



California Regional Water Quality Control Board

Lahontan Region



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Edmund G. Brown Jr.
Governor

March 18, 2011

WDID NO. 6B3609 07005
WDID NO. 6B3609 07006

TO: ATTACHED MAILING LIST

TENTATIVE WASTE DISCHARGE REQUIREMENTS AND WATER RECYCLING REQUIREMENTS FOR VVWRA; HESPERIA & APPLE VALLEY SUB-REGIONAL RECLAMATION PLANTS, SAN BERNARDINO COUNTY

Enclosed are tentative Waste Discharge Requirements and Water Recycling Requirements (WDRs/WRRs) for the above subject.

The California Regional Water Quality Control Board requests that you review the enclosed documents and provide us with your written comments no later than **April 18, 2011**. Comments received after that date cannot be given full consideration in preparation of the recommended Board Order to be presented to the Regional Board for adoption at the meeting scheduled for **May 11 and 12, 2011**.

If you need further information, please contact me at (760) 241-7306.

Sincerely,

Rebecca Phillips
Office Technician

Enclosures (3): Two Tentative Board Orders
Comment form

cc: Mailing List

VVWRA, APPLE VALLEY & HESPERIA SUB-REGIONAL RECLAMATION PLANT
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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER R6V-2011-(TENTATIVE)
WDID 6B360907006

WASTE DISCHARGE REQUIREMENTS
AND
WATER RECYCLING REQUIREMENTS

FOR
VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
APPLE VALLEY SUB-REGIONAL RECLAMATION PLANT

San Bernardino County

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

1. Discharger/Producer

The Victor Valley Wastewater Reclamation Authority (VWVRA) submitted a Report of Waste Discharge for the Apple Valley Sub-Regional Water Reclamation Plant (Reclamation Plant). The VWVRA is the owner and operator of the reclamation plant and the agency responsible for the production of recycled water. Effluent from the Reclamation Plant is reused for landscape irrigation and industrial process water. Excess recycled wastewater will be disposed of by percolation pond(s). For the purposes of this Order, the Town of Apple Valley is referred to as the "Discharger," and for the purposes of water recycling, the VWVRA is the "Producer." The Town of Apple valley is a member Agency of VWVRA. The Town of Apple valley is responsible for the operation and maintenance of the transmission and distribution system that will deliver recycled water to the various end users and is considered the "Distributor". The Discharger is responsible for compliance and monitoring prescribed by Waste Discharge Requirements (WDRs) and water recycling requirements (WRRs) adopted by the Water Board.

2. Recycled Water and its Users - For the purposes of this Order, recycled water is treated effluent from the Reclamation Plant that complies with the criteria and treatment levels for the production of recycled water and its uses specified in California Code of Regulations, title 22, division 4, chapter 3, article 3, section 60303 et seq. and adopted orders.

User - For the purposes of this Order, a user of recycled water either directly or indirectly manages recycled water-use areas and is subject to the requirements in California Code of Regulations, title 22, section 60301 et seq. The Producer is responsible to ensure that users comply with orders adopted by the Water Board.

Secondary Users - For the purposes of this Order, the entities who are under contract to manage day-to-day recycled water operations are "Secondary Users." This Order requires the Discharger to ensure that Secondary Users comply with the

Statewide Reclamation Criteria established pursuant to California Water Code (Water Code), section 13521 and the requirements of this Order.

3. Facility Locations

a. Reclamation Plant

For the purposes of this Order, the Reclamation Plant is the tertiary treatment plant and all supporting infrastructures for the treatment plant. The Reclamation Plant is located on the north side of Otoe Road, just east of Quantico Road at the southwest corner of Brewster Park, in the Town of Apple Valley, as shown in Attachment A, which is made part of this Order.

b. Percolation Pond Site

The percolation ponds, of approximately 16 acres in area, would be built on an approximately 20 acre site. The location of the percolation ponds is on Waalew Road between Navajo Road and Carmel Lane, as shown in Attachment B, which is made part of this Order.

4. Land Ownership

The Reclamation Plant and the percolation ponds are located on land owned by the Town of Apple Valley.

5. Background

The Apple Valley Reclamation Plant will treat a portion of the wastewater from its local collection system, reuse the treated water in beneficial manners, and return solids to the sewer for treatment at the Regional Wastewater Treatment Plant. The water supply in the High Desert is primarily groundwater and this resource is in overdraft conditions. Water Reclamation will help to reduce the burden upon the groundwater supply and State Water Project by increasing the efficiency at which the groundwater is used by offsetting some non-potable water demands.

Reason for Action

The Water Board is adopting the current WDRs/WRRs to regulate the discharge and re-use of tertiary treated wastewater from the Apple Valley Sub-Regional Wastewater Treatment Plant.

6. Facility

The treatment process used at the Reclamation Plant is designed to produce "disinfected tertiary recycled water" as defined in Section 60301.230 of the California Code of Regulations (CCR), Title 22.

The process consists of influent pumping, fine screening, grit removal, activated

sludge biological treatment, membrane filtration by a membrane bioreactor (MBR) system, ultraviolet (UV) disinfection, and recycled water storage and pumping. The Apple Valley Reclamation Plant process flow diagram is shown on Attachment C, which is made a part of this Order. The Apple Valley Reclamation Plant is designed to allow diversion of influent flow to the main regional treatment plant in the event of major plant upsets or for other reasons, necessary for proper plant operation. The Discharger reports that the treatment processes will be designed to treat to a goal of 8.0 mg/L total nitrogen with an anticipated future goal of 4 mg/L to facilitate direct groundwater recharge using the treated wastewater (DEIR, pg 3-16).

Effluent not used for recycled water will be discharged to percolation ponds located off-site from the Apple Valley Reclamation Plant. The ponds will cover an area of approximately 20 acres (DEIR, pg 3-13).

The Reclamation Plant is expected to come online in 2014. Construction will proceed in three phases. Phase I will have an average treatment capacity of 1.0 MGD; Phase II, will increase the treatment capacity to 2.0 MGD and Phase III will increase the treatment capacity to 4.0 MGD to meet population growth. The submitted Engineering Report describes Phases I and II. Phase III will require an additional Engineering Report to be submitted to the Water Board and California Department of Public Health (CDPH). The Water Board must consider new waste discharge requirements or revisions to this permit to authorize Phase III.

7. Solids Handling and Disposal

This sub-regional plant does not treat or discharge waste sludge or solids. Waste activated sludge will be pumped to the collection system for treatment at VVWRA's Regional Wastewater Treatment Plant in Victorville.

8. Recycled Water Criteria

The California Department of Public Health's (CDPH) established criteria for the use of recycled water. These criteria are codified in California Code of Regulations, article 3 of chapter 3 of division 4, title 22, section 60303 et seq. This Order requires producers and users of recycled water to comply with applicable California Code of Regulations, title 22 criteria. As required under California Code of Regulations, title 22, section 60323, the Discharger must submit an Engineering Report to CDPH, and obtain its approval, for the production, distribution and use of recycled water. VVWRA submitted an engineering report for production, distribution and use of recycled water for irrigation and industrial process water. The CDPH accepted the Engineering Report for Phases I and II in a letter anticipated prior to Board adoption in April 2011 (see Attachment E, pending), which is made part of this Order.

The WDRs/WRRs specified in this Order are consistent with the current CDPH Water Recycling Criteria.

9. Authorized Water Recycling Sites and Recycled Water Uses

This Order authorizes the Discharger and Secondary Users to re-use disinfected tertiary-treated effluent within the Town of Apple Valley for the following uses:

- a. Landscape or turf irrigation areas; and
- b. Industrial uses for cooling or other purposes.

10. Expected Water Quality of Recycled Water

The Water Reclamation Plant will produce recycled water meeting California title 22 standards for tertiary treatment. The expected quality of the recycled water discharge is presented in Table 1.

Table 1 Expected recycled water quality

Constituent	Units	Value
pH ¹	pH units	6.5 to 8.5
Turbidity ¹	NTU	0.2/0.5 (24 hr 5% of samples/ max)
BOD ¹	mg/L	10/15/30 (avg. monthly/ avg. weekly max)
TDS	mg/L	370.0
Chloride ²	mg/L	73.0
Ammonia-N ²	mg/L	<1.0
Nitrate-N ²	mg/L	9.3 (max daily)
Nitrite- N ²	mg/L	<1.0
TKN	mg/L	0.95 (max daily)
Total Coliform ¹	MPN/100 mL	2.2/23/240 (7 day median/30 day max/single)
Total N	mg/L	6.0 ³ to 8.0 ⁴ (long term avg.)

¹ DEIR, Table 3.4-2

² Email from Logan Olds 1/24/11, data from CIA

³ (CIA pg 139 & 1/24/11 e-mail from Logan Olds)

⁴ DEIR,pg 3-11

11. Geology and Hydrogeology

The VVWRA service area is located in the Victor Valley in the Upper Mojave Desert. The service area is within the Mojave River Watershed. The re-use and disposal sites are located in the Upper Mojave River Groundwater basin, within the Town of Apple Valley and nearby areas. The Upper Mojave River Valley Groundwater Basin underlies an elongated north-south valley in which the Mojave River intermittently flows above-ground. The basin covers a surface area of approximately 413,000 acres and the average thickness of the basin is 300 feet

(DEIR, pg.4-70). The regional aquifer (referred to as the Lower Aquifer in the former George Air Force Base studies) consists of Pliocene alluvial fan deposits up to 1,000 feet thick that are unconsolidated to partially consolidated.

