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Musick _____	_____
Boothby _____	_____
	<i>initials</i> <i>date</i>
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August 3, 2004

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

Mr. Jerry S. Johnson  
Assistant Area Manager  
Department of Energy  
Albuquerque Field Office  
P.O. Box 30030  
Amarillo, Texas 79120

Re: U.S. Department of Energy (DOE), Pantex Plant  
TCEQ Solid Waste Registration No. 30459  
TCEQ Hazardous Waste Permit No. HW-50284  
EPA ID No. TX4890110527  
*Requests for additional information: Pantex Plant Final RCRA Facility Investigation Report, Groundwater, dated March 15, 2004*

Dear Mr. Johnson:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the Groundwater RCRA Facility Investigation Report (Groundwater RFIR) referenced above and received by the TCEQ on April 1, 2004. The Groundwater RFIR outlines the conclusions that have been established from the numerous phases of investigation that have been conducted on groundwater located beneath Pantex. Section 1.1 of the Groundwater RFIR, states, "This RFI was performed to determine the nature and extent of hazardous constituents in the groundwater underlying the Pantex facility; identify risks to onsite and offsite receptors; and gather data necessary to perform a Baseline Risk Assessment (BRA) and a Corrective Measure Study (CMS)". This RFIR does not adequately establish the nature and extent of the groundwater system (includes both the Perched and Ogallala Aquifers), nor does it adequately characterize key components of the soil-to-groundwater migration pathways to support the assumptions in the fate and transport model. Based on the information in the Groundwater RFIR, Enclosure 1 of this letter identifies several critical concerns and "data needs" that must be addressed by Pantex prior to completing the technical review of this investigation document. Detailed comments were generated by Texas Engineering Experiment Station (TEES) under the TCEQ's supervision and will be forwarded to DOE-Pantex for discussion in a series of technical meetings (e.g. Core Team meetings) so resolution can be expedited. The data needs in Enclosure 1 of this letter and the technical comments generated by TEES must be fully addressed by Pantex before the TCEQ can complete the technical review of the Groundwater RFIR.

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The critical concerns identified in Enclosure 1 to this letter were derived through discussions with the U.S. Environmental Protection Agency (EPA). The EPA participated in technical discussions with the TCEQ in accordance with the December 21, 1994 Memorandum of Agreement (MOA) between the State and Federal agencies. Although this letter consolidates critical data needs for both the TCEQ and EPA, the EPA may identify additional comments with the Groundwater RFIR in a separate letter to DOE-Pantex. It is the TCEQ's expectation that these concerns identified in Enclosure 1 to this letter and those from both TEES and EPA will be fully addressed by Pantex so that we can complete our regulatory review of this RFIR.

DOE-Pantex should be aware that a full closure (soil and groundwater) approval for the SWMUs included in this report is contingent on completion of any remaining investigations, and evaluation under the requirements of the appropriate Risk Reduction Standard (RRS). DOE-Pantex must submit a final report to verify that the requirements of the Risk Reduction Standard (RRS) rule have been met, including those cleanup criteria used to achieve "full closure" under the rule. Upon approval of the soil and groundwater investigation reports, the TCEQ will approve full closure based on the results of the investigations. Pantex should also note that the cleanup criteria being used at the time of "full closure" must be utilized to obtain closure in accordance with RRS rule.

Questions concerning this letter should be directed to me at (512) 239-2243. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 1 Office in Amarillo. Please submit responses to this letter within 90 days of the date of this letter or an alternate approved date. The TCEQ Solid Waste Registration Number and SWMU information (e.g., Unit Description or Name) should be referenced in all submittals.

Sincerely,

Robert Musick P.G., Project Manager  
Team I, Corrective Action Section  
Remediation Division  
Texas Commission on Environmental Quality

REM/rm

cc: Mr. Jim McWilliams, Region Project Manager, TCEQ Region 01 Office - Amarillo  
Ms. Camille Hueni, Superfund Division, Texas Section (6SF-AP), USEPA Region VI

Enclosure 1: Data Needs and Comments On the Groundwater Report

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Addressee: Mr. Jerry S. Johnson, Department of Energy, Albuquerque Field Office  
P.O. Box 30030, Amarillo, Texas 79120  
SWR/T/F: SWR30459  
Date of letter: August 3, 2004

