

## INFORMATION SHEET

ORDER R5-\_\_\_\_\_  
LAKE BERRYESSA RESORT IMPROVEMENT DISTRICT  
LAKE BERRYESSA WASTEWATER TREATMENT FACILITY  
NAPA COUNTY

### **Background**

Lake Berryessa Resort Improvement District (hereafter “Discharger” or “LBRID”) submitted a Report of Waste Discharge (RWD) that describes an expansion to the existing wastewater treatment facility (WWTF). The LBRID WWTF is regulated under Waste Discharge Requirements (WDRs) Order R5-2008-0068, which prescribes requirements for the treatment and discharge of domestic wastewater from the Berryessa Estates Subdivision to three aerated treatment ponds, followed by four effluent storage ponds, and land disposal to a six acre spray field. WDRs Order R5-2008-0068 allows a monthly average dry weather flow to the WWTF up to 42,000 gallons per day (gpd). The Discharger proposes to increase the storage and disposal capacity to accommodate the Berryessa Estates at full buildout and comply with Revised Administrative Civil Liability (ACL) Order R5-2011-0538 Revision No. 1.

The Discharger has had a long history of spills, the result of infiltration/inflow (I/I) issues at the wastewater collection system and lack of storage and disposal capacity. These violations of the WDRs resulted in multiple Administrative Civil Liability Complaints issued by the Executive Officer and Board adopted Administrative Civil Liability Orders and a Cease and Desist Order.

### **Planned Changes in the Facility and Discharge**

Effluent storage and disposal capacity will increase from approximately 7.4 million gallons (MG) to 27.1 MG. Existing Ponds 6 and 7 will be removed and replaced with two new, larger ponds (designated as Ponds 7 and 8). A completely new Pond 6 will be constructed. Appurtenances will be provided to allow flexibility in transferring wastewater between storage ponds.

The land application area will increase from two spray fields at six acres to approximately 16.1 acres for a total of four spray fields.

### **Site-Specific Conditions**

The topography in the vicinity of the WWTF is hilly, with a fairly steep slope to the south-southeast towards Putah Creek. The WWTF site is located on the floor of a small valley adjacent to Stone Corral Creek. Land surface elevations range from 640 feet mean sea level to the north of the ponds and near the land application areas to approximately 530 feet near Stone Corral Creek. The spray fields comprise of grasslands interspersed with oak trees.

### **Groundwater Considerations**

There are seven groundwater monitoring wells. MW-1 through MW-5 were installed in 2006. MW-2 is upgradient of the site and considered a background groundwater monitoring well.

The remaining wells are downgradient of the ponds and/or spray fields. Wells MW-6 and MW-7 were installed in 2012. MW-6 serves as an additional downgradient well and was installed as an alternative to MW-5, which has historically contained higher levels of constituents than any other well. Well MW-7 is upgradient of the proposed additional spray fields and represents baseline/background groundwater quality, therefore serves as a background well.

Background groundwater quality is spatially variable between MW-2 and MW-7. Background groundwater quality appears to be good quality water, with the exception of sodium and boron (concentrations exceeds protective water quality limits).

Downgradient groundwater quality exhibits very high spatial variability. Downgradient groundwater quality in wells MW-1, MW-3, and MW-4 indicate little apparent degradation, with the exception of sodium and boron. Downgradient groundwater quality in wells MW-5 and MW-6 exceed protective groundwater quality limits with respect to salinity (in particular TDS, chloride, and sodium), boron, manganese, and total coliform organisms. The high concentrations present in these wells are likely naturally occurring, with the exception of total coliform. Therefore, wells MW-5 and MW-6 will not be used to determine the threat to groundwater quality or compliance with the groundwater limitations of this Order.

Based on effluent quality, groundwater monitoring data, and geologic conditions within the area, it appears that the discharge has not caused groundwater degradation with respect to boron, manganese, and trihalomethanes. However, it appears that the discharge has caused degradation of groundwater with respect to nitrate, but has not caused exceedance of the secondary Maximum Contaminant Level (MCL) of 10 mg/L. Total coliform organisms have been detected in only one of the downgradient wells based on the result from one sampling event in June 2012. This detection may be the result of sample contamination and may resolve without intervention.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

Local drainage is to Lake Berryessa. The beneficial uses of Lake Berryessa, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; spawning, reproduction, and/or early development; and wildlife habitat.

The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, and industrial supply.

### **Antidegradation Analysis**

State Water Resources Control Board Resolution 68-16 prohibits degradation of groundwater unless it has been shown that:

- The degradation is consistent with the maximum benefit to the people of the state.
- The degradation will not unreasonably affect present and anticipated future beneficial uses.
- The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
- The discharger employs best practicable treatment or control (BPTC) to minimize degradation.

The Discharger has been monitoring groundwater quality at the site since 2006. Based on the data available, it is not possible to determine pre-1968 groundwater quality and it may not be possible to establish background groundwater concentrations due to the geologic complexity of the site. Therefore determination of compliance with Resolution 68-16 for this facility must be based on ambient pre-discharge/background groundwater quality for the monitoring wells that are outside the influence of the current discharge.

Degradation of groundwater by some of the typical waste constituents associated with discharges from a municipal wastewater utility, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from reliance on numerous, concentrated individual wastewater systems, and the impact on water quality will be substantially less.

The Discharger currently provides treatment and control of the discharge that incorporates:

- Secondary treatment of the wastewater;
- Disinfection to 23 MPN/100 mL;
- Tailwater return system to capture all tailwater runoff; and
- The use of certified operators to assure proper operation and maintenance.

The Board considers these measures to constitute “best practicable treatment or control” of the waste constituents associated with this discharge, and finds that the limited groundwater degradation allowed by this Order is consistent with the Antidegradation Policy.

### **Discharge Prohibitions, Specifications, and Provisions**

Effectively immediately, influent flows to the WWTF shall not exceed a monthly average flow of 42,000 gallons per day.

Effective on the date of the Executive Officer’s approval of the *Wastewater Facilities Improvements Completion Report* submitted pursuant to item 11 of ACL Order R5-2011-0538

Revision 1 or subsequent revision thereto, influent flows to the WWTF shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow <sup>1</sup>	28.17 million gallons
Average Dry Weather Flow <sup>2</sup>	0.042 million gallons per day
Maximum Annual I/I Flow <sup>3</sup>	17.33 million gallons

<sup>1</sup> As determined by the total flow for the calendar year.  
<sup>2</sup> As determined by the total flow for the months of June through August, inclusive, divided by 92 days.  
<sup>3</sup> As determined by the total flow during the calendar month, minus 365 times the average dry weather flow for the year.

The Order establishes a BOD effluent limit prior to discharge to the effluent storage ponds, a total coliform effluent limit prior to discharge to the land application areas, and sets groundwater limits that will ensure compliance with the Basin Plan. This Order also sets specifications for waste disposal and land application.

### Monitoring Requirements

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations and operational requirements of the WDRs. The Order requires monitoring the influent, effluent, ponds, land application areas, groundwater, sludge, and water supply. If results of the monitoring reveal a threat to water quality or indicate a change in waste character such that the threat to water quality is significantly increased, the Central Valley Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

### Reopener

The conditions of discharge in the Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. If the information obtained from the monitoring activities indicate a significantly increased threat to water quality, it may be appropriate to reopen the Order to address compliance with the Basin Plan.