CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0139

NPDES NO. CA0085146

WASTE DISCHARGE REQUIREMENTS
FOR

BEAR VALLEY WATER DISTRICT
BEAR VALLEY WASTEWATER TREATMENT FACILITY
ALPINE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

BACKGROUND

1. Bear Valley Water District (hereafter Discharger) submitted a Report of Waste Discharge, dated April 07, 2004, and applied for a permit authorization to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Bear Valley Wastewater Treatment Plant.

2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, providing sewerage service to the community of Bear Valley, Bear Valley Ski Resort, and the Lake Alpine/United States Forest Service. The treatment plant is in Section 18 and 19, T7N, R18E, MDB&M, as shown on Attachment A, a part of this Order. Treated wastewater is currently discharged by spray irrigation. A portion of the disposal land area (94 acres) is owned by and leased from C. Bruce & Roma Orvis and TBH Partners. The remaining 40 acres is secured under a United States Forest Service (USFS) Special use Permit. The Discharger has recently added 40 additional acres of land to its USFS Special Use Permit for the purpose of increasing its effluent disposal capability.

   In February 2002, in response to a requirement of Cease & Desist (C&D) Order No. 5-01-209, the Discharger submitted a *Land Disposal Maximization Plan* for the facility, which evaluated the feasibility of many options that would either minimize flow to the land disposal facilities or maximize the land disposal capability of the facility. The plan stated the Discharger would implement five of the options evaluated and has concluded that if the chosen plan were implemented, land disposal capacity would be increased by 81 MG. The five options chosen were:

   a) To design and implement a water conservation program. On 27 August 2002, the Discharger submitted the *Bear Valley Water District Water Conservation Plan;*

   b) To implement an Inflow and Infiltration (I/I) Reduction Program. On 4 June 2002, the Discharger submitted a *Sanitary Sewer Overflow Prevention and Maintenance Plan*, which included elements constituting an I/I Reduction Program;

c) To increase irrigation application by continuing to evaluate potential expansion within current permitted land by installation of controls and pumps to maximize irrigation and minimize runoff potential and to explore the addition of previously permitted 10 acres of Orvis Meadow land;

d) To apply for extension of the U. S. Forest Service Special Use Permits beyond year 2011.

Based on the Discharger's initial steps taken in implementing the plan and the commitment to implement the plan in its entirety, the Regional Board rescinded C&D Order No. 5-01-209 on 7 June 2002.

3. The treatment system consists of an aeration pond with a total volume of about 12.5 million gallons with aeration provided by diffusers installed at the bottom of the pond. Air to the duffusers is provided by three 30 Hp blowers. The treatment pond is split into two equal sections by a redwood baffle. The treated and chlorinated effluent is pumped to a 325 acre-foot unlined storage reservoir for final disposal by spray irrigation during summer months. The final effluent discharge to land is regulated under separate Land Disposal Requirements, Order No. 5-01-208. The facility is located at an elevation above 7,000 feet. This facility provides equivalent secondary treatment as defined in the Federal Clean Water Act (CWA).

Influent wastewater is pumped from the Main Pump Station to the wastewater treatment plant through a comminutor before entering an aerated treatment pond. Aeration is provided for 10 to 12 hours per day by diffusers installed on the bottom of the treatment pond. The District currently operates the treatment pond in a semi-batch mode. Prior to the treated effluent being pumped to the effluent storage reservoir, it is chlorinated to provide disinfection. Spray Irrigation is limited to summer months (usually June through October).

The design treatment capacity of the plant is 0.5 million gallons per day (mgd). The current average wastewater flow (including domestic, commercial and I/I) to the WWTP is 0.086 mgd while the maximum daily flow rate is 0.225 mgd. The Discharger proposes that the allowable maximum effluent discharge flow to Bloods Creek not exceed 2.5 mgd. Although this maximum daily flow rate may seem large for a system as small as the Bear Valley Water District, this rate has been requested to minimize the timeframe for discharge, e.g., allowing the discharge of a large volume over a short time period when Bloods Creek flows are very high from snow melt. Further justification for the increase in discharge rate is to avoid gross over irrigation of the land disposal area during summer months and to maintain some reserve capacity in the storage reservoir to handle unexpected situations, or make an emergency discharge, when necessary. In addition, the maximum effluent discharge would occur only if and when necessary, during extremely wet winter periods, during snow melting season, and only when the effluent can receive at least 20:1 dilution from Bloods Creek, during which time the public use of the Creek is expected to be relatively low. Irrespective of the maximum flow rate, the Discharger estimates that based on the worst case hydraulic balances, a maximum volume of 63 million gallons could be discharged to Bloods Creek, while maintaining a minimum of 20:1 dilution ratio. Since snow melting season varies from year to year, the maximum amount of

flow in Bloods Creek can occur anytime between December to late June, depending on the timing and depth of snowfall, during which time adequate dilution is available. Therefore, the timing of the discharge to maximize dilution could occur anytime within that window depending on the particular weather patterns for that year. As a result, based on both the projected volume of flows in the Creek and the storage reservoir capacity necessary to handle unexpected situations without being forced to over-irrigate the land disposal areas and/or to minimize uncontrolled spillages from the storage reservoir, a monthly average flow of 1 mgd and a daily maximum flow of 2.5 mgd diluted at least 20:1 by Bloods Creek is considered reasonable and necessary to achieve water quality objectives of this permit.

4. The Report of Waste Discharge describes the current discharge to land as follows:

Design Flow (dry weather):	0.5	mgd
Annual Average Daily Flow Rate:	0.08	mgd
Maximum Daily Flow Rate:	0.225	mgd
Average Temperature, Summer:	60.8	ºF
Average Temperature, Winter:	39.2	ºF
BOD[1]	9.7	mg/*l*
Total Suspended Solids	10	mg/*l*

[1] 5-day, 20°C biochemical oxygen demand

5. The Discharger, based on recent development trends in the community, excessive I/I, lack of adequate storage capacity, and lack of additional disposal spray fields, recognized that there is a reasonable potential that back to back wet years could result in effluent spilling from the effluent storage reservoir to a surface water drainage course. As a result, the District has proposed a controlled seasonal discharge of treated effluent to surface waters (Bloods Creek). The discharge to the Bloods Creek, through outfall (01), would occur only during in extremely wet winter periods, during spring snow melting season, and only to the extent that the effluent receives at least 20 to 1 dilution by the receiving stream and only to the extent necessary to maintain design conditions in the effluent storage reservoir. However, to date, the Discharger has submitted only two data points (taken May 28, & June 11, 2003) for the water quality of the receiving water. Based on the limited data, Bloods Creek is expected to have good to excellent water quality and a potential for adequate assimilative capacity to protect the beneficial uses of the receiving water, especially during snow melt season.

6. The Regional Board adopted a *Water Quality Control Plan*, Fourth Edition, for the Sacramento and San Joaquin River Basins (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.

7. U.S. EPA adopted the *National Toxics Rule* on 5 February 1993 and the *California Toxics Rule* on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule.*

BENEFICIAL USES OF THE RECEIVING STREAM

8. Bloods Creek is a water of the United States, a tributary to North Fork of the Stanislaus River and source to New Melones Reservoir. Bloods Creek is approximately 500 feet northwest of the wastewater treatment facility. Attachment B is a topographic map of the Bear Valley Water District and Bloods Creek. At the point of proposed effluent discharge, 5,800 to 10,500 acre feet annually flows through Bloods Creek (assuming an annual runoff rate of 80%, which includes assumed return subsurface flows to the creek). During 2003 winter and spring run off period (January – June), peak flows in the Creek was estimated to be greater than 50 cubic feet per second (32 mgd), while the measured low flows were at less than 8 cubic feet per second (5.2 mgd). Peak flows in Bloods Creek can occur anytime between late December to late June depending on the timing and depth of snowfall, timing of changes in the season and unusual weather patterns. The Basin Plan at page II-2.00 states: "*Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for Bloods Creek, but the Basin Plan does identify present and potential uses of North Fork of Stanislaus River is tributary. North Fork of Stanislaus River is source to New Melones Reservoir.

The Basin Plan identifies the following beneficial uses for sources to New Melones Reservoir**:** municipal and domestic supply, agricultural irrigation, agricultural stock watering, hydro power generation, body contact water recreation, canoeing and rafting, other non-body contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, and wildlife habitat. In addition, State Board Resolution No. 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution No. 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…" and with respect to disposal of wastewaters states that "...disposal of wastewaters is* [not] *a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses*."

The federal Clean Water Act, Section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection*

and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the Clean Water Act, create a rebuttable presumption that all waters be designated as fishable and swimable. Federal Regulations, 40 CFR Sections 131.2 and 131.10, require that all waters of the State be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR Section 131.10, requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

In reviewing whether the existing and/or potential uses of the source to New Melones Reservoir apply to Bloods Creek, the Regional Board has considered the following facts:

a. Domestic Supply and Agricultural Supply

The Regional Board is required to apply the beneficial uses of municipal and domestic supply to Bloods Creek based on State Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Board Resolution No. 89-056. In addition, the State Water Resources Control Board (SWRCB) has issued water rights to existing water users along Bloods Creek and the North Fork of Stanislaus River downstream of the discharge for domestic and irrigation uses. Bloods Creek is an ephemeral stream and the North Fork of Stanislaus River likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in Bloods Creek.

b. Water Contact and Noncontact Recreation and Esthetic Enjoyment

The Regional Board finds that Bloods Creek generally flows through cow pasture and at some places flows along camping and recreational areas. There is ready public access to Bloods Creek, exclusion of the public is unrealistic and contact recreational activities currently exist along North Fork of Stanislaus River (downstream of discharge point) and these uses are likely to increase as the population in the area grows. Prior to flowing into North Fork of Stanislaus River, Bloods Creek flows through areas of general public access, meadows, camping areas, and parks. North Fork and New Melones Reservoir also offer recreational opportunities.

c. Groundwater Recharge

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Bloods Creek is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

d. Freshwater Replenishment

When water is present in Bloods Creek, there is hydraulic continuity between Bloods Creek and the North Fork of Stanislaus River. During periods of hydraulic continuity, Bloods Creek adds to the water quantity and may impact the quality of water flowing down stream in the Stanislaus River.

e. Preservation and Enhancement of Fish, Wildlife, and Other Aquatic Resources

Bloods Creek flows to Stanislaus River and then into New Melones Reservoir. The Basin Plan (Table II-1) designates the New Melones Reservoir as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Bloods Creek. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/*l*.

f. Upon review of the flow conditions, habitat values, and beneficial uses of Bloods Creek, and the facts described above, the Regional Board finds that the beneficial uses identified in the Basin Plan for source to New Melones Reservoir are applicable to Bloods Creek.

The Regional Board also finds that based on the available information and on the Discharger's application, that Bloods Creek is an ephemeral stream. The ephemeral nature of Bloods Creek means that the designated beneficial uses must be protected. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Bloods Creek help support the aquatic life. Both conditions may exist within a short time span, where Bloods Creek would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Stanislaus River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall and/or snow season. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall and/or snow melt events. Discharger proposes to control the effluent discharge rate such that

the effluent is diluted by at least 20:1 by Bloods Creek.

NARRATIVE OBJECTIVES

9. Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

10. The federal Clean Water Act (CWA) mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law. [33 U.S.C., § 1311(b)(1)(C); 40 C.F.R., § 122.44(d)(1)] NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 CFR, Section 122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits*."

The Regional Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Board must establish effluent limitations using one or more of three specified sources, including EPA's published water quality criteria, a proposed state criterion (*i.e*., water quality objective), or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. 122.44(d)(1) (vi) (A), (B) or (C)). The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*". The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The beneficial uses include municipal and domestic supply, agricultural irrigation supply, agricultural stock watering, hydropower generation, water contact and non-contact recreation and aquatic habitat and wildlife habitat. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the

narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Board may apply limits more stringent than MCLs. When a reasonable potential exists for exceeding a narrative objective, Federal Regulations mandate numerical effluent limitations and the Basin Plan narrative criteria clearly establish a procedure for translating the narrative objectives into numerical effluent limitations.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

11. Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

12. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for *aluminum, ammonia, chloroform, copper, electrical conductivity, fluoride, iron, and manganese.* Effluent limitations for these constituents are included in this Order.

