



**BEAR VALLEY
WATER DISTRICT**

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15 December 2009

Mr. James Marshall
Senior Water Resources Control Engineer
Regional Water Quality Control Board, Central Valley Region
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Subject: Copper Time Schedule Order Request and Copper Corrective Action Plan
Progress Report for Bear Valley Wastewater Treatment Plant

- Order No. R5-2005-0139, NPDES No. CA0085146

Dear Sir:

The Bear Valley Water District (District) hereby submits this correspondence to serve as a request for a five-year Time Schedule Order (TSO) to be issued by the Central Valley Regional Water Quality Control Board (RWQCB) to come into compliance with final water quality based effluent limitations for Copper.

This correspondence shall also serve as a progress report pursuant requirements of Provision (D)(5) of Waste Discharge Requirements (WDRs) No. R5-2005-0139 for Copper.

District Background

The District, as well as being subject to the above referenced WDRs and TSO, is governed by Order No. 5-01-208 for land application of effluent. Due to a series of overflows from the Effluent Storage Reservoir/Polishing Pond during wet years in the 1990's, the District was issued two Cease and Desist Orders. The last of these Cease and Desist Orders was rescinded 7 June 2002 and the District was declared in full compliance with the WDRs at that time.

However, to prepare for the eventuality of potential future wet years that may again overwhelm reservoir capacity, the District applied for, and received, the above-referenced NPDES permit in 2005. As a result of, 1) diligent and effective land application operations, and, 2) the absence of significantly wet years, the District has not yet had to utilize the NPDES permit.

Prior to the current Manager and District Engineer being hired on 28 July 2009, the District had not had a full-time General Manager since 2003, or, a District Engineer since July 2008. The previous District Engineer had overseen compliance efforts at the managerial level since 2003. In July 2008, a part-time Interim General Manager was engaged from a neighboring water district, but a new District Engineer was not hired until 28 July 2009.

The District, with respect to the numerous compliance projects mandated in the District's two applicable WDRs and TSO, has pursued a comprehensive effort. The Copper Corrective Action Plan (CCAP) is directly applicable to this TSO request.

Upon review of the record for the CCAP we note that, while many of the activities called for in the plans were conducted, there are data gaps. One very significant factor that has served to limit opportunities for sample collection during the periods most relevant to documenting effluent characteristics during the allowable discharge window, 1 January-30 June, is the winter cold and the significant snowfall at the 7000 foot-elevation of the District. Restricted access for sampling the Storage/Polishing Reservoir due to ice cover, and treacherous conditions that reportedly affect receiving water sampling have been cited by staff as reasons for the data gaps.

For your convenience we are including the annual progress report on the CCAP herein as preface and foundation to the TSO request. The 2009 CCAP progress report was due on 1 July, but was not submitted at that time.

Part 1-2009 Progress Report, Copper Corrective Action Plan

As required by Provision D.5 of Waste Discharge Requirements Order No. R5-2005-139, the District submitted a Copper Corrective Action Plan and Implementation Schedule in 2006. The plan provided for monitoring, source identification and reduction alternatives, and review of treatment alternatives. The monitoring program was developed to monitor the concentration of copper in various areas of the system including: 1) drinking water distribution system, 2) treatment pond effluent, and 3) effluent storage reservoir. Upon completion of two years of monitoring, an analysis and summary of the data was proposed. Source identification and control focused on the possible corrosion of water pipes in the potable water system and the District has been working with the local water purveyors on means of controlling distribution system corrosion and therefore, copper concentrations in the wastewater as reported below.

The Lake Alpine Water Company (LAWC) is monitoring its distribution system for total copper in order to assess compliance with the Copper Rule. Since January 2007, samples have been collected from approximately 20 taps for analysis of total copper. This information has been provided to the District as part of a cooperative effort to control corrosion in the distribution system and limit copper in the drinking water and wastewater. Samples have typically been collected in the winter (January-February) and late summer (August-September).

Tap copper results from the Lake Alpine Water Company are summarized on the following table; with results less than the reporting limit of 50 µg/L plotted at ½ the limit (at 25 µg/L).

