CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0019

WASTE DISCHARGE REQUIREMENTS FOR EL DORADO COUNTY UNION MINE SEPTAGE/LEACHATE TREATMENT FACILITY EL DORADO COUNTY

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

1. El Dorado County (hereafter Discharger) submitted a Report of Waste Discharge (RWD), dated 8 February 2005, for updating Waste Discharge Requirements (WDRs) for the Union Mine Septage/Leachate treatment facility (WWTF). Supplemental information was received on 28 June 2005 and 17 October 2005.

2. For the purposes of this Order, the term "wastewater treatment facility" (WWTF) shall mean the wastewater (i.e., Class II leachate and septage) treatment system, the effluent storage tanks, and the effluent disposal system.

3. WDRs Order No. 98-238, adopted by the Regional Board on 11 December 1998, prescribes requirements for the Union Mine Landfill (a partially closed unlined Class III landfill and an active Class II landfill), the landfill gas collection and flare system, the Class II leachate surface impoundment, and the Class II leachate and septage treatment and disposal facility. This Order is neither adequate nor consistent with the current plans and policies of the Regional Board.

4. Updated requirements for the Union Mine Landfill, landfill gas collection and flare system, and Class II surface impoundment are found in WDRs Order No. R5-2006-0019, adopted by the Regional Board on 26 January 2006. Requirements for the Class II leachate and septage treatment and disposal system are contained in this Order.

5. The Union Mine WWTF is owned and operated by El Dorado County and is located on Assessors Parcel Numbers 92-011-20 and 21. The facility is located approximately three miles south of the town of El Dorado, in Section 12, T9N, R10E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference.

6. The Union Mine WWTF receives Class II leachate generated from the Union Mine Landfill, condensate generated during extraction of landfill gas, and septage generated throughout El Dorado County. This Order also allows the acceptance of portable toilet waste.

Wastewater Treatment System

7. The WWTF consists of aerobic digesters, a sludge centrifuge, a disinfection system, an effluent storage tank, and sprayfields. Attachment B, which is attached hereto and made part of this Order by reference, depicts the treatment plant, storage tank, and disposal areas.

8. According to information presented in the RWD, in 2004 the WWTF treated and disposed of approximately 554,200 gallons of Class II leachate and 5.6 million gallons of septage. In March 2005, the Discharger installed a flow meter to monitor the amount of condensate discharged into the Class II surface impoundment. Flow monitoring data since the flow meter was installed indicates that approximately 60 gallons per day, or 21,900 gallons annually, of condensate is discharged into the Class II impoundment.

9. Although not currently authorized, the RWD also indicates that the Discharger wishes to accept portable toilet waste in the future. The Discharger estimates that approximately 180,000 to 200,000 gallons of portable toilet waste will be delivered annually to the WWTF for treatment and disposal.

10. The WWTF does not have a single influent flow meter to monitor all flows entering the wastewater treatment system. The Discharger records septage flows entering the plant with two flow meters. The septage influent flow meters are located between the septage sump and each wastewater digester. Class II leachate flows are currently estimated by calculating the pumping rates (i.e., gallons per minute) and run times of the portable pumps used to convey leachate to the treatment plant. The Class II surface impoundment has an existing pump station, which has a flow meter to monitor flows conveyed to the treatment facility: however, the pump station is currently inoperable. In June 2005, the Discharger installed a flow meter between the effluent storage tank and the sprayfields to monitor the amount of wastewater being discharged to the sprayfields. To accurately measure leachate flows into the waste treatment system, this Order requires the Discharger to either install an influent flow meter, or repair the existing Class II surface impoundment pump station.

11. The treatment portion of the WWTF is designed to treat approximately 8 million gallons of waste annually, or approximately 22,000 gallons per day (gpd).

12. All off site waste (i.e., septage and portable toilet waste) delivered to the WWTF is prescreened for solid and inert material (i.e., rags, rocks, grit, etc.) using automatic equipment or a manually racked bar screen.

13. After solids screening, off site waste is discharged into one of two aerobic digesters via an automatically controlled wet well utilizing a lead and lag pump system. On-site generated liquid waste (i.e., Class II leachate, landfill gas condensate, and centrate from each centrifuge) is pumped directly into the aerobic digesters for treatment.

14. Each digester is a complete mix system that is kept in a homogenous state by an aeration diffuser system utilizing blowers. The aerobic process is continuous until a predetermined volatile solids reduction, other in-house testing parameter(s) are met, or liquids need to be decanted due to digester capacity constraints. At this point, the digester aeration blower is shut down to allow the solids and liquid to separate. Liquid from the digesters is transferred to the effluent storage tank. Supernatant from the digesters is decanted to the effluent storage tank using gravity or pumps depending on the wastewater level in the effluent storage tank.

15. Digested sludge from each aerobic digester is pumped to one of two centrifuges for solids processing. The processed solids from each centrifuge are deposited into temporary storage bins that are transported to the on-site Class II landfill for disposal.

16. Effluent is stored in a two million gallon above ground storage tank. The RWD indicates that the Discharger will install an addition two million gallon above ground storage tank in order to have sufficient effluent storage capacity. The RWD states that the additional storage tank will be installed by January 2006.

17. Disinfection is achieved by dosing the effluent stored in the effluent storage tanks with sodium hypochlorite.

18. Septage, as referenced herein, is from domestic sources and is limited to (a) the solids pumped from septic tanks, and (b) wastes from portable toilets. The solids consist of a mixture of water, sewage solids, and microorganisms. Septage discharged by land spreading poses a potential threat of ground or surface water pollution and can create public nuisance conditions. For the purposes of this Order, septage does not include restaurant or grease trap wastes, car wash pumpings, or other industrial wastes.

WATER BALANCES

19. As part of the RWD, the Discharger submitted a water balance for the average annual precipitation conditions which assumed that approximately 9,500 gpd (monthly average) of septage and portable toilet waste, and 3,100 gpd (monthly average) of Class II leachate and landfill gas condensate, would be treated and disposed of. The water balance indicates that the WWTF has sufficient treatment, storage, and disposal capacity for average annual precipitation conditions.

20. The water balance submitted for 100 year annual precipitation conditions indicates that the WWTF has sufficient treatment and storage capacity provided that the Discharger install two million gallons of additional storage capacity. The water balance for the 100-year scenario assumes that approximately 9,500 gpd (monthly average) of septage and portable toilet waste, and 6,500 gpd (monthly average) of Class II leachate and landfill gas condensate will be treated and disposed of. Class II leachate generation is greater during 100 year conditions because of the uncapped areas in the landfill. However, the water balance indicates that the WWTF does not have sufficient disposal capacity based on 100-year annual precipitation conditions, and it appears that there would be approximately 2.5 million gallons of effluent surplus requiring disposal. The RWD states that the Discharger is working with the El Dorado Irrigation District (EID) to obtain a permit to discharge the surplus to the EID Deer Creek wastewater treatment plant. As of the date of this Order, no permit between the Discharger and EID is in place.

21. The RWD also included a third water balance which provided the flows at which the WWTF would have sufficient disposal capacity based on 100-year annual precipitation condition. The water balance shows that the wastewater disposal system has sufficient capacity to dispose of approximately 2,600 gpd (monthly average) of septage and portable toilet waste, and 8,000 gpd (monthly average) of Class II leachate and landfill condensate, or approximately 10,600 gpd in

total. Therefore, this Order limits the monthly average influent flows to 10,500 gpd. However, if the Discharger obtains a permit to discharge wastewater to the EID Deer Creek WWTP, then the Discharger may submit a report (as described in Provision G.1.a) to the Executive Officer, and upon approval, the Executive Officer may increase the flow limit up to the calculated disposal capacity. In no case shall the flow exceed 16,000 gpd.

22. During a 19 September 2005 inspection of the WWTF, staff noted excessive vegetation growth on the water surface within the effluent storage tank. Excessive vegetation can reduce the amount of storage capacity within the effluent storage tank, and can cause nuisance conditions. This Order requires the Discharge to remove the vegetation growth within the storage tank.

WASTEWATER CHARACTERISTICS

23. The RWD provided data on influent characteristics of the waste. Samples of wastewater influent (i.e., septage) and landfill gas condensate were collected on 15 March 2005, and Class II impoundment leachate was collected on 6 February 2005. Results of the sampling are presented below.

