

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**BOARD ORDER NO. R6V-2012-0058
WDID NO. 6B360109001**

**REVISED WASTE DISCHARGE REQUIREMENTS
FOR**

**VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
PERCOLATION POND AND BIOSOLIDS WASTE UNITS**

_____ San Bernardino County _____

The California Regional Water Quality Control Board, Lahontan Region (Water Board) finds:

1. Discharger

The Victor Valley Wastewater Reclamation Authority (VWVRA) is a joint powers authority and public agency of the State of California. The authority was formed to consolidate wastewater treatment services for the Victor Valley. Member agencies include the Town of Apple Valley, the City of Hesperia, the County of San Bernardino, including County Service Area # 42 (Oro Grande) and # 64 (Spring Valley Lake), and the City of Victorville.

For the purpose of this Water Board Order (Order), the VWVRA is referred to as the "Discharger."

2. Report of Waste Discharge

On May 30, 2008, the Discharger submitted a Report of Waste Discharge (RWD) for the discharge of tertiary treated municipal and industrial wastewater from the Victor Valley Municipal Wastewater Treatment Plant (Facility) to onsite percolation ponds. Additional information was provided at the request of Regional Board staff in March 2011 (Cumulative Impact Analysis) and in February, March and August of 2012. The report of waste discharge was deemed complete on April 2, 2012. The list of technical information comprising the RWD is presented in Attachment A.

The Discharger owns the facility and the percolation pond discharge system. The facility is a Publicly Owned Treatment Works facility as defined in Clean Water Act, Section 212.

3. Reason for Action

This Order revises and updates requirements for percolation pond discharges from existing ponds 1 through 10 (pond No. 9 may be reconstructed under requirements specified in this Order) and authorizes discharges into new percolation ponds 11-13 (existing pond 14 is assigned to receive discharges from others besides the Discharger). This Order establishes time schedules to: (1) install liners and

eliminate seepage from the biosolids lagoons, and (2) submit technical reports describing actions completed. Additionally this Order establishes total nitrogen effluent limits.

4. Facilities

The Discharger owns and operates the facility located along the west side of the Mojave River. The facility has a flow treatment capacity of 18.0 million gallons per day (MGD). Waste treatment consists of primary, secondary activated sludge, and tertiary processes. The process facilities addressed by this Order are shown in Table 1.

There are two biosolids lagoons (SL-1 and SL-2) and eleven biosolids drying beds (DB-1 thru DB-11) in the facility (Attachment B). The Discharger could not produce construction details of the liners for biosolids drying beds No.1 thru 4 (DB-1 thru DB-4). The biosolids lagoons (SL-1) and (SL-2) were constructed with a 12- inch Bentonite Clay liner. There was no information provided on the permeability for the bentonite clay liners for the biosolid lagoons. The newer biosolid drying beds No. DB-5 through DB-11 were constructed with an 8-inch thick soil-cement mixture paving material to serve as a liner. The permeability of the soil-cement liner in these units ranges from 1.4×10^{-4} cm/sec to 4.2×10^{-6} cm/sec.

The northeast percolation ponds have been used during times when the plant cannot achieve the treatment quality required for direct river discharge. Percolation ponds can either be filled individually or in series. Percolation pond No. 9 was initially constructed as part of the southeast set of ponds. Pond No. 9 was taken out of commission for non-performance issues. This pond was soil-backfilled and made non-existent. The discharge from three existing southwest percolation ponds (11, 12, 13) are proposed to be regulated under this Order for the first time. For the purposes of this Order, the Discharger has excluded percolation pond No. 14 from the VVWRA disposal system.

Table 1 – Process Facilities covered by this Order

Number of Units	Total Surface Area (acres)	Pond	Type of Unit
6	13.7	North Percolation Ponds No. 1, 2, 3, 4, 5, 6	Disposal Percolation Ponds
4	11.0	South East Percolation Ponds ¹ No. 7, 8,9 ¹ ,10	Disposal Percolation Ponds
3	11.5	South West Percolation Ponds No. 11, 12, 13 ²	Disposal Percolation Ponds
2	1.8	Biosolids Lagoons No. SL-1 & SL-2	Waste treatment liquid sludge slurry storage and solids separation lagoon
11	28.3	Biosolids Drying Beds No. DB-1 thru DB- 11	Waste treatment solar sludge de-watering beds

- Note: 1. Percolation pond No. 9 was taken out of commission for non-performance issues. This pond was soil-backfilled and made non-existent. Use of this pond requires submittal of technical reports as required in this Order.
2. Percolation pond No. 14 has been excluded from this Order. Use of this pond requires a submittal of a separate report of waste discharge.

5. Authorized Disposal Sites

The authorized disposal sites are the northeast ponds (1-6), southeast ponds (7, 8 and 10) and the southwest ponds (11, 12, and 13). See Table 1. The location of the land disposal ponds and biosolids lagoons and drying bed sites are shown in the site location map, Attachment B.

6. Order History

- a. On November 17, 1999, the Water Board previously adopted a consolidated Order, consisting of Waste Discharge Requirements (WDRs), Board Order No. 6-99-58 and National Pollutant Discharge Elimination System (NPDES) Permit CAO102822 for surface water and land discharges at the Treatment Plant. That Order prescribed requirements for the tertiary treated discharge of 8.3 MGD to the Mojave River, and a secondary treated discharge of 1.2 MGD to percolation ponds. This Order replaces Board Order No. 6-99-58.
- b. On June 11, 2003, the Water Board adopted Board Order No. R6V-2003-0028, prescribing requirements to supply recycled water to be used at the City of Victorville's Westwinds Golf Course. Amended Orders R6V-2003-0028A1, adopted March 10, 2010, and R6V-2003-0028A2, adopted October 14, 2010, modified Order R6V-2003-0028.
- c. On February 14, 2008, the Water Board adopted Board Order No. R6V-2008-0004, NPDES No. CAO102822, prescribing requirements for the discharge of 14.0 MGD of tertiary treated wastewater to the Mojave River. Board Order No. R6V-2008-0004 rescinded those portions of Board Order No. 6-99-58 that regulate discharges to the Mojave River. All other portions of Board Order No. 6-99-58 remained in effect for the effluent discharged to groundwater by percolation. The NPDES permit establishes effluent limitations for surface water discharges to the Mojave River. Some of those effluent limits are made applicable in this Order for groundwater discharges from the percolation ponds.
- d. On February 14, 2008, the Water Board adopted Cease and Desist Order (CDO) No. R6V-2008-0005 because the discharge of wastes (effluent) to the percolation ponds caused elevated concentrations of nitrate –nitrogen in underlying groundwater, causing a pollution. Treatment upgrades were required to reduce effluent nitrogen concentrations. The Discharger completed treatment plant upgrades to comply with the CDO. The treatment plant now meets final effluent limitations established in Order R6V-2008-04, including for total nitrogen. These improvements have improved effluent water quality such that discharged percolated water has improved underlying receiving groundwater

quality. Current monitoring data indicate receiving groundwater now meets water quality objectives established in the Water Quality Control Plan for the Lahontan Region (Basin Plan).

- e. On June 16, 2010, the Assistant Executive Officer signed Time Schedule Order (TSO) No. R6V-2010-0027 because the discharge of waste does not meet the final effluent limitations prescribed by the Water Board in the NPDES permit. The Time Schedule Order was issued to set forth actions that the Discharger shall take to correct or prevent discharges of waste that violate Board Order No. R6V-2008-004 (NPDES Permit). The Time Schedule Order includes interim effluent limitations and dates for their achievement. The compliance time schedules include interim performance-based effluent limitations for total cyanide (as CN), chlorodibromomethane, and dichlorodibromomethane. The latter two constituents are disinfection by-products resulting from previous use of chlorine to disinfect effluent prior to disposal at both the Mojave River to surface water and percolation ponds to groundwater. In 2012, treatment plant upgrades were completed replacing chlorine disinfection with ultraviolet light. Currently, tertiary treated, nitrogen reduced, effluent is disposed to all percolation ponds regulated by this Order.

7. Facility Location

The Facility is adjacent to and west of the Mojave River floodplain, approximately 2 miles northwest of Oro Grande, CA (See Attachment B). The Discharger owns SE $\frac{1}{4}$ of NW $\frac{1}{4}$ of Sec 12, SW $\frac{1}{4}$ of Sec 12, NW $\frac{1}{4}$ of Sec 13, and the part of the E $\frac{1}{2}$ of Sec 12 and E $\frac{1}{2}$ of Sec 13 that is west of the flood plain of the Mojave River, all within T6N, R5W, SBB&M.

