

“F”

## Water Availability Analysis

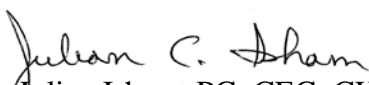
# Technical Memorandum

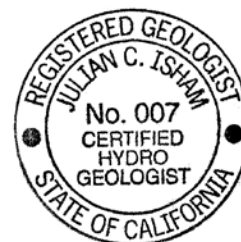
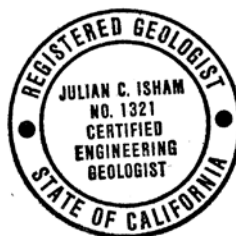
---

## Review of Napa County Water Availability Analysis for the Upper Valley Disposal Service Use Permit Update

October 2016

To: Evan Edgar  
Edgar & Associates, Inc.  
1822 21st Street  
Sacramento, CA 95811

From:   
Julian Isham, PG, CEG, CHG  
CB&I Services  
4005 Port Chicago Highway, Suite 200  
Concord, CA 94520



CB&I has reviewed the Napa County Water Availability Analysis requirements to determine if the Use Permit update to build a 15,000 square foot (sq ft) organics blending barn at the facility will increase the intensity of groundwater use of adjacent parcels. The location of the Upper Valley Disposal Service (UVDS) facility is shown on Figure 1. Also shown on Figure 1 are two intermittent surface water channels that are on the perimeters of UVDS:

- Southwest of the facility is an unnamed natural channel referred to as the West Tributary of Bale Slough
- Northeast of the facility is an unnamed manmade channel referred to as the East Tributary of Bale Slough

Both these surface water channels converge to the southeast of the facility and ultimately merge with Bale Slough at State Highway 29. In addition, both of these channels are dry accept during the rainy season.

UVDS has an existing well as shown on Figure 2. It was installed to a depth of 410 feet (ft.) below ground surface (bgs) as shown on the attached well log. The most prominent gravel zone is encountered between the depths of 370 to 405 ft. bgs, which is likely where most of the water is withdrawn from. In addition, because of the significant depth of the screened interval below the ground surface and the significant thickness of clay layers between the surface water channels and well screen, there is no potential for the UVDS well to draw water from these channels. The UVDS well has a maximum yield of 48 acre-feet per year (AF/y), but since it has the potential to only operate a maximum of 8 hours per day (i.e., normal working hours) its maximum daily production rate is approximately 0.04 AF.

Assuming five working days per week for 52 weeks per year equates to a maximum of 10.4 AF/y for all groundwater uses at UVDS. The approximate breakdown of current groundwater use is as follows:

- Landscaping at approximately 10% - 1.04 AF/y
- Composting/dust control at approximately 10% - 1.04 AF/y
- Building/office use at approximately 80% - 8.32 AF/y

The current composting and dust control use is only 10% of the current groundwater extraction rate, because almost all water for these operations are supplied from the on-site storm water reuse reservoir. This reservoir is filled throughout the wet season by collecting storm water in a retention basin and pumping that water to the storm water reservoir for composting and dust control use during the dry season.

No other known wells are within 500 feet of the UVDS well. The closest known well is the well at the adjacent Rutherford Grove Winery (RGW) also shown on Figure 2, which is about 1,000 ft. away from the UVDS well. RGW is owned by UVDS. The RGW well was installed to a depth of 225 ft. bgs as shown on the attached well log. The most prominent gravel zones are encountered between 54 to 87 ft., 144 to 166 ft., and 184 to 221 ft. bgs; which is where most of the water is withdrawn from. Because the RGW well is shallower than the UVDS well, groundwater extracted from the UVDS well would not necessarily be drawn from the same aquifer zones as the RGW well. The RGW well has a maximum yield of 48 AF/y, but since it only operates approximately 4 hours per day, its maximum daily production rate is approximately 0.02 AF. Assuming five working days per week for 52 weeks per year equates to a maximum of 5.2 AF/y for all groundwater uses at RGW.

Based on the significant distance between these two wells and different zones of production, it is unlikely that the UVDS well has noticeable drawdown influence on the RGW well. In addition, since both wells are owned by the same entity, their use is also controlled by the same entity. The owner of these wells has not observed any operational problems with their combined use, which also provides strong evidence that the UVDS well has no noticeable drawdown influence on the RGW well. This also provides strong evidence that the UVDS well will not likely have any influence on any future new wells installed within 1,000 ft. of it.

The additional water use of the new 15,000 sq. ft. partially enclosed barn will be minimal. No additional material will be composted at the site with the installation of the barn. The barn will be used for the processing and blending of organic material. The storage time of the organic material within the barn will be approximately 24 to 48 hours. During this processing, blending, and storage period, some dust suppression mechanisms will be deployed within the barn.

Based on information provided by a dust suppression specialist, a series of misters will be installed within the barn. These misters will be supplied with water from the UVDS well, not the storm water reuse reservoir. Examples of in-door dust suppression misters are attached. The approximate dust control application rate to the barn has been conservatively

estimated to be as high as 2.08 AF/y, which is a modest 20 % increase over the entire current facility water use of 10.4 AF/y.

It is also estimated the some additional landscaping use will occur for new ground cover and bush plantings. This water use has been estimated by a landscape specialist to be about 0.007 AF/y, which is an insignificant increase over the entire current facility groundwater use of 10.4 AF/y.

Therefore, it is my professional opinion that the installation of the 15,000 sq. ft. organics blending barn should not have a noticeable influence on the intensity of groundwater use within 500 ft. of the UVDS well, nor will the productivity of the closest well (i.e., the RGW well) be affected.