Parameter	Units	Septage	Condensate	Leachate
Cyanide	mg/L	<0.005	<0.005	NT[1]
Sulfide	mg/L	<0.1	<0.1	NT[1]
Total Organic Carbon	mg/L	72	2,200	35
Aluminum	mg/L	227	<0.25	<0.1
Arsenic	mg/L	<0.1	<0.1	<0.2
Barium	mg/L	5.38	<0.05	<0.1
Cadmium	mg/L	0.0255	<0.005	<0.01
Cobalt	mg/L	0.031	<0.005	<0.04
Total Chromium	mg/L	0.261	<0.001	<0.01
Copper	mg/L	8.55	<0.001	<0.01
Iron	mg/L	69.4	0.171	0.28
Mercury	mg/L	0.0165	<0.0005	<0.005
Manganese	mg/L	1.31	<0.001	0.52
Nickel	mg/L	0.295	<0.001	<0.04
Lead	mg/L	0.496	<0.05	<0.1
Silver	mg/L	0.0357	<0.01	<0.01
Thallium	mg/L	0.266	<0.1	<0.1
Vanadium	mg/L	0.25	<0.01	<0.04
Zinc	mg/L	15.8	<0.02	<0.01
Pesticides	ug/L	ND[2]	ND[2]	ND[2]
Herbicides	ug/L	ND[2]	ND[2]	ND[2]
Total VOCs	ug/L	ND[2]	732.4	ND[2]
Chlorobenzene	ug/L	ND[2]	4.2	ND[2]
2-Chlorotoluene	ug/L	ND[2]	3.7	ND[2]

Parameter	Units	Septage	Condensate	Leachate
1,4_Dichlorobenzene	ug/L	ND[2]	39	ND[2]
1,2-Dichloroethane	ug/L	ND[2]	2.5	ND[2]
Ethylbenzene	ug/L	ND[2]	79	ND[2]
Isopropyltoluene	ug/L	ND[2]	5.8	ND[2]
p-Isopropyltoluene	ug/L	ND[2]	68	ND[2]
Naphthalene	ug/L	ND[2]	59	ND[2]
n-Propylbenzene	ug/L	ND[2]	5.2	ND[2]
Styrene	ug/L	ND[2]	14	ND[2]
Toluene	ug/L	ND[2]	160	ND[2]
1,2,4-Trimethylbenzene	ug/L	ND[2]	47	ND[2]
1,3,5- Trimethylbenzene	ug/L	ND[2]	15	ND[2]
Xylenes	ug/L	ND[2]	30	ND[2]

[1] Not tested
[2] Non Detect

24. WDRs Order No. 98-238 required the Discharger to monitor leachate prior to discharge into the Class II leachate impoundment. The table below presents the results of leachate monitoring for March 2003 through August 2005:

Constituents	Units	Min/Max Concentration	Average Concentration
TDS	mg/L	320-560	400
Chloride	mg/L	52-110	75
Nitrate	mg/L	ND	ND
Sulfate	mg/L	2-21	11
Conductivity	ohoms/cm	387-840	574
pH	Standard units	6.3-9.5	7.3

25. WDRs Order No. 98-238 required the Discharger to monitor effluent quality prior to discharge the sprayfields. The table below presents the results of effluent monitoring for January through June 2005.

Constituents	Units	Min/Max Concentration	Average Concentration
TDS	mg/L	730-830	790
BOD	mg/L	1.9-14	6.0
Chloride	mg/L	140-190	167.5
Nitrate	mg/L	5.5	5.5
Sulfate	mg/L	230	230
Total Coliform Organisms	MPN/100mL	0->2,400	574
pH	Standard units	6.3-7.0	6.7

26. Septage contains plant nutrients, (N, P, K, S, CA, Mg, Mn, B, Cu, Zn, Mo, Fe) and soil amendment characteristics that have potential agricultural benefits when applied at appropriate rates. Some of the nutrients, including N, P, Cu, and Zn, can also negatively impact plant growth and/or water quality if over applied for extended periods.

27. Septage has the following characteristics which can create water quality and public health problems if improperly treated, managed, and regulated:

- Pathogens (disease causing organism) can be present. Unless the septage has been specially treated or disinfected to destroy pathogens, significant concentrations of bacteria, virus, and parasites can remain. Septage will be treated via aerobic digestion and disinfection with sodium hypochlorite.

- Heavy metals (Pb, Hg, Cd, Cr, and Ni) and toxic nonmetals (As, and Se) will be present. If these elements are over applied to a field, they can cause groundwater pollution, toxicity to plants, or buildup of metals in the plant tissues with transmission of the metals into the food chain. Cumulative application rates for these elements have been set to prevent such problems.

- Odor and vector (insect and rodent) nuisances can result if septage has not been adequately treated prior to application, or if wet septage is allowed to stand in piles on the ground surface for several days.

- Discharge of organic material, metals, and pathogens to surface waters can be prevented by control of field runoff, avoiding wet weather application, and treatment of septage for pathogens.

Wastewater Disposal System

28. Historically, the Discharger has disposed of effluent onto approximately 2.5 acres of sprayfields. However, in March 2005, the Discharger expanded the sprayfields to approximately 3.6 acres. The sprayfields are divided into two separate areas (i.e., upper and lower sprayfields). The upper sprayfield is approximately 2.2 acres, while the lower sprayfield is approximately 1.4 acres. Although the additional 1.1 acres of new sprayfields were constructed in 2004, wastewater has not yet been applied to the new sprayfield area, as it was not described in WDRs Order No. 98-238.

29. The spray disposal system consists of two irrigation pumps, portable aluminum piping from the irrigation pump to the sprayfields, aluminum distribution piping at each sprayfield, and full impact sprinkler heads. Sprinkler heads are spaced approximately 30 feet apart. There are about 60 sprinkler heads in the upper sprayfield and about 40 in the lower sprayfield. Manually operated valves control flow to each sprayfield.

30. The RWD specifies that in order to (a) prevent any runoff or standing water on the sprayfields caused by effluent irrigation and (b) prevent potential groundwater degradation due to percolation of effluent, irrigation should be conducted in such a manner that wastewater

application rates do not exceed evapotranspiration (ET) rates for the type of crop grown on the sprayfields. Sprayfield ET rates (based on 100 year precipitation conditions) provided in the water balance are presented in the table below:

Month	Sprayfield ET (gpd)
January	3,330
February	4,066
March	8,653
April	12,865
May	13,757
June	19,940
July	26,615
August	25,678
September	15,929
October	9,555
November	4,535
December	3,144

31. The original sprayfields were seeded with a perennial pasture grass mix. The RWD included a Spray Irrigation Management Plan, which recommends that cereal rye be planted in the sprayfields. Planting of cereal rye is recommended because of its extensive root system, which may help limit deep leaching of nitrogen and other nutrients, and because it grows throughout the winter, thereby enhancing evapotranspiration. The Spray Irrigation Management Plan also recommends that the spray irrigation areas be mowed (including removal of cuttings) at least once per month during the late spring and early summer (April through August) to maintain the grass height at 4 inches or less to promote evaporation.

32. The RWD provides results of a salt balance conducted for the sprayfields. The results indicate that evaporation of applied effluent to the sprayfields will cause a buildup of salts in the surficial soil potentially causing highly soluble salts to redissolve into percolating rainwater during the winter, which could cause an increase in groundwater salinity. A salt balance using a simple mixing zone model suggests that sprayfield operation could potentially increase the TDS in groundwater by 30 to 100 mg/L. The RWD states that in order to prevent degradation of the groundwater from salts, it may be necessary to periodically remove salt laden surficial soils and replace them with new topsoil. The RWD recommends annual testing of the soils within the sprayfields to monitor the buildup of soluble salts and determine when to remove and replace topsoil. The RWD recommends that soils be removed and replaced with topsoil when the salinity in the upper six inches exceeds 4,000 omhos/cm. This Order requires the Discharger to conduct annual monitoring to determine whether soils in the sprayfields need to be removed and replaced.

33. The RWD provides calculations for annual nitrate mass loading rates to the sprayfields. The calculations assume that approximately 4.5 million gallons of effluent will be irrigated on 3.6 acres of sprayfields, and the average concentration of nitrate as nitrogen will be 10 mg/L. Results

of the calculation indicate that the nitrate as nitrogen loading will be approximately 105 lbs/arce/year, which is below crop uptake values.

34. Historically, the Discharger has disposed of some wastewater into the landfill gas flare unit. The RWD indicates that the Discharger does not propose to use the landfill gas flare unit as a means of disposal. However, this Order allows the disposal of wastewater into the gas flare unit, provided that the Discharger submit a report, showing that the discharge of wastewater into the gas flare unit will not impact the underlying groundwater or surface water. The discharge will be allowed upon approval of the report by the Executive Officer.

GROUNDWATER MONITOIRNG

35. Based on information presented in an April 2005 quarterly groundwater monitoring report, the depth to groundwater in wells located around the sprayfields ranges from approximately 50 to 67 feet below ground surface.