DRINKING WATER COPPER CONCENTRATIONS, LAKE ALPINE WATER COMPANY						
Aug-Sep 07 N=22 (µg/L)	Jan-Feb 08 N=20 (µg/L)	Aug-Sep 08 N=20 (µg/L)	Feb 09 N=20 (µg/L)	Aug-Sep 09 N=20 (µg/L)	Average Tap Copper 8/07-9/09 (µg/L)	Average Raw Copper 8/07-9/09 (µg/L)
136	40	32	44	83	68.45	14

Based on LAWC data from all distribution samples since August of 2007, potable water copper concentrations tend to range in Bear Valley from less than 50 µg/L to 260 µg/L, with an overall median concentration of 25 µg/L. Based on this data, there are no obvious seasonal trends in copper concentrations.

Available wastewater copper monitoring data is summarized below and includes recent influent and effluent copper results through November of 2009. Based on this data, it appears that the average dissolved pond effluent copper concentration is approximately 8 µg/L and the average effluent storage reservoir dissolved copper concentration is approximately 4 µg/L (due to limited data collection during critical periods this number may be high, see discussion below). Influent copper concentrations appear to vary seasonally, with higher copper concentrations (maximum recorded in our database of 120 µg/L) during fall and lower concentrations during the spring snowmelt periods. Average influent total copper concentration at 43 µg/L is 37% lower than the median LAWC potable water total concentration for this period. We note that, although BVWD has contacted all the major water purveyors in the service area to provide corrosion control guidance, there are no sample results from the other water providers, so all sources of water discharged to BVWD have not yet been characterized.

As further shown by the following table, and as might be expected, the variability of influent copper concentrations is greater than the variability of Pond Effluent and Storage/Polishing Reservoir concentrations. There is not enough data on Bloods Creek copper concentrations to draw any conclusions.

The most glaring data omission in the table is the lack of receiving water copper data. This must, and will be rectified as we go forward. According to staff, when Bloods Creek is flowing, sample collection is difficult, if not treacherous due to unsafe footing in the melting snowpack coupled with heavy flows. And, of course, when the creek is not flowing, data would not be representative. As noted, BVWD will make every effort to collect representative samples during periods of creek flow in the future.

Copper sampling from the Storage/Polishing Reservoir also has been inconsistent and will be improved. The reason for our NPDES permit is to maintain design conditions, i.e., a minimum of two-foot of freeboard, in the Reservoir. As the Reservoir fills during periods of snowmelt, effluent is more and more diluted by natural influences. This circumstance represents the most critical time to sample as it represents the effluent that would actually be discharged to Bloods Creek. Out of the 24 months of discharge window since June 2006, during only four such months were Reservoir samples collected. We attribute this inconsistency primarily to the lack of direct oversight of staff, as a sample tap was installed as part of the Outfall Project inside the Equipment House adjacent the Treatment Pond and Reservoir. Staff had cited safety as a reason for not collecting samples directly from the Reservoir. Staff, however, had not been directed to utilize the sample line installed in early 2007.

The final point that needs to be clarified is that the assumption that a tertiary plant would be constructed led to a degree of complacency. It was stated in previous CCAP reports that copper concentrations would thus likely be reduced. It is therefore instructive to note that the designer of the tertiary plant contemplated by BVWD specifically refused to guarantee a reduction in copper concentrations. At this time it appears that the marginal improvement in effluent quality that would accrue from installation of a multi-million dollar tertiary treatment facility, with no sponsor or reuse project to service, would not be a prudent use of resources. Petition to eliminate the tertiary requirement will be included in our forthcoming Report of Waste Discharge.

	Sample Location	Influent (µg/L)		Pond Effluent (µg/L)		Effluent Storage Reservoir (µg/L)		Bloods Creek (µg/L)	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved ²
Date	06/12/00	-	-	-	-	1.9	-	-	-
	05/22/03	-	-	-	-	-	-	<0.3	-
	05/28/03	-	-	-	-	0.8	-	<0.3	-
	06/11/03	-	-	-	-	2.2	-	-	-
	06/21/06	-	-	9.9	7.4	2	2.1	<1.0	<1.0
	07/19/06	-	-	7.7	6.3	3	2.9	1.7	<1.0
	08/16/06	-	-	12	9.9	3.9	4.8	-	-
	09/20/06	-	-	23	8.5	5.2	3.8	-	-
	10/18/06	-	-	11	8.1	8.7	3.2	-	-
	03/07/07	-	-	11	10	11	2.4	-	-
	04/04/07	-	-	8.3	7.3	6.6	1.7	-	-
	04/18/07	18	-	-	-	-	-	-	-
	05/02/07	-	-	7.3	6.7	6.8	5.1	-	-
	06/06/07	-	-	4.5	3.8	-	-	-	-
	07/11/07	-	-	-	-	5.9	4.5	-	-
	08/01/07	-	-	-	-	6.7	3.4	-	-
	10/10/07	28	15	9.4	7.4	-	-	-	-
	11/07/07	93	18	7.4	5.3	11	8.1	-	-
	12/05/07	120	81	13	9.8	-	-	-	-
	01/02/08	65	18	10	10	-	-	-	-
	02/06/08	46	30	11	11	-	-	-	-
	03/05/08	45	17	13	9.9	-	-	-	-
	04/02/08	19	11	10	10	-	-	-	-
	05/07/08	12	5.6	9.2	7.4	-	-	-	-
	06/04/08	14	12	7.6	4.4	4.4	4.1	-	-
	07/02/08	29	21	10	8.6	3.6	6.2	-	-
	07/16/08	-	-	14	11	-	-	-	-
	08/06/08	39	18	12.6	7.5	5.0	4.0	-	-
	09/03/08	50	12	10.6	9.2	8.4	-	-	-
	10/01/08	70	29	9.0	3.7	10	4.4	-	-
	11/05/08	26	19	9.6	-	-	-	-	-
	11/19/08	-	30	-	-	-	-	-	-
	12/03/08	59	28	9.8	-	-	-	-	-
01/07/09	34	20	11	-	-	-	-	-	
02/04/09	19	10	7.8	7.2	-	-	-	-	
03/04/09	17	5.6	7.9	6.9	-	-	-	-	
04/01/09	-	-	7.9	7.5	-	-	-	-	
06/03/09	-	-	7.9	7.1	-	-	-	-	
09/30/09	59	-	-	-	-	-	-	-	
11/18/09	-	-	8.1	6.5	-	-	-	-	
Average		43.1	21.1	10.0	7.8	5.6	4.0	<0.8	<1.0
Maximum		120	81	23	11	11	8.1	1.7	<1.0
Minimum		12	5.6	4.5	3.7	0.8	1.7	<0.3	<1.0
Median		36.5	18	9.8	7.4	5.2	4.0	-	-
Standard Deviation		28.4	16.4	3.2	2.0	3.1	1.6	-	-
Coefficient of Variation		0.66	0.78	0.31	0.26	0.55	0.41	-	-

In summary, not all elements of the CCAP have been fully implemented. BVWD will endeavor to ensure that the following occurs in the future:

- Monthly, or more frequent, sampling of Bloods Creek (when flow is present) and the Storage/Polishing Reservoir (when storage volume and thus water elevation is sufficient to charge the sample line) will occur during the discharge window months of January-June.
- Monthly testing of influent and pond effluent will be reinstated (due to the batch nature of our process, some months there is no discharge from the Treatment Pond).
- We will collect samples from the other water sources that have not previously been sampled, and from the wastewater discharges from those areas.
- We will meet again with staff from the potable water sources to review corrosion control and water conservation progress. Of particular interest in the case of LAWC is the precipitous 75% drop in copper concentrations detected between summer 07 and winter 08, from 136 µg/L to 40 µg/L, followed by three semi-annual sample events with stable results, followed by a doubling of concentration from 43 µg/L to 83 µg/L this past summer. We have no follow-up with them on the record and will be looking into these trends.
- Review Bloods Creek sample and flow data to assess assimilative potential and evaluate potential for site-specific effluent limits based on intermittent, short-term discharge conditions.
- Continue submitting annual progress reports.

Part 2-Request for Copper TSO

The NPDES permit, which includes the copper TSO was adopted 20 October 2005. The date for final compliance with Copper limits is 22 May 2010. As previously noted, no discharge to surface waters has occurred during the life of the permit thus far.

It appears that these limitations cannot be attained with current facilities. Water Code Section 13385 requires RWQCB to make certain findings to protect dischargers from the imposition of mandatory minimum penalties. The information in this letter includes the following: (1) the effluent limitations are new, more stringent, or modified regulatory requirements that have become applicable to the discharge after the effective date of the permit and after July 1, 2000; (2) new or modified control measures are necessary for the effluent to comply with the final effluent limitations; and, (3) the new or modified control measures cannot be designed, installed or put into operation within 30 days. Furthermore, this letter provides RWQCB with the necessary information to find that the proposed time schedule is as short as possible, does not exceed five years in length, and includes appropriate interim requirements as required.