8. Land Ownership

Discharges from the percolation ponds covered by this Order are located on land owned by the Discharger.

9. Receiving Water

The receiving waters are the groundwaters of the Upper Mojave River Valley Groundwater Basin (Department of Water Resources Groundwater Basins Unit No. 6-42).

10. Site Geology, Soils and Hydrogeology

The west side of the Mojave River where the treatment plant is located gradually rises uphill from the river to a plateau bluff that is about 200 feet above the floodplain. The geology and soil types vary depending on the proximity to the river and location along the east facing bluff.

The average depth to groundwater determined from monitoring wells located between the existing southeast percolation ponds and the American Organics Composting Facility is approximately 33 feet. The depth to groundwater beneath the north percolation ponds is about 14 feet.

The facility is located on Cajon Sands west of the river. This is a somewhat excessively drained soil formed by alluvium derived from granitic materials.

The biosolids drying beds and South Percolation Ponds are located on Cajon sands, which rise to the bluff base along the west side of the Mojave River. These are deep and well drained soils in alluvium derived dominantly from granitic material. An intermittent ephemeral wash dissects the Cajon Sands between the South Percolation Ponds and biosolids drying beds.

Non-water-bearing igneous and metamorphic rocks of Cretaceous and Jurassic age underlie the Mojave River Valley Groundwater Basin and form the mountains and hills in the area. The San Bernardino Mountains serve as the headwaters of the Mojave River Valley Groundwater Basin and form the headwaters of the Mojave River.

In the Mojave River Valley Groundwater Basin, the water-bearing deposits are unconsolidated and partly consolidated continental deposits of Quaternary and Tertiary age. These deposits form three major aquifers: the Upper Aquifer, Lower (Regional) Aquifer, and the Floodplain Aquifer. The Upper Aquifer overlays the Lower Aquifer and is separated by lacustrine units. The Upper Aquifer is not present at the VVWRA facility and all of the VVWRA facility overlies the Lower Aquifer. The thickness of the Lower Aquifer is not known in the vicinity of VVWRA, but it may be more than 2,000 feet thick in some structural depressions. The Floodplain Aquifer is generally east of VVWRA, in the floodplain of the Mojave River. The Flood plain Aquifer is the most productive aquifer in the groundwater basin and yields much of the ground-water supply.

11. Lahontan Basin Plan

The Water Board adopted a Water Quality Control Plan for the Lahontan Basin (Basin Plan) which became effective on March 31, 1995. This Order implements the current Basin Plan as amended.

12. Groundwater Beneficial Use

The beneficial uses of the groundwaters of the Upper Mojave River Valley as set forth and defined in the Basin Plan are:

- a. Municipal and Domestic Water Supply (MUN);
- b. Agricultural Supply (AGR);
- c. Industrial Service Supply (IND);
- d. Freshwater Replenishment (FRSH); and
- e. Aquaculture (AQUA).

13. Naturally Occurring Background Groundwater Quality

Data from former George Air Force Base-owned wells (NZ-02, NZ-74, NZ-86) were used to establish naturally occurring background concentrations in the shallow floodplain aquifer for constituents of concern. Well locations are shown on (Attachment C). Samples from these wells were obtained before the south percolation ponds Nos. 7-13 were constructed. Background groundwater quality for major constituents of concern is summarized in Table 2.

In addition to waste disposed to receiving groundwater from the Discharger's treatment plant, there are other adjacent pollutant sources. The American Organics composting Facility to the south of VVWRA is a source of TDS, chloride, nitrate and arsenic. Former George Air Force Base, to the southwest of VVWRA is a source of the solvent trichloroethylene (TCE); a volatile organic compound. These constituents have migrated beneath VVWRA towards the Mojave River. Due to the Discharger's effluent percolation, water levels located near percolation ponds No. 7-13 are elevated. A hydraulic flow barrier has formed beneath the south percolation ponds, diverting groundwater flow around the barrier to the north and south of the percolation ponds Nos 7-13 causing the TCE to circumvent the south ponds.

Table 2 – Background Concentrations

Constituent	Units	Background Concentration ¹
NO3-N	mg/L	0.62
TDS	mg/L	294

Note: 1. A Prediction Interval Method was used to establish predicted upper values for obtaining background constituent concentrations. This procedure conforms to California Code of Regulations, title 27, section 20415(e) (10). Nitrate-N & TDS data from the three up-gradient wells were pooled to calculate the predicted upper data background values between 1994 and 2001.

14. Effluent Quality Discharged to Percolation Ponds

Historically, effluent levels exceeded the Maximum Contaminant Level for nitrate-N of 10 mg/L, thus causing pollution to receiving groundwater beneath the percolation ponds. After issuance of CDO No. R6V-2008-005 in February 2008, treatment plant modifications were completed, such as replacement of the air diffusion system in the aeration basins, resulting in effluent with lower total nitrogen. Also, monitoring and control of dissolved oxygen in the aeration basins was implemented, thus making the aeration system more responsive to the waste load demand.

During 2010, the Discharger received influent from an industrial source containing high concentrations of TDS. The Discharger has required treatment process modifications at that industrial source that resulted in lower influent TDS concentrations and compliance with discharge requirements. Effluent data during the two-year period indicate the average effluent TDS concentrations have decreased to a mean of 401 mg/L, which is less than the 12-month annual average effluent limitation for TDS of 460 mg/L. (See Table 3, below)

In 2009, additional treatment plant processes were completed improving nitrification and de-nitrification that further reduced effluent nitrogen concentrations. Improvements in aeration processes increased dissolved oxygen concentrations which in turn improved nitrification. Addition of internal waste load recycling increased de-nitrification. As demonstrated by improved groundwater quality, these upgrades have been effective in decreasing effluent total nitrogen levels. Based on a semi-annual groundwater sampling event in October 2011, receiving groundwater contains less than the drinking water MCL of 10 mg/L nitrate-nitrogen.

Table 3 - Effluent Quality Discharged To Percolation Ponds

Constituent	Type of Value	Effluent Quality –Value (mg/L)
Biochemical Oxygen Demand (BOD)	Average	7.63
	Maximum	22.0
Methylene Blue Active Substances (MBAS)	Average	0.11
	Maximum	0.114
Total Nitrogen	Average	6.45
Ammonia-Nitrogen	Average	0.22
	Maximum	2.6
Nitrate-Nitrogen	Average	4.82
	Maximum	9.7
Total Kjeldahl Nitrogen (TKN)	Average	1.35
	Maximum	3.9
Total Dissolved Solids (TDS)	Average	401.0
	Maximum	607
pH	Range	7.08 - 7.3
Dissolved Oxygen	Range	2.64 – 5.0

NOTE: The average and maximum values reflect concentrations (mg/L) between January 2010 and November 2011 based on the Discharger's Self Monitoring Reports.

15. Seepages To Groundwater From Biosolids Lagoons

The slurry in the biosolids waste management units contains elevated and significant biological nutrients and salts. Biosolids sludge slurry is discharged first to the lagoons and from there discharged to the drying beds. The slurry discharged to the Bio-solid drying beds generally consists of less than 10% solids and more than 90% water. The concentrated, digested sludge slurry is then evaporated and the remaining solid material is finally disposed of off-site.

A constant head of 14 feet is present in the biosolids lagoons. In the biosolids drying beds, the head fluctuates between 1 ½ to 2 feet, significantly smaller than the Lagoons. There are no data quantifying the amount and quality of seepage occurring from the drying beds or lagoons. Groundwater data from monitoring well

LW-2, located between biosolids drying bed No. 3 and biosolids lagoon No. 2, show elevated concentrations of nitrate-nitrogen (9.2 mg/L in October 2011 and 7.4 mg/L in April 2012). On April 12, 2006, Water Board staff collected a sample of slurry from the biosolid lagoon No. 2. Results from this sample collection indicated concentrations for Total Kjeldahl Nitrogen of 1,200 mg/L and 3,200 mg/L for TDS. Additional sludge slurry data will be collected as required per the Monitoring and Reporting Program.

The seepages occurring from the biosolids lagoons and drying beds are not authorized by this Order. The extent of groundwater degradation caused by possible seepages from discharges from the biosolids lagoons and drying beds is unknown. A separate Order may be issued requiring the Discharger to investigate the extent of groundwater degradation emanating from the biosolids drying beds and lagoons. Continued groundwater sampling is required per the Monitoring and Reporting Program.