**DO NOT SEND THIS PAGE<sup>1</sup>**  
bcc list (format revised 9/1/2003):

Mr. Don Boothby, Team 1 Supervisor, Corrective Action Section (MC-127)  
Mr. Robert Musick, Corrective Action Section (MC-127)  
Central Records (MC-199)  
CAS files (MC-127)

**For data entry:**

WWC COMMUNICATION ID:	<b>10557347</b>
This letter is (Pick one):	<b>Comments/NOD</b>
LBB (02 or 04, and number to count):	
Reply from facility needed? If so, give reply due date:	<b>yes, 90 days (November 3, 2004)</b>
Document Review(s) Complete? (Yes/No)	<b>yes</b>
WWC PROPERTY: CAS Status value changed for entire facility (Put new status or n/a) <sup>2</sup> ?	<b>na</b>
WWC FEATURE UPDATES (n/a, if not applicable) <sup>3</sup> :	
Feature Name:	<b>NA</b>
New Feature Status:	<b>Ongoing work load</b>
For entry into RCRAInfo: Number of units (n/a, if not applicable):	<b>na</b>
Corrective Action Codes (RFI units/areas) CA- <b>or</b>	<b>na</b>
Closure Codes (RCRA/Interim Status units) CL-	<b>na</b>

1. Only attach bcc page to the writer's copy and CAS File copy.

2. If facility will no longer be part of workload, change IHW CA 0 Fea status to Complete or Transferred, verify there are no ongoing PM-defined Features, and verify there are no outstanding Communications that need review.

3. If unit/area will no longer be part of workload, update appropriate Status & Characteristics for that unit/area only.

Mr. Jerry S. Johnson  
August 3, 2004  
Enclosure

**ENCLOSURE 1**

Data Needs and Comments On the Groundwater Report

## Enclosure 1 - Data Needs and Comments On the Groundwater Report

### 1. Closure Decision

Pantex must propose a recommended closure / remediation as a requirement of the Risk Reduction Standard rules (30 Texas Administrative Code, TAC 335, Subchapter S). The facility must close or propose remediation for each unit or grouping (and affected media) to an appropriate regulatory level (i.e., RRS 1, 2 or 3) as established by rule. *Please propose the Risk Reduction Standard (RRS) closure that applies to Perched and Ogallala Aquifers.*

In addition, the reporting of RRS No. 2 exceedances in soil (that may result in cross-media contamination) and groundwater are minimized in the Groundwater RFIR. The Groundwater RFIR identifies exceedances of RRS No. 1, but fails to fully describe RRS No. 2 exceedances. To establish closure / remediation, Pantex must determine which RRS applies and report it in the Groundwater RFIR. *Please identify the regulatory exceedances for each COPC for each groundwater plume or co-mingled plume.*

### 2. Nature and Extent

One of the goals of the investigation is to identify nature and extent of impacts to environmental media. This goal has not been met in the Groundwater RFIR due to numerous data gaps in the investigation record, and as such, corrective measures (if applicable) can not be established with the information presented in the Groundwater RFIR without further assessment or clarification in the Groundwater RFIR. *Please identify the major migration pathways from Solid Waste Management Units/WMG to groundwater; and also identify the extent of impacts to groundwater using the closure data set information.*

### 3. Regulatory Action Levels

Action Levels (e.g., Media Specific Concentrations or background values) utilized by Pantex for perchlorate; and reporting limits for several Volatile Organic Constituents (VOCs) are different than the approved levels identified in the Risk Reduction Rule Guidance Document (RRRGD) dated June 2002. These issues must be addressed to reach closure/remediation for groundwater beneath Pantex. *Please evaluate the groundwater data against the appropriate regulatory action level as determined in the RRRGD.*

### 4. Groundwater Closure Data Set

The closure/remediation data set identified in the Groundwater RFIR as Constituents of Potential Concern (COPCs), appear to be inconsistent with the data sets identified in the Soil RFIRs and the DOE internet website. COPCs in the soil closure data sets identified in the Soil RFIRs must be carried through as COPCs in the Groundwater RFIR. The screening process (e.g., process knowledge) used during the groundwater investigation to eliminate COPCs for further consideration appears to be inappropriate and not well defined. In general, screening of constituents should be relegated to evaluation of risk during the risk assessment and should not occur during the

investigation phase of the RFI process. *Pantex must evaluate the closure data set and determine if the data set can be used to make regulatory and risk-based decisions. Also, data should be identified that do not meet the QA/QC requirements.*