36. In 2004, the Discharger installed three groundwater monitoring wells (SF1, SF2, and SF3) downgradient of the sprayfields. The RWD provided results of quarterly groundwater sampling from December 2004 through May 2005. Results of groundwater sampling are presented below:

		Groundwater MW SF1		Groundwater MW SF2		Groundwater MW SF3	
Parameters	Units	Min/Max	Average	Min/Max	Average	Min/Max	Average
Calcium	mg/L	9.8-17.8	12.3	18-25.2	22.5	40-58	50.9
Magnesum	mg/L	20-29.1	24.4	7.5-9.9	8.9	24.9-35.6	31.9
Sodium	mg/L	12-17.5	14.1	7.6-12.9	11.4	20-23	21.8
Potassium	mg/L	<1-1.69	1.69	<1	<1	<1	<1
Alkalinity	mg/L	16-28	22.5	79-110	89.2	63-81	68.5
Chloride	mg/L	33-52	40	2-3.8	2.4	52-75	60.8
Sulfate	mg/L	66-120	96.2	30-37	33	140-210	174
TDS	mg/L	210-910	382	140-240	174	380-480	434
Nitrate	mg/L	<0.23	<0.23	<0.23-1.3	1.3	<0.23-2.6	2.6
Iron	mg/L	0.15-5.8	2.13	0.048-0.071	0.05	1.8-2.4	2.1
Arsenic	mg/L	<0.05-0.052	0.052	<0.05-0.057	0.057	<0.05-0.063	0.063
Manganese	mg/L	0.83	0.83	0.34	0.34	4.9	4.9
Nickel	mg/L	<0.04	<0.04	<0.04	<0.04	0.066	0.066
Total VOCs	ug/L	ND-17	17	ND-5.9	5.9	ND	ND
pH	units	5.2-5.5	5.0	6.4-6.6	6.45	6.0-6.1	6.06
EC	omhos/cm	420	420	250	250	860	860

37. WDRs Order No. 98-238 required the Discharger to sample two lysimeters (one in the upper sprayfield and one in the lower sprayfield) within the spray disposal site. The table below presents the results of water sampled from each lysimeter.

Parameters	Units	Min/Max Concentration	Average Concentration
Lower Sprayfield Lysimeter (LS3)			
BOD	mg/L	1.4 –6.6	3.2

Parameters	Units	Min/Max Concentration	Average Concentration
pH	units	6.5.6.95	6.7
TSS	mg/L	<0.1-0.6	0.2
TDS	mg/L	660-750	706
Chloride	mg/L	150-170	160
Sulfate	mg/L	220	220
Sulfide	mg/L	<0.1	<0.1
EC	umhos/cm	982-1069	747
Upper Sprayfield Lysimeter (LS4)			
BOD	mg/L	<1-6.6	2.6
pH	units	5.9-6.4	6.1
TSS	mg/L	<0.1-0.1	0.1
TDS	mg/L	500-620	550
Chloride	mg/L	31-40	35.5
Nitrate	mg/L	<1	<1
Sulfate	mg/L	35	35
Sulfide	mg/L	0.14	0.14
Alkalinity	mg/L	370	370
EC	omhos/cm	730-782	761

38. The RWD provides a groundwater quality evaluation based on five quarters of groundwater sampling data. Because the groundwater wells were installed downgradient of the disposal areas, groundwater monitoring data were compared to background concentration limits established for the Landfill Waste Management Units (WMUs) 1 and 2. There are no upgradient wells around the sprayfields. The RWD states that certain mineral parameters exceeded background concentration established for WMUs 1 and 2 and were most likely related to natural processes, with the possible exception of chloride. Comparison of groundwater data, applied irrigation rates, and lysimeter sampling data (lysimeters within the sprayfields), suggests sprayfield operations in 2003 and 2004 may have caused or contributed to elevated chloride concentrations in the unsaturated zone and shallow groundwater. Because there are no upgradient monitoring wells around the spray disposal area to establish true spray disposal area background conditions, this Order requires the Discharger to install at least one groundwater monitoring well upgradient of the spray disposal area to establish background groundwater quality conditions

Site Specific Conditions

39. The average annual precipitation for the area is approximately 38.7 inches. The 100-year return rainfall is approximately 65 inches. Precipitation data is based on information collected from the Western Regional Climate Center for Placerville.

40. The average annual pan evaporation is approximately 67.9 inches.

41. The facility lies within the Webber Creek Hydrologic Unit Area No. 514.31, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

42. According to information presented in the RWD, the soils and geology within the sprayfields are sandy loams approximately one to two feet thick. The sandy loam soils are underlain by friable rock fill.

Groundwater Degradation

43. State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation Policy") requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the State Board and Regional Board policies (e.g., quality that exceeds water quality objectives).

44. The Regional Board finds that some degradation of groundwater beneath the wastewater sprayfields is consistent with Resolution 68-16 provided that:

    a. The degradation is confined within a specified boundary;

    b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;

    c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and

    d. The degradation does not result in water quality less than that prescribed in the Basin Plan.

45. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e., background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, and waste constituent treatability).

46. Economic prosperity of local communities and associated industry is of benefit to the people of California, and therefore sufficient reason exists to accommodate growth and some groundwater degradation around the WWTF, provided that the terms of the Basin Plan are met.

Treatment and Control Practices

47. This WWTF provides treatment and control of the discharge that incorporates:

    a. Technology for secondary disinfected treatment of Class II leachate, septage, and portable toilet waste;

    b. A Sprayfield Operation and Maintenance Plan; and

    c. Certified operators to assure proper operation and maintenance.

48. The WWTF design and effluent disposal program incorporates minimal BPTC measures. In order to determine compliance with Resolution No. 68-16 it is appropriate to establish a schedule for installation and sampling of additional groundwater monitoring wells and to formally determine background groundwater concentrations for selected constituents. In addition, TDS loading rates on the disposal fields appear to be excessive. If groundwater is degraded or there is evidence that the discharge may cause degradation, then the Discharger will be required to evaluate and implement additional BPTC measures for each conveyance, treatment, storage, and disposal component of the system. Completion of these tasks will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved.

49. This Order establishes interim groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16.

Basin Plan, Beneficial Uses and Regulatory Considerations

50. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.

51. Surface water drainage from the WWTF is to Martinez Creek, a tributary to the North Fork of the Cosumnes River.

52. The beneficial uses of the Consumnes River are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration for aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

53. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, and industrial service and process supply.

54. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Regional Board's adoption of waste discharge requirements and enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Regional Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.

55. The Basin Plan water quality objective for chemical constituents requires that, at a minimum, waters designated as domestic or municipal supply must meet the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaiminant Levels-Rangers) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

56. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants animals, or aquatic life. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

57. Section 13241 of the Water Code requires the Regional Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. Water Code Section 13263 requires the Regional Board to address the factors in Section 13241 in adopting waste discharge requirements. The State Board, however, has held that a Regional Board need not specifically address the Section 13241 factors when implementing existing water quality objectives in waste discharge requirements because the factors were already considered in adopting water quality objectives. These waste discharge requirements implement adopted water quality objectives. Therefore, no additional analysis of Section 13241 factors is required.

58. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.

59. The Regional Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.

60. Federal regulations for stormwater discharges promulgated by the EPA (40 CFR Parts 122, 123, and 124) require specific categories of facilities which discharge stormwater to obtain NPDES permits. This facility is within the specific categories described by the US EPA, and it is therefore appropriate to require that the Discharger submit a Notice of Non-Applicability, apply for a No Exposure Certification, or obtain coverage for its processing facility under the State Board's Water Quality Order No. 97-03-DWQ to comply with these regulations.

61. On 10 May 1994 the El Dorado County Board of Supervisors certified an April 1994 addendum to the January 1992 Final Environmental Impact Report for the landfill facility (including the WWTF) in accodance with the California Environmental Quality Act (CEQA Public Resources Code Section 21000, et seq) and the State Guildlines. In addition, the El Dorado County Board of Supervisors adopted a Negative Delaration for the additional sprayfields, acceptance of portable toilet waste, and construction of an additional two million gallon storage tank at the WWTF on 16 December 2005, in accordance with the CEQA and the State Guidelines.

62. The action to update WDRs for this existing facility is exempt from the provisions of the CEQA, in accordance Title 14, California Code of Regulations (CCR), Section 15301.

63. Section 13267(b) of the California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

64. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2006-0019" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the wastes subject to this Order.

65. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC Section 13801, apply to all monitoring wells.

66. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

67. The discharge authorized herein and the treatment and storage facilities associated with the discharge, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), Section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;

    b. The waste discharge requirements are consistent with water quality objectives; and

    c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

68. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

69. All of the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

70. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

71. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that Order No. 98-238 is rescinded and, pursuant to Sections 13263 and 13267 of the California Water Code, the County of El Dorado, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of treated wastewater downstream of the WWTF, other than at the approved sprayfields, is prohibited.

4. The acceptance and discharge of restaurant and grease trap waste, car wash pumpings, and other commercial or industrial wastes is prohibited.

5. Discharge of waste classified as 'hazardous', as defined in Sections 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or 'designated' as defined in Section 13173 of the California Water Code, is prohibited.

