

## Pantex Clean-up Progress

Active clean-up continues from legacy operations that released contaminants to the perched groundwater and for solvents that were released to soils in the Burning Ground. The perched groundwater clean-up action includes four in situ bioremediation systems and two pump and treat systems. A soil vapor extraction (SVE) system was previously operated to remove solvents from the Burning Ground soils. The SVE system is currently undergoing review for closure as data collected at the system indicate that cleanup goals have been met. One of the primary goals for treatment is to prevent movement of contaminated perched groundwater and solvents in soils to the deeper drinking water aquifer (Ogallala Aquifer). Pantex monitors over 100 perched groundwater wells to evaluate the effectiveness of the clean-up and 30 Ogallala Aquifer wells (including three newly installed wells) to evaluate the continued protectiveness of remedial actions for the drinking water aquifer. Monitoring results from Ogallala wells continue to indicate that drinking water for neighboring domestic wells and Pantex production wells is safe and protected. You can find results on the Mission page at [pantex.energy.gov](http://pantex.energy.gov).

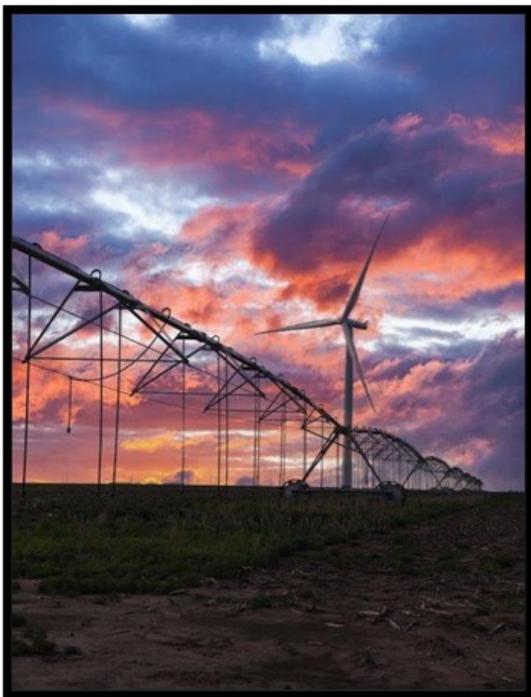
### Highlights of Clean-up Actions

- This past year, Pantex removed 480 lbs of contaminants through remedial actions.

### *Totals since start of remedial action :*

- 3.2 billion gallons of perched groundwater treated with 1.8 billion gallons beneficially used
- 16,050 pounds of contaminants removed from perched groundwater
- Bioremediation systems are reducing high explosives, perchlorate, hexavalent chromium, and trichloroethene to safe drinking water levels
- 21,330 pounds of solvents removed from soils by the Soil Vapor Extraction System

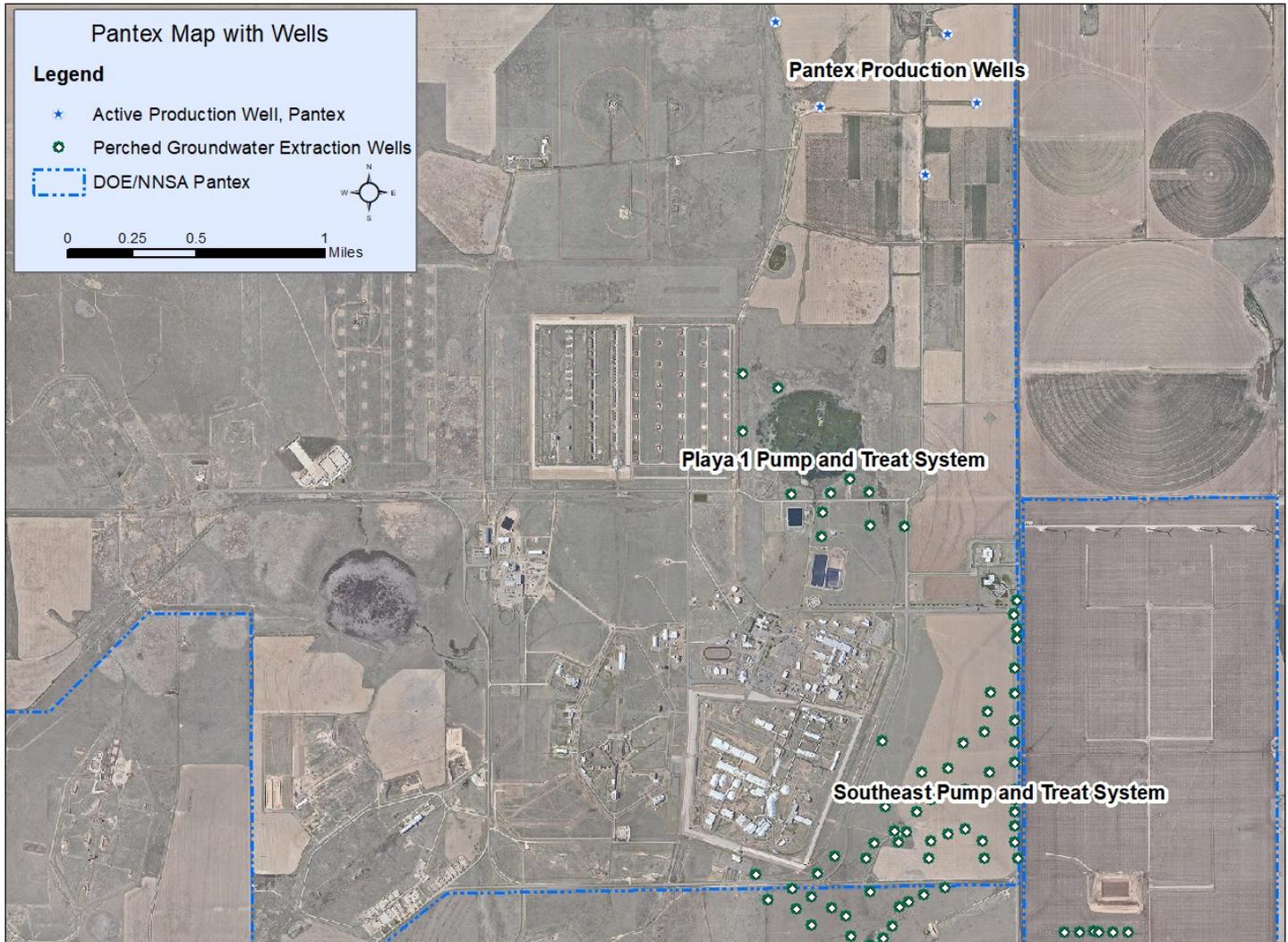
## Operation of Pantex New Center Pivot Irrigation System Begins



One of Pantex's remedial actions is to dewater the perched groundwater through extraction wells. To help, a surface pivot irrigation system was constructed at Pantex that will allow treated water to be pumped from Pantex's two pump and treat systems for farming on Department of Energy property east of FM 2373. Prior to construction of the irrigation system, Pantex obtained approval from the Texas Commission on Environmental Quality to beneficially reuse the treated groundwater with the pivot sprinklers. Farming will be performed under agreement with the Texas Tech University Research Farm. The new system provides a consistent long-term option for management of treated water so that the pump and treat systems can fully operate and continue the mission to remove and treat perched groundwater. The multiple pivot irrigation units were built with a total discharge capacity to accommodate the combined effluent flows from the two pump and treat systems and Pantex's Wastewater Treatment Facility. The system took two years to build and included over five miles of conveyance piping to five center pivot irrigation systems. An eight million gallon buffer pond was also installed to help provide storage. The first crop (winter wheat) was planted in September 2023.

# Emerging Contaminant Detected in Perched Groundwater

Per- and Polyfluoroalkyl Substances (PFAS) are an emerging contaminant class with more than 15,000 synthetic chemicals that have been used worldwide since the 1950s. Common uses of PFAS compounds include some firefighting foams, non-stick cookware, and products resistant to grease and oil. During use, PFAS can be released and travel into the soil, water, or air. Potential sources of PFAS exist at Pantex, including historical use of aqueous film-forming foam (AFFF) by the Fire Department and possible PFAS containing materials in legacy high explosive releases. An enforceable standard has not yet been adopted by the Environmental Protection Agency, but a Maximum Contaminant Level for several PFAS is planned to be finalized by the end of 2023.



At the Pantex Plant, the Southeast Pump and Treat System (SEPTS), including 21 extraction wells from the SEPTS wellfield, were sampled for PFAS in 2022. Ten extraction wells from the Playa 1 Pump and Treat System (P1PTS) wellfield were also sampled. This effort was part of a study to determine the treatability of PFAS contaminated perched groundwater as it flowed through the pump and treat granular activated carbon (GAC), which is known to remove PFAS. PFAS was detected in both pump and treat wellfields, indicating that it is present in perched groundwater around SEPTS and P1PTS. However, sampling concluded PFAS was treated through the GAC vessels and was not released through the pump and treat systems' effluent. PFAS detected in perched groundwater does not affect the protectiveness of Pantex remedial actions because of existing deed restrictions that prevent the use of perched groundwater.

Pantex also tested the plant's drinking water, which is supplied by Ogallala Aquifer production wells, and PFAS was not detected. Additional investigations and sampling are planned through the PFAS Strategic Roadmap: Department of Energy's Commitments to Action 2022-2025, which will improve knowledge of the presence of these chemicals in perched groundwater at Pantex. These data will be used to adjust operations and maintenance of the remedial actions.