials note that in 1992, the airport counted 91,000 landings/take offs. Over the next ten years, airport use will increase annually; it is obvious that Amarillo will see one million flights in ten years. If the risk of a plane crash into the igloos is one in a million, that means the likelihood of a crash in the next ten years is 100%.

DOE can quibble about size of aircraft, numbers of landings, even risk factors. Small private craft can be discounted, numbers can be juggled, the event can be rated at one in ten million with good, creative risk assessment. The accident still could happen, with disastrous results. I believe it is as likely as not.

Or, as an alternative, DOE could relocate the Amarillo runway to avoid Pantex overflights. This alternative, while expensive in the short-term, could be financially offset by comparison to the alternatives -- at least in the same way DOE conjures up a $36,000,000 outlay for Type B shipping containers when considering interim storage at a DOD facility.

Vol. 1, p. 6-4

The second paragraph under heading 6.2 does not end. After the first sentence, the writer embarks on a journey into the forest of risk assessment jargon and, as far as I can tell, is still wandering around in there searching for a phrase like "may be made." The contractor probably had to hire someone else to complete the section. I suspect we may never see the first writer again, but I hope DOE will make some effort to account for him or her. At the very least, that foray into the thicket of risk assessment should be somehow closed. I admit it will be hard -- I felt myself in danger even as a reader; I know those "standard practices" are really pretty sophisticated traps. When I saw one had been set for mere convenience -- *convenience???* -- I knew we were in a troublesome place.

Vol. 1, p. 6-5

The second paragraph under 6.2.4, Forklift Operational Accident, makes an assumption that, in the case of a puncture of a container, plutonium would be uniformly dispersed, which is silly. Nature, of course, is not uniform.

Clearly in this type of accident, which is credible, a worker would risk serious exposure. The EA does not make clear if the forklift operator's shielded cab is also airtight -- it should be designed to be -- and if the operator is wearing a respirator, which would seem a common sense worker safeguard any time moving equipment is being used around pit containers.

The statement that a worker would receive "no immediate or *long-term* health effect to the worker as a result of an accident of this type" is not supported by health studies to date.

Vol. 1, p. 6-6

DOE's discounting of a potential aircraft crash with the assertion which closes this section is not acceptable. Having reviewed DOE's method and numbers, I remain unconvinced. It does not appear that the Pre-approval EA adequately responds to the substantive concerns raised by commenters on the draft EA.

General comment

From the perspective of a citizen whose skepticism of the Department of Energy is based on years of experience with an agency which now admits (to its credit) that it has done a lot wrong, it is unfortunate that DOE did not seek independent analysis of potential risks in those areas where it was already clear the public was deeply interested -- potential aircraft accidents and potential contamination of the Ogallala. The use of DOE labs to provide documentation, risk analysis, and decision support may pass DOE's quality assurance requirements, but the practice does not pass Public Assurance requirements. It is even more disappointing because DOE has people who are smart enough to know this.

Rebuilding public confidence in DOE is not only an arduous process, it is fraught with peril. Months of good work can be undone by one week of sloppiness, when it looks like "the old DOE" again. The Pantex EA is an example of the kind of poor work, with DOE blundering ahead oblivious to public concerns, that we have been hoping is in the past.

The Pantex EA process, which is being watched closely by activists around the country, not just the good people of Texas, is not a case of citizens complaining just to complain. We come to the EA in good faith. We had baseline concerns about DOE's selection of the EA as the tool to provide NEPA coverage. Still, we engaged in the process as people who truly want dismantlement to continue -- though we are not as committed to an arbitrarily set pace as DOE officials appear to be. We have raised legitimate concerns about issues covered in the EA on several occasions.

It is not clear that DOE is capable of an adequate response to those concerns -- that is a response that allays our fears or enables us to see there is simply an honest difference of opinion. Instead, it appears that DOE is determined to push ahead, to maintain its dismantlement schedule, and to cover itself with a bad process and a worse document.