6. Public contact with reclaimed water is prohibited.

7. Surfacing of wastewater outside or downgradient of the Class II leachate surface impoundment is prohibited.

8. Surfacing of wastewater within or downgradient of the sprayfield is prohibited.

B. Discharge Specifications:

1. The monthly average inflow to the WWTF shall not exceed 10,500 gpd. However, if the Discharger obtains a permit with EID to discharge wastewater to the EID Deer Creek WWTP, then the Discharger may submit a report (as described in Provision G.1.a) to the Executive Officer, and upon approval, the Executive Officer may increase the flow limit up to the calculated disposal capacity. In no case shall the flow exceed a monthly average of 16,000 gpd.

2. The monthly average discharge of treated effluent to the sprayfields shall not exceed the following:

Month	Discharge to Sprayfields (gpd)
January	3,300
February	4,000
March	8,600
April	12,900
May	13,800
June	20,000
July	26,700
August	25,700
September	16,000
October	9,600
November	4,500
December	3,100

3. Disposal of effluent shall be confined to the sprayfields as defined in this Order. Upon the Executive Officer's approval of the report described in Provision G.1.b, the Discharger may dispose of wastewater into the landfill gas flare unit.

4. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.

5. Neither the treatment nor the discharge shall cause a condition of pollution or nuisance as defined by the California Water Code, Section 13050.

6. Objectionable odor originating at the facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

7. As a means of discerning compliance with Discharge Specification No. 6, the dissolved oxygen content in the upper zone (one foot) of the effluent storage tank(s) shall not be less than 1.0 mg/L.

8. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.

9. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.

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

11. The WWTF shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary infiltration and inflow during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

12. The freeboard in the effluent storage tanks shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.

13. By **1 November** each year, available storage tank capacity shall at least equal the volume necessary to comply with Discharge Specifications No. 11 and No. 12.

14. The Discharger's highest priority shall be to treat and dispose of liquid wastes contained in the Class II surface impoundment. The Class II surface impoundment shall be emptied by **1 November** of each year.

15. The Discharger shall implement the items described in Spray Irrigation Management Plan submitted as part of the RWD.

16. The effluent storage tanks shall be managed to prevent the breeding of mosquitoes. In particular,

a. Weeds shall be minimized through control of water depth, harvesting, and/or herbicides.

b. Dead algae, vegetation, and debris shall not accumulate on the water surface.

C. Effluent Limitations

1. Effluent discharged to the spray disposal area shall not exceed the following limits:

Constituent	Units	Monthly Average	Daily Maximum
BOD [1]	mg/L	40	80
Total Settleable Solids	mg/L	0.5	1.0
Ammonia as Nitrogen	mg/L	1.5	-
Zinc	mg/L	2.0	-
Formaldehyde	ug/L	20	-
Phenols	ug/L	2,100	-
Total VOCs	ug/L	Non detect[3]	-
Total Coliform Organisms	MPN/100ml	23[2]	240

[1] BOD denotes 5-day biochemical oxygen demand at 20° C.
[2] Measured as a monthly median.
[3] Detection limit to range from <0.5 to 1.0 ug/L

2. Effluent discharged to the sprayfields shall not have a pH of less than 6.5 or greater than 8.4.

D. Sprayfield Specifications

1. Public contact with wastewater shall be controlled through use of fences and cautionary signs, and/or other appropriate means.

2. Application of effluent shall comply with the following setback requirements:

Setback Definition[1]	Minimum Irrigation Setback (feet)
Edge of sprayfields to property boundary	50
Edge of sprayfields to public road	50
Edge of sprayfields to irrigation well	100
Edge of sprayfields to domestic well	100

Setback Definition[1]	Minimum Irrigation Setback (feet)
Edge of sprayfields to manmade or natural surface water drainage course [2]	50

[1] As defined by the wetted area produced during irrigation.
[2] Excluding ditches used exclusively for tailwater return.

3. Irrigation runoff (i.e., tailwater) shall be completely contained within the designated sprayfields and shall not enter any surface water drainage course.

4. Irrigation of effluent shall not be performed within 24 hours of a forecasted storm, during a storm, within 24 hours after any measurable precipitation event, or when the ground is saturated.

5. Spray irrigation of effluent is prohibited when wind velocities exceed 30 mph.

6. Mowing and removing grass within the sprayfields shall be conducted during the summer (i.e., May through August) when the grass height exceeds four inches.

7. Soils within the sprayfields shall be removed and replaced with new soils when the upper six inches has an EC value greater than 4,000 omhos/cm, as determined by the soil monitoring requirements in Monitoring and Reporting Program No. R5-2006-0019. The removal and replacement shall take place within six months of receipt of the laboratory data. Once the soil is removed, wastewater shall not be applied until the new soil is placed and a crop planted.

8. The sprayfields shall be managed to prevent breeding of mosquitoes. In particular:

   a. There shall be no standing water 48 hours after irrigation ceases;

   b. Tailwater ditches must be maintained essentially free of emergent, marginal, and floating vegetation, and;

   c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store effluent.

9. Application rates of wastewater water shall not exceed agronomic rates considering the crop, soil, climate, and irrigation management system.

E. General Solids Disposal Specifications:

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, and tanks as needed to ensure optimal plant operation.

2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

3. Any storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner allowed by WDRs Order No. R5-2006-0019 for the Union Mine Landfill.

F. Groundwater Limitations:

1. Release of waste constituents from any wastewater treatment, storage, or disposal system component associated with the WWTF shall not cause groundwater under and beyond that system component, as determined by an approved well monitoring network, to:

   a. Contain any of the following constituents in concentration greater than as listed or greater than ambient background quality, whichever is greater:

Constituent	Units	Limitation
Ammonia (as NH_4)	mg/L	1.5
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 mL	<2.2
Total Dissolved Solids [1]	mg/L	450
Total Nitrogen[2]	mg/L	10
Nitrite (as N)	mg/L	1
Nitrate (as N)	mg/L	10
Zinc	mg/L	2.0
Bromoform	µg/L	4
Bromodichloromethane	µg/L	0.27
Chloroform	µg/L	1.1
Dibromochloromethane	µg/L	0.37
Formaldehyde	µg/L	2.0
Phenols	µg/L	2,100

Constituent	Units	Limitation

[1] A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].
[2] Measured as sum of nitrate, nitrite, and total kjeldahl nitrogen.

b. Exhibit a pH of less than 6.5 or greater than 8.4 pH units, or be lower than ambient background groundwater quality.

c. Impart taste, odor, or color that creates nuisance or could impair any beneficial use.

G. Provisions

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described by Provision G.3.

   a. At **least 45 days** before the Discharger wishes to increase the monthly average influent flows, the Discharger shall submit a report showing that it has obtained a permit with EID to discharge surplus effluent to the EID Deer Creek WWTP. The report shall (1) provide a copy of the permit, (2) describe how much wastewater EID will accept on a monthly average and annual basis, and (3) provide a revised water balance (for the 100 year annual precipitation conditions) showing how much wastewater the WWTF can treat, store, dispose of based on the discharge to EID system.

   b. At **least 90 days** before the Discharger wishes to use the landfill gas flare unit as a means of disposing of wastewater, the Discharger shall submit a report showing what improvements have been made to the gas flare unit, and how discharge of wastewater into the unit will not impact the underlying groundwater or surface waters.

   c. By **15 February 2006**, the Discharger shall submit a report certifying that the second two-million gallon aboveground storage tank has been installed.

   d. By **1 March 2006**, the Discharger shall submit a report certifying that it has either installed an influent flow meter to monitor leachate flows entering the WWTF, or has repaired the pump station such that leachate flows can be metered through the pump station. The report shall show that the meter(s) is operating and accurately recording all influent flows.

   e. By **15 March 2006**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan*. The workplan shall describe the installation of sufficient wells to allow evaluation of the groundwater quality upgradient of the sprayfield disposal areas. The workplan shall conform to items listed in Section 1 of Attachment C (*Items to be Included a Monitoring Well Installation Workplan*) to this Order, including a Groundwater Sampling and Analysis Plan.

f. By **15 May 2006**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report*. The report shall be consistent with, and include the items listed in, the second section of Attachment C of this Order. The report shall describe the installation and development of the monitoring wells, explain any deviation from the approved workplan, and clearly show that Discharger has the expertise and equipment necessary to collect groundwater samples. Alternatively, the report may describe the qualified consultant that the Discharger will use to collect groundwater samples.

g. By **1 August 2006,** the Discharger shall submit a report certifying that all of the vegetation within the effluent storage tank has been cleaned out and removed.

h. By **30 June 2008**, the Discharger shall submit a *Background Groundwater Quality Study Report*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data, calculate the concentration in background monitoring wells, and compare background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with: 1) the calculated background concentration, and 2) the interim numeric limitations set forth in Groundwater Limitation F.1.a. Where background concentrations are statistically greater than the interim limitations specified in Groundwater Limitation F.1.a, the report shall recommend final groundwater limitations for waste constituents listed therein. Subsequent use of a concentration as a final groundwater limitation will be subject to the discretion of the Executive Officer.

i. **At least 90 days prior** to any sludge removal or disposal from the storage tanks, the Discharger shall submit a *Sludge Cleanout Plan*. The plan shall include a detailed program and schedule for periodic tank cleanout and disposal of sludge, provide a description on how sludge will be dewatered, stored and handled on-site, and provide a description of where the sludge will be disposed of.

2. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain waste constituents in concentrations statistically greater than background water quality then, within **120 days** of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitation F.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

3. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the

required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall include the professional's signature and/or stamp of the seal.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2006-0019, which is part of this Order, and any revisions thereto as ordered by the Executive Officer

5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

7. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23 of the California Code of Regulations, Division 3, Chapter 26

8. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.

9. 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."

10. The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board in writing when it returns to compliance with the time schedule.

11. In the event of any change in control or ownership of the WWTF, the Discharger must 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 as Discharger 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, the name and 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 B.3 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 by the Executive Officer.

12. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed herein or by the Executive Officer pursuant to Section 13267 of the CWC. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

13. A copy of this Order shall be kept at the operations facility for the wastewater treatment facility. Key operating personnel shall be familiar with its contents.

14. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, KENNETH D. LANDAU, Acting 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 26 January 2006.

KENNETH D. LANDAU, Acting Executive Officer

AMENDED

Attachments
JSK: 26 January 2006

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0019

FOR
EL DORADO COUNTY
UNION MINE SEPTAGE/LEACHATE TREATMENT FACILITY
EL DORADO COUNTY

This Monitoring and Reporting Program (MRP) presents requirements for monitoring of wastewater influent, effluent, effluent storage tanks, spray disposal areas, groundwater, and sludge. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. Specific sample station locations shall be approved by Regional Board staff prior to implementation of sampling activities.

All wastewater samples should be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Field testing instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. Instruments are serviced and/or calibrated per manufacturer's recommendations; and
3. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

INFLUENT MONITORING

Influent samples shall be collected at the same frequency and at approximately the same time as effluent samples and should be representative of the influent at the headworks prior to treatment. Influent monitoring shall include, at a minimum the following. Flows shall be measured using flow meters.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow from Class II impoundment	gpd	Continuous	Daily	Monthly
Flow into digester #1	gpd	Continuous	Daily	Monthly
Flow into digester #2	gpd	Continuous	Daily	Monthly
Total flow into WWTP	gpd	Continuous	Daily	Monthly
BOD[1]	mg/L	Grab	Monthly	Monthly

[1] 5-day biochemical oxygen demand.

EFFLUENT MONITORING

Effluent samples shall be collected downstream from the treatment system prior to discharge to the spray disposal area. At a minimum, effluent monitoring shall consist of the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD[1]	mg/L	Grab	Weekly	Monthly
pH	Standard Units	Grab	Weekly	Monthly
Total Coliform Organisms[2,3]	MPN[4]/100 mL	Grab	Weekly	Monthly
Total VOCs	ug/L	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Zinc	mg/L	Grab	Monthly	Monthly
Ammonia	ug/L	Grab	Monthly	Monthly
Phenols	ug/L	Grab	Monthly	Monthly
Formaldehyde	ug/L	Grab	Monthly	Monthly
Standard Minerals [5]	mg/L	Grab	Annually	Annually

[1] 5-day Biochemical Oxygen Demand
[2] Effluent samples collected for Total Coliform Organisms analysis shall be collected at a point after disinfection and prior to discharge to the spray disposal area.
[3] Using a minimum of 10 tubes or two dilutions
[4] Most Probable Number
[5] Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.
[6] EPA Method 8260 or equivalent

EFFLUENT STORAGE TANKS

Samples shall be collected from an established sampling station in an area that will provide a sample representative of each effluent storage tank. Freeboard shall be measured vertically from the surface of the tank water to the lowest elevation of overflow and shall be measured to the nearest 0.1 feet. Each effluent storage tank shall be visually monitored on a weekly basis for signs leakage and tank integrity. Monitoring of each storage tank shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen[1]	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly

[1] Samples shall be collected at a depth of one foot, opposite the inlet. Samples shall be collected between 0800 and 1000 hours.

SPRAY DISPOSAL AREA MONITORING

Monitoring of the spray disposal areas shall be conducted **daily** when the disposal areas are used, and the results shall be included in the monthly monitoring report. Evidence of erosion, field saturation, irrigation runoff, berm seepage, or the presence of nuisance conditions shall be noted in the report. Effluent monitoring results shall be used in calculations to ascertain loading rates at the spray disposal

areas. Flow shall be measured using a meter. Monitoring of the spray disposal areas shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flows to each sprayfield[1]	Gallons	Continuous	Daily	Monthly
Rainfall[3]	Inches	Observation	Daily	Monthly
Acreage Applied [1]	Acres	Calculated	Daily	Monthly
Water Application Rate [2]	gal/acre/day	Calculated	Daily	Monthly
Total Nitrogen Loading Rate [2,5]	lbs/ac/month	Calculated	Monthly	Monthly
Total Dissolved Solids Loading Rate [2]	lbs/ac/month	Calculated	Monthly	Monthly
Height of grass within sprayfields[4]	Inches	Observation	Monthly	Monthly

[1] Specific disposal fields shall be identified.
[2] Calculated average for each disposal field area.
[3] Rainfall data to be collected from the weather station that is nearest to the disposal fields.
[4] If the grasses within the spray disposal fields were mowed and removed, then the monthly monitoring report shall provide a date in which this occurred.
[5] Measured as sum of nitrate, nitrite, and total kjeldahl nitrogen.

At least **once per week** when the spray disposal areas are being used, the entire sprayfield area shall be inspected to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the Waste Discharge Requirements. A daily log of each inspection shall be kept at the facility and submitted with the monthly monitoring reports. Photocopies of entries into an operator's field log are acceptable. If the spray disposal areas are not used, then the monthly monitoring reports shall state so.

Annually, during October of each year, the Discharger shall test the surficial soils (i.e., upper six inches) within each spray disposal field for the buildup of soluble salts. A minimum of four soil samples shall be collected from each sprayfield and be composited. Soil testing shall be conducted at a certified lab and measured with the saturated paste or 1:1 soil to water methods. Results of soil monitoring shall be included in the annual monitoring reports.

GROUNDWATER MONITORING

Beginning with the first quarter 2006, the Discharger shall conduct the following groundwater monitoring program. Prior to construction of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below.

Prior to sampling, groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 foot. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. Samples shall be collected using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling and Reporting Frequency[4]
Groundwater Elevation[1]	0.01 Foot	Measurement	Quarterly
Depth to Groundwater	0.01 Foot	Calculated	Quarterly
Gradient	Feet/Foot	Calculated	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly
Total Coliform Organisms[2]	MPN/100ml	Grab	Quarterly
pH	Standard units	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Nitrates/nitrate as Nitrogen	mg/L	Grab	Quarterly
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly
Zinc	mg/L	Grab	Quarterly
Ammonia	µg/L	Grab	Quarterly
Phenols	µg/L	Grab	Quarterly
Formaldehyde	µg/L	Grab	Quarterly
Total VOCs[6]	µg/L	Grab	Quarterly
Total Trihalomethanes[5]	µg/L	Grab	Quarterly
Standard Minerals[3]	mg/L	Grab	Annually

[1] Groundwater elevation shall be based on depth-to-water using a surveyed measuring point elevation on the well and a surveyed reference elevation.
[2] Using a minimum of 15 tubes or three dilutions
[3] Standard Minerals shall include, at a minimum, the following elements and compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.
[4] The existing monitoring well shall be sampled beginning with the First Quarter 2006. The additional required wells shall be added to the sampling program upon installation.
[5] EPA Method 8020 or equivalent.
[6] EPA Method 8260 or equivalent

LYSIMETER MONITORING

During periods of wastewater application to the sprayfields, the Discharger shall monitor the sprayfield lysimters (L3N and L3S) on a monthly basis for the presence of liquids. Upon detection of liquids in the lysimeters, the Discharger shall sample and analyze liquids for the following. If any liquid remains after samples are collected, the Discharger may purge the lysimeters.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
pH	Standard Units	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Zinc	mg/L	Grab	Monthly	Monthly
Ammonia	ug/L	Grab	Monthly	Monthly
Phenols	ug/L	Grab	Monthly	Monthly
Formaldehyde	ug/L	Grab	Monthly	Monthly

[1] 5-day Biochemical Oxygen Demand

SLUDGE MONITORING

The Discharger shall keep records regarding the quantity of biosolids and residual sludge generated by the treatment processes; any sampling and analytical data; the quantity of biosolids and residual sludge stored on site; and the quantity removed for disposal. The records shall also indicate the steps taken to reduce odor and other nuisance conditions. Records shall be stored onsite and available for review during inspections.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, storage tank, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a California registered engineer or Geologist and signed/stamped by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board by the **1st day of the second month** following the end of the reporting period (i.e. the January monthly report is due by 1 March). At a minimum, the reports shall include:

1. Results of the influent, effluent, effluent storage tank, sprayfield, and lysimeter monitoring;
2. Copies of inspection logs;
3. A comparison of the monitoring data to the discharge specifications and an explanation of any violation of those requirements;
4. If requested by staff, copies of laboratory analytical report(s); and
5. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

B. Quarterly Report

Beginning with the first quarter 2006, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March report is due by May 1st) and may be combined with the monthly report. The Quarterly Report shall include the following:

1. Results of lysimeter and groundwater monitoring;

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;

4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);

5. A comparison of the monitoring data to the groundwater limitations and an explanation of any violation of those requirements;

6. Summary data tables of historical and current water table elevations and analytical results;

7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and

8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular December monitoring report for the last sampling event of the year;

2. If requested by staff, tabular and graphical summaries of all data collected during the year;

3. An evaluation of the performance of the septage/leachate wastewater treatment system and the groundwater quality beneath the wastewater treatment facility;

4. Results of surficial soil sampling within the spray disposal fields, and dates when surface soils were removed and replaced, if applicable.

