

Bluff Point Water Supply Plan FAQs

The data below have been taken from the Bluff Point Submittal Plan, February 2010, which is available for review at the office of the Northumberland County Zoning Administrator, Heathsville, VA.

How much water will be used at Bluff Point?

Summer water demand: 201,771 gallons per day (gpd)

Winter water demand: 105,039 gpd

Total average annual water use: approx. 56 million gallons

Where will the water come from?

Two or more wells will pump groundwater out of the "Middle Potomac Aquifer."

How deep will the water wells be?

The wells will extend down to approximately 1,000 feet below sea level.

Is Bluff Point required to obtain a DEQ Groundwater Withdrawal Permit?

No. Currently, Northumberland County is not included in a Ground Water Management Area. Bluff Point can withdraw as much groundwater as it wants without regard for any adverse effects on other water users.

Is groundwater from the aquifer potable?

No. The groundwater is brackish. The concentration of total dissolved solids of the water may be as high as 2,500 milligrams per liter (mg/l).

How will the water be treated to make it potable?

The raw water will be filtered, desalinated, and disinfected. Desalination will be carried out by reverse-osmosis technology. The desalination process is approximately 65 percent efficient; for every gallons of raw water, 65 gallons of finished water and 35 gallons of brine concentrate are produced.

How much groundwater must be withdrawn from the aquifer in order to meet the annual potable water demand?

To meet an average water demand of 56 mgd, 86 million gallons of groundwater must be pumped out of the aquifer each year.

How much brine concentrate will have to be pumped back into the aquifer?

Approximately 30 million gallons of brine will be pumped back into the aquifer each year.

Is Bluff Point required to obtain a permit to pump brine concentrate into an aquifer?

Yes. Bluff Point must obtain an Underground Injection Control (UIC) permit from the USEPA.

Are there any hydrogeologic problems that may prevent Bluff Point from obtaining a UIC permit from the EPA?

Yes, there are several. First, EPA regulations require that the receiving layer be bounded by a "low-permeability confining zone to prevent vertical migration of injection fluids." Scientific information about the hydrogeologic environment of the Potomac aquifer beneath Bluff Point is sketchy, but studies by the USGS and VDEQ suggest that continuous, areally-extensive confining zones are not present in aquifer. Second, EPA regulations prohibit the injection of industrial wastes (including brine) into an "underground source of drinking water" (USDW). A USDW is an aquifer that "supports any public water system," "contains a sufficient quantity of groundwater to supply a public system," or "contains fewer than 10,000 mg/l total dissolved solids."