I urge DOE to continue its good work of restoring public confidence in the agency, even at the expense of the pace of dismantlement. DOE has options which have not been adequately explored and must take the time to do that -- not only so the public can see you are doing it right, but because the law requires it. Anything less will not be acceptable to the public.

We are talking about plutonium pit storage -- one of the most critical issues facing humankind. We must all do our absolute best work here -- DOE and the regulators and the public. The alternatives are far too dangerous. The current version of the Pantex EA is not our best work.

The increased pace of dismantlement provides an opportunity for DOE to shine -- by developing, with full public involvement, a coherent plan addressing all dismantlement activities and storage and disposition questions for plutonium, tritium, highly enriched uranium and all other weapons components. Other involved agencies should be gathered, with the public at the table to discuss options for final disposition; issues of international verification and transparency should be integrated into the planning process. The gravity of the decisions now confronting us requires nothing less.

Sincerely,

Ralph Hutchison

Ralph Hutchison, coordinator
Oak Ridge Environmental Peace Alliance

GILLILAND GROUP

December 13, 1993

United States Depart. of Energy
Pantex Program Office, DP 6.2
Washington, D.C., 20585

We have reviewed your conclusions regarding the EA at our Pantex Plant and recommend the following:

a. A (FONSI) conclusion is entirely in order.

b. Plutonium storage at this location is both safe and desirable.

Your public meetings held in Amarillo were efficient and well received. We respect and support your efforts.

Sincerely,

Bill Gilliland

BG/ds

P.O. Box 750 • Amarillo, Texas 79105 • Telephone 806-374-8652 • Fax 806-374-3818 • 1201 S. Taylor • Amarillo, Texas 79101

Wm. L. Graham
2326 Lakeview Drive
Amarillo, Texas 79109

December 16, 1993

United States Department of Energy
Pantex Program Office
DP 6.2
Washington, D. C. 20585

Gentlemen:

I have recently reviewed your Environmental Assessment for the Interim Storage of Plutonium Components at the Pantex Nuclear Weapons Plant. The study evaluates the environmental impact of additional storage of plutonium at the Amarillo plant and concluded that there is no significant impact as a result of that storage.

I urge you to support the Environmental Assessment and the interim storage of plutonium at the Pantex Plant.

Thank you for your consideration.

Sincerely,

William L. Graham

sgd

John Chandler

FORD

Office of the President

December 13, 1993

United States Department of Energy
Pantex Program Office, DP 6.2
Washington, DC 20585

Dear Reader:

I have reviewed and I support your recent draft copy of Environmental Assessment (EA) for the Interim Storage of Plutonium Components at the Pantex Nuclear Weapons Plant. Due to the findings in the above (EA) I request that you rule a "finding of no significant impact (FONSI) as a result of the increased storage of plutonium.

I appreciate DoE holding the public meeting in Amarillo, Texas on December 6, 1993 to provide the public an avenue to become informed and involved in the process.

Sincerely,

John Chandler
President

I-40 and Ross • P.O. Box 30219 • Amarillo, Texas 79120 • (806) 376-4911

PANHANDLE AREA ALLIANCE
Suite 1020 ▪ Plaza Two ▪ Amarillo, Texas 79101 ▪ (806) 371-7577

December 14, 1993

United States Department of Energy
Pantex Program Office, DP 6.2
Washington, DC 20585

Dear Sirs:

On behalf of the membership of the Panhandle Area Alliance, a private organization working for the overall business and industrial expansion of the Texas Panhandle, we wish to register our support for the Department of Energy and encourage you to rule a Finding of No Significant Impact (FONSI) as a result of the increased storage of Plutonium at the Pantex Plant.

Our organization feels we should support the findings and conclusions reached in the Environment Assessment for the Interim Storage of Plutonium Components at the Pantex Plant. We feel the suggestions and conclusions reached by expert scientists in this regard should be followed and support the interim storage of Plutonium at the plant.