The Discharger has proposed to replace the existing bentonite clay liners in the biosolids lagoons to eliminate seepages from these units. This Order includes a Time Schedule requiring specific details of the liner material that will replace the existing liner.

16. Monitoring Well Construction

The groundwater monitoring well network within the regional and floodplain aquifers in the vicinity of treatment plant is complex. Monitoring wells were installed in groups of phases over the last 35 years by various entities and for various purposes. The Discharger installed the Old Well (OW series) in 1977, New Well (NW series) in 1984, Long Well (LW series) in 1991, and South Pond well (SP series) in 2001. The American Organics composing facility, located on the Discharger's property south of the treatment plant, has the MW-BIO series first installed in 2001. The Air Force installed numerous Northeast Zone (NZ series) wells during different groundwater investigation phases starting in the late 1980's and most recently in 2009. All of these wells are acceptable for establishing groundwater elevations.

The Discharger's monitoring wells have well screen lengths varying from 40 to 60 feet long. Wells OW-1, OW-2, OW-3, OW-5, OW-6, NW-1, NW-2, NW-3 are located adjacent to the Mojave River and are acceptable for monitoring provided that samples are collected near the water table because the groundwater is shallow and in hydraulic communication with the Mojave River surface flow. Historically, the Mojave River was a gaining stream, but is now generally a losing stream, except where localized due to recharge from the percolation ponds. Wells SP-1, SP-2, SP-3, SP-4, adjacent to the south percolation ponds, are acceptable for monitoring because when they were installed anticipating a rise in groundwater elevations due to mounding caused by percolating effluent.

Wells OW-4, LW-1, LW-2 LW-3 and LW-4, located within the vicinity of the biosolids drying beds and lagoons, may not be acceptable for long term monitoring because of the long screen length. This Order requires trend evaluation of groundwater data to be provided to evaluate whether replacement wells or well modifications are necessary or whether the existing well configurations are acceptable.

17. Maintenance of High Quality Waters in California, State Board Resolution No. 68-16 Degradation Analysis

Past discharges caused groundwater pollution that is being abated by improving effluent quality discharged to the percolation ponds. Treatment plant modifications improved effluent quality such that future nitrate groundwater pollution should not occur. However, continued effluent disposal in percolation ponds will result in continued groundwater degradation.

Table 2 indicates that naturally occurring groundwater quality contains about 300 mg/L TDS and less than 1 mg/L nitrate-nitrogen. Because no additional treatment occurs after disposal in the percolation ponds, underlying groundwater quality will be similar to the effluent quality described in Table 3; about 400 mg/L TDS and 5 mg/L nitrate-nitrogen. This represents about a 100 mg/L increase in TDS and 4 mg/L increase in nitrate-nitrogen.

Percolated water mixes with underlying groundwater and surface water in the Mojave River down gradient of the treatment plant. Samples collected from the Discharger's monitoring wells in 2011 indicate that constituent ranges are from 340 to 580 mg/L TDS, less than 1 to 9.2 mg/L nitrate-nitrogen, and less than 0.5 to 4.8 ug/L chloroform (a disinfection by-product).¹

The following analysis explains why some continued groundwater degradation from effluent discharges is acceptable.

State Water Resources Control Board, Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California", is called the non-degradation objective in the Basin Plan. Resolution 68-16 states,

"1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that a change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

¹ Victor Valley Wastewater Reclamation Authority Annual Discharge Monitoring Report – 2011, dated February 29, 2012. The Discharger has replaced its disinfection method for water discharged to the Mojave River from chlorination/dechlorination (which allowed formation of disinfection by-products) with ultraviolet light (which does not allow formation of disinfection by-products).

2. *Any activity which produces or may produce a waste...and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur, and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."*

The discharge of tertiary effluent to percolation ponds is consistent with State Resolution No. 68-16 for the reasons listed below:

I. *"Water quality changes are consistent with the maximum benefit to the people of the State"*

This Order prohibits the discharge of treated water that causes a pollution or nuisance. Due to treatment plant improvements, the effluent is not expected to cause pollution of nitrate and TDS. The treatment of wastewater is a benefit to the community. The water quality changes will not deny or impede groundwater beneficial uses and will provide benefits to the community for sewage treatment needs. Effluent disposal replenishes the available groundwater supply of the local area. Collectively, these factors are consistent with maximum benefit to people of the state. There is a localized area beneath the disposal ponds with an acceptable loss of assimilative capacity with respect to TDS and nitrate-nitrogen.

II. *"Water quality changes do not unreasonably affect beneficial uses"*

Since 2009, the Discharger reduced effluent nitrogen concentrations, thus eliminating nitrate-N pollution resulting from treated effluent from disposal. Disinfection by-products, historically present in the effluent due to chlorination, are not expected, due to replacement of the chlorination process with an Ultra-Violet disinfection system. Chloroform in groundwater, while less than the water quality objective of 80 ug/L, will dissipate over time. Collectively, these factors indicate beneficial uses are not unreasonably affected.

III. *"Water quality changes do not result in water quality less than the Basin Plan Objectives"*

The effluent meets all narrative and numerical groundwater objectives. The receiving groundwater quality changes do not result in water quality less than specified in the Basin Plan.

IV. *"Best practicable treatment or control is used to avoid pollution or nuisance and maintain the highest water quality consistent with the maximum benefit of the people of the state"*

The Discharger proposes to use Best Practicable Treatment or Control as follows: (1) replacing chlorine disinfection with Ultra-Violet (UV) disinfection will eliminate disinfection by-product formation in groundwater and (2) completed upgrades have reduced effluent nitrogen concentrations to below water quality objectives.

In summary, groundwater degradation resulting from effluent discharged to percolation ponds is acceptable and justified according to State Board Resolution 68-16.

18. Consideration of California Water Code Section 13241 Factors

California Water Code (CWC) section 13263 requires that the Water Board, when prescribing WDRs, take into consideration these factors:

a. Past, Present, and Probable Future Beneficial Uses of Water

The proposed discharge into the ponds will not adversely affect present or probable future beneficial uses of water, including municipal and domestic supply, agricultural supply, industrial service supply, and freshwater replacement because all of the constituents discharged in the pond will be below Water Quality Objectives set to protect the Beneficial Uses.

The receiving water limits of the Order are specified to minimize water quality degradation and maintain the most sensitive beneficial use: Municipal and Domestic Supply (MUN).

b. Environmental Characteristics of the Hydrologic Unit Under Consideration, Including the Quality of Water Available Thereto

The environmental characteristics, which include geology, hydrology, up-gradient groundwater quality, and existing groundwater quality, are described above in the appropriate Findings of the Order. This hydrologic unit has experienced overdraft conditions due to groundwater pumping for beneficial uses of municipal water supply. For most constituents, the groundwater quality is sufficient to support the designated beneficial uses of municipal water supply. However, it should be noted that some degradation and pollution from former George Air Force Base, which is up-gradient of the VVWRA facility, has been detected with TCE in groundwater now beneath the Discharger's treatment plant.

c. Water Quality Conditions that Could Reasonably Be Achieved through the Coordinated Control of All Factors, Which Affect Water Quality in the Area

Water quality of the receiving ground waters will continue to be protected through the Discharger's implementation of best practicable treatment technologies to ensure TDS and nitrate as nitrogen remain below the receiving water quality objectives of 500 mg/L and 10 mg/L, respectively.

The receiving groundwater will continue to support its beneficial uses, since groundwater will not be polluted and the aquifer will be replenished by the additional percolation from the discharge of the new southwest percolation ponds.

d. Economic Considerations

This Order authorizes the discharge of tertiary treated wastewater into percolation ponds. The Discharger will incur costs to install required liners for the biosolids lagoons, but these measures will eliminate seepage of waste to groundwater and result in improved water quality. At this time, no requirement is imposed to re-line the Bio-Solids drying beds.

e. The Need for Developing Housing within the Region

This Order has no effect on housing in the Victor Valley.

f. The Need to Develop and Use Recycled Water

“Recycled water” means water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource. Currently, treated effluent is discharged to the receiving groundwater via percolation ponds. While not classified as a planned groundwater recharge project, this disposal does provide groundwater recharge to an aquifer in overdraft. Additionally, the Discharger produces and delivers recycled water separately regulated.

