

# **Groundwater withdrawal at West Valley site is not adequately characterized**

**Raymond C. Vaughan, Ph.D., P.G.**

**West Valley Citizen Task Force meeting  
October 23, 2019**

534 Delaware Ave., Suite 302  
Buffalo, NY 14202  
August 16, 2019

534 Delaware Ave., Suite 302  
Buffalo, NY 14202  
September 23, 2019

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Re: Comment on U.S. Dept. of Energy's permit application for water withdrawal, application ID 9-0422-00005/00112

Re: Additional comments on U.S. Dept. of Energy's permit application for water withdrawal, application ID 9-0422-00005/00112

Dear Ms. Hanson:

Dear Ms. Hanson:

1. The permit for which U.S. Dept. of Energy has applied (a permit for Article 15 Title 15 Water Withdrawal Non-public, as listed in ENB Region 9 Completed Applications 08/14/2019) should not be granted without further assessment of these issues:

Thank you for providing the supporting documentation for the U.S. Dept. of Energy's permit application. After having reviewed this information, I am repeating and supplementing my earlier comments as follows:

a) Assessment is needed for the *hydrology of the aquifer system* that is tapped by the two groundwater wells from which much of the proposed withdrawal will occur. The aquifer system tapped by the two groundwater wells is poorly understood; it needs better characterization in order to protect local groundwater resources and to assess the effects of the high proposed rate of withdrawal on adjacent areas such as the North and South Plateaus of the Western New York Nuclear Service Center (the West Valley nuclear waste site) where the waste tank farm, waste burial trenches, etc., are located. The hydrologic assessment should at least consist of:

1. The permit for which U.S. Dept. of Energy has applied (a permit for Article 15 Title 15 Water Withdrawal Non-public, as listed in ENB Region 9 Completed Applications 08/14/2019) should not be granted without further assessment of these issues:

i) Identification and quantification of the source(s), i.e., the recharge area(s) and recharge rate, for the aquifer tapped by the two groundwater wells.

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ii) Identification and quantification of the sink(s) to which water in the aquifer is flowing, including documented identification of any locations where such water "daylights" or discharges to surface waterways, along with associated flow rates, and including a reasonably documented water budget. Such identification and quantification should include and compare three different flow conditions: The baseline case of no water withdrawal from the two groundwater wells, an extreme case at the maximum rate of withdrawal allowed by the requested permit, and an intermediate rate corresponding to the maximum rate of current withdrawal.

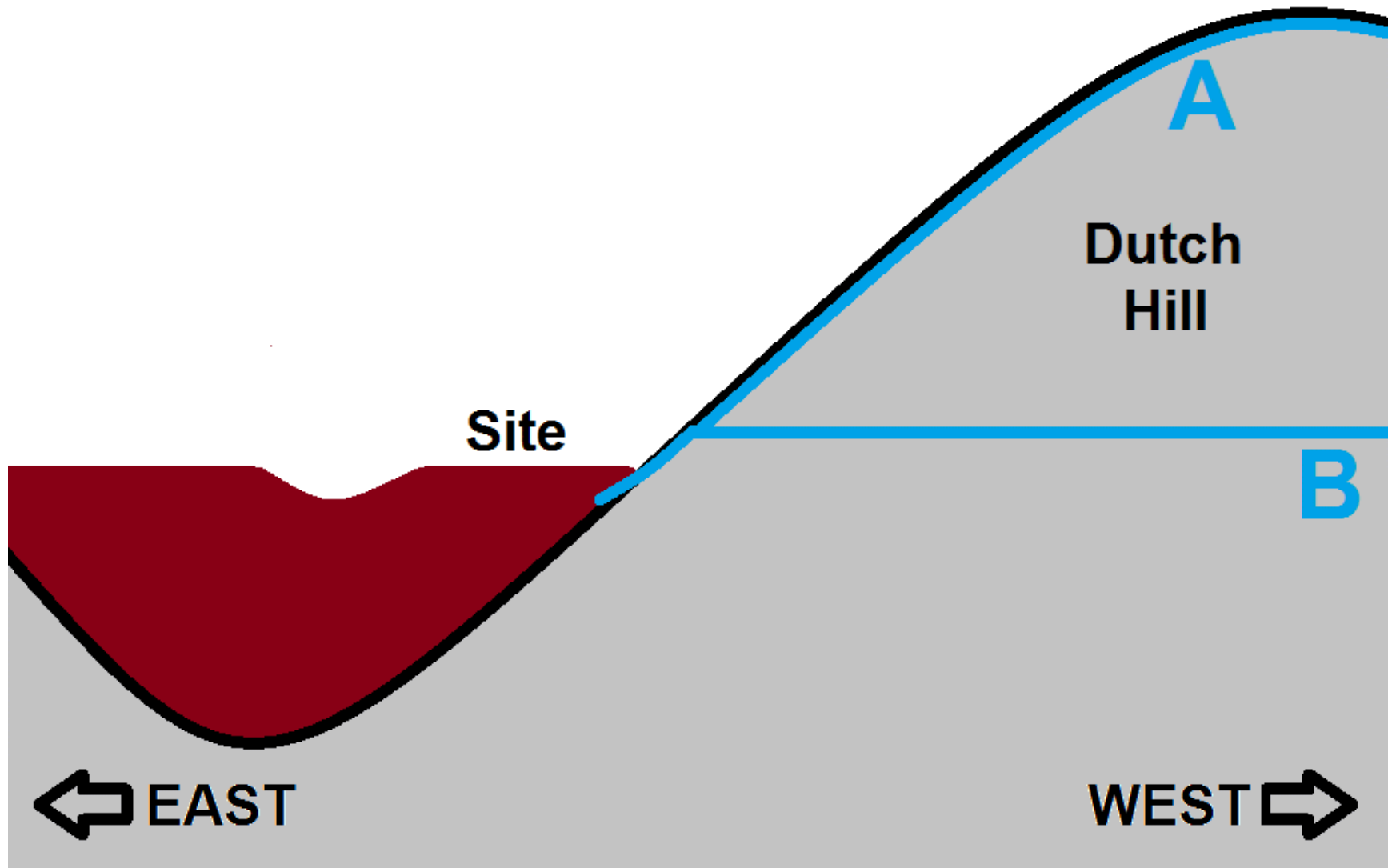
i) Identification and quantification of the source(s), i.e., the recharge area(s) and recharge rate, for the aquifer tapped by the two groundwater wells.

iii) Characterization of the water in the aquifer tapped by the two groundwater wells, including age-dating the water by tritium analysis and geochemical characterization by major ions and stable isotopes (deuterium and oxygen-18).

ii) Identification and quantification of the sink(s) to which water in the aquifer is flowing, including documented identification of any locations where such water "daylights" or discharges to surface waterways, along with associated flow rates, and including a reasonably documented water budget. Such identification and quantification should include and compare three different flow conditions: The baseline case of no water withdrawal from the two groundwater wells, an extreme case at the maximum rate of withdrawal allowed by the requested permit, and an intermediate rate corresponding to the maximum rate of current withdrawal.

iv) Based on the above information, a determination of whether the requested groundwater withdrawal is sustainable, or, alternatively, whether the aquifer will be progressively depleted by the withdrawal.

**Copies of both letters have been provided to CTF**



RV, 10/19/19