We would like to add that our organization feels that the DoE is making every effort to do the job at Pantex in a safe manner, following all safeguards, for benefit of our region. We also appreciate DoE holding public meetings such as the one held on December 6, 1993, so the general public may become involved and as fully informed of the facts as possible.

Respectfully,

David T. McReynolds
Executive Director

GENE MESSER FORD

December 13, 1993

United States Department of Energy
Pantex Program Office DP 6.2
Washington, DC 20585

Dear Sirs,

I'm writing to thank you for the Environmental Assessment for the Interior Storage of Petroleum Components at Pantex.

We have reviewed the conclusions in the EA and support the findings of the expert scientist as to safety in this project.

We support the interim storage of plutonium at Pantex. It is also important that the DOE held the public meeting in Amarillo on December 6th to provide an avenue to the public to become informed and involved in the process.

Sincerely,

Mike Rossman
VP & GM
Gene Messer Ford of Amarillo, Inc.

MR/ah

2530 S. Georgia • Amarillo, Texas 79109 • Telephone 806/355-7471

Guyon H. Saunders

Member Panhandle 2000 - Pantex SSAB

December 9, 1993

Mr. Dan Rhoads
United States Department of Energy
Pantex Program Office DP 6.2
Washington, DC 20585
Fax: 301-903-9471

Dear Mr. Rhoads:

Thank you very much for inviting the public to participate in this week's briefing on the Environmental Assessment for Interim Storage of Plutonium Components at Pantex. The well organized and skillfully presented material was most instructive for those of us who are not regularly involved in this kind of dialogue.

You are now at a decision point regarding the EA. "To find, or not to find—significant impact" Perhaps a reading from the silent majority would now be helpful. You did not hear from this large constituency on Monday evening because we are any less supportive of a finding of no significant impact. It is simply not productive to line up scores of people to say we have complete confidence in what the Department is doing and the way you are going about it.

At this juncture, when you must choose a fork in the road, you cannot ignore the more than 85% of popular support the DoE has earned in this panhandle region. If I do not speak for these interested persons as individuals, I am certainly echoing the main stream of their sentiments as I continue in my comments on the specifics of the several points raised in the EA briefing.

Aircraft crash analysis. Expert testimony on the probability of a heavy aircraft crashing into a pit storage zone is not substantially changed from the 1983 EIS. What has changed, by several orders of magnitude, is the quantum leap in safety resulting from the removal of high explosives from the target zone of the investigation. In 1983 it was "safe enough" for a plane crash to strike stored nuclear warheads. In 1993, the population is relieved to know we have only well shielded plutonium pits stored in bunkers as the possible end-point for a one-in-a-million-per-year accidental occurrence. Adding more pits to storage in no way increases the probability of a plane crash. Therefore, the silent majority will sign off on the much reduced risk evaluated in the 1993 EA when compared to the currently bounding risk inherent in the 1983 EIS.

Ogallala Aquifer. Expert testimony on the ability of the DoE to conduct environmental remediation following any conceivable kind of plutonium dispersion is icing on the cake of extremely low probabilities that such a dispersion could occur in the first place. The silent majority will sign off as informed citizens recognizing the infinitesimal risk of plutonium causing the slightest of harm to the Ogallala aquifer.

Interim storage of plutonium pits. During the Monday night hearing, a Los Alamos Laboratories scientist, Joe Martz, made a significant suggestion while answering a question raised by a member of the public. In private conversations at the hearing and again in a phone conference with Mr.

1212 Ross, Amarillo, Texas Direct (806) 371-2700 Fax (806) 376-9520

Martz later this week, his suggestion has been enlarged to what could be a solution for the dilemma surrounding the word "Interim".

First, the definition of interim must be something more than an empty space between decisions. Interim needs to be a associated with a physical property within plutonium pits and a relevant reference to an episode of actual time in the long-term storage process.