19. Title 27 California Code of Regulations (CCR) Exemption

As provided in title 27, CCR, section 20090(a), the following discharges are exempt from the State Water Resources Control Board regulations:

“Sewage - Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with the applicable SWRCB-promulgated provisions of this division.”

As the State Water Resources Control Board described in its Lodi decision², subsection 20090(a) actually contains two distinct exemptions: 1) a conditional

² State Water Resources Control Board (SWRCB) Water Quality (WQ) Order No. 2012-0001 “IN THE MATTER OF OWN MOTION REVIEW OF CITY OF LODI WASTE DISCHARGE REQUIREMENTS AND

“sewage exemption” and 2) and unconditional “sewage treatment plant exemption.”

The discharges of treated wastewater to the percolation ponds meet the pre-conditions for Title 27 sewage exemption because they meet the following criteria:

- (1) The discharge to the percolation ponds is regulated by this Order.
- (2) The discharge of treated wastewater to the percolation ponds complies with the Basin Plan because the discharge of treated effluent must attain effluent limitations that comply with water quality objectives and prohibitions described in the Basin Plan.

The Bio-solids drying beds and lagoons are unconditionally exempt from the requirements of title 27 because they are treatment or storage facilities associated with the treatment plant.

20. California Environmental Quality Act

The Water Board, acting as the California Environmental Quality Act (CEQA) Responsible Agency in compliance with California Code of Regulations, title 14, section 15096, subdivision (g)(2), evaluated the potentially significant impacts to water quality as described below.

Existing Facilities - The following facilities related to this Order are considered existing facilities because they involve the continued operation, repair, and maintenance, involving negligible or no expansion to use beyond that existing at the time of the Lead Agency’s (Discharger’s) determination. As such, these facilities are exempt from further CEQA consideration under California Code of Regulations, title 14, section 15301 (Existing Facilities).

Table 4 – Existing Waste Management and Disposal Units

WASTE MANAGEMENT AND DISPOSAL UNITS
North Percolation Ponds No.'s 1 through 6
South East Percolation Ponds No.'s 7, 8, and 10 [Pond No. 9 is out of service]
Biosolids Drying Beds No.'s 1 through 11
Biosolids Lagoons No.'s 1 and 2

New Facilities - The following facilities related to this Order are considered new facilities. Water Board staff reviewed a Mitigated Negative Declaration (State Clearinghouse No. 2005081167) for the 18 Million Gallon Per Day Regional Wastewater Treatment Facility Expansion, approved by the Lead Agency (Discharger) on October 17, 2005.

Table 5 – New Waste Disposal Units

NEW DISPOSAL UNITS
South West Percolation Ponds No.'s 11 through 13 (pond No. 14 will be used by others and not by VVWRA)

The Water Board exercised independent judgment in evaluating the potential environmental impacts and identified mitigation measures related to water quality, which if implemented, would result in a less than significant impact. Following is a list of the identified water quality related impacts and mitigation measures and how they are addressed or incorporated in this Order.

Table 6 – Water Quality Impacts and Mitigation Measures

MITIGATION MEASURE	HOW ADDRESSED
BIO-5 – Construction trash will be cleaned daily during construction.	Construction is completed.
GEO-2 – Disturbed areas will be re-vegetated as soon as possible to reduce erosion	Construction is completed.
GEO – 3 – Surface storm water flow will be diverted away from the project and a Storm Water Pollution Prevention Plan, identifying best Management Practices, implemented.	Construction is completed
GEO – 4 – Backfill soil shall not be placed in areas subject to erosive storm water flow during construction.	Construction is completed
GEO-5 – After construction, eroded areas will be restored	Construction Completed – Water Board evaluation will be through the VVWRA's Industrial Stormwater Permit
GEO – 6 – during construction disturbed areas will be properly compacted and backfilled	Construction is completed
GEO-7 – During construction storm water runoff control facilities will be employed	Construction is completed
HWQ-1 – Monitoring of existing monitoring wells will continue to ensure a five foot separation to groundwater.	This Order requires continued monitoring of the SP-series of wells. Current data indicate that a minimum five-foot separation has been maintained.

In a letter dated September 29, 2005, the Water Board staff disagreed with conclusions of the 2005 Mitigated Negative Declaration because the Negative Declaration did not consider the effects of new discharges into the southwest percolation ponds on existing nitrate pollution in the receiving water. The Water Board finds that those concerns are no longer outstanding. After the Water Board adopted CDO No. R6V-2008-0005 on February 14, 2008, requiring treatment plant modifications to reduce effluent nitrogen concentrations, the nitrate pollution has diminished. The Discharger complied with the requirements of that Order, reducing groundwater concentrations of nitrate below the southwest percolation ponds to less than the Basin Plan water quality objective for nitrate as nitrogen (10 mg/L).

Therefore, the Water Board finds that with the implementation of the mitigation measures listed above, and requirements contained in this Order, the water quality related impacts related to the installation and operation of the new ponds are reduced to less than significant.

21. Notification of Interested Parties

The Water Board has notified the Discharger and all known interested agencies and persons of its intent to adopt WDRs for the project.

22. Consideration of Interested Parties

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

23. Classification

The threat to water quality is level "3" because the discharge is expected to degrade water quality without violating objectives. The complexity is level "a" because the facility has numerous discharge points and groundwater monitoring. This classification is subject to change based on treatment plant modifications or revised state regulations.

24. Compliance Determination

A Monitoring and Reporting Program (MRP) required by this Order requires compliance monitoring with the effluent limitations of this Order. This Order also requires groundwater monitoring is to observe the changes to groundwater quality as a result of the discharge with respect to the receiving groundwater objectives.

25. Basis for Effluent Limitations

a. Secondary treatment of sewage

According to the Basin Plan, section 4.4, municipal treatment facilities must provide effective solids removal and some soluble organics removal for percolation pond operations. EPA has established secondary treatment standards that represent removal of soluble and solid matter in sewage. Although the EPA standards apply only to surface water discharges, the Water Board is using these standards to assure that the percolation pond discharge meets the Basin Plan requirement.

Because the treatment plant produces disinfected tertiary recycled water (that is nitrogen reduced), the treatment plant is capable of producing a lower concentration of BOD and suspended solids than the secondary treatment standards. However, the Basin Plan does not specify tertiary treatment as the standard for discharge to percolation ponds. Therefore, the selected

effluent limitations are the EPA secondary standards, which will be easily met by the Discharger's treatment plant.

b. Total dissolved solids (TDS)

TDS control is needed to protect groundwater from excessive degradation on account of salts, thereby protecting the receiving water beneficial uses. However the Basin Plan has yet to provide a numeric TDS objective for the receiving water sub-basin. Therefore, to control TDS, Water Board staff selected a limit that is based on the current effluent quality.

The Discharger analyzed existing TDS effluent concentrations for the period from January 2009 to December 2011 and determined a "long-term" average effluent TDS of 430 mg/L.³ To evaluate compliance for each monthly monitoring period, Water Board converted the long-term average to an average monthly effluent limitation, and if appropriate, a maximum daily effluent limitation through use of multiplier values. The generalized equations are the following:

$$\begin{array}{l} \{ \text{Average} \\ \{ \text{monthly} \\ \{ \text{effluent} \\ \{ \text{limitation} \end{array} \} = \begin{array}{l} \{ \text{Long-} \\ \{ \text{term} \\ \{ \text{average} \end{array} \} \times \begin{array}{l} \{ \text{average} \\ \{ \text{monthly} \\ \{ \text{multiplier} \end{array} \}$$

and

$$\begin{array}{l} \{ \text{Maximum} \\ \{ \text{daily} \\ \{ \text{effluent} \\ \{ \text{limitation} \end{array} \} = \begin{array}{l} \{ \text{Long-} \\ \{ \text{term} \\ \{ \text{average} \end{array} \} \times \begin{array}{l} \{ \text{maximum} \\ \{ \text{daily} \\ \{ \text{multiplier} \end{array} \}$$

The multiplier values are determined using statistical methods. The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)⁴ describes statistical methods to determine each multiplier. The multiplier values are essentially a function of two variables: (1) the variability of the data and (2) the number of samples collected in a month. Data variability is quantified using the Coefficient of Variation parameter, which is the sample standard deviation divided by the sample mean. The SIP has a lookup table that display multipliers as a function of the two variables. The SIP provides detailed instructions for the

³ Larry Walker & Associates Memorandum dated August 24, 2012, Effluent limits for Total Dissolved Solids and Total Nitrogen for Victor Valley Wastewater Reclamation Authority's Percolation Ponds

⁴ The SIP implements criteria for priority toxic pollutants contained in the California Toxics rule promulgated by the US EPA, as well as other toxic pollutant criteria and objectives, and does not apply specifically to discharges to groundwater. Nonetheless, the standardized approach set forth in the SIP for developing water quality-based effluent limitations is being used to develop effluent limitations in groundwater for total nitrogen and TDS because it provides useful guidance for groundwater discharges and is not theoretically limited to surface waters applications.

coefficient of variation calculation, and includes the statistical equations that are the basis for the multiplier values in the table.