5. Summary of information on the disposal of biosolids as described in the "Biosolids Monitoring" section;

6. A discussion of whether the Discharger anticipates removing biosolids in the coming year, and if so, the anticipated schedule for cleaning, drying, and disposal;

7. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;

8. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;

9. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Discharger is in compliance with Title 23, CCR, Division 3, Chapter 26.

10. The results from annual monitoring of the effluent and groundwater;

11. A forecast of influent flows, as described in Standard Provision No. E.4;

12. A statement of when the Spray Irrigation Management Plan was last reviewed for adequacy, and a description of any changes made during the year; and

13. Copies of equipment maintenance and calibration records (including records for the influent flow meter), as described in Standard Provision No. C.4.

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 General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____

KENNETH D. LANDAU, Acting Executive Officer

26 January 2006
(Date)

JSK: 1/26/06

INFORMATION SHEET

ORDER NO. R5-2006-0019
EL DORADO COUNTY
UNION MINE SEPTAGE/LEACHATE TREATMENT FACILITY
EL DOARDO COUNTY

Facilities and Discharge

El Dorado County owns, operates, maintains, and monitors a wastewater treatment facility (WWTF) that includes treatment, storage, and disposal facilities. The Union Mine WWTF receives Class II leachate generated from the Union Mine Landfill, condensate generated during extraction of landfill gas, and septage and portable toilet wastewater generated throughout El Dorado County.

The WWTF consists of aerobic digesters, a sludge centrifuge, disinfection facilities, and an effluent storage tank. Wastewater disposal (via spray irrigation) occurs on approximately 3.6 acres of land.

The WWTF was previously regulated by Waste Discharge Requirements (WDRs) Order No. 98-238 for the Union Mine Landfill. Updated requirements for the Union Mile Landfill, landfill gas collection and flare system, and Class II surface impoundment are included in separate WDRs. This Order only prescribes requirements for treatment, storage, and disposal of wastewater.

Waste Discharge Requirement Order No. 98-238 allowed a 30-day average dry weather flow limit not to exceed 30,000 gallons per day. The water balance submitted as part the RWD indicates that the WWTF has sufficient treatment, storage, and disposal capacity for average annual precipitation conditions. The water balance assumes that approximately 9,500 gpd (monthly average) of septage and portable toilet waste, and 3,100 gpd (monthly average) of Class II leachate and landfill gas condensate would be treated and disposed of.

The water balance submitted for 100 year annual precipitation conditions indicates that the WWTF has sufficient treatment and storage capacity provided that the Discharger installs two million gallons of additional storage capacity. However, the water balance indicates that the WWTF does not have sufficient disposal capacity based on 100-year annual precipitation conditions. Based on the water balance calculations for 100-year precipitation, there would be approximately 2.5 million gallons of effluent surplus that the Discharger would need to dispose of. The RWD states that the Discharger is currently installing a two million gallon above ground effluent storage tank, which is to be completed sometime in January 2006. The RWD also states that the Discharger is working with the El Dorado Irrigation District (EID) to obtain a permit to discharge the surplus effluent to the EID Deer Creek wastewater treatment plant. As of the date of this Order, such a permit is not in place.

The RWD also included a water balance, which calculated the flows at which the WWTF would have sufficient disposal capacity based on 100-year annual precipitation conditions. The water balance shows that the wastewater disposal system can dispose of approximately 2,600 gpd (monthly average) of septage and portable toilet waste, and 8,000 gpd (monthly average) of Class II leachate and landfill condensate, or approximately 10,600 gpd in total. This Order limits the monthly average influent flows to 10,500 gpd. However, if the Discharger obtains a permit with EID to discharge wastewater to the EID Deer Creek WWTP, then the Discharger may submit a report to the Executive Officer, and upon approval, the Executive Officer may increase the flow limit up to the calculated disposal capacity. In no case shall the flow shall exceed 16,000 gallons per day.

The RWD provides results of a salt balance conducted for the spray irrigation disposal areas. The results indicate that evaporation of applied effluent to the spray irrigation areas will cause a buildup of salts in the surficial soil in the sprayfields, thereby potentially causing highly soluble salts to redissolve into percolating rainwater during the winter, which could cause an increase in groundwater salinity. The RWD states that in order to prevent degradation of the groundwater from salts, that it may be necessary to periodically remove salt-laden surficial soils and replace them with new topsoil. The RWD recommends that annual testing of the soils within the spray disposal fields be performed to monitor the buildup of soluble salts and determine when to remove and replace topsoil, and recommends that soils be removed and be replaced with topsoil when the salinity in the upper six inches exceeds 4,000 omhos/cm. This Order requires the Discharger to conduct annual monitoring of the soils to determine whether soils in the spray disposal areas need to be removed and replaced, and requires surficial soils to be removed and replaced when soils exceed 4,000 omhos/cm.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Surface water drainage from the spray disposal areas is to Martinez Creek, a tributary to the North Fork of the Consumnes River. The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (industrial, agricultural, and domestic supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

Antidegradation

The antidegradation directives of Section 13000 of the California Water Code require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation" Policy).

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;

- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degradation to water quality objectives.

In allowing a discharge, the Board must comply with CWC section 13263 in setting appropriate conditions. The Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Certain waste constituents in municipal wastewater are not fully amenable to waste treatment and control and it is reasonable to expect some impact on groundwater. Some degradation for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, water recycling, and waste management advantages of municipal utility service to the state far outweigh the environmental impact damage of a community that would otherwise be reliant on numerous concentrated individual wastewater systems. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore sufficient reason to accommodate increases in wastewater discharge provided terms of reasonable degradation are defined and met. The proposed Order authorizes some degradation consistent with the maximum benefit to the people of the state, but does not authorize pollution.

Groundwater monitoring has been conducted at the site since December 2004. Because groundwater monitoring has only been conducted in wells located downgradient from the spray disposal areas and there are no upgradient wells around the sprayfields, staff are unable to establish the most appropriate groundwater limits. In addition, certain aspects of waste treatment and control practices may not be justified as representative of best practicable treatment and control (BPTC). Reasonable time is necessary to gather specific information about the WWTF and the site to make informed, appropriate, long-term decisions. This proposed Order, therefore, establishes interim receiving water limitations to assure protection of the beneficial uses of groundwater of the State pending the completion of certain tasks and provides time schedules to complete specified tasks. The Discharger is expected to identify, implement, and adhere to, BPTC as individual practices are reviewed and upgraded in this process. During this period, degradation may occur from certain constituents, but can never exceed water quality objectives (or background water quality should it exceed objectives) or cause nuisance.

Water quality objectives define the least stringent limits that could apply as water quality limitations for groundwater at this location, except where background quality unaffected by the discharge already exceeds the objective. The values below reflect water quality objectives that must be met to maintain specific beneficial uses of groundwater. Unless natural background for a constituent proves higher, the groundwater quality limit established in proposed Order is the most stringent of the values listed for the listed constituents.