In the manufacturing process of Pu 239 there is a small quantity, usually less than 0.3%, of an impurity in the form of Pu 241. This less stable material decays with a half-life of 13.5 years into americium which emits low-energy gamma rays in addition to the very low energy alpha particles emitted by the pure plutonium Because Pu 241 has a very short half-life its transition from a plutonium impurity to americium will peak in only 69 years. This means that, in a maximum of 69 years from manufacture date, all of the elements within the pit will have demonstrated their ultimate characteristics and the predictability of their long-term performance is virtually assured.

Interim storage is defined, therefore, as that period in time from date of manufacture to 69 years during which monitoring and physical access is required to ensure that the long-term decay process will continue as predicted. In actual years, interim storage at Pantex will be from 44 to 49 years considering that plutonium pits prior to disassembly have already experienced from 20 to 25 years of "interim storage" while in the nuclear warhead. Each pit contains its own credentials: manufacture date, reprocess date, disassembly date, interim storage date range and eligibility date for long-term storage. By the time true "long-term storage" is ready to begin, the best scientific minds in America will have determined the ultimate disposition of plutonium in the most responsible and practical manner.

The silent majority and perhaps even some of the vocal minority will buy into an understanding of INTERIM bounded by physics as compared to the present INTERIM unfortunately linked with uncertainty.

To conclude while thanking you for your patience, I'll summarize. The finding of significant impact by the extensive research of the Environmental Assessment can lead DoE into only one reasonable conclusion: The truly SIGNIFICANT IMPACT is that storage of plutonium pits as proposed is orders of magnitude more safe than the already accepted risk of storing nuclear warheads at Pantex in the 1983 EIS. For this reason the nation cannot even consider any delay in the dismantling of these weapons. It would be the ultimate irresponsibility if our nation choose to store an excess of battle-ready nuclear weapons under the guise of a cautious approach to storing safely encased pure plutonium in pits.

The immense lift in public-safety confidence caused by the announcement of a consortium of world-class universities focusing on peaceful uses for plutonium should be solidified by an orderly establishment of the Pantex National Research Laboratory.

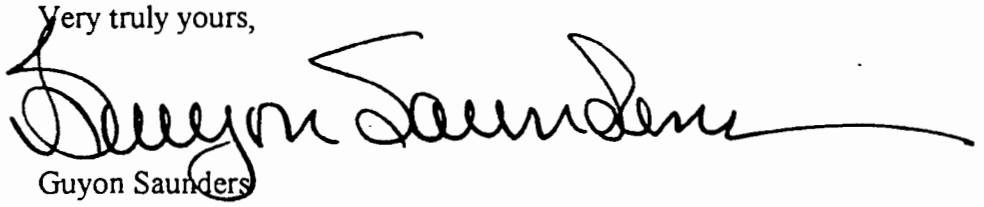
The Stage Right storage process at Pantex should be approved just as soon as readiness authority can be granted. As stated in the December 6 briefing, the rails for this storage process can be installed by existing maintenance personnel at Pantex at substantial savings in expense and implementation time.

Interim storage after disassembly should be declared to be from 44 to 49 years depending on the length of time the pit was stored in the weapon's warhead. Interim storage is defined as the first

stage of long-term storage during which increased monitoring and physical access is required because of decay of small amounts of plutonium 241 into americium. The maximum period for this transition is 69 years.

As mentioned earlier, I am convinced that the vast majority of informed panhandle citizens will find this process to be an acceptable risk greatly improved from that authorized in the current bounding 1983 EIS.

Very truly yours,



Guyon Saunders

c: Secretary Hazel O'Leary, Fax: 202-586-7644
Mr. Bob DeGrasse, Fax 202-586-8403

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202-586-7644	**Sec. Hazel O'Leary**	☒
202-586-8403	**Bob DeGrasse**	☒
301-903-9471	**Dan Rhoads**	☒

Dear Sec. O'Leary, Bob and Dan,

During the evening of our Pantex EA hearing for Interim Storage on December 6 here in Amarillo, I promised Bob and Dan to put some ideas on paper. These having to do with the broad acceptance of DoE activities throughout the panhandle area. The silent majority is not silent because it is ill informed. It is well informed and well satisfied with the progress you are making toward a safer, more effective nuclear materials management program for our nation, and perhaps the world..

On Monday, you will receive signed copies of the enclosed Fax if you wish to include these comments in the record of the EA briefing by the Dec. 20th deadline.

May God bless each of you and your families during this holy season. We pray that the Christ child brings peace and joy to all of you and blessings to the work you are doing for all of us.

Your many friends in Amarillo

Guyon Saunders

Guyon Saunders

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Budweiser Distributing Company

December 13, 1993

United States Department of Energy
Pantex Program Office, DP 6.2
Washington, DC 20585

Dear Sirs:

This letter is in regard to the recently released Environmental Assessment (EA) for the Interim Storage of Plutonium Components at the Pantex Nuclear Weapons Plant.

I personally support the Department of Energy and request that the DoE rule a finding of no significant impact (FONSI) as a result of the increased storage of plutonium. I have reviewed the conclusions in the EA and support the findings of the expert scientist as well as the interim storage of plutonium at the Pantex Plant. I also appreciate that the DoE held the public meeting here in my hometown on December 6, 1993 to further the dissemination of information needed to make informed opinions concerning these issues.

Thank you in advance for your consideration of my views on this subject.

Sincerely,

Dean Morrison
President - Budweiser Dist. Co.
Amarillo, Texas

December 13, 1993

United States Department of Energy
Pantex Program Office, DP 6.2
Washington, DC 20585

Dear Reader:

I have reviewed and I support your recent draft copy of Environmental Assessment (EA) for the Interim Storage of Plutonium Components at the Pantex Nuclear Weapons Plant. Due to the findings in the above (EA) I request that you rule a "finding of no significant impact (FONSI) as a result of the increased storage of plutonium.

I appreciate DoE holding the public meeting in Amarillo, Texas on December 6, 1993 to provide the public an avenue to become informed and involved in the process.

Sincerely,

Paul Harpole
Vice President

AMARILLO
CHAMBER OF COMMERCE

December 15, 1993

United States Department of Energy
Pantex Program Office DP 6.2
Washington, DC 20585

Dear Sir:

I have reviewed the Environmental Assessment for the Interim Storage of Plutonium Components at the Pantex Nuclear Weapons Plant recently released by DOE. I subsequently attended the December 6 Public Hearing regarding interim storage and have otherwise continued to stay abreast of this subject as well as possible for a non-scientific individual.

I am of the opinion that the Department of Energy has gone the long mile in researching the interim storage issue and making the Department's findings available to the public. I am in agreement with the scientific findings published in the EA that additional plutonium storage does not elevate any risks that are already present. Further, I am perfectly comfortable with the present level of risk and believe they are well within expectations of a prudent individual. I support the proposed expansion of interim storage of plutonium at Pantex.

Our community appreciates the chance to participate with DOE in this decision making process. You enjoy a high level of confidence in Amarillo.

Yours very truly,

Tom Patterson
President & CEO

P.O. BOX 9480 • AMARILLO, TX 79105
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DOE/EA-0812-V2

ENVIRONMENTAL ASSESSMENT
FOR
INTERIM STORAGE OF PLUTONIUM COMPONENTS AT PANTEX

LETTERS RECEIVED ON THE PRE-APPROVAL ENVIRONMENTAL ASSESSMENT AND THE REVISED PRE-APPROVAL ENVIRONMENTAL ASSESSMENT AND PUBLIC MEETING

Public Reading Facility
U. S. Department of Energy
Idaho Operations Office

VOLUME II

JANUARY 1994

U.S. Department of Energy
Albuquerque Operations Office
Amarillo Area Office
Pantex Plant
P.O. Box 30030