A. Effluent Limitations

The effluent limitations for copper were first issued in the BVWD NPDES permit with the adoption of Order No. R5-2005-0139 on 20 October 2005. However, implementation of the limits was stayed and interim limits pending approval of a Copper Compliance Schedule were included in the permit. The compliance schedule was submitted and approved and the interim limits were implemented and are still in force. Thus the effluent limitations for copper were adopted after July 1, 2000, and became applicable after the effective date of the WDRs.

B. Compliance Assessment

As BVWD has never exercised the privilege of discharging under the NPDES permit, there is no actual compliance data on the record. And, since the permit was issued in October of 2005, only five samples for total copper from the Storage/Polishing Reservoir have been collected during the discharge window of Jan-June. The average of these samples plus three from 2000-2003 is 4.5 µg/L, this is comparable to the overall average of 5.6 µg/L total copper and 4.0 µg/L dissolved copper from the entire dataset.

It is important to note that the new Reservoir outfall intake, suspended within four feet of the water surface to take full advantage of the snowmelt dilution unique to our situation, has yet to be used for sample collection. Only when the Reservoir is near capacity can we actually approximate what discharge conditions may ultimately be.

In any case, based on the data herein presented, the final average monthly effluent limitation (AMEL) of 0.95 µg/L and the final maximum daily limitation (MDEL) of 1.9 cannot be consistently complied with. Further, if the data is representative of what actual effluent quality would be, it would not be possible for BVWD to comply with these final effluent limits based on existing applicable criteria without installing new or modified control measures. New or modified control measures cannot be designed, installed, or put into operation within 30 calendar days.

C. Documentation of Source Control and/or Pollutant Minimization Efforts

See Part 1, 2009 Progress Report-Copper Corrective Action Plan.

D. Proposed Schedule and Demonstration that Proposed Schedule is as Short as Practicable

With this letter, BVWD requests a TSO be adopted that allows the District five years from the date of the adoption of the TSO to meet final effluent limitations for copper. The proposed schedule is needed because, since we have not needed to discharge under the permit during the past four years, we are in a position where we have not been able to characterize our effluent under actual discharge conditions. Thus, we cannot even determine if control measures may ultimately need to be implemented or enhanced until our facilities are inundated with dilution from an extreme wet season. We are therefore strictly dependent on natural, uncontrollable circumstances that are intermittent and unpredictable.

Consequently we propose the following schedule:

TSO Milestone	Completion Date
Submit CCAP Progress Report	July 2010 and annually Thereafter
Intensive Sampling of Bloods Creek During Snowmelt For Purpose of Assessing Assimilative Capacity, Prepare Report (2 Years)	August 2010, August 2011
Intensive Sampling of Storage Reservoir During Snowmelt For Purpose of Characterization of Effluent Quality, Prepare Report (2 Years)	August 2010, August 2011
Determine Whether Additional/Modified Treatment Facility is Required for Compliance	January 2012
Design of Facilities Modifications (If Necessary)	September 2012
Request for Bids/Selection of Contractor (If Necessary)	November 2012
Complete Construction (If Necessary)	December 2014
New/Modified Facility on Line (If Necessary)	January 2015
Full Compliance With Copper Requirements	May 2015

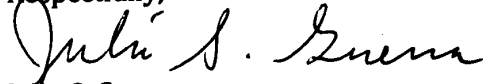
E. Interim Requirements

In the meantime, and as required by Water Code Section 13385(j)(3)(c), BVWD suggests that the TSO include interim effluent limits based on the District's current level of performance. The District's current NPDES permit (Order No. R5-2005-0139) includes interim effluent limits for copper based on the maximum effluent concentration. The resulting limit is 16.3 µg/L as a monthly average. The interim limits in the TSO should be the same as those specified in the NPDES permit.

Actions and milestones in the TSO should include a requirement to continue implementation of the CCAP, provide annual progress reports, and achieve full compliance by five years from the date of adoption of the TSO.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Respectfully,



Julio S. Guerra
General Manager

cc: Board of Directors
Gary Ghio, District Engineer
Mary Boyd, Anand Mamidi, Ken Landau, Oscar Biondi, RWQCB