For VVWRA effluent TDS concentration values, Water Board staff calculates a value of 0.1 for the Coefficient of Variation. The respective long-term multipliers for the average daily multiplier and the maximum daily multiplier are 1.08 and 1.16, respectively. However, the drinking water maximum contaminant level for TDS is a consumer based limit and not a health risk limit. Therefore, the more acute maximum daily effluent limitation for TDS is not applicable. The proposed effluent limitation for TDS is thus:

$$\begin{array}{l} \{ \text{Average} \quad \} \\ \{ \text{monthly TDS} \} \\ \{ \text{effluent} \quad \} \\ \{ \text{limitation} \quad \} \end{array} = 430 \text{ mg/L} \times 1.08 = 465 \text{ mg/L}$$

c. Total nitrogen

Total nitrogen is important because the oxidized component, nitrate-nitrogen, has a primary MCL value of 10 mg/L. Wastewater effluent will typically contain some non-oxidized nitrogen components, which are organic nitrogen, ammonia, and nitrate. For the purposes of groundwater protection, the effluent limitation is applied to total nitrogen with the assumption that all nitrogen is in the oxidized state by the time the effluent reaches groundwater.

The development of average monthly and maximum daily effluent limitations for total nitrogen will use the same method for total dissolved solids. Values for long term average and coefficient of variability are needed to complete the development of the limitations.

The Discharger has reported that the treatment process is designed to meet 8.2 mg/L. Treatment optimization is expected to reduce secondary effluent nitrate concentration to less than 8.2 mg/L, which is less than the MCL objective of 10 mg/L. The Water Board examined the treatment plant effluent total nitrogen data for the period between January 6, 2009 and December 27, 2011 and determined that the Coefficient of Variation is 0.3.

The resulting average monthly multiplier and maximum daily multiplier are 1.26 and 1.50, respectively. Therefore, the proposed nitrogen limits are the following:

$$\begin{array}{l} \{ \text{Average} \quad \} \\ \{ \text{monthly total} \} \\ \{ \text{nitrogen limit} \} \end{array} = 8.2 \times 1.26 = 10.3 \text{ mg/L}$$

and

$$\begin{matrix} \{ \text{Maximum} \\ \{ \text{daily total} \\ \{ \text{nitrogen limit} \} \end{matrix} = 8.2 \times 1.50 = 12.3 \text{ mg/L}$$

IT IS HEREBY ORDERED that the Discharger shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Effluent/Discharge Limitations

1. All wastewater discharged to the percolation ponds shall not contain concentrations of parameters in excess of the following limits.

Table 7 - Percolation Pond Effluent Discharge Limitations

Constituent	Units	Average monthly	Average weekly	Maximum daily
Biochemical oxygen demand (BOD) (5-day at 20°C)	mg/L	30	45	--
Total suspended solids	mg/L	30	45	--
Total nitrogen	mg/L	10.3	--	12.3
Total dissolved solids (TDS)	mg/L	465	--	

Constituent	Units	Instantaneous minimum	Instantaneous maximum
pH	standard pH units	6.5	8.5
Percolation pond freeboard	inches	24	--

2. The average monthly percent removal between the influent and the effluent shall be 85% or greater for BOD and 85% or greater for total suspended solids.

B. Receiving Groundwater Limitations

The discharge shall not cause the presence of the following substances or conditions in groundwater of the Mojave Hydrologic Unit.

1. Bacteria – In groundwater designated as MUN, the median concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.
2. Chemical Constituents – Groundwater designated as MUN shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22, of the California Code of Regulations which are incorporated by reference into this plan:

Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 64444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels – Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels – Ranges).

Waters designated as AGR shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e. agricultural purposes).

Groundwater shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

3. Radioactivity – Groundwaters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of section 64443 (Radioactivity) of Title 22 of the California Code of Regulations.
4. Taste and Odors – Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For groundwater designated as MUN, at a minimum, concentrations shall not exceed adopted secondary maximum contaminant levels specified in Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels – Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels - Ranges) of Title 22 of the California Code of Regulations.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge of treated wastewater to groundwater shall only be to the authorized disposal percolation ponds numbers 1 through 13 (excluding pond No. 9, except as stated below).
2. The biosolids lagoons and drying beds are authorized to receive wastewater and biosolids for treatment purposes but are not authorized for the discharge of waste below these units to groundwater.
3. The discharge of waste in violation of any narrative Water Quality Objective contained in the Basin Plan is prohibited.
4. The discharge of waste that causes a violation of any numeric Water Quality Objective contained in the Basin Plan is prohibited.

5. Where any numeric or narrative Water Quality Objective contained in the Basin Plan is already being violated, the discharge of waste that causes further degradation or pollution is prohibited.
6. Discharges from any of the waste management units listed in Table 1 shall not cause a pollution, threatened pollution, nuisance or threatened nuisance as defined in Section 13050 of the CWC.
7. There shall be no discharge, bypass, or diversion of polluted or partially treated wastewater, sludge, grease, oils, from the collection, transport, or disposal facilities to adjacent land areas (including pond berms) or surface and groundwaters.
8. The vertical distance between the water surface elevation and the lowest point of a pond dike or the invert of an overflow structure shall not be less than 2.0 feet.
9. The Discharger shall implement and maintain a security system and a backup emergency power system to prevent vandalism and to provide continuous power during interruptions in the main power grid.
10. The Discharger must monitor and maintain the structural integrity of the ponds listed in Table 1 of this Order. The Discharger must immediately notify the Water Board of any flooding or any change in site conditions, including erosion, which could impair the integrity of containment control structures.
11. This Order authorizes discharges into percolation pond No. 9 only after the Discharger has satisfied the following criteria :
 - a. The pond must be reconstructed within the same footprint as it was originally constructed.
 - b. A technical report must be submitted stating the intended design standards and specifications along with a map showing the intended footprint.
 - c. That technical report must be signed by a California registered civil engineer with proficiency in geotechnical design.
 - d. Following completion of Pond 9 construction, a technical report must be submitted including: (1) as-built drawings, (2) certification by a California registered civil engineer with proficiency in geotechnical design that Pond 9 was constructed according to the design standards previously identified, and (3) a statement by the Discharger indicating that Pond 9 is requested for use as an authorized disposal site.

Following receipt of the above information, the Executive Officer may authorize discharge into Pond 9.

III. PROVISIONS

- A. Board Order No. 6-99-058 is hereby rescinded.
- B. The Discharger shall comply with the Monitoring and Reporting Program No. R6V-2012-0058 as specified by the Executive Officer.
- C. The Discharger shall immediately notify the Regional Board whenever an adverse condition occurs. Written confirmation shall follow. An adverse condition includes, but is not limited to such things as nuisance odors, overflowing units, extended power outages or mechanical breakdowns that affect effluent quality.
- D. Any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge shall be reported to this Regional Board at least one hundred and forty (140) days in advance of implementation of any such proposal.
- E. The Discharger shall comply with the "Standard Provisions for WDRs," dated September 1, 1994, in Attachment "D," which is made part of this Order.

IV. MONITORING AND REPORTING

- A. Pursuant to CWC Section 13267(b), the Discharger shall comply with the attached MRP No. R6V-2012-0058 as specified by the Executive Officer pursuant to Section 13267 of the CWC (Attachment "E").
- B. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is made part of the MRP. (Attachment "A" to the MRP).

V. TIME SCHEDULES

In order to implement control measures and cease seepage from the biosolids lagoons, the Discharger shall:

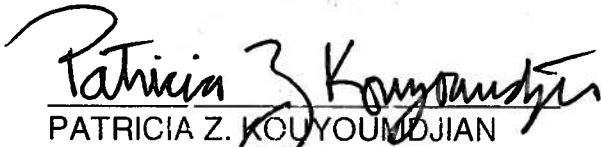
- A. By **April 1, 2013**, submit a technical report describing plans to prevent the seepage of wastewater emanating from the biosolids lagoons. The discharger has proposed to reconstruct the biosolids lagoons liners. The technical report shall include, as a minimum, the following.
 - 1. Proposed engineering design details and construction specifications for the alternative selected.
 - 2. Certification by a California registered civil engineer, with proficiency in pond liner design, that the selected alternative achieves this Order's requirements.