The groundwater basin is bounded on the north by a roughly east-west line between basement rock outcrops in the Shadow Mountains and outcrops near Helendale. The basin is bounded on the south by the contact between Quaternary sedimentary deposits and an unconsolidated basement rocks of the San Bernardino Mountains. The western boundary is a surface drainage divide between the Mojave and the El Mirage Valley Basin, as well as contact between alluvium and basement rocks that form the Shadow Mountains. The Helendale fault to the southeast and the basement rocks outcrops in the mountains surrounding Apple Valley make up the eastern boundary. The Larger Mojave River Basin is considered a closed basin (Mojave Water Agency, 2004)

The Apple Valley Water Reclamation Plant and associated percolation ponds are located in the Alto Subarea of the Upper Mojave River Groundwater Basin (DEIR, pg. 4-69). The depth to groundwater beneath the percolation pond site is estimated to be 190 feet (4.5.2.3 DEIR, 4-79) below ground surface based on data from groundwater wells in the area. Regional groundwater gradients in the vicinity of the sub-regional facility trend towards and parallel to the Mojave River channel. The Discharger has reported that local groundwater gradients are very complex in the area making identification of background data problematic (DEIR, pg 4-75), and that additional data are needed to determine localized conditions.

12. Groundwater Quality

Based on Water Board staff review, data from a groundwater supply well near the site of the proposed percolation ponds indicate currently existing background water quality of 0.5 to 0.6 mg/L of nitrate and TDS concentrations of about 180 mg/L, in the vicinity (within ½ mile) of the proposed pond location.

13. Receiving Waters

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

14. Lahontan Basin Plan

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

15. Groundwater Beneficial Uses

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

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

16. State Water Board Recycled Water Policy

State Water Board Resolution No. 2009-0011, "Adoption of a Policy for Water Quality Control for Recycled Water," references and adopts the "State Water Resources Control Board Recycled Water Policy" (Recycled Water Policy). The Recycled Water Policy provides direction to the State and Regional Water Boards regarding the appropriate criteria to be used in issuing permits for recycled water projects. The Recycled Water Policy describes permitting criteria intended to streamline, and provide consistency for, the permitting of the vast majority of recycled water projects. This Order implements the Recycled Water Policy.

Section III, of this Order (Master Recycling Permit) requires the Discharger to develop a salt/nutrient management plan and to control incidental runoff consistent with Paragraphs 6 and 7(a), respectively, of the Recycled Water Policy. Finding No. 18 of this Order describes Water Board consistency with the streamlined permitting criteria outlined in Paragraphs 7(b) and 7(c) of the Recycled Water Policy. Finding No. 21 of this Order describes Water Board consistency with the anti-degradation criteria outlined in Paragraph 9 of the Recycled Water Policy. This permit allows for increased use of recycled water consistent with the mandate established in Paragraph 4 of the Recycled Water Policy to increase the use of recycled water in California.

17. Streamlined Permitting – Recycled Water Policy

a. Eligibility

The proposed water recycling project meets criteria in the State Recycled Water Policy, Section 7.c. for the following reasons:

- i. The project complies with Title 22 regulations;
- ii. The proposed use is at rates and amounts needed for the landscape. An operations and management plan will be developed describing how appropriate irrigation amounts and rates will be applied

including, but not limited to, developing water budgets for use areas, providing supervisor training, conducting periodic inspections, developing tiered rate structures, and installing smart controllers. An operations and management plan may be developed to cover multiple sites;

- iii. A Salt Management Plan has not yet been developed. The Discharger will participate in the development of a salt/nutrient management plan for the Upper Mojave River Valley groundwater basin that is consistent with Paragraph 6 of the Recycled Water Policy; and
- iv. This Order requires the Discharger to communicate to users the nutrient levels in the recycled water, so that the users may appropriately evaluate nutrient needs prior to application of fertilizers.

b. Streamlined Permit Requirements

According to the Recycled Water Policy 7.b.(4), landscape irrigation projects that qualify for streamline permitting are not required to conduct project specific receiving water and groundwater monitoring. During the interim when the salt management plan is under development, the Discharger must either perform project specific monitoring or actively participate in the development and implementation of the salt/nutrient management plan. Permits must include monitoring of priority pollutants on a twice annual basis. This Order includes a requirement that the Discharger participate in developing the salt/nutrient management plan for the Upper Mojave River Valley Groundwater basin in lieu of performing project specific monitoring as allowed by the Recycled Water Policy.

Additionally, the Recycled Water Policy required streamlined permits to include monitoring of priority pollutants on a twice-annual basis and annual monitoring of Emerging Constituents/Constituents of Emerging Concern (e.g., endocrine disrupters, personal care products, or pharmaceuticals) (CECs). The Recycled Water Policy recognizes a lack of complete knowledge regarding CECs, and the implementation of CEC monitoring is deferred in order to incorporate the recommendations of a blue-ribbon advisory panel, to be convened by the State Water Board. This Order includes the monitoring for priority pollutants.

18. Dischargers of Recycled Water from Surface Impoundments

The State's Water Recycling Policy prohibits discharge to surface waters from a surface impoundment containing recycled water unless the discharge is a result of a 25-year, 24-hour storm event or greater. According to the Recycled Water Policy, surface water impoundments used for recycled water storage must retain a 25-year, 24-hour storm event, at a minimum.

19. Regulation of Recycled Water

a. California Code of Regulations, Title 22, Department of Public Health

The CDPH established criteria for using recycled water. These criteria are codified in title 22 and include such requirements as Sources of Recycled Water, Uses of Recycled Water, and Use Area Requirements. The CDPH adopted revised Water Recycling Criteria that became effective on March 20, 2001. Applicable criteria are prescribed in this Order.

b. Engineering Reports

As required under California Code of Regulations, title 22, section 60323, the Discharger has submitted an engineering report for the production, distribution and use of recycled water for landscape and turf irrigation, industrial and cooling applications, and crop irrigation. The content and status of the report is the following.

Engineering report title	Scope	CDPH review status	Lahontan Water Board response to CDPH review and project status
Engineering Report for the Production, Distribution and Use of Recycled Water- Hesperia and Apple Valley Sub-regional Water Reclamation Plants Draft, November 2010	Treatment and recycled water production, distribution and use. Phase I (1.0 mgd total) and Phase II (2.0 mgd total)	Under Review (anticipated to be completed before Water Board consideration or permit adoption)	Under Review (anticipated to be completed before Water Board consideration or permit adoption)

c. Regulation

Water Code Section 13523, subdivision (a) states:

“Each regional board, after consulting with, and receiving the recommendations of, the State Department of Health Services and any party who has requested in writing to be consulted, with the consent of the proposed permittee, and after any necessary hearing, may, in lieu of issuing waste discharge requirements pursuant to Section 13263 or water reclamation requirements pursuant to Section 13523 for a user of reclaimed water, issue a master reclamation permit to a supplier or distributor, or both, of reclaimed water.”

This Order includes water recycling requirements that require the Discharger to:

- i. comply with Waste Discharge Requirements;
- ii. comply with Uniform Statewide Reclamation Criteria (California Code of Regulations, title 22, sections 60301 through 60355) established pursuant to Water Code Section 13521; (see Water Recycling Specification No. I.C.1 of this Order);
- iii. establish and enforce Requirements for Recycled Water Users (Attachment D), which are made a part of this Order, and which govern the design and construction of recycled water use facilities and the use of recycled water (see Water Recycling Specifications No. I.C.1 through I.C.7);
- iv. submit quarterly reports to the Lahontan Water Board summarizing recycled water use, including the total amount of recycled water supplied, the total number of recycled water use sites, the locations of the recycled water use sites, and the names of the hydrologic areas underlying the recycled water use sites (see Monitoring and Reporting Program No. R6V-2011-Tentative, Sections I.E and II.B); and
- v. conduct periodic inspections of recycled water use sites to monitor compliance by users with the Uniform Statewide Reclamation Criteria, the Requirements for Recycled Water Users; and the requirements of this Order; (Water Recycling Specifications No. I.C.4 of this Order).

Regarding the requirement identified in "i." above, the Discharger is required to comply with the Waste Discharge Requirements (Discharge Specification I. E. 12)

Regarding the requirement identified in "ii.", above, the Discharger, through information contained in its CEQA documents and the Discharger's application, established that the recycled water uses will comply with the Title 22 requirements.

Regarding the requirement identified in "iii." and "v." above, the Discharger must implement requirements for Recycled Water Users as described in Attachment D (Discharge Specifications I.G.1. through I.G.5.).

This Order implements requirement identified in Finding No. 20.c.iv. through the attached Monitoring and Reporting Program.