Constituent	Units	Value	Beneficial Use	Criteria or Justification
Ammonia	mg/L	1.5	MUN [1]	Taste and Odor [2]
Boron	mg/L	0.7	AGR [3]	Boron Sensitivity [4]
	mg/L	1.0	MUN[1]	Calif. Drinking Water Action Level[11]
Chloride	mg/L	106	AGR [3]	Chloride sensitivity on certain crops irrigated via sprinklers [4]
		142	AGR [3]	Chloride sensitivity on certain crops [4]
		250	MUN [1]	Recommended Secondary MCL [5]
		500	MUN [1]	Upper Secondary MCL [5]
Iron	mg/L	0.3	MUN [1]	Secondary MCL [6]
Manganese	mg/L	0.05	MUN [1]	Secondary MCL [6]
Nitrate plus Nitrite as N	mg/L	10	MUN [1]	Primary MCL [7]
Nitrite as N	mg/L	1	MUN [1]	Primary MCL [7]
Sodium	mg/L	69	AGR [3]	Sodium sensitivity on certain crops [4]
Total Dissolved Solids	mg/L	450[8]	AGR [3]	Salt sensitivity [4]
		500	MUN [1]	Recommended Secondary MCL [5]
		1,000	MUN [1]	Upper Secondary MCL [5]
Total Coliform Organisms	MPN/100 ml	<2.2	MUN [1]	Basin Plan
Trihalomethanes	µg/L	100	MUN [1]	MCL [8]
Bromoform	µg/L	4	MUN [1]	USEPA Cancer Potency Factor [9]
Bromodichloromethane	µg/L	0.27	MUN [1]	Cal/EPA Cancer Potency Factor [12]
Chloroform	µg/L	1.1	MUN [1]	Cal/EPA Cancer Potency Factor [12]
Dibromochloromethane	µg/L	0.37	MUN [1]	Cal/EPA Cancer Potency Factor [12]
pH	pH Units	6.5 to 8.4	MUN [1]	Secondary MCL [10]
		6.5 to 8.4	AGR [3]	Protect sensitive crops [4]

1 Municipal and domestic supply
2 J.E. Amoore and E. Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No. 6 (1983).
3 Agricultural supply
4 Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985)
5 Title 22, California Code of Regulations (CCR), Section 64449, Table 64449-B
6 Title 22, CCR, Section 64449, Table 64449-A
7 Title 22, CCR, Section 64431, Table 64431-A
8 Title 22, CCR, Section 64439
9 USEPA Integrated Risk Information System
10 Title 40, Code of Federal Regulations, Section 143.3
11 California Department of Health Services, Division of Drinking Water and Environmental Management, Drinking Water Action Levels, http://www.dhs.cahwnet.gov/ps/ddwem.
12 CAL/EPA Toxicity Criteria Database (OEHHA)

Septage waste contains numerous dissolved inorganic waste constituents (i.e., salts, minerals) that together comprise total dissolved solids (TDS). Each component constituent is not individually critical to any beneficial use. Critical constituents are individually listed. The cumulative impact from these other constituents, along with the cumulative affect of the constituents that are individually listed can be effectively controlled using TDS as a generic indicator parameter.

Not all TDS constituents pass through the treatment process and soil profile in the same manner or rate. Chloride tends to pass through both rapidly to groundwater. As chloride concentrations in most

groundwaters in the region are much lower than in treated municipal wastewater, chloride is a useful indicator parameter for evaluating the extent to which effluent reaches groundwater. Boron is another TDS constituent that may occur in wastewater in concentrations greater than groundwater depending on the source water, to the extent residents use cleaning products containing boron, and whether any industrial dischargers utilize boron (e.g., glass production, cosmetics). Other indicator constituents for monitoring for groundwater degradation due to recharged effluent include total coliform bacteria, ammonia, total nitrogen, and Total Trihalomethanes (TTHMs), a by-product of chlorination. Dissolved iron and manganese are useful indicators to determine whether components of the WWTF with high-strength waste constituents, such as sludge handling facilities, are ineffective in containing waste. Exceptionally high TDS and nitrogen also typifies this type of release.

Treatment Technology and Control

Given the character of Class II leachate, septage, and portable toilet waste, secondary treatment technology is generally sufficient to control degradation of groundwater from decomposable organic constituents. Adding disinfection significantly reduces populations of pathogenic organisms, and reasonable soil infiltration rates and unsaturated soils can reduce them further. Neither organics nor total coliform organisms, the indicator parameter for pathogenic organisms, should be found in groundwater in a well-designed, well-operated facility.

Sodium hypochlorite disinfection of effluent causes formation of trihalomethanes, which are priority pollutants. Treatment to reduce these in wastewater generally has not been performed, and little is known at this point on the typical impact on groundwater.

Septage waste typically contains nitrogen in concentrations greater than water quality objectives, which vary according to the form of nitrogen. Degradation by nitrogen can be controlled by tertiary treatment for nitrogen reduction, and agronomic reuse on harvested crops. The effectiveness varies, but generally best practicable treatment and control should be able to control nitrogen degradation at a concentration well below the water quality objectives. The proposed interim limitation reflects water quality objectives.

Waste constituents that are forms of salinity pass through the treatment process and soil profile and effective control of long-term affects relies upon effective source control and pretreatment measures. In the best of circumstances, long-term land discharge of treated municipal wastewater will degrade groundwater with salt (as measured by TDS and EC) and the individual components of salts (e.g., sodium, chloride). The proposed Order sets water quality objectives for the interim while site-specific, constituent-specific limits are developed in conjunction with a BPTC evaluation of source control and pretreatment. The next Order will likely contain effluent limits for salt components other than chloride that, if met, assure groundwater quality will be controlled to an acceptable level.

Other constituents in treated waste that may pass through the treatment process and the soil profile include recalcitrant organic compounds (e.g., ethylene glycol, or antifreeze), radionuclides, and pharmaceuticals. Hazardous compounds are not usually associated with domestic wastes and when

present are reduced in the discharge to inconsequential concentrations through dilution with domestic waste, treatment, and the implementation of effective pretreatment programs. It is inappropriate to allow degradation of groundwater with such constituents, so proposed limitations are nondetect.

A discharge of wastewater that overloads soils with nutrients and organics can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (i.e., below 5), iron and manganese compounds in the soil can solubilize and leach into groundwater. Discharge of residual sludge to land may also lead to increases in groundwater alkalinity and hardness to concentrations that impair the water's beneficial uses and contribute to an overall increase in TDS. Overloading is preventable. Though iron and manganese limits are set at the water quality objective, groundwater pH is expected to remain the same as background.

Title 27

Title 27, CCR, section 20380 et seq. ("Title 27"), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27, except for residual sludge and solid waste generated as part of the treatment process [section 20090(a) of Title 27]. The condition requires that the discharge not result in violation of any water quality objective in groundwater.

Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), under the condition that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a wastewater treatment facility can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan. This means, among other things, degradation of groundwater must be consistent with Resolution 68-16 and in no case greater than water quality objectives. The conditions for sludge, solid waste, and biosolids management proposed in this Order are intended to assure this and must all be evaluated along with other aspects of BPTC.

Proposed Order Terms and Conditions

Discharge Prohibitions and Specifications

The proposed Order establishes an average monthly dry weather flow limit of 10,500 gpd. However, if the Discharger obtains a permit with EID to discharge wastewater to the EID Deer Creek WWTP, the Executive Officer may increase the flow limit up to the calculated disposal capacity. In no case shall the flow shall exceed 16,000 gpd. The proposed discharge specifications for BOD_5 is based on the treatment technologies employed. The proposed Order requires the Discharger to disinfect the effluent when the Discharger disposes of wastewater to the spray disposal field. The discharge specifications regarding dissolved oxygen and freeboard are consistent with Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

In order to protect public health and safety, the proposed Order requires the Discharger to comply with applicable provisions of Title 22 and to implement best management practices with respect to effluent disposal (e.g., to dispose of effluent at reasonable rates considering the crop, soil, climate, and irrigation management plan.).

Monitoring Requirements

Section 13267 of the CWC authorizes the Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The proposed Order includes monitoring requirements for influent, effluent, storage tank, spray disposal area, groundwater, and sludge.

The Title 27 zero leakage protection strategy relies heavily on extensive groundwater monitoring to increase a discharger's awareness of, and accountability for, compliance with the prescriptive and performance standards. With a high volume, concentrated, uncontained discharge to land, monitoring takes on even greater importance. The proposed Order includes monitoring of applied waste quality, application rates, and groundwater.

