

**BEAR VALLEY WATER DISTRICT
2015 ANNUAL OPERATIONS REPORT**

Order # R5-2011-053



January 28, 2016

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SECTION 1 - INTRODUCTION AND BACKGROUND

1.1 Introduction

The Bear Valley Water District (District) provides sanitary sewer collection, treatment and disposal for approximately 600 residential and commercial connections in the Alpine County community of Bear Valley. The District's service area is comprised of approximately 3000 acres located primarily north of California State Highway 4. The District serves the developed private, residential and commercial areas of the Bear Valley village as well as developed adjoining federal recreational lands including the United States Forest Service's (USFS) Lake Alpine Resort and campgrounds, special use permitted (SUP) residential cabins and the Bear Valley Mountain downhill ski resort. The District's wastewater treatment and disposal facility (WWTF) is regulated by the Central Valley Regional Water Quality Control Board (Regional Board) under Waste Discharge Requirements (WDRs) Order No. 5-01-208 and Order No. R5-2011-0053.

1.2 Background

During the 2015 water year (October 2014 to September 2015), an annual daily average flow of approximately 0.04 million gallons per day (MGD) (approximately 15.96 MG total) was received at the District WWTF. WDRs Order No. 5-01-208 currently limit influent flow to 0.1 MGD (annual average basis).

Preliminary treatment at the District's main pump station (headworks) consists of shredding (comminutor) and grit removal before the influent reaches the primary sedimentation tank where the settleable solids are allowed to fall to the bottom of the tank. Effluent flow is then measured during transfer via three, 10 HP Paco pumps to a 14.18 million gallon (MG) two cell, aerated treatment lagoon for secondary biological nutrient removal. While in the two cell lagoon system, the constituents are largely consumed and/or sequestered. Air is delivered to the secondary treatment lagoon via one 40 HP, VFD-equipped Gardner Denver positive displacement blower to thirty six (36) - 18" diameter, submerged helixor, coarse bubble diffusers. Inline YSI sensors communicate with the VFD blower by way of the SCADA system to keep dissolved oxygen and suspended solids at optimum levels. Treated effluent from the aerated lagoon is then chlorinated during transfer via (2) - 200 GPM Paco pumps through a 12,000 gallon chlorine contact tank. The chlorinated effluent is then placed into storage and receives further treatment in a 76.4 MG effluent polishing reservoir.

During the irrigation season, typically late spring through early autumn, the polished effluent is disposed of through spray irrigation on approximately 80 acres of sprayfields: 40 acres of land which is authorized by Special Use Permit (SUP) from the USFS and 40 acres under private lease through 2048. Both the leased disposal area and the permitted land have been in service since before the installation of the groundwater monitoring wells (approximately 40 years for the leased land) at the site.

Effluent disposal via spray irrigation involves the disbursement of the effluent through low impact, high uniformity, Nelson sprinkler heads upon soils and vegetation within the disposal area. The average monthly application rates during the peak disposal months of 2015 ranged from approximately 0.4 to 0.7 acre feet ((0.128 MG – 0.222 MG) per acre per month. The water is allowed to percolate into the soil and evapotranspire into the atmosphere. WDRs Order No. 5-01-208 limit application of wastewater to reasonable rates considering soil, climate, and irrigation management system. Attached as Appendix A, find the 2015 Land Disposal Maximization Report that provides detail on loadings rates during this irrigation season.

SECTION 2 - NPDES PERMIT REQUIREMENTS

The District's NPDES Permit contains Final Effluent Limitations on the discharge to the Polishing Reservoir (EFF-001) and Receiving Water Limitations to Bloods Creek. In 2007 the outfall project was completed to allow discharge pursuant to the District's current NPDES Permit (WDRs Order No. R5-2011-0053 (adopted 4 August 2011 and effective 23 September 2011). During the discharge period of January 1 to June 30, 2015, the District did not discharge effluent to Bloods Creek; therefore no effluent subject to the NPDES requirements existed during 2015.

The NPDES permit requires Notification of Discharge be submitted to RWQCB and other agencies in order to obtain permission to discharge to surface waters in any given year. Since no discharge occurred in 2015, that notification was not required. Provision V1.C.4b of the NPDES Permit requires annual submittal of a Land Application Maximization Report, submitted in October 2015, and Attached as Appendix A, providing detail on loadings rates during this irrigation season.

SECTION 3 - FACILITY CONTACT INFORMATION AND WASTEWATER TREATMENT PLANT OPERATOR CERTIFICATIONS

3.1 Facility Contact Information

Bear Valley Water District
P.O. Box 5027
Bear Valley, CA 95223

Administrative Contact: Jeff Gouveia, General Manager
Phone: (209) 753-2112
Fax: (209) 753-6267

Routine Contact: Jeff Gouveia, General Manager
Phone: (209) 753-2112
Fax: (209) 753-6267

Emergency Contact: Jeff Gouveia, General Manager
Emergency Contact Phone: (209) 743-0836

3.2 District Operator Certifications & Responsibilities

Three District staff members are currently certified operators. Brief summaries of staff certifications and responsibilities are as follows:

Jeff Gouveia, General Manager & Operator in Training, oversees all phases of operations and administration of District.

Guy West, Grade II-28912, Chief Plant Operator, performs day to day operational tasks, treatment, collections, and land application. Mr. West is responsible for all phases of operations.

Steven Mikesell, Grade II-28053, Field Supervisor, oversees land application, treatment, and collections.

Robin Murphy, Grade I-10626, performs day to day operational tasks, treatment, collections, and land application.

SECTION 4 - INSTRUMENT CALIBRATION

According to the General Monitoring Provisions of the District’s NPDES MRP, all instruments must be calibrated at least annually or according to the instrument manufacturer’s instructions. The following flow monitoring and field instruments were calibrated in 2015:

Main Pump Station (Headworks)

Instrument	Calibration
Hach Sigma 980 Permanent Open Channel Flow Meter	Not required per manufacturer
Badger M-3000 Magnetic Flow Meter	Not required per manufacturer
GLI pH Analyzer	September 2015 Aqua Sierra Controls
Keller Submersible Level Transmitter	September 2015 Aqua Sierra Controls

Treatment Plant Control Building

Instrument	Calibration
YSI Dissolved Oxygen Analyzer Pond Monitoring	September 2015 Aqua Sierra Controls
YSI Suspended Solids Analyzer Pond Monitoring	September 2015 Aqua Sierra Controls
Portable Dissolved Oxygen Probe Pond and Creek Monitoring	Weekly by staff
Portable pH Probe Pond and Creek Monitoring	Weekly by staff
Hach Model 2100N Laboratory Turbidimeter	Quarterly by staff
Hach Auto Cat 9000 Chlorine Amperometric Titrator	Not required per manufacturer
Keller Submersible Level Transmitter Treatment Lagoon	September 2015 Aqua Sierra Controls

KPSI Submersible Level Transmitter Polishing Reservoir	September 2015 Aqua Sierra Controls
Hersey Propeller Flow Meter Pond Transfer – Treatment > Storage Reservoir	Not required per manufacturer

Surface Water Discharge Components

Instrument	Calibration
GLI pH Analyzer Surface Water Discharge	September 2015 Aqua Sierra Controls
Siemens CFC Chlorine Residual Analyzer Surface Water Discharge	September 2015 Aqua Sierra Controls
PMC Submersible Level Transmitter Bloods Creek - Surface Water Discharge	September 2015 Aqua Sierra Controls
Endress & Hauser Magnetic Flow Meter Surface Water Discharge	November 2015 Aqua Sierra Controls

Land Application Components

Instrument	Calibration
McCrometer 4" Bolt On Saddle Meters Sprayfield Flow Meters	Every 4-5 years with average flows and usage per manufacturer – Last calibrated in 2014

Lake Alpine Boat Ramp Lift Station

Instrument	Calibration
Blue Ribbon Submersible Level Transmitter	Sept 2015 Aqua Sierra Controls

SECTION 5 – OPERATION AND MAINTENANCE MANUAL

The District maintains a current Operation and Maintenance Manual as well as a current Contingency Plan for the all the facilities managed by the District. These items are reviewed annually each November and updated as necessary.

District staff last reviewed for accuracy and revised as necessary the Operation and Maintenance Manual as well as a Contingency Plan in November 2015 ensuring these items reflect the wastewater treatment plant as currently constructed and operated.

SECTION 6 – SUMMARIES OF MONITORING DATA

Provision X.C.4.e of the District’s Monitoring & Reporting Program indicates tabular and graphical summaries shall be submitted upon written request by the Central Valley Water Board. No such request was received by the District in 2015.

SECTION 7 – VIOLATIONS AND CORRECTIVE ACTIONS

7.1 Notices of Violation

No Notices of Violation were received in 2015.

7.2 Technical Reports

The District completed and submitted the following technical and other documents as required by the NPDES Permit during 2015:

1. Annual Operations Report submitted on January 29, 2015.
2. USDA Standard Form 299 – Application for Transportation and Utility Systems and Facilities on Federal Lands – 10 year and 40 year Applications – Submitted March 17, 2015
3. Dilution/Mixing Zone Study Work Plan –Submitted March 19, 2015
4. Compliance Schedule – Annual Progress Report Submitted on August 1, 2015.
5. Mixing Zone/Dilution Study Final Report – Submitted September 14, 2015
6. Land Disposal Maximization Report submitted on October 20, 2015.
7. First and Second Tri-Annual Monitoring Reports - Submitted August 4, 2015 and October 26, 2015.
8. Report of Waste Discharge – Order # R5-2011-053 – Submitted December 28, 2015

SECTION 8 – SLUDGE/SOLID WASTE DISPOSAL

Sludge at the WWTF accumulates at the bottom of the two cell treatment lagoon as it has since 1972. The sludge depth at the bottom of the treatment pond is measured with a sludge judge annually and has never exceeded six inches (typically one to three inches). The organic solids loading rate on the pond system appears to be so low compared to their natural decay rate that no material accumulation of sludge appears to have occurred over the past 40+ years. At some point in the distant future, the treatment ponds may require sludge to be removed and disposed of at an appropriate landfill.

At the headworks of the WWTF, the most common materials generated generally include grease, sediment, and minor non-organic solid waste. The items not shredded during pretreatment are removed as necessary from the waste stream and disposed of in local, municipal waste transfer stations bound for landfill. Meanwhile, annual organic solids removal at all five (5) District lift stations, totaling approximately 1500 – 2000 gallons, is routinely performed each September or October and was completed this year by El Dorado Septic on October 9, 2015.

Currently the District does not have a formal sludge management plan. However, The District anticipates its renewed NPDES Order may include a provision requiring the District to develop a formal sludge management/disposal plan as a matter of policy. The District is prepared to comply with such a requirement should a sludge management/disposal plan provision be included in the renewed Order.

BEAR VALLEY WATER DISTRICT, 2015 ANNUAL OPERATIONS REPORT

Appendix A. 2015 Updated Polishing Pond Elevation Chart
January 13, 2016

APPENDIX A 2015 UPDATED POLISHING POND ELEVATION CHART