20. Maintenance of High Quality Waters in California, State Board Resolution 68-16

- a. Some widespread groundwater quality degradation is expected to result from the use of recycled water throughout the Upper Mojave River Valley Groundwater Basin. Additionally, localized groundwater quality degradation is expected to result from the disposal of tertiary treated wastewater to the percolation ponds. To evaluate these impacts the

Discharger provided information to complete a Degradation Analysis that evaluates:

- Recycled water re-use areas throughout the basin; and
 - Treated water disposal by percolation ponds.
- i. Recycled Water Re-Use Areas throughout the Basin
- The proposed uses of recycled water could result in a degradation of the existing groundwater quality within the Upper Mojave River Valley Groundwater basin with respect to nutrients such as nitrate-nitrogen. Although water will be applied according to standard practices in accordance with recycled water use regulations, a conservative estimate was used assuming 20% of the total nitrogen in the re-use water will reach groundwater. The Mojave River Valley Groundwater basin within the upper Mojave Desert area is estimated to have 413,000 acres of area with an average effective thickness of 300 feet (DEIR, pg 4-67). The Discharger reports that the average nitrate-N concentration for the upper groundwater is approximately 1.6 mg/L in the receiving groundwater in the Apple valley portion of the Upper Mojave River Valley Groundwater Basin (pg 66, CIA). According to California Code of Regulations, title 22, the maximum contaminant level (MCL) in the groundwater basin for nitrate-nitrogen is 10 mg/L. The annual average total nitrogen concentration in the recycled water is expected to be 8.0 mg/L after the Tertiary Treatment Plant is operational pg 3-9 (DEIR). Anywhere recycled water or percolated effluent reaches groundwater, it is anticipated that groundwater quality in the vicinity may be degraded to the quality of the effluent or recycled water (anticipated to be no more than 8 mg/L total nitrogen) along with the addition of additional chemicals or nutrients associated with the recycled water use.
- The proposed uses of recycled water could also result in a degradation of the existing groundwater quality within the Apple Valley portion of the Upper Mojave River Valley groundwater basin with respect to salts (Total Dissolved Solids, or TDS). TDS concentrations average 180 mg/L in the receiving groundwater. According to California Code of Regulations Title 22, the recommended secondary maximum contaminant level (MCL) in the groundwater basin for TDS is 500 mg/L, and the secondary MCL upper limit is 1,000 mg/L. The average TDS concentration in the recycled water is 370 mg/L.
- ii. Treated Water Disposal by Percolation Ponds
- The Discharger reports that based on the observed impacts from past discharges at the main Regional WRP and the expected effluent

TDS concentration of 370 mg/L (pg 62 CIA), it is expected that percolation pond discharges from the proposed sub-regional WRPs may cause the upper groundwater TDS concentration to increase above ambient levels in the local vicinities of the percolation ponds. The increased local concentrations would not be expected to exceed the lower limit secondary MCL for TDS of 500 mg/L.

The Discharger reports that based on the observed impacts from past discharges at the main treatment facility and the expected effluent total nitrogen concentration of 6.0 mg/L (based on daily maximum, DEIR, pg. 3-11) and annual average total nitrogen concentration of less than 8.0 mg/L, it is expected that percolation pond discharges from the proposed sub-regional Water Reclamation Plant will likely cause the upper groundwater nitrate concentration to increase above ambient levels in the local vicinities of the percolation ponds. However, the increased groundwater nitrate concentration is not expected to be greater than 10.0 mg/L.

The Discharger anticipates no increases in groundwater nitrate as N above background concentrations as a result of the discharge to the proposed Apple Valley Sub-regional Water Reclamation Plant percolation ponds beyond approximately $\frac{1}{4}$ to $\frac{1}{2}$ mile from the immediate vicinity of the percolation pond sites. This is based on data from its existing percolation pond at the Regional Wastewater Treatment Plant. The Discharger has not conducted site specific studies to quantify these impacts.

- b. State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," 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.

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."

- c. This Order is consistent with Resolution No. 68-16 for the following reasons:
- i. The water quality changes are consistent with maximum benefit to the people of the state.

State Water Board, through Resolution No. 77-1, has identified the beneficial use of recycled water for the people for the State, and directs regional water boards to encourage the use of recycled water in water-short areas of the State. The Upper Mojave Desert area is located in a water-short area of the State. The current demand for potable water in the Upper Mojave Desert service area exceeds supply in the region. The people of the State will benefit from the use of recycled water in the Upper Mojave Desert area, where recycled water will supplement and/or replace existing water supplies (e.g., imported surface waters and overdraft of groundwaters).

- ii. The water quality changes will not unreasonably affect present and anticipated future beneficial uses. This Order prohibits the use of recycled water that causes a pollution or nuisance. Groundwater quality beneath the recycled water use is not expected to be degraded below levels protective of all identified beneficial uses. Total dissolved solids and nitrate-nitrogen concentrations in groundwater beneath and adjacent to the percolation ponds must be maintained to achieve both primary and secondary maximum contaminant levels.
- iii. The water quality changes will not result in water quality less than that prescribed in the Basin Plan. This Order prohibits discharges that fail to meet objectives in the Basin Plan.
- iv. The project is consistent with the use of best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the state.

The Discharger analyzed treatment alternatives and reports in its Cumulative Impact Analysis (CIA) pg 128, the capital, annual operation and maintenance, and total annual costs for the sub-regional Reclamation Plants and additional alternative control measures as in Table 2 below. The Reverse Osmosis (RO) costs include the costs of building the sub-regional Reclamation Plants. The No Sub-regional Project alternative costs are costs for a complete collection, treatment, and delivery system without sub-regional facilities (i.e. expansion of the existing regional plant and expanded collection system). Total annual costs were based on amortizing the capital costs based on a 30-year financing period and a 5% interest rate (annualization factor=0.0651).

Table 2

No.	ALTERNATIVE	CAPITAL COSTS	ANNUAL O&M COST	TOTAL ANNUAL COST
1	Sub-regional WRPs as proposed (U.V. & MBR)	\$65,790,000 ⁽¹⁾	\$1,484,000	\$5,767,000
2	Sub-regional WRPs with RO ⁽³⁾	\$101,827,000 ⁽²⁾	\$5,098,000	\$11,730,000
3	No Sub-regional Project Alternative ⁽⁴⁾	\$100,400,000	\$539,000	\$7,075,000

- (1) Includes MBR treatment and UV disinfection for the Apple Valley and Hesperia WRPs, expansion of these facilities to 2MGD each, and construction of the Hesperia Lift Station. Also includes estimated project and design fees. Does not include cost of recycled water disposal.
- (2) Total costs for Subregional WRPs listed above plus \$36,037,000 cost for addition of reverse osmosis and brine disposal facilities. Cost excludes MF, which is provided by MBR.
- (3) RO costs for 2 mgd of treatment at the Apple Valley and Hesperia Subregional WRPs
- (4) From RBF Technical Memorandum on Recycled Water Options (RBF, 2010)

The Discharger has proposed a project that will produce effluent with an average total nitrogen concentration of between 6 mg/L and 8.0 mg/L and TDS concentration about of 370 mg/L. THMs are not expected to be produced due to the use of UV disinfection rather than chlorination. Discharge of effluent at these concentrations will degrade groundwaters as described above.

There are some adverse environmental and socio-economic aspects of implementing the alternative control measure of RO. On the environmental side, RO requires significant amounts of energy and produces a salt brine byproduct. The ultimate disposal of the brine, assuming it is dried and trucked to a landfill, would result in increased traffic and air pollution and would decrease the life of landfill facilities. On the socio-economic side, RO would require significant increases in monthly user charges (CIA, pg 137). For the above reasons, it is not in the public interest to require the Discharger to implement RO.

The No Sub-regional Project Alternative would result in no environmental impact to the groundwater in the vicinity of the proposed Sub-regional Reclamation Plants. The effluent that is proposed to be treated at the Sub-regional Reclamation Plants would continue to be discharged to the groundwater in the vicinity of the main Regional WRP or to the Mojave River. An additional impact of the No Sub-regional Project Alternative would be any associated impacts due to the construction of new interceptor sewers to replace existing lines of insufficient capacity as growth occurs in the area.

There may be other controls that could be implemented to reduce impacts to groundwater quality from the proposed discharge. In order to accommodate plant upsets or for other plant controls, the existing infrastructure allows untreated wastewater to flow to the existing main regional plant, bypassing the sub-regional plant. Water Board staff identified other alternatives that would lessen impacts to groundwater. Alternatives considered include 1) minimizing percolation by

maximizing flow diversions for recycled water use from the percolation ponds, 2) proposing additional flow equalization at the reclamation plant so that flows may be bypassed directly to the main regional plant during off-peak periods, 3) construction of storage facilities and/or lined ponds at the reclamation plant for storage of recycled water for use upon demand, and 4) adaptability of higher technology equipment use for additional treatment (removal of TDS and/or nitrogen) of the wastewater to improve water quality prior to percolation. The Discharger may need to provide additional information for complete evaluation of these alternatives. This Order limits flow to the percolation ponds in an effort to maximize re-use, limit degradation to high quality waters and accept diversions to the regional plant.

This Order requires the Discharger to administer (1) *Requirements for Recycled Water Users*, (see Attachment D). The requirements and the compliance inspection and enforcement programs are the mechanisms for ensuring that appropriate control measures are identified, implemented, and maintained. The control measures generally identified include (1) applying irrigation within agronomic rates to reduce the potential for runoff and increased nutrients into the groundwater; and (2) developing and implementing a salt/nutrient management plan to reduce the potential for salt and nutrient loading, thereby minimizing the impacts to groundwater quality within the Upper Mojave Desert area.

The control measures will ensure that the discharge will result in the best practicable control for the maximum benefit of the people of the State to assure that a pollution or nuisance will not occur and that the highest water quality consistent with maximum benefit to the people of the State will be maintained.

21. California Code of Regulations Title 27

Sub-section 20090 provides the following exemptions from the State Water Resources Control Board promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

- (a) Sewage – Discharges of domestic sewage or treated effluent which are regulated by WDRs issued are consistent with applicable water quality objectives, 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.
- (b) Wastewater –
 - I. the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
 - II. the discharge is in compliance with the applicable water quality control plan; and
 - III. the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

The Reclamation Plant has percolation ponds for the disposal of treated wastewater. These ponds are exempt from title 27 under section 20090(a), and regulation of the ponds under California Code of Regulations title 23 is appropriate.

The re-use sites are not part of the treatment process, but are exempt under title 27, section 20090(h), which applies to recycling from waste. The percolation pond sites meet the exception requirements for waste water as contained in section 20090(b), that is:

- This Order issues waste discharge requirements for the sites;
- Discharges to these sites are in compliance with the applicable water quality control plan; and
- These discharges do not meet the specified hazardous waste criteria.

The conditions for exemption under section 20090(b) will be met with the adoption of this Order. This Order contains requirements to ensure the percolation ponds and re-use sites do not create conditions that result in a violation of Basin Plan objectives. The domestic wastewater does not need to be managed as a hazardous waste.

The discharge from the percolation ponds are exempt from California Code of Regulations, title 27 because the above conditions have been met.

22. Consideration of California Water Code Section 13241 Factors

California Water Code (Water Code), section 13263 requires that the Water Board, when prescribing WDRs, take into consideration five specific factors in Water Code, section 13241.

- a. Past, Present, and Probable Future Beneficial Uses of Water - The receiving waters are the groundwaters of the Upper Mojave River Valley Groundwater Basin. The beneficial uses of the groundwater are described in Finding No. 15. The receiving water limits in this Order are to maintain the most sensitive beneficial use: Municipal and Domestic Supply (MUN). The current and future beneficial uses and existing water quality in the area will be maintained.
- b. Environmental Characteristics of the Hydrographic Unit under Consideration, Including the Quality of Water Available Thereto - Hydrogeologic characteristics of the Upper Mojave River Valley Groundwater Basin are described in Finding No. 11. Because of past and ongoing use of groundwater, the Groundwater Basin is in overdraft. Groundwater quality is described in Finding Nos. 12. In general, the groundwater quality is sufficient to support the beneficial use of MUN.

- c. Water Quality Conditions that Could Reasonably Be Achieved Through the Coordinated Control of All Factors, Which Affect Water Quality in the Area - The requirements of this Order establish levels for the safe use of recycled water for landscape irrigation and industrial uses. This Order requires the Discharger to complete a salt/nutrient management plan, and establishes tertiary treatment effluent limits, requires water to be used at agronomic rates, requires compliance with discharge flow limits to percolation ponds, effluent and receiving water limitations, and the Monitoring and Reporting Program and requires VVWRA to ensure compliance by its users. Reuse of treated wastewater will minimize use of fresh water for similar uses. However, water quality of the groundwater will be degraded in localized areas, primarily beneath the percolation ponds. The Discharger's implementation of nutrient removal technology are reasonable control measures to lessen impacts to groundwater.
- d. Economic Considerations - Extraction of groundwater in dry years causes significant reductions in groundwater levels at supply wells, and may result in an overdraft condition. These overdraft conditions will become more severe with future population growth. Therefore, the production and reuse of recycled water for uses that are otherwise served by supply wells will preserve high quality groundwater for the potable water uses. Preserving high quality groundwater for future direct use will likely result in economic saving because other potable supplies such as imported water will not need to be relied on as heavily.
- e. The Need for Developing Housing in the Region - The proposed recycled water uses would not directly contribute to the creation of additional housing or jobs within the area and thus would not result in direct growth inducement. The proposed recycled water uses in the area would reduce the area's existing and future demand for groundwater through recycling. The groundwater conserved through implementation of the proposed project would be available to serve potable water demands of planned growth.
23. California Environmental Quality Act (CEQA)

The Discharger certified an Environmental Impact Report (EIR) on February 17, 2011 for its plan, which included the construction of the Apple Valley sub-regional tertiary treated wastewater treatment plant. The Water Board has considered the environmental document and incorporated mitigation measures within its jurisdiction into this Order to mitigate the project's significant impacts that relate to water quality.

Attachment F, which is made part of this Order, summarizes the project's significant impacts that relate to water quality, the mitigation measures, and the Water Board's findings regarding these measures. This Order and the accompanying Monitoring and Reporting Program will ensure compliance with

required mitigation measures. The Regional Water Board will file a Notice of Determination within five days from the issuance of this Order.

24. Basis for Limits

This Order establishes effluent limits and receiving water limits. Effluent limits are based on tertiary treatment criteria and what is achievable using available technology. Receiving water limits are based on anticipated water quality degradation considering cumulative impacts from use of reclaimed water in the basin and the disposal at the percolation ponds.

25. Requirement to Submit Technical and Monitoring Reports

A Monitoring and Reporting Program has been developed for this discharge and is incorporated into the requirements of this Order. The Monitoring and Reporting Program is necessary to check for compliance with the requirements of this Order for protection of groundwater quality.

26. Notification of Interested Parties

The Water Board has notified the Discharger and interested persons of its intent to revise WDRs/WRRs for the discharge.

27. Consideration of Public Comments

The Water Board, in a public meeting held May 11, 2011, heard and considered all comments pertaining to the discharge.

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

I. DISCHARGE LIMITATIONS

A. Influent Specifications

The flows of waste water provided for treatment at the Reclamation Plant shall not exceed the following limits:

Plant Development	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
Phase I	1.0	pending
Phase II	2.0 (Total, incl. Ph. I & II)	pending

B. Effluent Limitations

- The flows of treated wastewater to the percolation ponds shall not exceed the following limits:

Plant Development	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
Phase I	.7	1.4
Phase II ¹	0.5 (Total, incl. Ph. I & II)	1.0

¹ After phase II is completed, less wastewater is allowed to be percolated since reuse is expected to increase

- All effluent supplied to uses that require tertiary recycled water, as specified in California Code of Regulations, title 22, article 3, and for disposal in percolation ponds shall be tertiary-treated effluent and shall not contain concentrations of parameters outside of the following limits:

Percolation Pond Water

Parameter	Daily Maximum mg/L ³	Monthly Mean mg/L	Annual Average mg/L
BOD ¹	30	10	-
MBAS ²	2.0	1.0	1.0
Total Nitrogen	Interim	10	8
	Final	8	6
TDS	--	--	370

Re-Use Water

Parameter	Daily Maximum mg/L ³	Monthly Mean mg/L	Annual Average mg/L ⁴
BOD ¹	30	10	-
MBAS ²	2.0	1.0	1.0
Total Nitrogen	10	10	8
TDS	500	330	330

¹ Biochemical Oxygen Demand (5 day, 20° C of an unfiltered sample)

² Methylene Blue Active Substances

³ Based on an individual (non-composite) result

⁴ Calendar year

- All Final Effluent Limits become effective on **March 15, 2015**.

C. Water Recycling Specifications

1. A new Engineering Report must be submitted to the Water Board and CDPH for any material modification in the manner or method that recycled water is produced or used. Revisions to these waste discharge requirements or reclamation requirements may be needed before the Discharger may implement the proposed changes.
2. Pursuant to California Code of Regulations, title 22, sections 60301.900 and 60301.650, "undisinfected secondary recycled water" must be effluent that is fully oxidized in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.
3. Pursuant to California Code of Regulations, title 22, section 60301.225, "disinfected secondary-23 recycled water" must be effluent that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a MPN of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analysis have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30-day period.
4. The Discharger must comply with all requirements for recycled water use areas as specified in California Code of Regulations, title 22, section 60310. The Discharger must assure that the Secondary Users comply with all requirements for recycled water use areas as specified in California Code of Regulations, title 22, section 60310.
5. The Discharger, as producer of recycled water, must comply with all operational requirements specified in California Code of Regulations, title 22, sections 60325 (Personnel), 60327 (Maintenance), 60329 (Operating records and reports), and 60331 (Bypass).
6. The Discharger, as producer of recycled water, must comply with the general Requirements of Design specified in California Code of Regulations, title 22, article 8.
7. The Discharger, as producer of recycled water, must comply with Reliability Requirements for Full Treatment specified in California Code of Regulations, title 22, article 10, for production of water to meet the recycled water uses allowed in this Order.

D. Receiving Water Limitations

1. Discharges from this Facility shall not cause a violation of any applicable water quality standard for the receiving water adopted by the Water Board or the State Water Resources Control Board.

2. The Facility's discharge shall not cause the presence of the following substances or conditions in groundwater from percolation of the Mojave River's Alto Groundwater Sub-basin:

Non-degradation – State Water Resource Control Board Resolution No. 68-16 "Statement of Policy With Respect to Maintaining High Quality of Waters In California," known as the Non-degradation Objective, requires maintenance of existing high quality in surface waters, groundwaters, and wetlands. Whenever the existing quality of water is better than the quality of water established in the Basin Plan, such existing quality shall be maintained unless appropriate findings are made under Resolution No. 68-16 (see Finding No. 20).

3. Bacteria - Groundwaters shall not contain concentrations of coliform organisms attributable to human wastes.

4. Chemical Constituents - Groundwaters shall not contain concentrations of chemical constituents in excess of the maximum contaminant level or secondary maximum contaminant level based on drinking water standards specified in the following provisions of California Code of Regulations, title 22: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), Table 64433.2-B of section 64433.2 (Fluoride), 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). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

An exception to the above is the discharge of treated wastewater must not cause or contribute to cause the following chemical constituents to exceed the following concentrations in groundwaters:

Parameter	Annual Average
TDS	400 mg/L
Total Nitrogen	6 mg/L

5. Radioactivity - Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, or that result in the accumulation of radionuclides in the food chain to an extent that it presents a hazard to human, plant, animal, or aquatic life. Waters shall not contain concentrations of radionuclides in excess of limits specified in the California Code of Regulations, title 22, chapter 15, article 5, section 64443.
6. Taste and Odors - Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance (Water Code section 13050 (m)) or that adversely affect waters for beneficial uses.

E. Secondary Users

1. The Producer, as defined in Finding No. 1, will be responsible for ensuring compliance with the following requirements:
 - a. Section I.B (Water Recycling Requirements), I.C. (Receiving Water Limitations), and I.F. (General Requirements and Prohibitions) of this Order; and
 - b. California Code of Regulations, title 22, sections 60304, 60307, and 60310.
2. The Discharger must notify the Water Board at least 15 days prior to adding, removing or changing the Secondary Users of recycled water, and the Discharger must ensure that agreements with Secondary Users require compliance with requirements stated herein.

F. General Requirements and Prohibitions

1. The use of recycled water under this Order must be limited to the Authorized Recycled Water Sites and uses defined in Finding No. 9 of this Order.
2. The discharge to waters of the State shall not contain substances in concentrations that are toxic to, or produce detrimental physiological responses in humans, plants, animals, or aquatic life.

3. Recycled water used to irrigate landscape areas must not be applied at a rate and amount that exceeds the irrigation and nutrient needs of the vegetation. The Discharger must notify the recycled water users the nutrient levels in the recycled water at least monthly so that the users can appropriately evaluate nutrient needs prior to application of fertilizers.
4. Recycled water must not be applied at a rate and amount that causes ponding or runoff that is other than incidental runoff. The discharge of recycled water to surface waters, including excessive application, intentional overflow or application, or negligence, is prohibited. However, incidental runoff of recycled water, such as unintended, minimal over-spray from sprinklers that escapes the recycled water use area is not a violation of this Order.
5. Pipelines must be maintained so as to prevent leakage.
6. There shall be no discharge, bypass, or diversion of untreated or treated waste water, sludge, grease, or oils from the transport, treatment, or authorized storage/recycling sites to adjacent land areas or surface waters.
7. The discharge of recycled water or wastewaters to surface water is prohibited.
8. Surface flow, or visible discharge of untreated or treated wastewater from the authorized storage/recycling sites to adjacent land areas or surface waters prohibited.
9. All facilities used for collection, transport, treatment, or disposal of waste regulated by this Order 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.
10. The vertical distance between the liquid surface elevation and the lowest point of a pond or reservoir dike shall not be less than 2.0 feet, based on a 25 year, 24 hour storm or greater event.
11. The disposal of waste residue, sludge not covered by this permit, shall be in a manner in compliance with all local, state, and federal requirements.

12. The Reclamation Plant must be designed and operated to comply with this Order.
13. In accordance with 40 CFR section 122.41(e), 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 conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger only when necessary to achieve compliance with this Order.
14. The discharge of waste, as defined in the Water Code, which causes violation of any narrative water quality objective contained in the Basin Plan, including the Non-degradation Objective, is prohibited.
15. The discharge of waste that causes violation of any narrative or numeric water quality objective contained in the Basin Plan is prohibited.
16. The use or disposal of recycled water that causes a violation of any narrative water quality objective contained in the Basin Plan, is prohibited.
17. The use or disposal of recycled water that causes a violation of any numeric water quality objective contained in the Basin Plan, is prohibited.
18. Discharge of recycled water outside of the authorized Sites is prohibited.
19. The use of recycled water shall not cause pollution or threatened pollution as defined in Water Code, section 13050 (l).
20. The use of recycled water shall not cause nuisance as defined in Water Code, section 13050 (m).
21. Discharge of untreated or partially treated recycled water to the recycled water distribution system is prohibited.
22. The Discharger must ensure the implementation of an operation and maintenance plan for all recycled water use sites that includes the following practices:

- a. detection of leaks and implementation of corrective action within 72 hours of learning of the leak, or prior to the release of 1,000 gallons, whichever occurs first;
- b. proper design and aim of sprinkler heads;
- c. refraining from recycled water application during precipitation events; and
- d. adequate protection of all facilities used to transport and store recycled water against overflow, structural damage, or a significant reduction in efficiency resulting from a 25-year, 24-hour storm or flood.

G. Regulation and Enforcement

1. Pursuant to Water Code section 13523.1, subdivision (b)(1), the Discharger must comply with all waste discharge requirements adopted by the Water Board for regulating the production of the disinfected tertiary recycled water.
2. Pursuant to Water Code section 13523.1, subdivision (b)(2), the Discharger must comply with the Uniform Statewide Reclamation Criteria, which are contained in California Code of Regulations, title 22, sections 60301 through 60355 and are established pursuant to Water Code section 13521.
3. Pursuant to Water Code section 13523.1, subdivision (b)(3), the Discharger must implement and enforce *Requirements for Recycled Water Users, Recycled Water Users Site Inspection Program, and Enforcement Response Plan* (Attachment D, which is made a part of this Order) governing the design and construction of recycled water use facilities and the use of recycled water.
4. Pursuant to Water Code section 13523.1, subdivision (b)(5), the Discharger must conduct periodic inspections of the facilities of the recycled water users to monitor compliance by the users with the Uniform Statewide Reclamation Criteria and the Discharger's *Requirements for Recycled Water Users, Recycled Water Users Site Inspection Program, and Enforcement Response Plan* (Attachment D, which is made a part of this Order). During the inspections, the Discharger shall also monitor compliance with Water Recycling Specifications No. I.C.1 through I.C.7 of this Order. At a minimum, the Discharger must inspect each recycled water use facility at least

once every three years if there are no reported violations, and at least annually if there are prior violations at the facility.

5. The Discharger must inspect recycled water use facilities and ensure users' compliance with these master water recycling requirements.

II. PROVISIONS

A. Monitoring and Reporting

1. Monitoring and Reporting Program - Pursuant to Water Code, section 13267, the Discharger must comply with the attached Monitoring and Reporting Program No R6V-2011(TENTATIVE), which is made a part of this Order. Reports requested under the Monitoring and Reporting Program are required to monitor the effects on water quality from known or suspected discharges of waste to waters of the State as a result of releases of treated waste water regulated by this Order.
2. General Provisions - The Discharger must comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made a part of the Monitoring and Reporting Program.
3. Workplans & Modeling – By **October 10, 2011**, the Discharger must submit a work plan and schedule for the installation of groundwater wells at the percolation pond site. Groundwater wells must be operational by **September 30, 2012**. By **November 10, 2011**, the Discharger must submit a work plan and schedule for a vadose zone and groundwater model to evaluate effects of the discharge at the percolation ponds.
4. Compliance with Final Limits - By **March 15, 2015**, the Discharger must submit a status report on measures taken to ensure compliance with the final effluent limits.

B. Standard Provisions

The Discharger must comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, which is included as Attachment "G" and is made part of this Order.

C. Secondary User Agreements

The Primary User shall include the following conditions in any oral or written provision for disposition of recycled water:

1. Any Secondary User of recycled waste water from the Primary User hereby authorizes, at all reasonable times, the Primary User or any authorized representative of the Water Board to enter upon the property where the recycled water is being used and to investigate such person's use of recycled water.
2. Any Secondary User of recycled water from the Primary User shall report at least once each month to the Primary User on the irrigation method and the name and final usage of all crops irrigated with recycled water during such period. Such user of recycled water from the Primary User agrees to insert the substance of this clause in any oral or written provision for disposition of recycled water.

D. Operator Certificates

The Reclamation Plant must be supervised by persons possessing a Waste Water Treatment Plant Operator certificate of appropriate grade pursuant to California Code of Regulations, title 23, section 3670 et seq.

E. Monitoring Program Availability

A copy of this Order and the Monitoring and Reporting Program shall be available at all times at the treatment plant for immediate reference by the plant operator.

III. RECYCLED WATER POLICY IMPLEMENTATION

The Discharger must develop and/or participate in the development of a salt/nutrient management plan for the Mojave River Valley Groundwater Basin that is consistent with Paragraph 6 of the Recycled Water Policy. The salt/nutrient management plan must be submitted to the Lahontan Water Board by **May 14, 2014**.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Water Quality Control Board, Lahontan Region, on May 11, 2011.

HAROLD J. SINGER
EXECUTIVE OFFICER

Attachments:

- A. Location of the Tertiary Treatment Plant
- B. Proposed Percolation Pond site

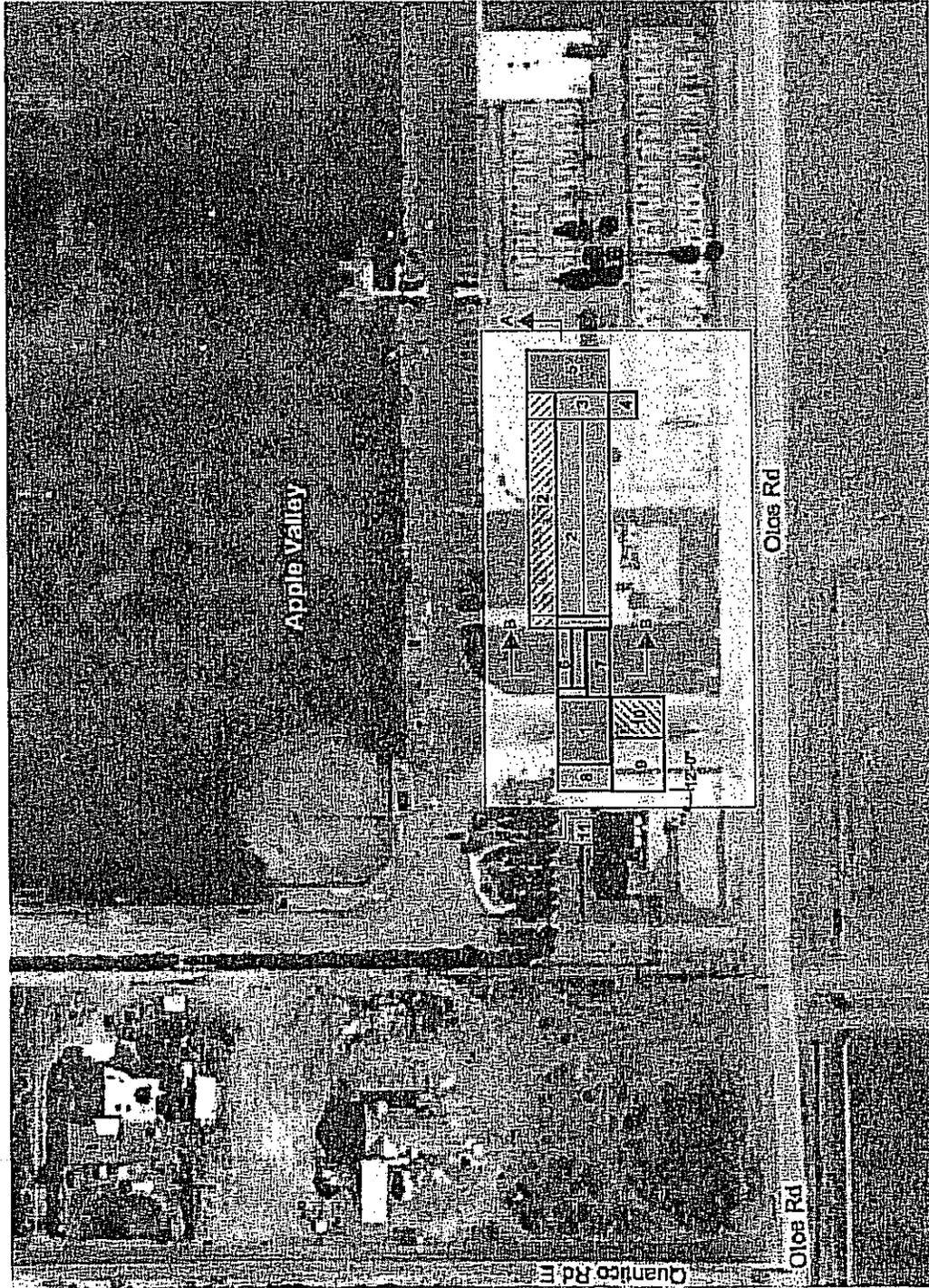
- C. Process Flow Diagram
- D. Recycled Water Program
- E. CDPH Approval Letter
- F. EIR Significant Impacts and Mitigation Measures
- G. Standard Provisions for Waste Discharge Requirements

JM/rp BO2011 / Tentatives for Sub-Regional Plants / r6v-2011-tent_applevalley_sub-reg

Documents comprising the Report of Waste Discharge

1. The Report of Waste Discharge, dated July 9, 2009, proposing to construct three sub-regional water reclamation plants within the VVWRA service area.
2. A Cumulative Impact Analysis (CIA), dated September 13, 2010, submitted to serve as a Degradation Analysis for the discharge to groundwater generated by the proposed sub-regional plants.
3. Water Board staff CIA response letter, dated November 8, 2010. Comments include groundwater degradation from coliform bacteria, taste & odor, per Basin Plan requirements. Additional comments include the addressing of a Salt and Nutrient Management Plan, compliant to the Basin Plan. Water Board staff responded with comments and requested that an addendum to the CIA be submitted.
4. VVWRA's CIA addendum, dated December 15, 2010, addressing the comments from Water Board staff in a letter dated November 8, 2010.
5. Electronic communication between Water Board staff and Mr. Logan Olds, General Manager at VVWRA on January 24, 2011.
6. An e-mail between Mr. Logan Olds, General Manager at VVWRA, dated February 8, 2011, regarding the construction schedule for the Hesperia sub-regional plant.
7. An e-mail between Ms. Betsy Elzufon, Consulting Engineer at Larry Walker & Associates, dated March 15, 2011 regarding the capacity of the proposed percolation pond for the Hesperia sub-regional plant.
8. Engineering Report for the production, distribution and use of recycled water for the sub-regional plants at Hesperia and Apple Valley – Draft November 2010.
9. An e-mail between Ms. Betsy Elzufon, Consulting Engineer at Larry Walker & Associates, dated March 17, 2011 regarding the ownership of the land where the plant and disposal ponds will be located.

ATTACHMENT A Site Layout



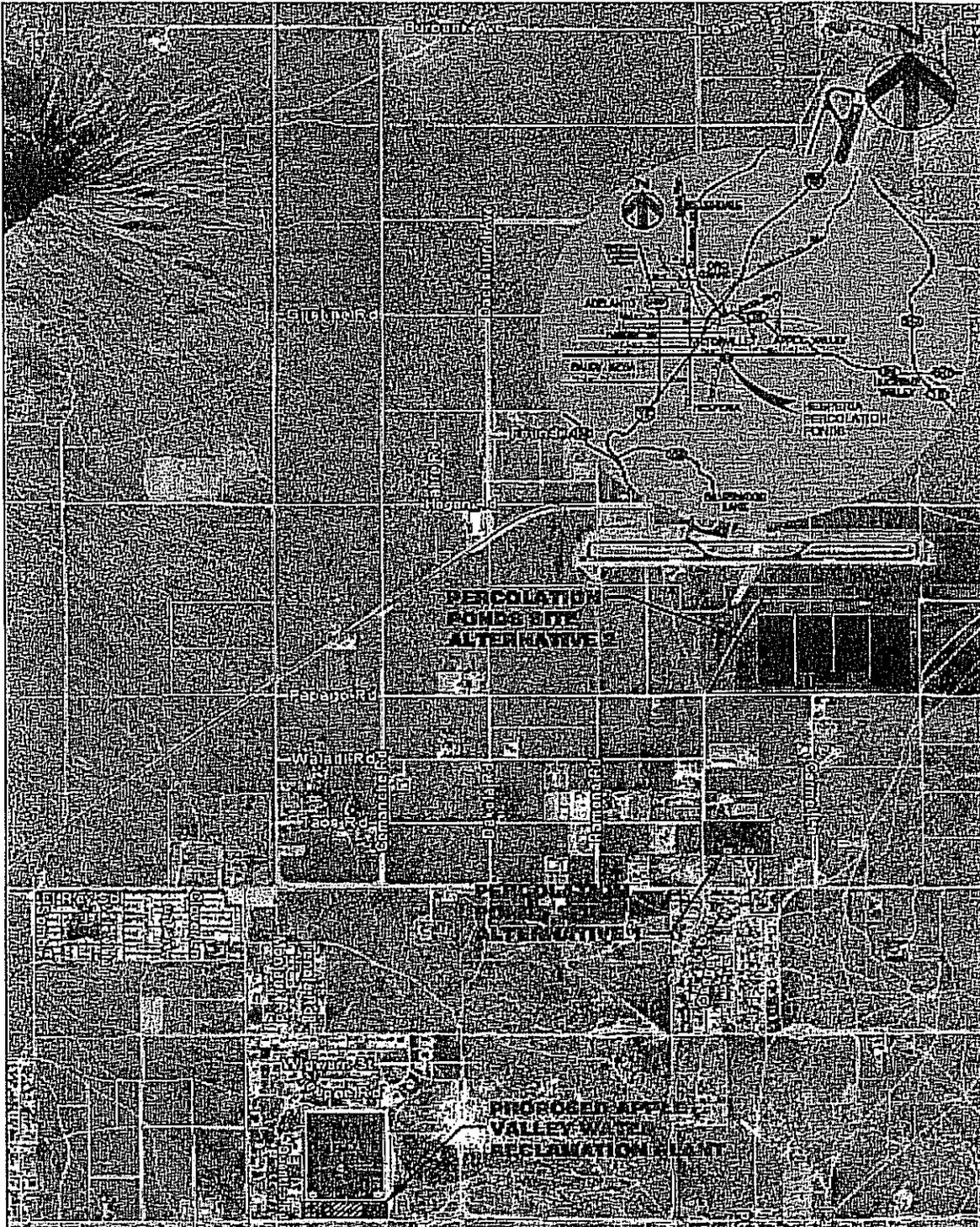
LEGEND

- 1. HEADWORKS: BARRIERS, INTAKE, SCREENING, FLOOR LEVEL, AERATION, PRELIMINARY TREATMENT, CURVE ADJUST, SUBMERGED AERATION & FEED, LOWER LEVEL, UV SYSTEMS, PERMEATE PUMPS
- 2. BIOLOGICAL BASIN
- 3. FEED FORWARD PUMP STATION
- 4. WAS PUMP STATION
- 5. PROCESS ELECTRICAL BLOWER BUILDING
- 6. SUBMERGED AERATORS
- 7. MBR ELECTRICAL BLOWER BUILDING FLOOR LEVEL, ELECTRICAL ROOM, LOWER LEVEL, MBR, SCOUR BLOWERS
- 8. RECLAIMED WATER PUMP STATION
- 9. BIOFILTER (HEADWORKS, O&D, CONTROL)
- 10. GRIT REMOVAL (FUTURE)
- 11. INFLUENT LIFT STATION EXPANSION
- 12. AERATION BASIN PHASE 2 EXPANSION (2 MGD)



Source: Carollo Engineers, Town of Apple Valley WRP PDR, December 2009

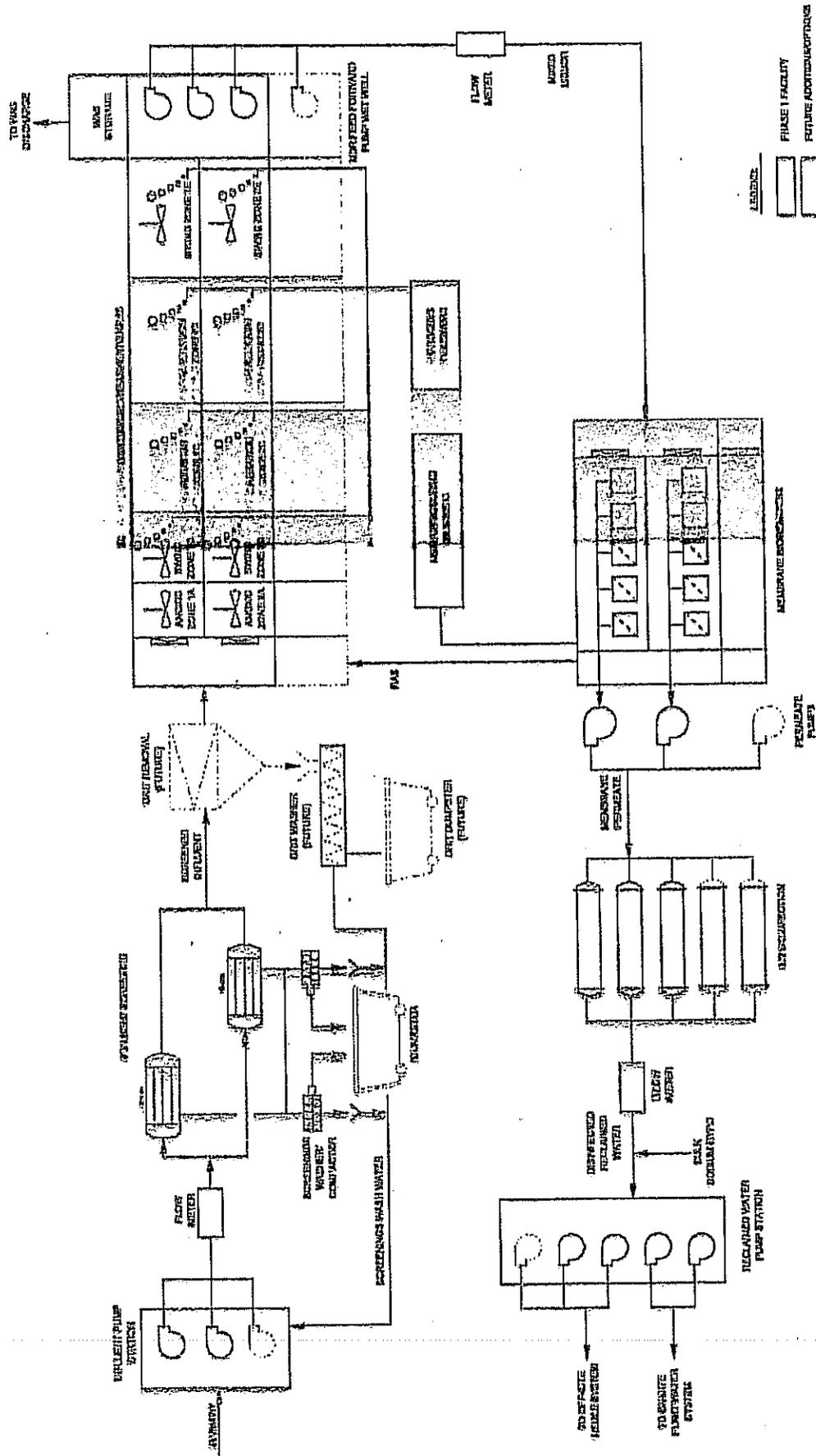
ATTACHMENT B
Apple Valley Water Reclamation Plant
Percolation Ponds Site – Alternatives 1 & 2



Source: Carollo Engineers, Town of Apple Valley WRP PDR, December 2009

Tom Dodson & Associates
Environmental Consultants

ATTACHMENT C Process Flow Diagram



Source: Carollo Engineers, Town of Apple Valley WWP PDR, December 2009

ATTACHMENT D

I. *Recycled Water Program*

- A. Board Order No. R6V-2011-(TENTATIVE) requires the Victor Valley Wastewater Reclamation Authority (VWVRA) to establish and enforce *Requirements for Recycled Water Users*. The *Requirements for Recycled Water Users* must include but not be limited to a description of the:
1. Process the Users must follow to obtain authorization to use recycled water, including the agencies involved in the process, documents that must be completed (design plans, User Agreements, etc.), the routing of documents to the parties, agencies that must approve documents, agencies responsible for construction inspections, etc.
 2. Requirements for the operational phase, including the designation of the Site Supervisor, and requirements for personnel training, operation and maintenance, type and frequency of cross-connection tests, etc.
- B. The *Requirements for Recycled Water Users* must comply with the following laws and regulations:
1. Applicable portions of the Water Code, including Water Code section 13523.1;
 2. Applicable portions of the Health and Safety Code;
 3. California Code of Regulations, title 22, division 4, chapter 3, Uniform Statewide Reclamation Criteria; and
 4. California Code of Regulations, title 17, division 1, chapter 5, group 4, article 1 & 2.
- C. The *Requirements for Recycled Water Users* must be consistent with the following documents:
1. The document titled: *Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water*, State Department of Public Health Services;
 2. Any measures that are deemed necessary for protection of public health, such as the American Water Works Association (AWWA) California/Nevada section, *Guidelines for the Distribution of Non-Potable Water and Guidelines for Retrofitting To Recycled Water* or alternate measures that are acceptable to the State Department of Health Services.
- D. At a minimum, the VWVRA's *Requirements for Recycled Water Users* must include the following requirements:
1. Before use of recycled water can begin at a proposed Authorized Recycled Water Use Site (Site), a User must file an application with the VWVRA and a User

Agreement must be completed. The User Agreement must include the VVWRA's terms and conditions for the use of recycled water by a User. The application must include:

- a. A detailed description of the proposed recycled water use Site, including:
 - i. A map showing the specific boundaries of the proposed Site;
 - ii. The person or persons responsible for operation and maintenance of the Site (O&M Staff), including the person designated as the Site Supervisor as defined in Requirement No. I.D.3 of this attachment;
 - iii. Evidence that the O&M Staff and Site Supervisor have received sufficient training to comply with Requirement No. I.D.4 of this attachment; and
 - iv. The specific use to be made of the recycled water at each Site.
 - b. Design plans and a description of best management practices (BMPs) that show that the quality of waters of the State will be protected and there will be compliance with Requirement No. I.D.6 of this attachment.
 - c. Plans and specifications describing the following:
 - i. Proposed piping systems to be used;
 - ii. Pipe locations for both recycled and potable systems;
 - iii. Type and location of the outlets and plumbing fixtures that will be accessible to the public; and
 - iv. The methods and devices to be used to prevent backflow of recycled water into the public water system.
 - d. Recycled Water System Operations Manual, and
 - e. Emergency Cross-Connection Response Plan
2. The Site Supervisor must immediately initiate corrective action to eliminate violation of any applicable law or regulation, or the VVWRA's *Requirements for Recycled Water Users*.
 3. Each User must designate a Site Supervisor who is responsible for the recycled water system at each Site under the User's control. Specific responsibilities of the Site Supervisor include the proper installation, operation, and maintenance of the recycled water system; compliance with the VVWRA's *Requirements for Recycled Water Users*, prevention of potential hazards and preservation of the recycled water system in "as built" condition.
 4. The O&M Staff and the Site Supervisor must be trained ensure the site is operated and maintained in compliance with applicable laws and regulations, and the VVWRA's *Requirements for Recycled Water Users*.

5. Users must allow an authorized representative of any of the following agencies the right to enter and inspect the site upon presentation of proper credentials: the VVWRA, Lahontan Water Board, State Department of Public Health Services, and San Bernardino County Public Health Department.
6. Sites using recycled water must be designed and operated using BMPs to ensure:
 - a. Application of recycled water at agronomic rates so irrigation does not promote downward migration of pollutants, which could adversely impact the quality of groundwater;
 - b. Adequate erosion control so that soil is not released into stormwater runoff and surface waters; and
 - c. Fertilizer application does not adversely impact waters of the State.

To demonstrate whether irrigation is at agronomic rates, the User must provide information to the VVWRA including a tabular comparison of the volume of water required for plant growth in the landscape area to the volume of recycled water (and supplemental water) applied to the area.

To demonstrate whether fertilizer application is at agronomic rates, the User must provide information to the VVWRA including a tabular comparison of the amount of fertilizer needed for plant growth in the landscape area to the amount applied to the area. The Site Supervisor must only apply nitrogen fertilizer if levels of nitrogen in the recycled water are not sufficient for plant growth. If levels are not sufficient, the Site Supervisor must calculate how much fertilizer needs to be applied by subtracting the level in recycled water from the level needed for plant growth.

7. Sites using recycled water must be designed and operated using BMPs with the objectives of preventing recycled water spray, mist, or surface flow from either leaving the Site or reaching:
 - a. Any surface waters located on or adjacent to the Site¹
 - b. Areas where the public has access (e.g., dwellings, designated outdoor eating areas, or food handling facilities.); or
 - c. Drinking fountains.
8. BMPs used to achieve the objectives described in Requirement No. I.D.7 of this attachment, must include:
 - a. Use of buffer zones;
 - b. Discontinuation of application of Recycled Water during precipitation events, which are of sufficient magnitude to generate surface flow within the Site; and
 - c. Use of devices that protect drinking water fountains against contact with recycled water spray, mist, or surface flow.