3. A proposed liner system that will prevent discharge of waste to the groundwater below these units. The proposed liner system should meet the equivalent construction standards specified in Title 27, section 20310, or another alternative demonstrated to prevent discharges from the reconstructed liners.

B. Implementation time schedules to complete construction.

1. By **October 1, 2014**, achieve compliance with the requirements of this Order eliminating seepages from all of the biosolids lagoons at the treatment facility.
2. By **November 1, 2014**, submit a technical report signed by a California registered civil engineer describing the as-built liner system constructed for the biosolids lagoons.

I, Patricia Z. Kouyoumdjian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region on November 14, 2012.


PATRICIA Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

- Attachments:
- A. List of Report of Waste Discharge and CEQA Components
 - B. Site Location Map
 - C. VVWRA Facilities and Monitoring Map
 - D. Standard Provisions for WDRs
 - E. Water Board certified cover letter form

Attachment A Index of Supporting Information

REPORT OF WASTE DISCHARGE DOCUMENTS

Report of Waste Discharge	
Document Name	Source Data Submitted
Form 200 RWD for the Facility upgrade 14.5 & 18 million gallons per day (MGD) Expansion Projects	June 2006
Antidegradation Analysis for Expansion of the Regional Wastewater Treatment Plant	Larry Walker & Associates, December 18, 2006
Report of Waste Discharge to increase secondary effluent discharges to the existing ponds and to utilize the new south ponds for pond discharge	Larry Walker & Associates, May 2008
Map of percolation ponds – North, existing and new south ponds including surface piping or level monitoring structures – 18 MGD Expansion.	Larry Walker & Associates, June 2009
Map of phase I Groundwater Investigation Work Plan (LWA and LSCE)	Larry Walker & Associates & Luhdorff & Scalmanini Engineers 2008
Table of Groundwater Well Information (Appendix A & confidential addendum in phase 1 Work Plan)	Luhdorff & Scalmanini Engineers 2008
Map showing Groundwater Elevations Map showing Groundwater nitrate & Total Dissolved Solids (TDS)	Luhdorff & Scalmanini Memo February 2012
Description of pond level recording system & operation procedures to ensure minimum freeboard levels will be maintained.	Larry Walker & Associates June 2006
Description of aerial size & volumetric capacity of each pond	RBF Consulting: As-Built drawings C6 – C14; Percolation pond capacities for ponds 11, 12 & 13 ; June 19, 2009.
Cumulative Impact Analysis	Larry Walker & Associates, February 2011
Phase 2 Groundwater Investigation and Phase 3 Interim Groundwater Monitoring Program Report	Larry Walker & Associates, March 31, 2010
Construction date for percolation ponds	Ponds 1-6 = Pre-1976 Ponds 7-10=2005 Ponds 11-13 = 2008
Proposed Groundwater Monitoring Plan	Included in the nitrate phase 2/3 report Luhdorff & Scalmanini & Larry Walker & Associates 2010; Luhdorff & Scalmanini memo 2012
Degradation Analysis Memo for impact on Groundwater	Luhdorff & Scalmanini Engineers memo February 2012
Victor Valley Wastewater Reclamation Authority Percolation Pond Capacity	Victor Valley Wastewater Reclamation Authority Percolation Pond Capacity, March 15, 2012
Documentation of Impacts of Victor Valley Wastewater Reclamation Authority (VWRA) Percolation Pond Discharge to George Air Force Base (GAFB) TCE	Larry Walker & Associates, March 23, 2012

Plume	
Anti-Deg GW Draft Memo, South Perc Ponds WDR, Anti Deg language, VVWRA Percolation Pond Capacity Memo, VVWRA Discharge, All Figures	March 29, 2012 e-mail attachments
Proposed Groundwater Monitoring Plan	Larry Walker & Associates, April 2, 2012
Victor Valley Wastewater Reclamation Authority Percolation Pond Capacity	Larry Walker & Associates, April 10, 2012
Summary of Construction Quality Assurance (CQA) Testing and Inspection	Document dated June 12, 2006; Attachment to e-mail dated May 10, 2012
Memorandum Effluent Limits for Total Dissolved Solids and Total Nitrogen for Victor Valley Wastewater Reclamation Authority's Percolation Ponds	Larry Walker & Associates, August 24, 2012
Electronic mail responses regarding effluent limits	Larry Walker & Associates, August 27, 2012

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) DOCUMENTS

CEQA DOCUMENTS	
Document Name	Date Submitted
Initial Study/Mitigated Negative Declaration, VVWRA Regional Wastewater Facility Expansion Project	September 2004
Notice of Determination, State Clearinghouse # 2004091007 for the Facility Upgrade Project	October, 2004
Initial Study/Mitigated Negative Declaration, VVWRA Regional Wastewater 18 MGD Facility Expansion	August, 2005
Notice of Determination, State Clearinghouse #2005081167 for the Facility 18 MGD Expansion Project	October 2005

Victor Valley Wastewater Reclamation Authority

Site Location Map



Attachment B

Legend

Proposed Groundwater Monitoring Network

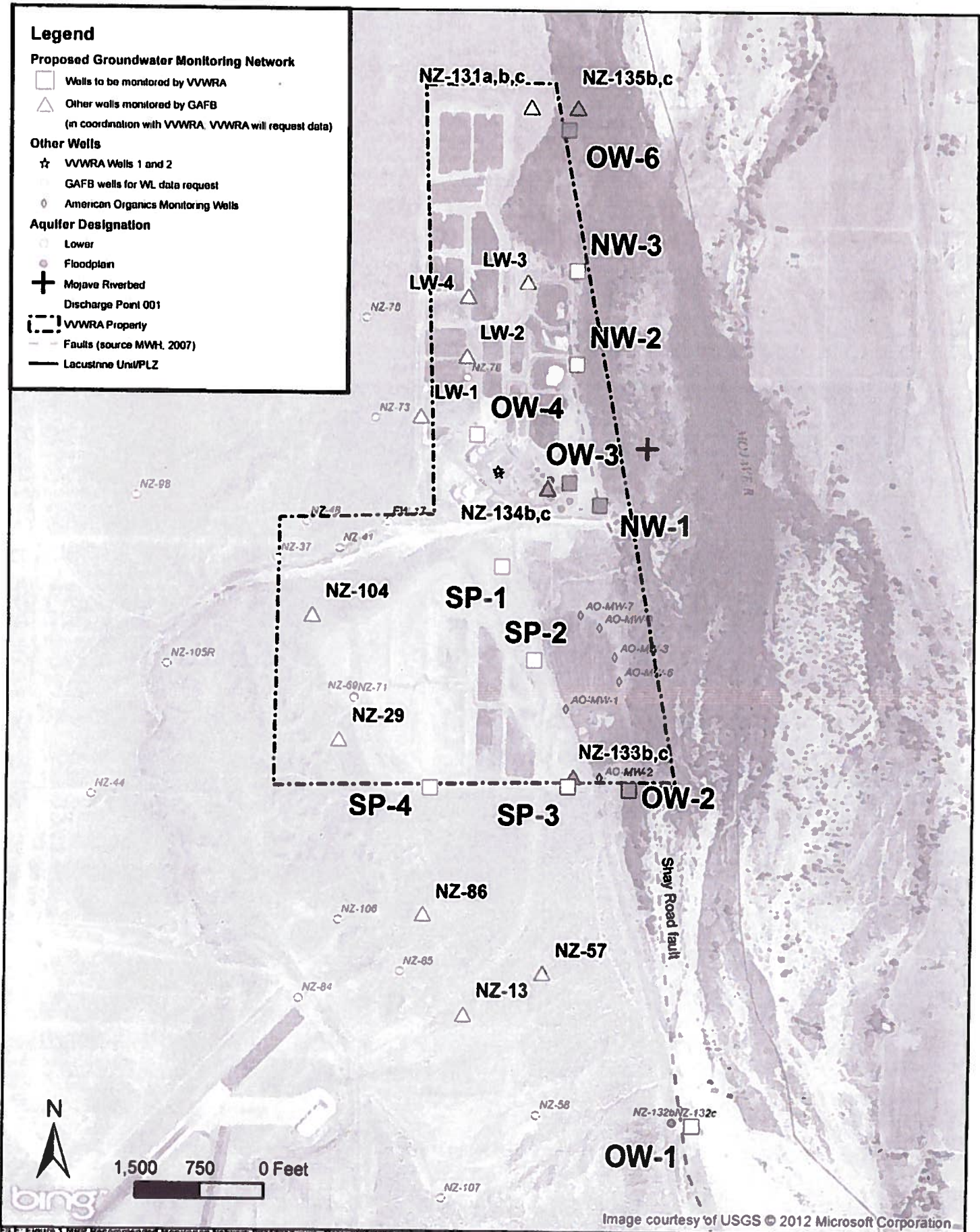
- Wells to be monitored by VVWRA
- △ Other wells monitored by GAFB
(in coordination with VVWRA, VVWRA will request data)

Other Wells

- ☆ VVWRA Wells 1 and 2
- GAFB wells for WL data request
- American Organics Monitoring Wells

Aquifer Designation

- Lower
- Floodplain
- + Mojave Riverbed
- Discharge Point 001
- [- - -] VVWRA Property
- - - Faults (source MWH, 2007)
- Lacustrine Unit/PLZ



FILE: Figure 1 BRP Recommended Monitoring Network 09242012.mxd Date: 1/24/2012

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. **Inspection and Entry**

The Discharger shall permit Regional Board staff:

- a. to enter upon premises in which an effluent source is located or in which any required records are kept;
- b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);
- c. to inspect monitoring equipment or records; and
- d. to sample any discharge.

2. **Reporting Requirements**

- a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.
- b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.
- c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.
- d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

- e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation.
- f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

The Regional Board reserves the privilege of changing all or any portion of the WDRs upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the WDRs may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and re-issuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the WDRs which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the WDRs. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the WDRs.

7. Waste Discharge Requirement Actions

The WDRs may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and re-issuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the WDRs conditions.

8. Property Rights

The WDRs do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

9. Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the WDRs including imposition of civil liability or referral to the Attorney General.

10. Availability

A copy of the WDRs shall be kept and maintained by the Discharger and be available at all times to operating personnel.

11. Severability

Provisions of the WDRs are severable. If any provision of the requirements is found invalid, the remainder of the requirements shall not be affected.

12. Public Access

General public access shall be effectively excluded from treatment and disposal facilities.

13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operation. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

14. Definitions

- a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.
- b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

15. Storm Protection

All facilities used for collection, transport, treatment, storage, or disposal of waste shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

ATTACHMENT E

Date _____

California Regional Water Quality Control Board
Lahontan Region
14440 Civic Drive, Suite 200
Victorville, CA 92392

Facility Name:

Address:

Contact Person:

Job Title:

Phone:

Email:

WDR/NPDES Order Number:

WDID Number:

Type of Report (circle one):

Monthly Quarterly Semi-Annual Annual Other

Month(s) (circle applicable month(s)**:

JAN FEB MAR APR MAY JUN
JUL AUG SEP OCT NOV DEC

*annual Reports (circle the first month of the reporting period)

Year:

Violation(s)? (Please check one):

_____ **NO**

_____ **YES***

***If YES is marked complete a-g (Attach Additional information as necessary)**

a) Brief Description of Violation:

**b) Section(s) of WDRs/NPDES
Permit Violated:**

c) Reported Value(s) or Volume: _____

d) WDRs/NPDES
Limit/Condition: _____

e) Date(s) and Duration of
Violation(s): _____

f) Explanation of Cause(s): _____

g) Corrective Action(s)
(Specify actions taken and a schedule
for actions to be taken)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person(s) who manage the system, or those directly responsible for data gathering, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If you have any questions or require additional information, please contact _____ at the number provided above.

Sincerely,

Signature: _____

Name: _____

Title: _____

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MONITORING AND REPORTING
PROGRAM NO. R6V-2012-0058
WDID NO. 6B360109001**

**FOR
VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
PERCOLATION PONDS AND BIOSOLIDS WASTE UNITS**

San Bernardino County

California Water Code sections 13267 and 13383 authorize the Regional Water Quality Control Board (Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirement consistent with the California Water Code. The following information must be provided in each monitoring report, or as required.

I. MONITORING

A. Percolation Pond Monitoring –Flow and freeboard monitoring shall be conducted to verify percolation pond conditions.

1. The total volume, in million gallons, of effluent flow to each percolation pond calculated for each month.
2. The average flow rate, in million gallons per day (mgd), of effluent flow to each percolation ponds calculated for each month.
3. The freeboard (distance from the top of the lowest part of the dike to the wastewater surface in a pond) measured each month for each percolation pond.
4. Continuous flow measuring devices must be installed and calibrated annually or as needed. Calibration results shall be included in the annual report.

B. Biosolids Units Monitoring – Volume and status monitoring shall be conducted to verify biosolids unit conditions.

1. The total volume, in million gallons, of sludge slurry discharged to each biosolids waste unit for the month.
2. If a biosolids waste unit (drying bed or lagoon) did not receive any slurry for the month, then indicate no slurry was disposed.
3. If a biosolids waste unit (drying bed or lagoon) contained biosolids for the month, then indicate volume of biosolids in storage.

4. If a biosolids waste unit was empty for the month, then indicate empty.
5. If a biosolids waste unit was cleaned during the month, then indicate volume of contents removed and statement verifying disposal to an authorized disposal location.
6. The freeboard (distance from the top of the lowest part of the dike to the wastewater surface) measured each month for each biosolids unit.

C. Influent Monitoring

Parameter	Units	Frequency
Bio-chemical Oxygen Demand	mg/L	1 time/2weeks
pH	pH units	1 time/2weeks – field
Specific Conductance (EC)	micromhos/cm	Quarterly – field
Total Suspended Solids	mg/L	1 time/2weeks

- D. Discharge Quality Monitoring - Representative samples of treated effluent discharged into the north and south percolation ponds shall be collected and analyzed to determine the magnitude of the following parameters. For parameters indicated in bold with specified numerical effluent limitations, each monitoring report shall include a compliance assessment with respect to the limit in the Order.

Constituent	Units	Sample Type	Frequency
Bio-chemical Oxygen Demand	mg/L	24-hour Composite	1 time/week
Total Nitrogen-N	Mg/L	Calculated value	1 time/2 weeks
Ammonia-N	mg/L	Grab	1 time/2 weeks
Nitrite-N	mg/L	Grab	1 time/2 weeks
Nitrate-N	mg/L	Grab	1 time/2 weeks
Total Kjeldahl Nitrogen-N	mg/L	Grab	1 time/week
pH	pH units	Grab	1 time/week – field
Total Dissolved Solids (TDS)	mg/L	24-hour Composite	1 time/2 weeks
Total Suspended Solids	mg/L	24-hour Composite	1 time/week

Calculate and report the percent removal between influent and effluent for BOD and TSS. State whether percentage removal requirements are met.

- E. Biosolids Slurry Monitoring - A representative grab sample of biosolids slurry discharged into the Biosolids Lagoon shall be collected and analyzed to determine the content quality. The sample location shall be documented.

Parameter	Units	Frequency
Bio-chemical Oxygen Demand	mg/L	Semi-Annually
Ammonia	mg/L	Semi-Annually
Nitrite-N	mg/L	Semi-Annually
Nitrate-N	mg/L	Semi-Annually
Total Kjeldahl Nitrogen-N	mg/L	Semi-Annually
Total Nitrogen as N	mg/L	Semi-Annually
Total Dissolved Solids	pH units	Semi-Annually
Specific Conductance (EC)	micromhos/cm	Semi-Annually
Moisture Content	Percent liquid per unit Volume	Semi-Annually

After a minimum of 10 samples have been collected, allowing for statistical data analysis, the Discharger may request the Executive Officer to suspend or modify slurry sampling. The request must include data and statistical calculations for sludge slurry quality.

- F. Groundwater Monitoring - Groundwater monitoring shall be conducted to establish: (1) elevation contours and the direction of groundwater flow and (2) compliance with receiving water limitations.

1. Groundwater Elevations

- a. A map shall be submitted showing groundwater contour elevation isopleths and the direction of groundwater flow shall be submitted **semi-annually in the July and in the Annual Reports**.
- b. A table shall be included describing: (1) depth to groundwater below the ground surface, (2) top-of-casing elevations, (3) ground surface elevation above mean sea level, (4) groundwater elevation above mean sea level, and (5) top and bottom well screen elevations.
- c. Groundwater elevations shall be collected concurrently with sampling events.
- d. The area represented in the maps shall include the treatment plant and any area affected by effluent discharges from the treatment plant.
- e. All available groundwater elevation data shall be used to produce the elevation map.

- f. Separate adjacent monitoring well networks are maintained by the US Air Force (to evaluate solvent clean up at the George Air Force Base [GAFB]) and the American Organics facility (to evaluate effects of the composting facility to groundwater). The Discharger, the Air Force and American Organics have shared selected groundwater data. VVWRA shall make every available effort to utilize elevation data collected by other parties. Monitoring reports shall list references for data collected by others.

The purpose of this requirement is that wells, in addition to those specified in I.F.2, will provide data for a more accurate groundwater contour map illustrating groundwater flow directions.

- g. The map shall include all relevant, monitored wells within and immediately adjacent to the VVWRA facility, including George Air Force Base wells.

2. Groundwater Quality

- a. After appropriate groundwater well purging, representative samples shall be collected (VVWRA may coordinate with GAFB on the receipt of data from the GAFB monitoring wells) of each year from the following wells:

Well	General Location	Owner
SP-1	North of the South Ponds	VVWRA
SP-2	Northeast of the South Ponds	VVWRA
SP-3	Southeast of the South Ponds	VVWRA
SP-4	Southwest of the South Ponds	VVWRA
OW-1	South of VVWRA, Adj. to Mojave R.	VVWRA
OW-2-V#9	South east Corner of VVWRA	VVWRA/MWA
OW-3	East of Main Entrance, Adj. to Mojave R.,	VVWRA
OW-4	Near Sludge Digesters	VVWRA
OW-6	NE of North Ponds	VVWRA
NW-1	Southeast of the North Ponds	VVWRA
NW-2	East of the North Ponds	VVWRA
NW-3	Northeast of the North Ponds	VVWRA
LW-1	Southwest of the Sludge Drying Beds	VVWRA/GAFB
LW-2	East of the Sludge Drying Beds	VVWRA/GAFB
LW-3	North of the North Ponds	VVWRA/GAFB
LW-4	North of the Sludge Drying Beds	VVWRA/GAFB

b. Groundwater Samples shall be analyzed for the following parameters.

Parameter	Units	Frequency
Ammonia - N	mg/L	Apr & Oct
Nitrite-N	mg/L	Apr & Oct
Nitrate-N	mg/L	Apr & Oct
Total Kjeldahl Nitrogen-N	mg/L	Apr & Oct
Total Nitrogen as N	mg/L	Apr & Oct
Total Dissolved Solids	mg/L	Apr & Oct

Every second year, beginning with the April 2013 sampling event (e.g. April 2015, April 2017, April 2019), additional analysis shall be made for the following.

Parameter Class	Units
General Minerals: MBAS Zinc Alkalinity Calcium Manganese Potassium Sodium Chloride Fluoride Sulfate Copper Iron Magnesium	mg/L
Volatile Organic Constituents per method EPA 8260B	ug/L

c. The following field parameters shall be determined each time a well is sampled. Report the final field parameters, determined after well purging and before well sampling, along with analytical data results.

Parameter	Units
Electrical Conductivity EC)	µS/cm
pH	pH Units
Temperature	° F or °C
Turbidity	mg/L
Dissolved Oxygen	mg/L
Oxidation Reduction Potential	mV
Groundwater depth	Feet
Groundwater elevation	Feet above mean sea level

- d. Reports shall include the following.
 - i. Tables and graphs of final results;
 - ii. Concentration isopleth contour maps for total dissolved solids and nitrate as nitrogen. Delineation for each constituent must be to background concentrations and to the water quality objectives of 500 mg/L (TDS) and 10 mg/L, (Nitrate – nitrogen) and
 - iii. Compliance analysis with respect to groundwater receiving water limitations specified in the Order.

3. Other Groundwater Issues

- a. For any new groundwater well installed, the Discharger must prepare a Water Well Driller's Report and file it with the California Department of Water Resources (DWR) in accordance with the provisions of Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code (CWC Section 13750 through 13755).
 - b. All groundwater monitoring reports shall be signed by a California registered civil engineer, geologist or hydrogeologist.
 - c. Monitoring well designs must conform to California Well Standards defined in Department of Water Resources Bulletins 74-81 and 74-90.
 - d. Monitoring reports shall include a map showing well locations, groundwater elevation contours and tables summarizing the final field and laboratory analytical data. Each report shall include sufficient number of monitoring wells to establish true background water quality.
- G. Operation and Maintenance - The Discharger must maintain a log of any operational problems and maintenance activities that may affect effluent quality or disposal site operations and submit the information to the Water Board with each quarterly report. Monitoring reports shall include a summary of these activities, including, but not limited to, the following.
- 1. Any modifications or additions to the wastewater conveyance system, treatment facilities, or disposal facilities;
 - 2. Any major maintenance conducted on the wastewater conveyance system, treatment facilities, or disposal facilities;
 - 3. Any major problems occurring in the wastewater conveyance system, treatment facilities, or disposal facilities; and
 - 4. The calibration of any wastewater flow measuring devices.

II. REPORTING

A. General Provisions

1. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of this Monitoring and Reporting Program (Attachment A).
2. In accordance with Provision No. 3.a. of the General Provisions for Monitoring and Reporting, the Discharger must make a compliance statement in each submitted monitoring report, clearly identifying each violation that occurred during the reporting period and actions taken and/or proposed to return to compliance.

B. Sampling and Analysis Plan

Pursuant to General Provision No. 1d. of the General Provisions for Monitoring and Reporting, the Discharger shall submit to the Water Board by **December 15, 2012**, a Sampling and Analysis Plan (SAP). The SAP shall include a detailed description of procedures and techniques for all monitoring required by this monitoring program including, but not limited to, the following:

1. Sample collection methods, sample locations, including purging techniques, sampling equipment, and decontamination of sampling equipment;
2. Groundwater well purging methods;
3. Groundwater well sample collection methods
4. Sample preservation and shipment;
5. Analytical methods and procedures;
6. Chain of custody control; and
7. Quality assurance/quality control (QA/QC).

The SAP shall be revised, updated, and re-submitted as necessary.

C. Quarterly Reports

The Discharger must submit quarterly reports containing the monitoring data and information describing whether the discharge is in compliance with the requirements. The reports shall be submitted as follows.

Period	Due Date	Groundwater Data
Jan, Feb, Mar	April 30	No
Apr, May, Jun	July 30	Yes
Jul, Aug, Sep	October 30	No
Oct, Nov, Dec	February 1	Yes

D. Annual Report

An annual report must be submitted to the Water Board by **February 1 each year**. The annual report must provide the following:

1. A summary and evaluation of the information obtained for the prior year in Monitoring and Reporting Program section I.B.
2. Graphical and tabular presentation of all effluent monitoring data and groundwater monitoring data obtained from the previous year. These must be reported and compared with similar data from previous years.
3. Groundwater reports must include multi-year graphs and trend analyses for total dissolved solids, total nitrogen, and any other constituent, as appropriate.
4. An assessment of groundwater degradation caused by the effluent discharged to the North and South percolation ponds.
5. An assessment of the effect and influence of offsite contaminant sources (e.g., constituents similar to those of interest at the VVWRA site) from former George AFB or the American Organics facility on groundwater beneath the Discharger's treatment plant site.
6. A summary of the compliance record and corrective actions needed, taken, or planned to bring the discharge into full compliance with the Waste Discharge Requirements.
7. A statement certifying when monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

Ordered by:


PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Dated: **November 14, 2012**

Attachment: A. General Provisions for Monitoring and Reporting

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

1. **SAMPLING AND ANALYSIS**

- a. All analyses shall be performed in accordance with the current edition(s) of the following documents:
 - i. Standard Methods for the Examination of Water and Wastewater
 - ii. Methods for Chemical Analysis of Water and Wastes, EPA
- b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.
- c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.
- d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

2. OPERATIONAL REQUIREMENTS

a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

- a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.
- b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.
- d. Monitoring reports shall be signed by:
 - i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;
 - ii. In the case of a partnership, by a general partner;
 - iii. In the case of a sole proprietorship, by the proprietor; or

- iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
- e. Monitoring reports are to include the following:
 - i. Name and telephone number of individual who can answer questions about the report.
 - ii. The Monitoring and Reporting Program Number.
 - iii. WDID Number.
- f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.