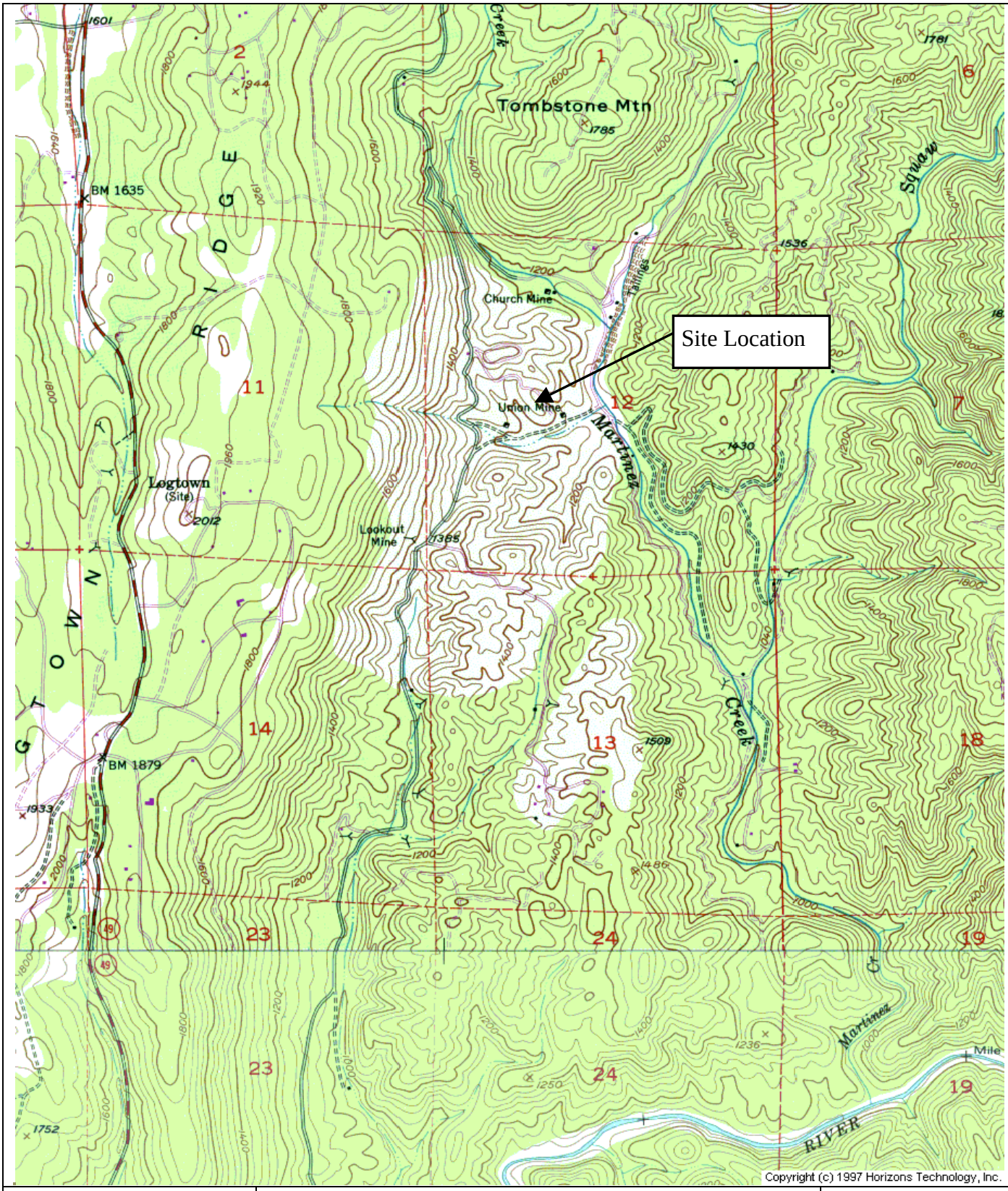
Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been in effect and successfully implemented for many years. No regulation currently specifies similar criteria more suitable for a situation where extensive infiltration into groundwater occurs. However, where, as here, such infiltration occurs, it is appropriate that the Title 27 groundwater monitoring procedures be extended and applied on a case-by-case basis under Water Code section 13267.

The Discharger must monitor groundwater for constituents present in the discharge and capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate.

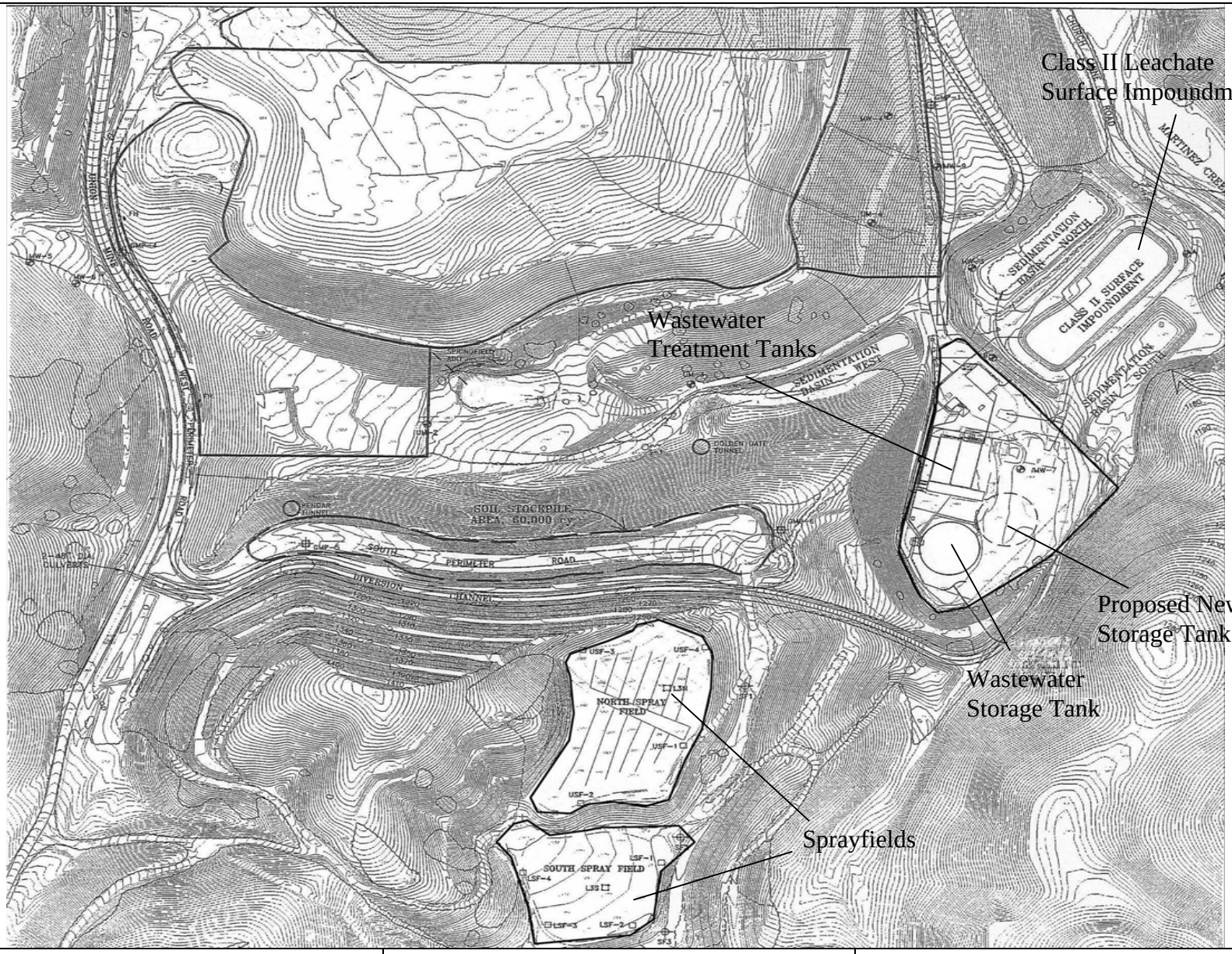
Reopener

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final effluent and groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by schedules set forth in the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

JSK: 26-Jan-06



Drawing Reference: U.S.G.S Quad Name TOPOGRAPHIC MAP 7.5 MINUTE QUAD	**SITE LOCATION MAP** El Dorado County Class II Leachate and Septage Treatment and Disposal System El Doardo County	Scale: Approx 1:24,000



DRAWING REFERENCE: NJF Engineering Wastewater Treatment and Disposal Facilities Sheet 2	**SITE PLAN** El Dorado County Class II Leachate and Septage Treatment and Disposal System El Dorado County	**Scale:** Not to Scale

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Alan C. Lloyd, Ph.D.
Secretary for
Environmental
Protection

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Arnold Schwarzenegger
Governor

ORDER NO. R5-2006-0019
ATTACHMENT C
REQUIREMENTS FOR
MONITORING WELL INSTALLATION WORKPLANS
AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions
Proposed monitoring well locations and rationale for well locations
Topographic map showing facility location, roads, and surface water bodies
Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:
On-site supervision of drilling and well installation activities
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):
Diagram of proposed well construction details
- Borehole diameter
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)
- Anticipated depth of well, length of well casing, and length and position of perforated interval

- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
Method of development to be used (i.e., surge, bail, pump, etc.)
Parameters to be monitored during development and record keeping technique
Method of determining when development is complete
Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:
Purpose of the well installation project

Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
Number of monitoring wells installed and copies of County Well Construction Permits
Topographic map showing facility location, roads, surface water bodies
Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):
On-site supervision of drilling and well installation activities
Drilling contractor and driller's name
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals and logging methods
Well boring log
- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):
Well construction diagram, including:
- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:
Date(s) and method of development
How well development completion was determined
Volume of water purged from well and method of development water disposal
Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):
Identify the coordinate system and datum for survey measurements
Describe the measuring points (i.e. ground surface, top of casing, etc.)
Present the well survey report data in a table
Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix