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A Partnership for Safe Chemical Weapons Destruction

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Water for Weapons Destruction: Source, Quantity, Groundwater Protection

Where does the U.S. Army Pueblo Chemical Depot get water? How much is available for the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP)?

A series of wells located on Pueblo Chemical Depot give the depot an annual capacity of 177 million gallons of water. The depot pumps approximately 97 million gallons of that capacity each year, leaving a balance of 80 million gallons. Although these wells are located on the depot, all the water pumped is purchased from the Pueblo Board of Water Works and the Colorado Water Protection Development Association.

Of this amount, about 50 million gallons per year is available for use by PCAPP and is nearly twice the amount needed to meet the plant's needs. The rest is available for other depot activities.

How much water will be used for dust control during construction?

The amount of water needed for dust control will vary depending on the type of work. The peak amount will be about 218,000 gallons per day.

How much water will the PCAPP facility use when the plant is operating?

The PCAPP facility will use water for several purposes, such as treating sanitary sewage, neutralizing the mustard agent and cooling the process equipment. Total consumption will depend on whether hydrolysate from the neutralization process is treated on site or off site. In the design option under which all wastes including hydrolysate are shipped off site, the plant would consume about 84,000 gallons of water per day. During the operating life of the plant, total water usage would be about 79 million gallons.

If hydrolysate is treated on site, the plant would consume about 58,000 gallons of water per day. The lower usage is a result of recycling water contained in the hydrolysate rather than sending it off site for treatment. In this scenario, the plant would use about 54 million gallons of water during its operating life.

How does projected PCAPP water consumption compare with other uses?

With off-site shipment of hydrolysate (the highest water usage scenario), the plant would use about 30 million gallons of water per year. This is equivalent to:

- The annual water usage of 205 American households. According to the American Water Works Association, average annual household water consumption is 146,000 gallons per year.
- The water needed to irrigate 61 acres of alfalfa in Colorado. One acre of alfalfa requires 488,776 gallons per season, according to the Water Colorado organization.

How will groundwater be protected?

The plant will be designed and operated to protect groundwater. The Colorado Department of Public Health and Environment (CDPHE) will review and approve the design features and operating procedures that protect groundwater. Measures to prevent groundwater contamination will be part of the permit issued for the facility by CDPHE, and the agency will monitor plant operations to ensure permit requirements are met.

Water for Weapons Destruction: Source, Quantity, Groundwater Protection (continued)

What is currently known about groundwater and soil conditions at the PCAPP site?

Soil and groundwater samples have been taken from more than 80 locations at the PCAPP site. Data from this sampling will be compared to samples taken after the plant closes to verify that there is no contamination from plant operations.

Soil and water samples were taken from 43 locations within the plant footprint in 2004, and five groundwater monitoring wells were installed upgradient and downgradient from the plant site. Analysis of those samples did not find any metals or organic compounds above naturally occurring levels.

Samples were taken from an additional 41 locations in 2006 after the footprint of the plant changed during redesign. Analysis of these samples confirms the previous finding of no metals or organic compounds above naturally occurring levels.

The PCAPP is being developed on a "Greenfield" site, which means there are no records or other data to indicate that the area has been used for hazardous materials management, or was subject to spills or chemical releases.