13. Section 13263.6(a), California Water Code, requires that "*the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the state board or the regional board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

    The Regional Board has adopted numeric receiving water quality objectives for arsenic, barium, copper, cyanide, iron, manganese, silver, and zinc for the Sacramento-San Joaquin Delta in the Water Quality Control Plan for the Sacramento River and San Joaquin Basin (Basin Plan). As detailed elsewhere in this permit, available effluent quality data indicate that effluent concentrations of *copper, iron and manganese* do have a reasonable potential to cause or contribute to an excursion above numeric water quality objectives for *copper, iron* and manganese included within the Basin Plan. The EPCRKA Section 313 toxic chemical release data report indicates that the *copper and*

iron are discharged into the Discharger's collection system. An effluent limitation for *copper, iron and manganese* are included in this permit pursuant to CWC Section 13263.6(a).

14. The Discharger requested that dilution, mixing, and assimilative capacity be considered when determining constituent limitations for the effluent. The SIP defines a completely-mixed discharge condition to mean that there is "…*not more than a 5 percent difference, accounting for analytical variability, in the concentration of a pollutant across a transect of the water body at a point within two stream/river widths from the discharge point*." The Regional Board is not required to grant a mixing zone or utilize the full assimilative capacity of the receiving stream. Regardless of the receiving water conditions, the Discharger has not submitted any data demonstrating that an acute mixing zone would not restrict the passage of aquatic life or cause acutely toxic conditions to aquatic life passing through the mixing zone. Therefore, until a mixing zone study is completed that defines how the one part effluent will mix into the minimum 20 parts of Bloods Creek water, no dilution credit will be granted in this Order. **Provision D4** of this Order provides the discharger an opportunity to conduct a dilution mixing zone study to address mixing zone conditions including, but not limited to, whether the discharge is completely or incompletely mixed. If the dilution mixing zone study determines that an effluent dilution credit is appropriate for this discharge, this Order will be reopened to modify effluent limitations to reflect the dilution credit as appropriate per the guidelines in State Implementation Plan (SIP).

15. ***Aluminum***— The Basin Plan contains a narrative water quality objective for toxicity that states in part that "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). Aquatic habitat is a beneficial use of the receiving water. U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 μg/*l* and 750 μg/*l*, respectively. Acid soluble aluminum analyses or total recoverable aluminum analyses may be used to assess compliance with these criteria. The acid soluble analyses more accurately measures bio-available aluminum versus particulate aluminum. U.S. EPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The receiving stream has been measured to have a low hardness and the effluent has been measured to have a pH above the maximum Basin Plan water quality objective of 8.5. These conditions are supportive of the applicability of the ambient water quality criteria for aluminum, according to U.S. EPA's development document. The maximum observed effluent total recoverable aluminum concentration was 20 μg/*l*. The projected maximum effluent concentration of 148 μg/l is based on a limited number of collected samples and U.S.EPA's default coefficient of variability (CV) for conventional POTWs of 0.6. Considering the long hydraulic residence time of Discharger's treatment pond and effluent storage reservoir, a CV less than 0.6 may be appropriate for this discharge though not documented at this time.

The maximum observed upstream receiving water total recoverable aluminum concentration was 130 µg/*l*. There may be no assimilative capacity for aluminum in Bloods Creek based on the laboratory analytical results and the chronic toxicity criterion depending on the results of acid soluble aluminum analyses to be done. Based on only two data points submitted by the Discharger (both are at much lower level than the water quality criterion), it is unknown whether the Discharger has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life. Because of insufficient information available to determine whether or not *aluminum* levels in the discharge would violate applicable water quality criteria, no limitations are established in this Order. Additional *aluminum* monitoring has been required by this Order. If the new monitoring results indicate that the discharger has the reasonable potential to cause an exceedance of water quality standards for *aluminum*, this Order will be reopened to establish a new effluent limitation.

16. ***Ammonia (as N)*** - Ammonia can be toxic to aquatic organisms in surface waters. Aquatic habitat is a beneficial use of the receiving stream. USEPA has developed Ambient Water Quality Criteria for ammonia. Applying 40 CFR section 122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms. The acute criterion for ammonia is dependent on pH and fish species present, and the chronic criterion is dependent on pH and temperature. In general, ammonia toxicity increases with increases in pH and temperature. At lower temperatures, the chronic criterion is also dependent on the presence or absence of early life stages of fish (ELS).

The beneficial uses of Bloods Creek include, cold freshwater aquatic habitat (COLD). The early life stages of fish are likely present during the permitted period of discharge.

Based on monitoring data provided by the Discharger, the highest pH value reported for the effluent as 10.1 pH units, and the corresponding highest temperature of the effluent was reported as 5.9°C. Using the maximum pH value allowed in the receiving water (8.5 pH Units) and the highest reported temperature of 5.9°C, the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, 30 day average chronic criteria, or criterion continuous concentration for ammonia is 1.09 mg/l as N (Nitrogen). Considering the maximum pH value of 8.5 pH Units and the presence of salmonids, the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, maximum 1-hour acute criteria, or criteria maximum concentration for ammonia is 2.14 mg/l as N.

Ammonia was detected in samples of the Discharger's effluent at concentrations as high as 2.0 mg/l. Using the reasonable potential analysis procedure, based on a CV of 0.6, the projected maximum effluent concentration of ammonia in the effluent is 15 mg/l. Because of insufficient information available, it is unknown whether or not *ammonia* levels in the discharge would violate applicable water quality criteria and hence, no

limitations are established in this Order. Additional *ammonia* monitoring has been required by this Order. If the new monitoring results indicate that the discharger has the reasonable potential to cause an exceedance of water quality standards for *ammonia*, this Order will be reopened to establish a new effluent limitation.

17**.** ***Chlorine***—The Discharger uses chlorine for disinfection of the effluent waste stream. Aquatic habitat is a beneficial use of Bloods Creek. The Basin Plan includes a narrative water quality objective that "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. U.S. EPA recommends, in its Ambient Water Quality Criteria for the protection of fresh water aquatic life, maximum 1-hour average and 4-day average chlorine concentrations of 0.019 mg/*l* and 0.011 mg/*l*, respectively. The use of chlorine as a disinfectant presents a reasonable potential that it could be discharged in toxic concentrations. Due to lack of dechlorination facilities at the wastewater treatment plant, the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard. USEPA guidelines and the Basin Plan allow for mixing zones where water quality objectives can be exceeded, but not lethality is allowed as a result of the using of mixing zones. Since chlorine can cause acute lethality, no dilution credit is granted and this Order includes water quality based effluent limitations for chlorine at the point of discharge (Outfall 01) to protect the receiving stream aquatic life beneficial uses. Effluent Limitations have been established based on the ambient water quality criteria for chlorine. However, due to the lethal nature of chlorine, this order includes a provision with a compliance schedule. **Provision D6** of this permit requires the Discharger to install de-chlorination facilities prior to surface water discharge. The new water quality based effluent limitations for chlorine residual will be effective immediately following the adoption of this Order and coincides with the next wintertime discharge.

18. ***Chloroform***—Municipal and domestic supply is a beneficial use of the receiving stream. The narrative toxicity objective and this beneficial use designation comprise a water quality standard applicable to pollutants in the receiving stream. The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and two liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 µg/*l* (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health Services (DHS) to set *de minimis*

risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S. EPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. The maximum observed effluent chloroform concentration was 0.60 µg/*l*. Because of insufficient information available, it is unknown whether or not *chloroform* levels in the discharge would violate applicable water quality criteria and hence, no limitations are established in this Order. Instead of limitations, additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of toxic water quality criteria. If the new data identify that the effluent limitation for *chloroform* may exceed, this Order will be reopened to established a new effluent limitation.

19. ***Copper***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Freshwater aquatic habitat is a beneficial use of the receiving water. The criteria for copper are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for copper in freshwater are 0.960 for both the acute and the chronic criteria. Using the worst-case (lowest of receiving water and effluent) measured hardness of 12 mg/*l*, the corresponding criteria are 1.9 µg/*l* and 0.95 µg/*l* for the acute and chronic criteria, respectively. The maximum observed effluent copper concentration was 2.2 µg/*l*. The maximum observed upstream receiving water copper concentration was less than 0.3 µg/*l*. The effluent concentration has exceeded both the acute and chronic criteria. The Effluent Limitations for copper included in this Order are presented in total concentrations, and are based on CTR criteria for the protection of freshwater aquatic life and are established as 0.95 µg/l as a monthly average and 1.9 µg/l as a daily maximum. Based on the data submitted, it appears the Discharger cannot consistently comply with these limitations. Therefore, according to the SIP Section 2.1, a compliance schedule is included in the permit. **Provision D5** of this permit requires the discharger to first submit justification for a time schedule and if approved then submit a corrective action plan and implementation schedule to assure compliance with final copper effluent limits. The new water quality based effluent limitations for copper become effective on **1 February 2006** if a compliance justification is not completed and submitted to the Regional Board by **1 January 2006**. Otherwise full compliance with these limitations is not required by this Order until **22 May 2010.** In the interim period, effluent limits based on treatment plant's past performance are established in this Order.

20. ***Electrical Conductivity***—The Basin Plan, Table II-1, designates Irrigated Agriculture as a beneficial use of the Stanislaus River. Water Rights have been issued by the State Water Resources Control Board to divert water from the Stanislaus River downstream of the Bloods Creek discharge for irrigation purposes. Water from the Stanislaus River is

used for crop irrigation. The District's Report of Waste Discharge states that for electrical conductivity (EC), the maximum concentration was 100 µmhos/cm and the average discharge concentration was 80 µmhos/cm. The projected maximum effluent concentration based on the limited number of collected samples and the default CV of 0.6, is 740 µmhos/cm.

The Basin Plan states, on Page III-3.00 Chemical Constituents, that "[w]*aters shall not contain constituents in concentrations that adversely affect beneficial uses*." The Basin Plan's "Policy for Application of Water Quality Objectives" provides that in implementing narrative water quality objectives, the Regional Board will consider numerical criteria and guidelines developed by other agencies and organizations. This application of the Basin Plan is consistent with Federal Regulations, 40 CFR 122.44(d).

For EC, *Ayers R.S. and D.W. Westcott, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985),* reports levels above 700 µmhos/cm will reduce crop yield for sensitive plants. The University of California, Davis Campus, Agricultural Extension Service, published a paper, dated 7 January 1974, stating that there will not be problems to crops associated with salt if the EC remains below 750 µmhos/cm.

Because of insufficient information available, it is unknown whether or not EC levels in the discharge would violate applicable water quality criteria and hence, no limitations are established in this Order. Additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of agricultural water quality criteria. If the new data identify that an effluent limitation for EC should be established, this Order will be reopened to consider a new effluent limitation.

21. ***Fluoride*** – The fluoride concentration in the effluent was detected at 300 µg/l from a sample collected on 11 June 2003. Fluoride was also detected in Bloods Creek at 300 µg/l from a sample taken on 11 June 2003. The State's Primary MCLs for fluoride is 2000 µg/l. The Agricultural Water Quality Goal for fluoride is 1000 µg/l. Based on a CV 0f 0.6, the projected maximum effluent fluoride concentration is 2220 µg/l. The discharge has a reasonable potential to cause or contribute to an in-stream excursion above the agricultural water quality goal of 1000 µg/l. But the maximum observed upstream receiving water fluoride concentration was only 300 µg/l, which is less than the applicable Basin Plan chemical constituents objective (agricultural water quality goal). Therefore, it appears that the Bloods Creek may have some assimilative capacity for discharge of fluoride. Dilution credits and mixing zones could be considered for compliance with human health and/or aquatic life chronic criteria or other long term impact objectives. Regardless, because of insufficient information available, it is unknown whether or not *fluoride* levels in the discharge would violate applicable water quality criteria and hence, no limitations are established in this Order. Instead of limitations, additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable

potential to cause an exceedance of agricultural water quality criteria. If the new data identify that the effluent limitation for *fluoride* may exceed, this Order will be reopened to established a new effluent limitation.

22. ***Iron***—The Basin Plan includes a water quality objective that states "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations…Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449*." Municipal and domestic supply is a beneficial use of the receiving stream. Based on information included in analytical laboratory reports submitted by the Discharger, iron in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 300 µg/*l*. The Basin Plan also includes a water quality objective that water "…*shall be free of discoloration that causes nuisance or adversely affects beneficial uses*." The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the water downstream of Bloods Creek. Iron concentrations in excess of the Secondary MCL-Consumer Acceptance Limit cause aesthetically undesirable discoloration. The maximum observed effluent *iron* concentration was 370 µg/*l*. Therefore, based on the data available, the discharge contains *iron* concentrations at higher levels than the secondary MCL. It appears the Discharger cannot consistently comply with the established limitation, and a compliance time schedule is needed. The maximum observed upstream receiving water *iron* concentration was 150 µg/*l*, which indicates that the Bloods Creek may have some assimilative capacity for discharge of *iron*. Dilution credits and mixing zones could be considered for compliance with human health and/or aquatic life chronic criteria. **Provision D4** allows the Discharger to complete an independent mixing zone study, and allow the Regional Board to reopen this Order and establish final effluent limitations for *iron*. Until dilution credits can be considered an effluent limitation of 300 µg/l as monthly average has been established at the point of discharge. Therefore, as the Basin Plan chemical constituent objective for *iron* is not a new objective, a schedule of compliance for Iron is not included in this Order but a separate Time Schedule Order shall be proposed for compliance with the iron effluent limitation.

23. ***Manganese***—The Basin Plan includes a water quality objective that "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations…Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449*." Municipal and domestic supply is a beneficial use of the water downstream of Bloods Creek. Based on information included in analytical laboratory reports submitted by the Discharger, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer

Acceptance Limit of 50 µg/*l* for manganese. The Basin Plan also includes water quality objectives that water be free of discoloration and taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the water downstream of Bloods Creek. Manganese concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable discoloration and taste. An effluent limitation for manganese is included in this Order based on the Basin Plan water quality objectives and is established as 50 µg/L as a monthly average. Based on the data available, the discharge contains *manganese* at a higher level than Secondary MCL. Therefore, it appears the Discharger cannot consistently comply with the established limitation, and a compliance time schedule is needed. As the Basin Plan chemical constituent objective for *manganese* is not a new objective, a schedule of compliance for *manganese* is not included in this Order but a separate Time Schedule Order shall be proposed for compliance with the *manganese* effluent limitation.

24. ***Pathogens***—Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of Bloods Creek. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Regional Board dated 8 April 1999, the California Department of Health Services indicated that DHS would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 m*l* as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 m*l* more than once in any 30 day period. Therefore, the coliform effluent limitation are appropriate based on this Order requiring a 30 day average effluent dilution ratio of at least 20:1

The California Department of Health Services (DHS) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 m*l* as a 7-day median. Title 22 also requires that recycled water used as a source of water supply for nonrestricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A nonrestricted recreational impoundment is defined as "…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities." Title 22 is not directly applicable to surface waters; however, the Regional Board finds that it is appropriate to apply an equivalent level of treatment to that required by DHS's reclamation criteria because Receiving Water is used for irrigation of agricultural land and for contact recreation purposes. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS.

The DHS has recommended that secondary treatment with a minimum dilution of 20:1 provides an equivalent protection of human health as does tertiary treatment. Therefore, the Discharger is required to establish an in-stream flow measuring system so that the effluent discharge rate can be controlled to comply with a 30-day average effluent dilution ratio of at least 20:1. The BOD and TSS effluent limitations for secondary treatment with a 20:1 dilution are set at 30 mg/l as a monthly average and the total coliform organisms limitation is 23 MPN/100 ml as a 7-day median.

25. ***pH—*** The Basin Plan includes numeric water quality objectives that the pH "…*not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses*." The Receiving Water is designated as having both COLD and WARM beneficial uses. Effluent Limitations for pH are included in this Order and are based on the Basin Plan objectives for pH.

26. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for an increase in the volume and mass of pollutants discharged. The increase will not have significant impacts on aquatic life, which is the beneficial use most likely affected by the pollutants discharged (BOD, suspended solids, chlorine residual, temperature, ammonia, and metals). The increase will not cause a violation of water quality objectives. The increase in the discharge allows wastewater utility service necessary to accommodate housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge..

27. As stated in *Standard Provisions and Reporting Requirements, For Waste Discharge Requirements, February 2004, General Provisions, No. 13*, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Board's prohibition of bypasses, the State Water Resources Control Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation. In the case of United States v. City of Toledo, Ohio (63 F. Supp 2d 834, N.D. Ohio 1999) the Federal Court ruled that "*any bypass which occurs because of inadequate plant capacity is unauthorized…to the extent that there are 'feasible alternatives', including the construction or installation of additional treatment capacity*".

The Federal Clean Water Act, Section 301, requires that not later than 1 July 1977, publicly owned wastewater treatment works meet effluent limitations based on secondary or equivalent secondary treatment or any more stringent limitation necessary to meet

water quality standards. Federal Regulations, 40 CFR, Part 133, establish the minimum level of effluent quality attainable by secondary treatment for BOD, TSS, and pH. Biochemical oxygen demand (BOD) is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The solids content—suspended (TSS) and settleable (SS)—is also an important characteristic of wastewater. The secondary treatment standards for BOD and TSS are indicators of the effectiveness of the treatment processes.

The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Secondary treatment has been shown to be effective for pathogen removal. For additional pathogen reduction, tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream.

A wet weather influent wastestream may contain significantly diluted levels of BOD and TSS. A bypassed diluted wastestream may have BOD and TSS levels that meet the secondary objectives, either alone or when blended with treated wastewater. However, the bypassed wastestream would not have been treated to reduce pathogens or other individual pollutants. The indicator parameters of BOD and TSS cannot be diluted to a level that may indicate the adequate treatment has occurred as an alternative to providing appropriate treatment. As a facility that provides equivalent secondary treatment, utilizing pond treatment, this Order requires the reduced secondary treatment requirement of 65% removal of BOD and TSS. The BOD and TSS concentration limitations in this Order are required at secondary standards due to limited data supporting their ability to meet the limitations and for a higher degree of water quality protection of the pristine Bloods Creek. However, a provision in this Order allows the Discharger to provide studies and new data which may indicate difficulty in consistently meeting the BOD, TSS and pH limitations. This permit may be reopened, based on new information, to consider new and additional data.

28. The Clean Water Act, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; "The numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses." This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Pesticides, Radioactivity, Salinity, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity and Turbidity.

29. This Order contains restrictions on individual pollutants that are no more stringent than required by the federal CWA. Individual pollutant restrictions consist of technology-based restrictions and water quality-based effluent limitations. The technology-based effluent limitations consist of restrictions on BOD_5 and TSS. Restrictions on BOD_5 and TSS are specified in federal regulations as discussed in the attached fact sheet and the permit's technology-based pollutant restrictions are no more stringent than required by the CWA. Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

30. It is the Regional Board's policy, (Basin Plan, page IV-15.00, Policy 2) to encourage the reuse of wastewater. The Regional Board requires Dischargers to evaluate how reuse or land disposal of wastewater can be optimized. This Order requires the Discharger to continue to dispose of effluent on land under separate Order No. 5-01-208.

GROUNDWATER AND COLLECTION SYSTEM

31. Groundwater and the wastewater collection system are described and/or regulated in Order No. 5-01-208, adopted by the Central Valley Regional Water Control Board on 27 July 2001.

STORM WATER

32. U.S. EPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from *municipal sanitary sewer systems*. Wastewater Treatment Plants are applicable industries under the storm water program and are obligated to comply with the Federal Regulations.

GENERAL

33. Monitoring is required by this Order for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional and/or revised limitations.

34. The SIP, Section 2.1, provides that: "Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit." Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted:…*"(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control and/or pollution minimization efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable."* This Order requires the Discharger to provide this information. The SIP further states that in no case shall a compliance schedule for dischargers not in compliance with a CTR criterion-based effluent limitation exceed 10 years from the effective date of the SIP (22 May 2000). Therefore, the new water quality-based effluent limitations for copper become effective on **1 February 2006** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality-based effluent limitations for copper become effective **22 May 2010.**

35. The Regional Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The Fact Sheet, Monitoring and Reporting Program No. R5-2005-0139, and Attachments A through B are a part of this Order.

36. The discharge to land is presently governed by Waste Discharge Requirements Order No. 5-01-208, adopted by the Regional Board on 27 July 2001.

37. The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Board have classified this discharge as a minor discharge.

38. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, *et seq*.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.

39. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

40. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

41. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 50 days following permit adoption, provided U.S. EPA has no objections.

IT IS HEREBY ORDERED that Bear Valley Water District, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)"].

3. Surface water discharge prior to maximizing land application of the effluent (see Finding 2) is prohibited. Maximizing land is defined as (i) utilizing a minimum of 80 acres of the total 160 acres suitable for irrigation disposal must receive irrigation water during the summer months; (ii) utilization of previously permitted a portion of 10 acres of Orvis Meadow land, if it is still available; (iii) continued implementation of water conservation measures and I/I reduction program; (iv) placement of controls and pumps; and (v) official request of USFS for continuation of leased land beyond 2011 and 2015.

4. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

5. Discharge to Bloods Creek between July 1 and December 31 is prohibited.

B. Effluent Limitations—Discharge to Bloods Creek by Outfall 01:

1. Effluent discharged to Bloods Creek shall occur only when necessary, during snow melt events (January 01 to June 30) and in controlled quantities such that the effluent can receive a minimum of 20:1 dilution from Bloods Creek anytime. Effluent discharged shall not exceed the following limits unless otherwise specified per footnote 6:

Constituents	Units	Monthly Average	Weekly Average	7-day Median	Daily Average	Daily Maximum
Flow	mgd	1.0				2.5
BOD [1]	mg/*l*	30	40	---	---	60
	lb/day[2]	250	330	---	---	1250
Total Susp. Solids	mg/*l*	30	40	---	---	60
	lb/day[2]	250	330			1250
Total Coliform[7]	MPN/100m*l*	---	---	23	---	240
Settleable Solids	ml/l	0.1			0.2	
Chlorine Residual[5]	mg/*l*	0.01[3]			0.02[4]	
	lb/day[2]	0.084			0.42	
Copper[6]	µg/*l*	0.95				1.9
	lb/day[2]	0.008				0.04
Iron	µg/*l*	300				---
	lb/day[2]	2.5				---
Manganese	µg/*l*	50				---
	lb/day[2]	0.42				---

[1] 5-day, 20° C biochemical oxygen demand (BOD)
[2] The mass limits (lbs/day) under the Monthly Average column and the Daily Maximum column are based on the concentration limits multiplied by their corresponding flows (monthly average 1.0 mgd and daily maximum 2.5 mgd) and the unit conversion factor of 8.34.
[3] Chlorine residual is expressed as 4-day average
[4] Chlorine residual expressed as 1-hour average
[5] See Provision D6 for compliance requirements.
[6] Full Compliance with this limitation is required by **22 May 2010** only upon approval of a compliance justification in accordance with Provision D5, otherwise full compliance is required by **1 February 2006**.
[7] Effective until **1October 2008**

2. **Interim Limitations**: Until 21 May 2010 and upon submittal and approval of a compliance justification in accordance with Provision D5, the effluent shall not exceed the following interim priority pollutant limits:

Constituents	Units	Monthly Average
Copper	µg/*l*	16.3

3. The arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a 30-day period shall not exceed 35 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (65 percent removal).

4. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   Minimum for any one bioassay - - - - - - - - - 70%
   Median for any three or more consecutive bioassays - - - - 90%

B1. Effluent Limitations - Discharge to Bear Valley Wastewater Storage Reservoir:

Any wastewater discharged to the Bear Valley Wastewater Storage Reservoir after **1 October 2008** must receive tertiary treatment, shall be oxidized, coagulated, filtered, and disinfected, or equivalent treatment provided, and shall not exceed the following limits:

Constituents	Units	Monthly Average	Weekly Average	7-Day Median	Daily Maximum	Daily Average
BOD[1]	mg/L (ppm)	10	15	---	20	---
Total Suspended Solids	mg/L (ppm)	10	15	---	20	---
Settleable Solids	ml/l	0.1	---	---	0.2	---
Total Coliform	MPN/100ml	---	---	2.2	23	---
Turbidity	NTU's	---	---	---	5	2

C. Receiving Water (Bloods Creek) Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/*l*. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Esthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average pH to change by more than 0.5 units.

7. The ambient temperature to increase more than 5°F.

8. Deposition of material that causes nuisance or adversely affects beneficial uses.

9. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

10. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

11. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

12. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

13. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

14. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 m*l* or cause more than 10 percent of total samples to exceed 400 MPN/100 m*l*.

15. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

16. Upon adoption of any applicable water quality standard for receiving waters by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder, this permit may be reopened and receiving water limitations added.

D. Provisions:

1. The treatment and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

3. Initiation of discharge to surface water is prohibited until the available maximization of land disposal has been demonstrated in accordance with the following conditions:

    a. By **15 June** of the year prior to the expected discharge year, the Discharger will submit a Notice of Intent (NOI) to discharge to surface water. The NOI must estimate (i) the amount of carryover of wastewater beyond 1 October (an estimate of wastewater volume utilizing pond storage capacity); (ii) the number of acres proposed for wastewater irrigation during the current summer irrigation period; (iii) the amount of wastewater disposal utilizing controls and pumps; (iv) a detailed description of the efforts taken in the past year to implement new water conservation measures and I/I corrective action measures; and (v) a copy of letter to USFS requesting continued use of leased land beyond existing leased periods.

    b. By **1 November** of the year prior to the expected discharge year, the Discharger shall submit a revised water balance demonstrating the need to discharge after implementing the land disposal maximization measures listed in ‘a’ above. Based on Discharger’s efforts taken in implementing the above plan and the revised water balance, the Regional Board staff will provide written concurrence that the Discharger has maximized land application of the effluent.

4. There is a potential that the Bloods Creek provides assimilative capacity for most of the effluent constituents mentioned in this Order. As a result, dilution credits and mixing zones could be considered for compliance with human health and/or aquatic life chronic criteria or with Basin Plan water quality objectives. However, dilution credits and mixing zones shall only be considered by the Regional Board only after the Discharger has completed an independent comprehensive **assimilative capacity**

analyses of Bloods Creek to the satisfaction of Regional Board that a dilution credit is appropriate. The study shall also address mixing zone conditions including, but not limited to, whether the discharge is completely or incompletely mixed. The study may also address dilution and mixing zone issues as they pertain to final effluent limitations for copper, iron and manganese, and other priority and non-pollutants which may be present in concentrations exceeding water quality criteria or CTR criteria. If the Discharger chooses to conduct a mixing zone study, it shall be conducted in accordance with the procedures outlined in Appendix 5 of the SIP. If after completion of the mixing zone study, it is determined that dilution credits are appropriate, then this Order may be reopened if necessary to modify effluent limitations for the subject constituents.

5. **Copper Compliance Schedule**: This Order contains Effluent Limitations based on water quality criteria contained in the CTR for copper. By **1 January 2006**, the Discharger shall complete and submit a compliance schedule justification for copper. The compliance schedule justification for copper shall include all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. The new water quality based effluent limitation for copper becomes effective on **1 February 2006** if a compliance schedule justification meeting the requirements of Section 2.1 of the SIP is not completed and submitted by the Discharger. Upon approval of the compliance schedule justification, the Discharger shall follow the following time schedule and develop a corrective action, which evaluates reasonable measures to achieve full compliance with the new final water quality based effluent limitations for copper by **22 May 2010**.

Task	Date Due
Submit Compliance Schedule justification	1 January 2006
Submit Corrective Action Plan and implementation schedule	1 March 2006
Progress Report[1]	1 July, annually
Full compliance	22 May 2010

[1] The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, evaluate effectiveness of the implemented measures and assess whether additional measures are necessary to meet the time schedule.

6. **Chlorine Residual Compliance Schedule:** This Order contains Effluent Limitations based on EPA's Ambient Water Quality Criteria for Chlorine. By **1 November 2005**, the Discharger shall complete and submit a compliance schedule for chlorine residual. The compliance schedule shall include installation of de-chlorination facilities. The effluent limitation for chlorine becomes effective on **1 January 2006,** which coincides with the next wintertime discharge. The Discharger shall achieve full compliance with effluent limits by **1 January 2006** or prior to initiation of discharge.

7. This permit, and the Monitoring and Reporting Program which is a part of this permit, requires that certain parameters be monitored on a continuous basis. The

wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger is required to establish an electronic system for operator notification for continuous recording device alarms. For existing continuous monitoring systems, the electronic notification system shall be installed by 1 October 2006. For systems installed following permit adoption, the notification system shall be installed simultaneously.

If after review of effluent monitoring results for the first year or the study results, it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order will be reopened and effluent limitations added for the subject constituents.

8. The Discharger shall conduct the **chronic toxicity testing** specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

9. **Outfall and the Diffuser to Bloods Creek**: The Discharger shall design, acquire necessary permits by appropriate agencies, and construct an outfall and diffuser to Bloods Creek at Discharge Point 01. By **1 March 2006**, an implementation time schedule describing the submittal of plans and specifications, CEQA compliance, permit acquisition, start of construction and completion of construction shall be submitted to the Board. Discharge to Bloods Creek is not allowed by this Order prior to completion of Outfall 01.

10. The Discharger shall use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment.

11. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

12. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

13. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0139, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

    When requested by U.S. EPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

14. This Order expires on **1 October 2010** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

15. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

    a. Wastes which create a fire or explosion hazard in the treatment works;

    b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

    c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

    d. Any waste, including oxygen demanding pollutants (BOD, *etc*.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

    e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;

    f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

    g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and

h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.

16. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

    a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

    b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

17. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).

18. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.
    To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 20 October 2005.

THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0139

NPDES NO. CA00 0085146

FOR

BEAR VALLEY WATER DISTRICT
BEAR VALLEY WASTEWATER TREATMENT FACILITY
ALPINE COUNTY

This Monitoring and Reporting Program is issued pursuant to California Water Code Section 13383. The Discharger shall not implement any changes to this Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program. Specific sample station locations shall be established under direction of the Regional Board's staff, and a description of the stations shall be attached to this Order.

By 1 January 2006, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

INFLUENT MONITORING

Samples shall be collected upstream from the last connection through which waste can be admitted into the treatment pond and at approximately the same time as effluent samples are collected when discharging to Bloods Creek, and should be representative of the influent for the period sampled. Influent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	MGD	Meter	Continuous[1]
pH	Number	Meter	Continuous[1]
20°C BOD_5	mg/*l*, lbs/day	24-hr. Composite [2]	Weekly
Total Susp. Solids	mg/*l*, lbs/day	24-hr. Composite [2]	Weekly
Electrical Cond.	µmhos/cm	Grab	Monthly
Aluminum	µg/*l*	Grab	Quarterly
Copper	µg/*l*	Grab	Quarterly
Fluoride	µg/*l*	Grab	Quarterly
Iron	µg/*l*	Grab	Quarterly
Manganese	µg/*l*	Grab	Quarterly

[1] The continuous monitoring system, or functional equivalent, shall be operational no later than 1 January 2006. Until that time, grab samples shall be collected and analyzed daily

[2] The BOD and TSS samples shall be flow-proportional composite samples collected on the same day as the effluent samples.

EFFLUENT MONITORING OF DISCHARGE TO BLOODS CREEK

When discharging to Bloods Creek, effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall, following the last unit process. Effluent samples should be representative of the volume and quality of the discharge. Date and time of collection of samples shall be recorded.

Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous[1]
Total Residual Chlorine	mg/*l*, lbs/day	Meter	Continuous[1]
pH	Number	Meter	Continuous[1]
Temperature	°F	Grab	2 Times Weekly
Electrical Conductivity @ 25°C	µmhos/cm	Grab	2 Times Weekly
Settleable Solids	m*l*/*l*	24-hr Composite[2]	2 Times Weekly
Total Coliform Organisms[3]	MPN/l00 m*l*	Grab	2 Times Weekly
20°C BOD_5	mg/*l*, lbs/day	24-hr Composite[2]	2 Times Weekly
Total Suspended Solids	mg/*l*, lbs/day	24-hr Composite[2]	2 Times Weekly
Ammonia, Total (as N)[4, 5, 6, 7]	mg/*l*, lbs/day	Grab	2 Times Weekly
Hardness (as $CaCO_3$)	mg/*l*	24-hr Composite[2]	Monthly
Aluminum [6,9]	µg/l, lbs/day	24-hr Composite[2]	Monthly
Copper (total)[6]	µg/l, lbs/day	24-hr Composite[2]	Monthly

1 The continuous monitoring system, or functional equivalent, shall be operational no later than **1 January 2006 or prior to initiation of discharge**. Until that time, grab samples shall be collected and analyzed daily.
2 These samples shall be flow-proportional composite samples.
3 Total coliform organisms samples may be collected at any point following disinfection, provided that samples are dechlorinated at the time of collection. The Discharger shall report the sampling location(s) in the monthly self-monitoring reports.
4 Report as total ammonia.
5 Concurrent with biotoxicity monitoring.
6 In reporting lbs/day, the Discharger shall report both the lbs/day discharged and the calculated lbs/day limitation.
7 Temperature and pH shall be recorded at the time of ammonia sample collection.

Constituents	Units	Type of Sample	Sampling Frequency
Fluoride	µg/l, lbs/day	24-hr Composite[2]	Monthly
Iron (total)[6]	µg/l, lbs/day	24-hr Composite[2]	Monthly
Manganese[6]	µg/l, lbs/day	24-hr Composite[2]	Monthly
Acute Toxicity[8,9]	% Survival	Grab	Quarterly
Standard Minerals[10,11]	mg/l	Grab	Annually
Priority Pollutants[10]	mg/l	Grab	Once during life of the permit

[8] The acute bioassay samples shall be analyzed using EPA/821-R-02-012, Fifth Edition, or later amendment with Regional Board staff approval. Temperature and pH shall be recorded at the time of bioassay sample collection. Test species shall be fathead minnows (*Pimephales promelas*), with no pH adjustment unless approved by the Executive Officer following adoption of this Order.

[9] Concurrent with ammonia monitoring.

[10] To be collected concurrently with upstream of Bloods Creek water monitoring for these constituents. Priority pollutants to be collected once during the life of the permit, during the 2009 discharge season, whether discharge to surface waters actually occurs or not.

[11] Standard minerals shall include calcium, magnesium, hardness, sodium, potassium, alkalinity, sulfate, chloride, boron, and nitrate and include verification that the analysis is complete (i.e., cation/anion balance).

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, except for standard minerals and priority pollutants, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

EFFLUENT MONITORING OF DISCHARGE TO BEAR VALLEY WASTEWATER STORAGE RESERVOIR

Effective 1 October 2008, Effluent monitoring for the Tertiary effluent discharged to the Wastewater Storage Reservoir shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous[1]
Total Residual Chlorine	mg/*l*, lbs/day	Meter	Continuous[2]
Settleable Solids	m*l*/*l*	Grab	2 Times Weekly
Total Coliform Organisms[3]	MPN/l00 m*l*	Grab	2 Times Weekly
20°C BOD_5	mg/*l*, lbs/day	24-hr Composite	2 Times Weekly
Total Suspended Solids	mg/*l*, lbs/day	24-hr Composite	2 Times Weekly

[1] The continuous monitoring system, or functional equivalent, shall be operational no later than **1 October 2008 or prior to initiation of tertiary discharge**.

[2] The continuous monitoring system, or functional equivalent, shall be operational no later than **1 October 2008 or prior to initiation of tertiary discharge**.

[3] Total coliform organisms samples may be collected at any point following disinfection, provided that samples are dechlorinated at the time of collection. The Discharger shall report the sampling location(s) in the monthly self-monitoring reports.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall be conducted when discharging to Bloods Creek and shall include at least the following:

Station	Description
R-1	Bloods Creek, as far as possible upstream[1] from the point of discharge but no more than 50 feet upstream
R-2	Bloods Creek, as far as possible downstream from the point of discharge but no more than 200 feet downstream

Constituents	Units	Station	Sampling Frequency
Flow	mgd	R-1	Continuous
Disssolved Oxygen[2]	mg/l	R-1, R-2	Weekly
PH[2]	number	R-1, R-2	Weekly
Temperature[3]	^{o}F (^{o}C)	R-1, R-2	Weekly
Electrical Conductivity @ 25 ^{o}C[2]	µmhos/cm	R-1, R-2	Weekly
Turbidity	NTU	R-1, R-2	Weekly
Diastance from Discharge point	feet	R-1, R-2	Weekly
Hardness (as Ca CO3)	mg/l	R-1, R-2	Monthly[4]
Fecal Coliform Organisms	MPN/100ml	R-1, R-2	Quarterly
Standard Minerals	mg/l	R-1, R-2	Annually

1 Upstream is the direction from the outfall that is upstream when flow direction is unaffected by pumping

2. A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the District Office.

3 Temperature shall be measured at the time of sample collection.

4. Samples shall be collected on the same date as the effluent metals and priority pollutant samples.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-l and R-2. Attention shall be given to the flow ratio of 20:1 minimum and the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens, or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA/821-R-02-013. Chronic toxicity samples shall be collected from the effluent of the wastewater treatment facility when discharging to Bloods Creek, after the last unit process, prior to its entering the receiving stream. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Control waters shall be obtained immediately upstream of the discharge from an area unaffected by the discharge in the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Monthly laboratory reference toxicant tests may be substituted. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas* (larval stage), *Ceriodaphnia dubia,* and *Selenastrum capricornutum*

Frequency: Monitoring shall be conducted twice, once in 2007 and in 2009, whether discharge to surface waters actually occurs or not.

Dilution Series:

	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Lab Water
% WWTP Effluent	100	75	50	25	12.5	0	0
% Dilution Water*	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

* Dilution water shall be receiving water from Bloods Creek taken upstream from the discharge point. The dilution series may be altered upon approval of Regional Board staff.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

Constituents[1]	Units	Sampling Frequency
Standard Minerals	mg/l	Annually
Electrical Conductivity @ 25°C	µmhos/cm	Annually
Aluminum	mg/l	Annually

[1] If the water supply is from more than one source, the monitoring report shall report the standard minerals, and electrical conductivity results as a weighted average and include copies of supporting calculations.

REPORTING

Discharger self-monitoring results shall be submitted to the Regional Board monthly. Monitoring results shall be submitted by the **first day of the second month** following sample collection. Quarterly, semi-annual, and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter**.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the reported analytical result are readily discernible. The data shall be summarized in such a manner to clearly illustrate whether the discharge occurred, and whether discharge complies with waste discharge requirements. Monthly maximums, minimums, and averages shall be reported for each monitored constituent and parameter. Removal efficiencies (%) for biochemical oxygen demand and total

suspended solids and all periodic averages and medians for which there are limitations shall also be calculated and reported.

The Discharger shall report minimum levels and method detection limits as defined in and required by the SIP.

With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the WWTP (Standard Provision A.5).

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the

previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by:_____
Thomas R. Pinkos, Executive Officer

20 October 2005

FACT SHEET

ORDER NO. R5-2005-0139
BEAR VALLEY WATER DISTRICT
BEAR VALLEY WASTEWATER TREATMENT FACILITY
ALPINE COUNTY, NPDES NO. CA 0085146

SCOPE OF PERMIT

This new Order regulates the discharge of up to 0.5 million gallons per day (mgd) design average dry weather flow (ADWF), of effluent from the Bear Valley Wastewater Treatment Facility. This Order includes effluent, and surface water limitations, and monitoring and reporting requirements, additional study requirements, and re-opener provisions for effluent constituents.

BACKGROUND INFORMATION

The Bear Valley Water District (Discharger) provides sewerage service for the community of Bear Valley, Bear Valley Ski resort, and the Lake Alpine Basin and serves a permanent resident population of approximately 175. The wastewater treatment plant design average dry weather flow capacity is 0.5 mgd. The treatment system at this facility consists of comminutor; biological treatment by aerated ponds, disinfection through chlorination, effluent storage reservoir, and the final effluent disposal is currently achieved by spray irrigation.

Currently, the effluent disposal potential of the District's wastewater treatment facility is less than the amount of total water (i.e., wastewater, precipitation, and groundwater) entering the system. No additional land is available for expansion of existing land disposal or reclamation facilities. During recent wet years, the District has entered the winter season with a substantial amount of water still in its storage reservoir from the previous winter. Consequently, emergency (unauthorized) discharges of effluent from the storage reservoir to a tributary to Bloods Creek have been necessary at the end of some recent snow melt seasons. The District has attributed the unauthorized discharges due to lack of adequate storage capacity, excessive I/I, back-to-back wet years, and heavy snowmelt. As a result, the District has proposed seasonal discharge of treated effluent to Bloods Creek in order to avoid future unauthorized discharges to surface waters. The proposed effluent discharge will occur only when necessary, during in extremely wet winter periods, during snow melting season, and only when the effluent can receive at least 20:1 dilution from the receiving water. The new outfall to Bloods Creek would be equipped with a diffuser to facilitate rapid mixing of the effluent into the receiving waters.

RECEIVING WATER BENEFICIAL USES AND ASSIMILATIVE CAPACITY

The receiving stream is Bloods Creek, which is tributary to the North Fork of Stanislaus River. The Discharger requested that dilution and assimilative capacity be considered when determining constituent limitations for the effluent. The Discharger has submitted the results of a study of the proposed receiving stream (Bloods Creek) for the period beginning March 2003 and ending June 2003 (a total of 2 data points). Based on very limited water quality data, the flows in Bloods Creek varied considerably, and peaked during the snow melt season. Consequently, the discharge rate needs to be controlled to achieve at least 20:1 dilution to protect the beneficial uses of the receiving water. The Discharger has submitted very limited assimilative capacity analyses for Bloods Creek demonstrating that effluent constituents in the discharge would not cause or contribute to an instream

excursion above the water quality standards. Therefore, with only two data points currently available of the water downstream of Bloods Creek, it is not clear whether compliance with the water quality objectives can be achieved through receiving water dilution alone. Even though for some constituents for which assimilative capacity may appear to exist, this Order does not consider any allowance for dilution for effluent limits based on water quality standards, objectives, and criteria until a mixing zone study is completed and therefore, includes Effluent Limitations that reflect the compliance at the end-of-pipe, as well as the facility's current level of treatment. Consequently, this Order provides the discharger an opportunity to conduct a dilution mixing zone study to address mixing zone conditions including, but not limited to, whether the discharge is completely or incompletely mixed. If the dilution mixing zone study determines that an effluent dilution credit is appropriate for this discharge, this Order will be reopened to modify effluent limitations to reflect the dilution credit as appropriate per the guidelines in State Implementation Plan (SIP). In the interim period, this Order contains a Provision with time schedule that requires the Discharger to assess the assimilative capacity an/or mixing zone conditions in receiving water, for effluent quality compliance with CTR and non CTR constituents.

The Basin Plan states, on page II-1.00, "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…*" and "*disposal of wastewaters is* [not] *a prohibited use of waters of the state; it is merely a use which cannot be satisfied to the detriment of beneficial uses*." The existing and beneficial uses that currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1 of the Basin Plan. The beneficial uses of Bloods Creek, a tributary to the North Fork of Stanislaus River, as identified in Table II-1 of the Basin Plan, are municipal and domestic supply, agricultural irrigation, water contact recreation, non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, and wildlife habitat. Other beneficial uses identified in the Basin Plan apply to Bloods Creek through the 'Tributary Rule', including groundwater recharge and freshwater replenishment.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

The Discharger conducted monitoring for priority and non-priority pollutants. The analytical results of both effluent and the Bloods Creek sampling events (2 data points) were submitted to the Regional Board. The results of these sampling events were used in developing Order No.R5-2005-0139. All detectable results from these analyses are summarized in Table 1. Effluent limitations are included in the Order to protect the beneficial uses of the receiving stream and to ensure that the discharge complies with the Basin Plan objective that toxic substances not be discharged in toxic amounts. Unless otherwise noted, all mass limitations in Order No. R5-2005-0139 were calculated by multiplying the concentration limitation by the appropriate discharge flow and the appropriate unit conversion factors.

Reasonable potential (RP) was determined by calculating the projected MEC (maximum effluent concentration) for each constituent and comparing it to applicable water quality criteria; if a criterion was exceeded, the discharge was determined to have reasonable potential to exceed a water quality objective for that constituent. The projected MEC (maximum effluent concentration) is determined by multiplying the observed MEC (the maximum detected concentration) by a factor that accounts for statistical variation. The multiplying factor is determined (for 99% confidence level and 99% probability basis) using the number of results available and the coefficient of variation (standard

deviation divided by the mean) of the sample results. In accordance with the SIP, non-detect results were counted as one-half the detection level when calculating the mean. For all constituents for which the source of the applicable water quality standard is the CTR or NTR, the multiplying factor is 1. Reasonable potential evaluation was based on the methods used in the SIP and the U.S. EPA's Technical Support Document (TSD) for Water Quality-Based Toxics Control [EPA/505/2-90-001]. Effluent Limitations for water quality-based limitations were calculated in accordance with Section 1.4 of the SIP and the TSD. The following paragraphs describe the general methodology used for calculating Effluent Limitations.

Calculations for Effluent Limitations

In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

$$ECA_{HH} = HH$$

where: ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion
$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion
ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective
CMC = criteria maximum concentration (one-hour average)
CCC = criteria continuous concentration (four-day average, unless otherwise noted)
HH = human health, agriculture, or other long-term criterion/objective

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL). The statistical multipliers were calculated using data shown in Table 1.

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\overbrace{M_A ECA_{acute}}^{LTA_{acut}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

Table 1 – DETECTED CONSTITUENTS IN THE BEAR VALLEY WWTP EFFLUENT

CTR #	Constituent	Units	*Criterion Basis*	Criterion Concentration	Effluent Reservoir Results 5/28/03	6/11/03
VOLATILE ORGANICS						
26	Chloroform	µg/L	OEHHA Cancer Risk	1.1	DNQ **0.4**	**0.60**
SEMI-VOLATILE ORGANICS						
85	1,2-Diphenylhydrazine	µg/L	National Toxics Rule	0.04	DNQ **0.047**	--- ---
52	4-Chloro-3-methylphenol	µg/L	Aquatic Toxicity	30	DNQ **0.042**	--- ---
70	Butyl benzyl phthalate	µg/L	Aquatic Toxicity	3 (7)	DNQ **0.055**	--- ---
95	Nitrobenzene	µg/L	National Toxics Rule	17	DNQ **0.098**	--- ---
INORGANICS						
	Aluminum	µg/L	Ambient Water Quality	87	**20**	**20**
2	Arsenic	µg/L	Basin Plan	0.018	< 0.2	DNQ **0.3**
	Barium	µg/L	Basin Plan	100	**6.4**	**4.8**
5a	Chromium (total)	µg/L	Primary MCL	50	DNQ **0.3**	**0.6**
	Cobalt	µg/L	Regional Board Recommended Limits		DNQ **0.4**	< 0.2
6	Copper	µg/L	CTR	1.5 (4)	**0.8**	**2.2**
14	Cyanide	µg/L	National Toxics Rule	5.2	< 0.9	**5**
	Fluoride	µg/L	Public Health Goal	1000	**200**	**300**
	Iron	µg/L	Secondary MCL	300	**270**	**370**
7	Lead	µg/L	California Toxics Rule	0.2 (4)	DNQ **0.048**	< 0.04
8	Mercury	µg/L	California Toxics Rule		**0.0018**	**0.0011**
	Manganese	µg/L	Secondary MCL/ Basin Plan	50	**87**	**35**
	Molybdenum	µg/L	Regional Board Recommended Limits		DNQ **0.23**	**0.44**
9	Nickel	µg/L	California Toxics Rule	8.68 (2)	DNQ **0.2**	**0.5**
11	Silver	µg/L	California Toxics Rule	0.1 (4)	DNQ **0.03**	DNQ **0.03**
12	Thallium	µg/L	National Toxics Rule	1.7	**0.2**	**0.1**
13	Zinc	µg/L	CTR/ Basin Plan	20 (4)	**4**	**3**
PESTICIDES						
	Picloram	µg/L	Primary MCL	500	< 0.27	DNQ **0.59**
OTHER CONSTITUENTS						
	Alkalinity, Total (as $CaCO_3$)	mg/L	EPA Gold Book	20 (minimum)	**20**	**30**
	Ammonia (as N)	mg/L	Ambient Water Quality	5.4 (e)	**2.0**	**2.0**
	Boron	µg/L	Regional Board Recommended Limits	700	**10**	< 0.011
	Calcium	mg/L	None Established	----	**2.4**	**4.7**
	Chloride	mg/L	Agricultural Use	106	**6**	---
	Hardness (as $CaCO_3$)	mg/L	EPA Gold Book	5000	**8.0**	**40**
	Foaming Agents (MBAS)	mg/L	Secondary MCL	0.5	< 0.02	DNQ **0.036**
	Magnesium	mg/L	None Established	----	DNQ **0.47**	**1**
	Nitrate (as N) (26)	mg/L	Primary MCL	10	**0.5**	**0.6**
	Nitrite (as N)	mg/L	Primary MCL	1	< 0.002	**0.05**
	pH	Units	Basin Plan Objective	6.5-8.5	**6.8**	**10.1**
	Phosphorus, Total (as P)	mg/L	USEPA IRIS	0.00014	**0.3**	**0.6**
	Potassium	mg/L	None Established	----	**1**	**3**
	Sodium	mg/L	Regional Board Recommended Limits	20	**4**	**9**
	Specific Conductance aka, (EC)	µmhos/cm	Agricultural Use	700	**60**	**100**
	Sulfate (as SO4)	mg/L	Secondary MCL	250	**3.3**	**5.5**
	Sulfide (as S) (16)	mg/L	Taste and Odor	0.000029	DNQ **0.03**	DNQ **0.05**
	Total Dissolved Solids (TDS)	mg/L	Agricultural Use	450	**31**	**80**

Table 2—MAXIMUM DETECTED CONCENTRATION IN EFFLUENT

Constituent	Max.	Mean	σ	CV1	# Results
Chloroform (µg/L)	0.60	0.5	99%	0.6	2
1,2-Dephenylhydrazine (µg/L)	DNQ 0.047	0.047	99%	0.6	1
4-Chloro-3-methylphenol (µg/L)	DNQ 0.042	0.042	99%	0.6	1
Butyl benzyl phthalate (µg/L)	DNQ 0.055	0.055	99%	0.6	1
Nitrobenzene (µg/L)	DNQ 0.098	0.098	99%	0.6	1
Aluminum (µg/L)	20	20	99%	0.6	2
Arsenic (µg/L)	DNQ 0.3	0.25	99%	0.6	2
Barium (µg/L)	6.4	5.6	99%	0.6	2
Chromium (total) (µg/L)	0.6	0.3	99%	0.6	2
Cobalt (µg/L)	DNQ 0.4	0.3	99%	0.6	2
Copper (µg/L)	2.2	1.5	99%	0.6	2
Cyanide (µg/L)	5	3.0	99%	0.6	2
Fluoride (µg/L)	300	250	99%	0.6	2
Iron (µg/L)	370	320	99%	0.6	2
Lead (µg/L)	DNQ 0.048	0.044	99%	0.6	2
Mercury (µg/L)	0.0018	0.0015	99%	0.6	2
Manganese (µg/L)	87	67	99%	0.6	2
Molybdenum (µg/L)	0.44	0.3	99%	0.6	2
Nickel (µg/L)	0.5	0.35	99%	0.6	2
Silver (µg/L)	DNQ 0.03	0.03	99%	0.6	2
Thallium (µg/L)	0.2	0.15	99%	0.6	2
Zinc (µg/L)	4	3.5	99%	0.6	2
Picloram	DNQ 0.59	0.43	99%	0.6	2
Alkalinity (total) (as $CaCO_3$)	20 (min.)	25	99%	0.6	2
Ammonia (as N) (mg/l)	2.0	2.0	99%	0.6	2
Boron (µg/L)	10	5	99%	0.6	2
Calcium (mg/l)	4.7	3.6	99%	0.6	2
Chloride (mg/l)	6	6	99%	0.6	1
Hardness (as $CaCO_3$) (mg/l)	40	24	99%	0.6	2
Foaming Agents (MBAS) (mg/l)	DNQ 0.036	0.32	99%	0.6	2
Magnesium (mg/l)	1	0.73	99%	0.6	2
Nitrate (as N) (mg/l)	0.6	0.55	99%	0.6	2
Nitrite (as N) (mg/l)	0.05	0.026	99%	0.6	2
pH Units	10.1	8.5	99%	0.6	2
Phosphorous, Total (as P) (mg/l)	0.6	0.45	99%	0.6	2
Potassium (mg/l)	3	2	99%	0.6	2
Sodium (mg/l)	9	6.5	99%	0.6	2
Specific Conductance (µmhos/cm)	100	80	99%	0.6	2
Sulfate (mg/l)	5.5	4.2	99%	0.6	2
Sulfide (as S, µg/l) (mg/l)	DNQ 0.05	0.04	99%	0.6	2
Total Dissolved Solids (mg/l)	80	56	99%	0.6	2

1 Coefficient of Variation

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "*…those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.).*" The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." The lower section of Stanislaus River is listed in the 303(d) list as a WQLS for mercury. Therefore, the receiving water for the discharge has no assimilative capacity for this constituent and applicable water quality standards must be applied as end-of-pipe effluent limitations. Effluent Limitations for mercury will be included in this Order if the effluent discharge monitoring results indicate a reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion of 0.05 µg/l.

Aluminum— Aluminum was detected in an effluent sample collected on June 11, 2003 at a concentration of 20 µg/*l*. The projected maximum effluent concentration based on a limited number of collected samples is 148 µg/*l* (20 µg/*l* x statistical factor 7.4). The recommended continuous concentration (maximum four-day average concentration) based on U.S. EPA National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum is 87 µg/*l* and the recommended maximum concentration (maximum one-hour average concentration) is 750 µg/*l*.

In U.S. EPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], U.S. EPA states that "[a]cid-soluble aluminum…is probably the best measurement at the present…"; however, U.S. EPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on U.S. EPA's discussion of aluminum analytical methods, Order No. R5-2005-0139 allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements. However, based on only two data points submitted by the Discharger (both at much lower level than the water quality criterion), it is unknown whether the Discharger has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life. Because of insufficient information available to determine whether or not *aluminum* levels in the discharge would violate applicable water quality criteria, no limitations are established in this Order. Instead of limitations, additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of water quality criteria. If the new data identify that the effluent limitation for *aluminum* may exceed, this Order will be reopened to established a new effluent limitation.

Ammonia — Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters.

Aquatic habitat is a beneficial use of the receiving stream. The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. Nitrate and nitrite are known to cause adverse health effects in humans. The Basin Plan prohibits the discharge of chemical constituents in concentrations that adversely affect beneficial uses. Domestic water supply is a beneficial use of Bloods Creek. U.S. EPA has developed Primary Maximum Contaminant Levels (MCLs) for the protection of human health for nitrite and nitrate of 1 mg/*l* and 10 mg/*l*, respectively, and pH- and temperature-dependent Ambient Water Quality Criteria for ammonia. The discharge from the Bear Valley Wastewater Treatment Plant has a reasonable potential to cause or contribute to an in-stream excursion above water quality standards for ammonia. Effluent Limitations for ammonia are included in this Order to assure the treatment process continues to adequately nitrify the waste stream to protect the beneficial uses of aquatic habitat and municipal and domestic supply.

In water, un-ionized ammonia (NH_3) exists in equilibrium with the ammonium ion (NH_4^+). The toxicity of aqueous ammonia solutions to aquatic organisms is primarily attributable to the un-ionized ammonia form, with the ammonium ion being relatively less toxic. The relative concentrations of these two forms are pH- and temperature-dependent. Total ammonia refers to the sum of these two forms in aqueous solutions.

The Basin Plan includes a water quality objective that "*[a]ll water shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*". U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for total ammonia, recommends acute (1-hour average) standards based on pH and chronic (30-day average) standards based on pH and temperature. It also recommends a maximum four-day average concentration. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the receiving stream has a beneficial use of cold freshwater habitat, the recommended criteria for waters where salmonids are present were used.

U.S. EPA has presented the acute ammonia criteria in three ways: as equations, in a table, and in graphs that relate pH to ammonia concentrations. Using the maximum pH value allowed in the receiving water (8.5 pH Units) and the highest reported temperature of 5.9°C, the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, 30 day average chronic criteria, or criterion continuous concentration for ammonia is 1.09 mgl as N. Considering the maximum pH value of 8.5 pH units and the presence of salmonids, the USEPA's Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, maximum 1-hour acute criteria, or criteria maximum concentration for ammonia is 2.14 mg/l as N.

Ammonia was detected in samples of the Discharger's effluent at concentrations as high as 2 mg/l. Using the reasonable potential analysis procedure, the projected maximum effluent concentration of ammonia in the effluent is 15 mg/l. Because of insufficient information available, it is unknown whether or not *ammonia* levels in the discharge would violate applicable water quality criteria and hence, no limitations are established in this Order. Instead of

limitations, additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of ambient water quality criteria. If the new data identify that the effluent limitation for *ammonia* may exceed, this Order will be reopened to established a new effluent limitation.

BOD and TSS—40 Code of Federal Regulations (CFR), Section 133.102 contains regulations describing the minimum level of effluent quality—for biochemical oxygen demand (BOD) and total suspended solids (TSS)—attainable by secondary treatment, and equivalent secondary treatment processes. The Discharger uses an equivalent secondary treatment pond and effluent storage reservoir.

The WWTP is required to comply with effluent limitations appropriate for treatment systems providing secondary or equivalent treatment. Effluent limitations for both BOD and TSS have been established at 30 mg/*l*, and 30 mg/*l*, respectively, as a 30-day average, which is technically based on the capability of a secondary system and the current effluent quality produced by the plant. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. Order No. R5-2005-0139 contains a limitation requiring an average of 65 percent removal of BOD and TSS over each calendar month.

Chlorine, Total Residual—The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. The Discharger uses chlorine for disinfection of the effluent waste stream. Aquatic habitat is a beneficial use of Bloods Creek. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. U.S. EPA recommends, in its Ambient Water Quality Criteria for the protection of fresh water aquatic life, maximum 1-hour average and 4-day average chlorine concentrations of 0.019 µg/*l* and 0.011 µg/*l*, respectively. The use of chlorine as a disinfectant presents a reasonable potential that it could be discharged in toxic concentrations. Effluent Limitations for chlorine have been included in this Order to protect the receiving stream aquatic life beneficial uses. Effluent Limitations have been established based on the ambient water quality criteria for chlorine.

The U.S. EPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

CCC = 0.011 mg/*l* CMC = 0.019 mg/*l*

$$AMEL = 1.0\left[\min(1.0CMC, 1.0CCC)\right]$$

where: AMEL = average monthly effluent limitation
CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

The resulting average monthly effluent total residual chlorine concentration limitation is 0.010 mg/*l*. Because chlorine is a toxic constituent that can be and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. The resulting average monthly effluent total residual chlorine concentration limitation is 0.01 mg/*l*. Because chlorine is a toxic constituent that can be and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. Therefore, average one-hour, and average four-day effluent limitations for chlorine, based on these criteria, are included in this Order. However, due to the lethal nature of chlorine, this order includes a provision with a compliance schedule. **Provision D6** of this permit requires the Discharger to install de-chlorination facilities prior to surface water discharge. The new water quality based effluent limitations for chlorine residual will be effective immediately following the adoption of this Order but no later than **1 January 2006**, which coincides with the next wintertime discharge.

Chloroform—Municipal and domestic supply is a beneficial use of the receiving stream. The narrative toxicity objective and this beneficial use designation comprise a water quality standard applicable to pollutants in the receiving stream. The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicological assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and two liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 µg/*l* (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health Services (DHS) to set *de minimis* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S. EPA in applying human health protective criteria contained in the *National Toxics Rule* and the *California Toxics Rule* to priority toxic pollutants in California surface waters. Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to degradation of the municipal and domestic supply beneficial use by discharging elevated concentrations of chloroform.

Chloroform was detected in an effluent sample collected 11 June 2003 at a concentration of 0.6 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent chloroform concentration is 4.4 µg/*l*. Because of insufficient information available, it is unknown whether or not *chloroform* levels in the discharge would violate applicable water quality criteria and hence, no limitations are established in this Order. Instead of limitations, additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to

cause an exceedance of drinking water quality criteria. If the new data identify that the effluent limitation for *chloroform* may exceed, this Order will be reopened to establishe a new effluent limitation.

Copper— Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for copper. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for copper. Freshwater aquatic habitat is a beneficial use of the receiving water. The standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for copper in freshwater are 0.960 for both the acute and the chronic criteria.

The maximum observed effluent copper concentration was detected in a sample collected on 11 June 2003 at a concentration of 2.2 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent copper concentration is 16 µg/*l*. Using the worst-case (lowest) measured hardness from the effluent and receiving water, (12 mg/*l*), the applicable criteria continuous concentration (CCC-maximum four-day average concentration) is 1.52 µg/*l* and the applicable criteria maximum concentration (CMC-maximum one-hour average concentration) is 1.90 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for copper are required. The Effluent Limitations for copper included in this Order are presented in total concentrations, and are based on CTR standards for the protection of freshwater aquatic life.

The SIP requires converting CTR chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$CCC = e^{[0.8545\ln(hardness)-1.702]} \qquad \textbf{AMEL} = 1.55[min(0.321CMC, 0.527CCC)] = 0.95\ \mu g/l$$

$$CMC = e^{[0.9422\ln(hardness)-1.700]} \qquad \textbf{MDEL} = 3.11[min(0.321CMC, 0.527CCC)] = 1.9\ \mu g/l$$

Order No. R5-2005-0139 includes a daily maximum and monthly average copper limitations. But based on the data submitted, it appears the Discharger cannot consistently comply with these limitations. Therefore, according to the SIP Section 2.1, a compliance schedule is included in the permit. **Provision D5** of this permit requires the discharger to first submit justification for a time schedule and if approved then submit a corrective action plan and implementation schedule to assure compliance with final copper effluent limits. The new water quality based effluent limitations for copper become effective on **1 February 2006** if a compliance justification is not completed and submitted to the Regional Board by **1 January 2006**. Otherwise full compliance with these limitations is not required by this Order until **22 May 2010,** and in the meantime, interim effluent limits based on past performance are established in this Order.

Flow—The WWTF was designed to provide an equivalent secondary level of treatment or an equivalent for up to its design flow of 0.5 mgd. The current average wastewater flow

(including domestic, commercial and I/I) is 0.086 mgd while the maximum daily flow rate is 0.225 mgd. The Discharger proposed that the allowable maximum effluent discharge flow rate from effluent storage reservoir to Bloods Creek be limited to the rate diluted to at least 20:1 by Bloods Creek, or 2.5 mgd, whichever is lesser. The justification for the increase in discharge rate from the effluent storage reservoir is so that effluent can be discharged to Bloods creek when Bloods Creek has maximum assimilative capacity, which occurs in the relatively brief snowmelt season (from January through June). The proposed controlled effluent discharge to Bloods Creek avoids gross over-irrigation of the land disposal area during summer months, maintains some reserve capacity in the storage reservoir to handle unexpected situations, and makes emergency uncontrolled discharges to Bloods Creek highly unlikely. In addition, the maximum effluent discharge would occur only if and when there is adequate dilution available in the Bloods Creek, and when the assimilative capacity is greatest and public use of the creek is relatively low. Regardless of the maximum flow rate, the Discharger estimates that based on the worst case hydraulic balances, a maximum volume of 63 million gallons could be discharged to Bloods Creek, while maintaining a minimum of 20:1 dilution ratio. Because the snow melting season varies from year to year, the maximum amount of flow in Bloods Creek may occur over a period as a relatively brief period of time from January through June, during which time adequate dilution is available. Therefore, a monthly average flow of 1 mgd will allow sufficient storage reservoir reduction to avoid gross over-irrigation of the land disposal area and/or to minimize uncontrolled spillages from the storage reservoir. A daily maximum flow of 2.5 mgd is established to allow the discharge of a larger volume over a shorter time period and provided they still maintain a 30-day average of 1 mgd.

Fluoride – Fluoride concentrations in the effluent were detected at 300 µg/l from a sample collected on 11 June 2003. Fluoride was also detected in Bloods Creek (300 µg/l) in a sample taken on 11 June 2003. The State's Primary MCLs for fluoride is 2000 µg/l. The Agricultural Water Quality Goal for fluoride is 1000 µg/l. Because of insufficient information available, it is unknown whether or not *fluoride* levels in the discharge would violate applicable public health water quality criteria and hence, no limitations are established in this Order. Instead of limitations, additional monitoring has been established for this constituent with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of public health water quality criteria. If the new data identify that the effluent limitation for *fluoride* may exceed, this Order will be reopened to establish a new effluent limitation.

Iron—The Basin Plan includes a water quality objective that "*…water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations…Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449*." Municipal and domestic supply is a beneficial use of the receiving stream. Based on information included in analytical laboratory reports submitted by the Discharger, iron in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 300 µg/*l* for iron. The Basin Plan also includes a water quality

objective that water "…*shall be free of discoloration that causes nuisance or adversely affects beneficial uses*." The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the source to New Melons Reservoir (upstream of Stanislaus River). Iron concentrations in excess of the Secondary MCL-Consumer Acceptance Limit cause aesthetically undesirable discoloration. An Effluent Limitation for iron is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents and color and the DHS Secondary MCL.

Iron was detected in an effluent sample collected on 11 June 2003 at a concentration of 370 µg/*l*, which exceeds the secondary maximum contaminant level of 300 µg/*l*. Both the measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, an Effluent Limitation for iron is required. Based on the data available, it appears the Discharger cannot consistently comply with the established limitation, and a compliance time schedule is needed. Therefore, as the Basin Plan chemical constituent objective for *iron* is not a new objective, a schedule of compliance for i*ron* is not included in this Order but a separate Time Schedule Order shall be proposed for compliance with the *iron* effluent limitation.

Manganese—The Basin Plan includes a water quality objective that "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations…Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449*." Municipal and domestic supply is a beneficial use of Bloods Creek. Based on information included in analytical laboratory reports submitted by the Discharger, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 50 µg/*l* for manganese. The Basin Plan also includes water quality objectives that water be free of discoloration and taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of Bloods Creek. Manganese concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable discoloration and taste. An Effluent Limitation for manganese is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents, color, and tastes and odors and the DHS Secondary MCL.

Manganese was detected in an effluent sample collected on 11 June 2003 at a concentration of 87 µg/*l*. The secondary maximum contaminant level is 50 µg/*l*. Both the measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, an Effluent Limitation for manganese is required.

Order No. R5-2005-0139 includes an average monthly Effluent Limitation for manganese that is equal to the secondary maximum contaminant level. Based on the data available, it appears the Discharger cannot consistently comply with the established limitation, and a compliance time schedule is needed. Therefore, as the Basin Plan chemical constituent objective for *manganese* is not a new objective, a schedule of compliance for *manganese* is not included in this Order but

a separate Time Schedule Order shall be proposed for compliance with the *manganese* effluent limitation.

Pathogens—Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the receiving stream. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Regional Board dated 8 April 1999, the California Department of Health Services indicated that DHS would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 m*l* as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 m*l* more than once in any 30 day period. Therefore, the 23 MPN/100 m*l* limitation is found to be appropriate and it is contingent upon the Discharger conducting a mixing zone study that accurately defines the assimilative capacity of Blood Creek and the 30-day average dilution ratio of at least 20:1. The current effluent total coliform organisms limitations (Order No. 5-01-208) include a monthly median of 23 MPN/100 m*l* and a daily maximum of 240 MPN/100 m*l*.

pH—The Basin Plan includes a water quality objective for surface waters that the "…*pH shall not be depressed below 6.5 nor raised above 8.5*

Settleable Solids—For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*" Order No. R5-2005-0139 contains average monthly and average daily effluent limitations for settleable solids.

Toxicity—The Basin Plan states that "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances*." The Basin Plan requires that "[a]*s a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay*." Order No. R5-2005-0139 requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective.

The Basin Plan further states that "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed*…". Effluent limitations for acute toxicity have been included in the Order.

Compliance Schedules—The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria. The CTR parameter, *copper*, has time schedules for compliance consistent with the SIP requirements. For the non-CTR parameters; *iron* and *manganese*, a time schedule is included in the accompanying Time schedule Order.

Also, since this Order allows discharge during winter, sufficient time exists to collect additional information to determine compliance with this Order prior to discharge. If compliance cannot be consistently assured, a Cease & Desist order may be considered.

General Effluent Limitation Information—

Selected 40 CFR §122.2 definitions:

'*Average monthly discharge limitation* means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.
Daily discharge means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum daily discharge limitation means the highest allowable "daily discharge".'

The SIP contains similar definitions. These definitions were used in the development of Order No. R5-2000-0139. Alternate limitation period terms were used in the permit for the sake of clarity. Alternates are shown in the following table:

Term Used in Permit	SIP/40 CFR 122.2 Term
Average monthly	Average monthly discharge limitation. 30-day averages may have been converted to monthly averages to conform with 40 CFR §122.45 (see below)
Average daily	Maximum daily discharge limitation. Since the daily discharge for limitations expressed in concentrations is defined as the average measurement of the pollutant over the day, the term 'Average Daily' was used in the Order.

40 CFR §122.45 states that:

(1) "In the case of POTWs, permit effluent limitations…shall be calculated based on design flow."

(2) "For continuous discharges all permit effluent limitations…shall unless impracticable be stated as…[a]verage weekly and average monthly discharge limitations for POTWs."

(3) "All pollutants limited in permits shall have limitations…expressed in terms of mass except…[f]or pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass…Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations."

U.S. EPA recommends a maximum daily limitation rather than an average weekly limitation for water quality based permitting.

RECEIVING WATER LIMITATIONS AND MONITORING

Fecal coliform— Bloods Creek, through the "Tributary Rule", has been designated as having the beneficial use of contact recreation (REC-1). For water bodies designated as having REC-1 as a beneficial use, the Basin Plan includes a water quality objective limiting the "…*fecal coliform concentration based on a minimum of not less than five samples for any 30-day period*…" to a maximum geometric mean of 200 MPN/100 ml. The objective also states that "…[no] *more than ten percent of the total number of samples taken during any 30-day period* [shall] *exceed 400/100 ml*." This objective is included in the Order as a receiving water limitation.

Dissolved Oxygen—The Bloods Creek has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/*l* of dissolved oxygen. Since the beneficial use of COLD does apply to the source to New Melones Reservoir (North Fork of the Stanislaus River), a receiving water limitation of 7.0 mg/*l* for dissolved oxygen was included in the Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that "…*the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.*" This objective was included as a receiving water limitation in the Order.

pH—For all surface water bodies in the Sacramento River and San Joaquin River basins, the Basin Plan includes water quality objectives stating that "[t]*he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses*." The Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered

appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in the Order.

Temperature—Bloods Creek (through the "Tributary Rule" is a source to New Melones Reservoir) has the beneficial uses of COLD. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD intrastate waters be increased more than 5ºF above natural receiving water temperature*." The Order includes a receiving water limitation based on this objective.

Turbidity—The Basin Plan includes the following objective: "*Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits*:

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
- Where natural turbidity is between 5 and 10 NTUs, increases shall not exceed 20 percent.
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU.
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent."

Ammonia and Chlorine—U.S. EPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia and for chlorine. The Order contains effluent limitations for ammonia and for chlorine equal to the Ambient Water Quality Criteria. Compliance with the effluent limitations for ammonia and for chlorine means that the discharge cannot cause an exceedance of the criteria in the receiving stream; in other words, the limitations are fully protective of water quality. Therefore, no receiving water ammonia or chlorine limitations are included in the Order.

Narrative Limitations—Receiving Water Limitations (biostimulatory substances), (color), (floating material), (oil and grease), (radioactivity), (settleable material), (tastes and odors), and (toxicity) are based on narrative Basin Plan objectives. The objectives are located in Chapter III: Water Quality Objectives, under the Water Quality Objectives for Inland Surface Waters heading.

<u>Ammonia Fact Sheet</u>
Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia or nitrate to the receiving stream.

In water, un-ionized ammonia (NH_3) exists in equilibrium with the ammonium ion (NH_4^+). The toxicity of aqueous ammonia solutions to aquatic organisms is primarily attributable to the un-ionized ammonia form, with the ammonium ion being relatively less toxic. Total ammonia refers to the sum of these two forms in aqueous solutions. Analytical methods are used to

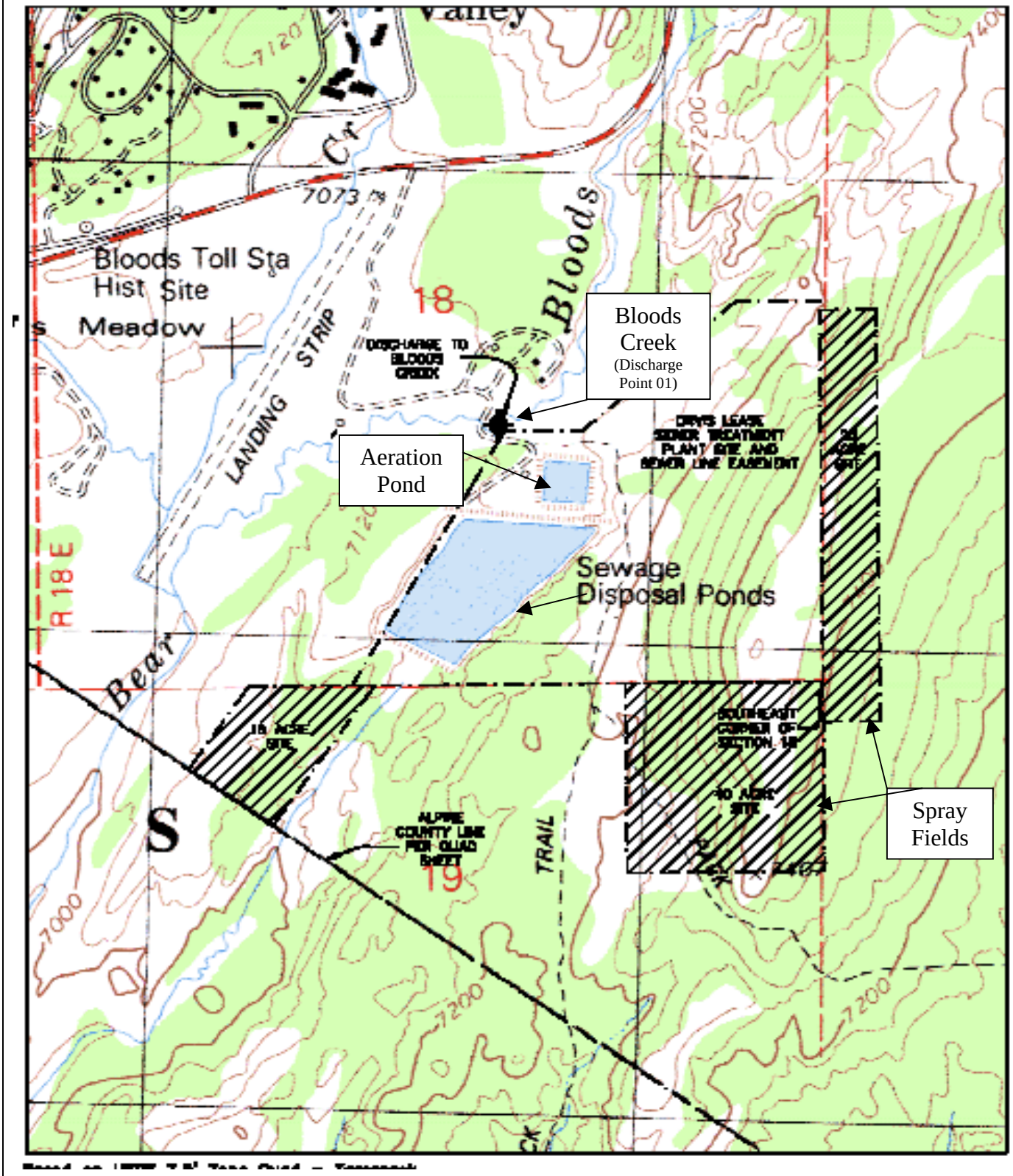
directly determine the total ammonia concentration, which is then used to calculate the un-ionized ammonia (toxic) concentration in water.

U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for total ammonia, include acute (1-hour average) standards based on pH and chronic (30-day average) standards based on pH and temperature. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia as not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. U.S. EPA has presented the acute ammonia criteria in three ways: as equations, in a table, and in graphs that relate pH to ammonia concentrations.

Chlorine Fact Sheet

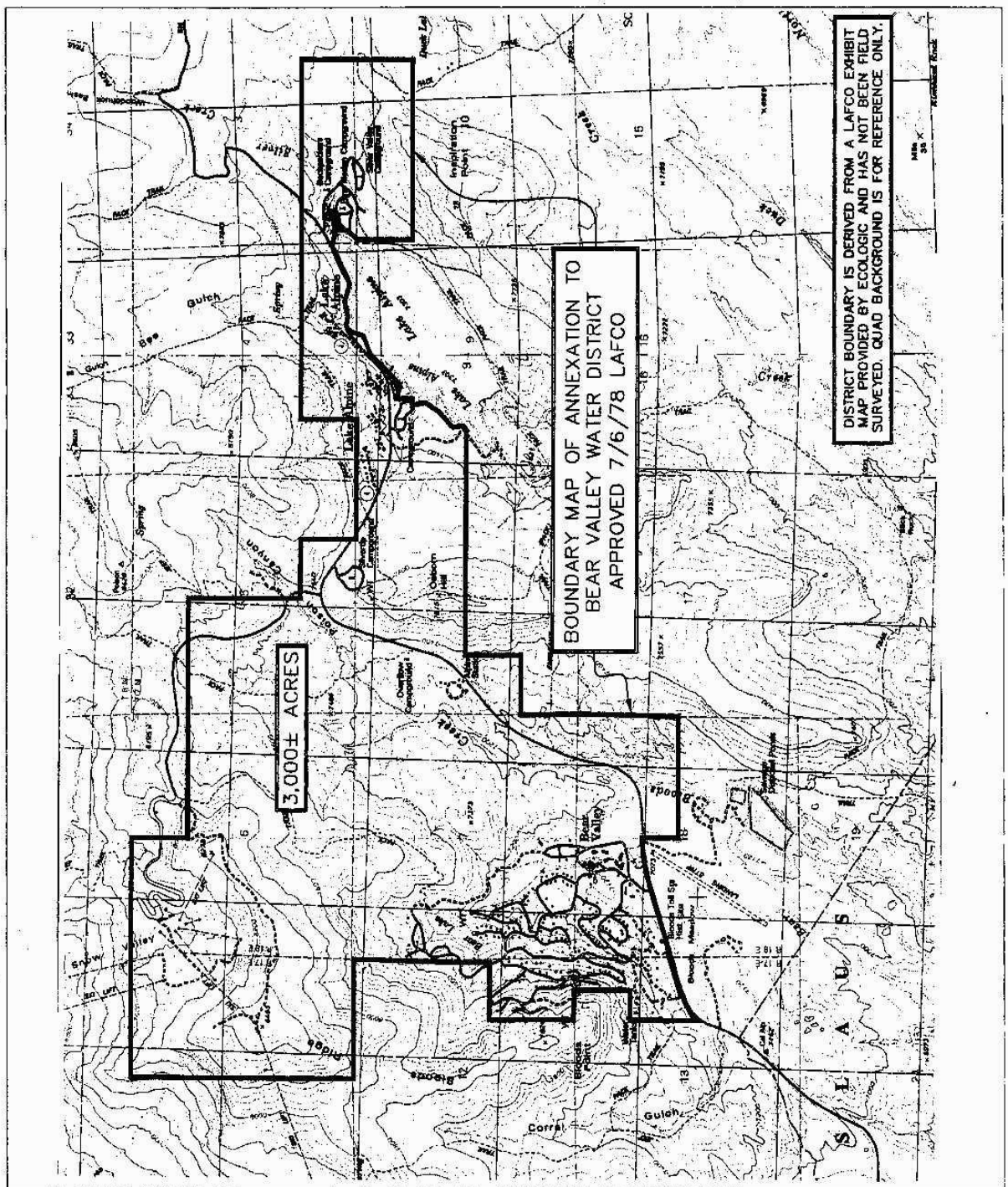
Chlorine is commonly used as a disinfection agent in the treatment of wastewater. The Discharger uses chlorine for disinfection at its WWTP. For dechlorination, the Discharger relies on natural attenuation in the effluent storage reservoir. Inadequate dechlorination may result in discharge of chlorine to the receiving stream and cause toxicity. Dechlorination facilities to demonstrate compliance is necessary and therefore, these facilities are to be built with discharge piping and necessary outfall structure prior to discharge to the Bloods Creek. For chlorine, U.S. EPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life. The maximum concentration for chlorine is 0.019 mg/*l* and the chronic (4-day) average is 0.011 mg/*l*. Rounded off, the limits are 0.02 mg/*l* and 0.01 mg/*l*. Concentration-based effluent limitations for chlorine, based on these criteria, are included in this permit. The mass-based effluent limitations, for monthly average, are calculated using the Ambient Water Quality Criteria and multiplying by the average daily allowable flow (1.0 mgd) and a factor of 8.345 to convert mg/*l* to lbs/day. Similarly, the mass based effluent limitations for daily maximum are calculated using the Water Quality Criteria and multiplying by the daily maximum allowable flow (2.5 mgd) and a factor of 8.345 to convert mg/*l* to lbs/day.

ATTACHMENT A



Drawing Reference: ECO:LOGIC Consulting Engr's April 2, 2004 Not to Scale	SITE LOCATION MAP BEAR VALLEY WATER DISTRICT WASTEWATER TREATMENT FACILITY ALPINE COUNTY	N W E S

ATTACHMENT B



Drawing Reference:

ECO:LOGIC Consulting Engr's
April 2, 2004

Not to Scale

SITE TOPOGRAPHIC MAP

BEAR VALLEY WATER DISTRICT
BLOODS CREEK DRAINAGE AREA
ALPINE COUNTY