As a related issue, the groundwater data set is pulled from various types of wells (injection, domestic supply, monitoring, and extraction wells) with potentially different sampling protocol. Data from the various types of wells appear to have been eliminated from the closure data set due to differences in well construction and sampling methodology (low flow, 3-volume purge, etc.). The RFIR must identify the well set (closure data set) that will provide comparable regulatory decision-level data (a.k.a. Tier 1 Data) for nature and extent determinations and risk-based decisions. The Tier 1 data will be the investigation data utilized to verify regulatory decisions. Other well data will be identified as Tier 2 data that will be used qualitatively to flag areas for additional evaluation or to establish trends, but not as decision-level data. *Please identify the well set that will provide comparable decision-level data (Tier 1) for nature and extent determinations, and risk-based decisions; and the well set (Tier 2) that can be used qualitatively to flag areas for additional evaluation or to establish trends, but not as decision-level data.*

5. Sources and Discrete Units

The Groundwater RFIR broadly identifies large source areas without the more detailed evaluation of how discrete units or Waste Management Groups (WMGs) drive the groundwater impacts. While an overview is certainly helpful, remedial decisions will most likely be focused on source contributions from discrete units or WMGs. Primary and secondary sources must be clearly identified and evaluated in the Groundwater RFIR. Additionally, individual Constituents of Potential Concern (COPCs) have not been traced from primary and secondary sources to groundwater in this RFIR. Previous impacted soils (e.g., hot spots) that have been removed during an interim stabilization measure should be considered historical sources with potential impact to lower soils and groundwater (one of the purposes of this RFIR is to identify all sources with the potential, historic or current, to impact groundwater). *Please identify primary and secondary source areas that have impacted groundwater or have the potential to impact groundwater. Please evaluate hotspots and historic releases that have been excavated as being a source for groundwater contamination.*

6. Hydrogeological Characterization

The data presented in this Groundwater RFIR are inconclusive in defining the extent, lithology, aquifer characteristics, and migration pathways for the Perched and Ogallala Aquifers. Additionally, the integrity (e.g., hydraulic conductivity) of the Fine-Grained Zone (FGZ) and the behavior of the FGZ as a barrier between the Perched and Ogallala Aquifers have not been fully presented in the Groundwater RFIR. Geologic features (e.g., lineaments, playas, and paleochannels) have not been fully assessed for potential impacts to the groundwater flow. Hydrogeological information is needed in order to model fate and transport and support corrective measures. The uncertainties associated with these concerns can not be adequately managed with the current groundwater monitoring system. *Please identify each geologic feature and Pantex's evaluation that has been done to understand its affect on groundwater.*

Complete pathways must be identified for those individual COPCs with the most potential to impact groundwater. Individual units or groupings with associated groundwater impacts must be identified in the Groundwater RFIR in order to eliminate the possibility of dilution of soil sources in the risk assessment and also determine any necessary corrective action to address “hot spots” within the industrial zone or WMG. *Please identify all completed pathways from soil to groundwater for hotspots and potential source areas.*

7. COPC Extent Determination

Sample density is inadequate in several areas to fully characterize the contamination associated with Pantex. Areas not evaluated, or only marginally evaluated, include Industrial Zones 5, 7, and 8, areas east and west of the Burning Ground, and most of the Texas Tech property south of Pantex (i.e., Playas 4 and 5, and Zones 1, 2, 3, 6, and 9). Because of data gaps in the investigation design, the extent of the Perched Aquifer cannot be established because of the minimal number of control wells associated with defining the limits of the Perched Aquifer. Also, the Ogallala Aquifer characterization is incomplete and inconclusive. *Pantex must evaluate their current closure data set in conjunction with the airborne TDEM survey to determine if additional data must be collected to delineate contamination in groundwater.*

Cross media contamination, horizontal and vertical pathways from the Perched to Ogallala Aquifers, COPC definition, and contaminant plumes associated with each WMG are not fully evaluated and/or presented in the Groundwater RFIR. Additionally, non-aqueous phase liquids (NAPLs) in Zone 11 and their potential impacts to groundwater have not been addressed by Pantex. *Please identify the primary and secondary sources and extent of COPC for each major plume that has migrated to groundwater.*

8. Regional Background

The investigation data set for inorganics is incorrectly compared to regional background to arrive at a regulatory decision about the groundwater. Site data must be compared to the site-wide background study located in the Risk Reduction Rule Guidance Document (RRRGD) dated April 2002 that was conditionally approved by the TCEQ on June 23, 2003. For regulatory decisions, please re-evaluate the appropriate groundwater closure data set using the appropriate action levels that were approved in the RRRGD. *Please re-evaluate the data set using only approved site-specific background values identified in the RRRGD.*

9. The Perched Aquifer as a Source

The Perched Aquifer has not been evaluated in the Groundwater RFIR as a possible source of contamination for the Ogallala Aquifer. In the Groundwater RFIR, Pantex has discussed the potential for the FGZ to act as a barrier to prevent further vertical migration from the Perched to the Ogallala Aquifer, but the Perched Aquifer was not assessed as a potential source of contamination for the Ogallala Aquifer. While the FGZ does retard the vertical migration of contaminants from the Perched to the Ogallala Aquifer, areas have been identified where the FGZ transitions to a more transmissive zone (e.g., portions of the Perched Aquifer “dry” line) that allows for vertical migration

to be expedited compared to other portions of the FGZ. This is particularly significant in the southeast portion of the site where Perched Aquifer contamination is migrating onto Texas Tech University property. The Ogallala needs further assessment in this area to determine impacts caused by the coarsening of the FGZ. *Please provide an evaluation of the Perched Aquifer as a possible source of contamination for the Ogallala Aquifer.*

10. Monitor Well System and Data Quality

The data presented in this RFIR are inconclusive in defining the impacts to the Perched and Ogallala Aquifers. Poor well placement, an inadequate number of Aquifer wells, long screen intervals, inadequate well development, purging and sampling procedures, well integrity, filtered and unfiltered data, reporting limit issues for perchlorate and VOCs, and poor analytical laboratory QA/QC lead to compromised data quality and result in samples that may not be representative of groundwater quality. Additionally, lack of compatibility of data collected from various types of wells lead to the determination that two "Tiers" of data quality should be developed in order to adequately assess the groundwater data. It seems appropriate that monitor wells should be installed to accomplish two functions: 1) collect data to complete the Groundwater RFI; and, 2) supplement the current monitoring system to manage uncertainty associated with groundwater. *Please propose additional wells to be installed in groundwater (both Perched and Ogallala) to address data needs identified in this letter.*

11. Time Domain Electromagnetic Survey

The Texas Bureau of Economic Geology has completed an *airborne* Time Domain Electromagnetic (TDEM) Survey at Pantex, which provides 3-dimensional information on the site's dominant controlling features. This study may provide the necessary information to better understand the soils-to-groundwater pathway, particularly the relationship between the Perched Aquifer-Fine-Grained Zone (FGZ)-Ogallala Aquifer system and the potential for vertical migration. Pantex has indicated that further evaluation will tie the airborne TDEM conclusions to the geologic/hydrologic picture derived through interpretations of borings and well data. *Please submit the completed airborne TDEM Survey Report and Pantex conclusions.*

12. Release Definition

The conclusions of this investigation report incorrectly allows for the screening of the COPC data set to define whether or not a release has occurred to groundwater. Under the TCEQ and EPA guidance, a release, or impact, is defined as *any detection* above established background for inorganics (metals, radionuclides), or above prescribed laboratory detection levels for organic constituents.

Additionally, the definition of a "release," or "plume," is not well established in this RFIR. Pantex appears to define the term "plume" as a COPC(s) with a complete migration pathway with exceedances of RRS No. 1 in groundwater. Please note this definition of the term "plume" is inappropriate to define an impact from the Perched or Ogallala Aquifers. Simply detecting COPCs in the groundwater is evidence of an environmental impact, therefore making Pantex's definition of a "plume" inappropriate when trying to attain a regulatory based closure/remediation

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closure/remediation. *The screening process used to eliminate or reduce COPCs from further consideration must be clarified.*