¹ Except for runoff that is "incidental in nature.

9. Sites must be designed and operated using BMPs with the objectives of preventing public contact with recycled Water. BMPs used to obtain these objectives must include: irrigation with recycled water during periods of minimal human use of the irrigated area and timing of irrigation to allow an adequate dry-out time before the irrigated area will be used by the public.
10. A copy of the *Requirements for Recycled Water Users*, design plans for the recycled water system and potable water system, and the *Recycled Water System Operations Manual* for the recycled water system must be maintained at the use area. These documents must be available to operating personnel at all times.
11. The Site Supervisor must provide immediate verbal notification followed by written notification within 10 business days to the VVWRA, Lahontan Water Board, State Department of Public Health Services and San Bernardino County Public Health Department if any of the following events occur:
 - a. There is a complaint (or other source of information) concerning recycled water use that may involve illness;
 - b. An unauthorized discharge of more than 50,000 gallons of tertiary treated recycled water (or 1,000 gallons for any lesser quality recycled water); or
 - c. Contamination of the potable water system due to a cross-connection.
12. The Site Supervisor must immediately invoke the Emergency Cross-Connection Response Plan in case of contamination of the potable water system due to a cross-connection.
13. Irrigation with disinfected tertiary recycled water must not take place within 50 feet of any domestic water supply well. (Cal Code Regs., title 22, section 60310, subd. (a).)
14. Impoundment of disinfected tertiary recycled water must not occur within 100 feet of any domestic water supply well. (Cal Code Regs., title 22, section 60310, subd. (b).)
15. A public water supply must not be used as a backup or supplemental source of water for a recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of California Code of Regulations, title 17, section 7602, subdivision (a) and California Code of Regulations, title 17, section 7603, subdivision (a), and that such connection has been approved by the State Department of Public Health Services and/or its delegated local agency.
16. Any backflow prevention device installed to protect the public water system must be inspected and maintained in accordance with California Code of Regulations, title 17, section 7605 (Cal. Code Regs., title 22, section 60316, subd. (c).)
17. Except as allowed under California Code of Regulations, title 17, section 7604, no physical connection must be made or allowed to exist between any recycled water

system and potable water system. (Cal. Code Regs., title 22, section 60310, subd. (h).)

18. The recycled water system must not include any hose bibs. Quick couplers that are different from those used on the potable water system may be used. (Cal Code of Regs., title 22, section 60310, subd. (i).)
19. All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations must be colored purple or distinctively wrapped with purple tape in accordance with Health and Safety Code section 116815.
20. Sites must be designed and operated using BMPs to prevent: direct human consumption of recycled water, or use of recycled water for processing of food or drink intended for human consumption. There must be posting with conspicuous signs (in a size no less than 4 inches high by 8 inches wide) that include the following wording: "RECYCLED WATER - DO NOT DRINK" where recycled water could potentially be accessed for human consumption. Each sign must display an international symbol similar to that shown in Figure 60310-A of California Code of Regulations, title 22, section 60310, subdivision (g). The sign(s) must be of a size easily readable by the public. The prescribed wording should also be translated into Spanish and other appropriate languages and included in the required signs. (Cal Code Regs., title 22, section 60310, subd. (g).)

II. Compliance Inspection and Enforcement Program

- A. Board Order No. R6V-2011-(TENTATIVE) requires the VVWRA to establish and implement a *Compliance Inspection and Enforcement Program*. The *Compliance Inspection and Enforcement Program* must include but not be limited to a description of the VVWRA's:
 1. Plan for conducting routine compliance inspections of the Authorized Recycled Water Use Sites, including the name(s) of any parties that will assist the VVWRA in conducting the inspections.
 2. Process for responding to violations, including ordering corrective action and initiating enforcement action.
- B. At a minimum, the *Compliance Inspection and Enforcement Program* must be consistent with Water Code section 13523.1.
- C. At a minimum, the VVWRA's *Compliance Inspection and Enforcement Program* must include the following requirements:
 1. Inspections include review of the Site Supervisor's maintenance records and visual inspection of all back-flow prevention devices, pump rooms, exposed piping, valves, pressure reducing stations, points of connection, sprinklers, controllers, surface waters, storage facilities, signs, labeling, tags, etc.;

2. A Site compliance inspection report must be prepared for each inspection. The inspection report must be signed and dated by both the Site Supervisor and the inspector. At a minimum, copies of the reports must be maintained on file by the Site Supervisor, VVWRA, and inspecting entity if different from the VVWRA;
3. The inspector must immediately notify the Site Supervisor of violation(s) identified during inspections and what corrective actions must be taken;
4. Describe enforcement actions that will be employed for Users that fail to immediately initiate corrective action to eliminate violation(s). Such enforcement actions may include, but not be limited to:
 - a. Immediately stopping recycled water service to a use Site where a violation has been identified and the violation is believed to constitute a hazard to the public health or threat to water quality.
 - b. Termination of service to a User who uses, transports, or stores such water in violation of the VVWRA's *Requirements for Recycled Water Users*.

When the CDPH accepts the Engineering Report for Phases I and II, the approval letter will be placed here in Attachment E. This approval letter is anticipated prior to Board adoption.

ATTACHMENT F

SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THE EIR PERTAINING TO HYDROLOGY/WATER QUALITY

TOM DODSON & ASSOCIATES

Hydrology and Water Quality Impact	Impact Reduced to Less Than Significant by the Specified Mitigation Measures	Water Board Analysis and Findings
<p>Potential erosion sedimentation impacts from construction and maintenance of the two Subregional WRPs and support facilities</p>	<p>Mitigation Measure 4.5-1 The construction contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices that will be implemented to prevent construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving offsite. The SWPPP shall be developed with the goal of achieving a reduction in pollutants both during and following construction to control urban runoff to the maximum extent practicable based on available, feasible best management practices. The SWPPP and the monitoring program for the construction projects shall be consistent with the requirements of the latest version of the State's General Construction Activity Storm Water Permit and NPDES Permit No. CAS618036, Order No. R8-2002-0012 for projects within San Bernardino County.</p> <p>The following items should be included in the SWPPP:</p> <ul style="list-style-type: none"> • The length of trenches which can be left open at any given time should be limited to that needed to reasonably perform construction activities. This will serve to reduce the amount of backfill stored onsite at any given time. • Backfill material should not be stored in areas, which are subject to the erosive flows of water. • Measures such as the use of straw bales, sandbags, silt fencing or detention basins shall be used to capture and hold eroded material for future cleanup. • Rainfall will be prevented from entering material and waste storage areas and pollution-laden surfaces. • Construction-related contaminants will be prevented from leaving the site and polluting waterways. • Replanting and hydroseeding of native vegetation will be implemented to reduce slope erosion and filter runoff. • A spill prevention control and remediation plan to control release of hazardous substances. 	<p>NPDES Permit No. CAS618036, Order No. R8-2002-0012 is a Santa Ana Regional Board Phase I Municipal Separate Storm Sewer Systems (MS4) Permit for San Bernardino County that is not applicable for this project.</p> <p>The applicable MS4 permit for this project is the State General MS4 permit for Storm Water Discharges from Small MS4s (Phase II) NPDES Permit No. CAS000004.</p> <p>With implementation of the proposed mitigation measures, and the BMPs required by the General Construction Permit and the Small MS4 General Permit the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p>

	<p>Mitigation Measure 4.5-2 The site design for Subregional WRP Project facilities shall prepare and implement a Water Quality Management Plan (WQMP), which specifies Best Management Practices that will be implemented to prevent long-term surface runoff from discharge of pollutants from sites on which construction has been completed. The WQMP shall be developed with the goal of achieving a reduction in pollutants following construction to control urban runoff pollution to the maximum extent practicable based on available, best management practices.</p>	<p>With implementation of the proposed mitigation measures and implementing the measures described in the latest version of the Storm Water Management Program (SWMP) for the Mojave River Watershed, the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p>
<p>Exposure of Subregional WRP facilities to flood hazards or generation of downstream flood hazards due to increased runoff from Subregional WRP facilities.</p>	<p>Mitigation Measure 4.5-3 Any future Subregional WRP Project facilities that will be installed at a location where flood hazards may occur, must be hardened to withstand the defined flood hazard so that the facility can continue to operate or be available to be placed into immediate operation following the flooding.</p>	<p>With implementation of the proposed mitigation measures, proposed BMPs, and other measures, the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p>
	<p>Mitigation Measure 4.5-4 For long-term mitigation of site disturbances at Subregional WRP facility locations, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation and/or man-made landscape areas (for example, grass). Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a two year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows.</p>	<p>The site must be stabilized with sufficient permanent cover to ensure that erosion will not occur prior to receiving a notice of termination (NOT) from the requirements of the General Construction Activity Permit.</p> <p>Implementation of BMPs required by the latest version of the General Construction Activity Permit and the Storm Water Management Program (SWMP) for the Mojave River Watershed, the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p>
	<p>Mitigation Measure 4.5-5 Within each facility or project associated with the Subregional WRP Project that will impact more than one acre, surface runoff from upstream shall be collected and discharged in a manner downstream of the site that does not increase downstream flood hazards. Onsite surface runoff shall be collected and retained (for use onsite) or detained and percolated into the ground on the site such that site development results in no net increase in onsite stormwater flows. Detainment shall be achieved through Low Impact Development techniques whenever possible, and shall include techniques that remove the majority of urban storm runoff pollutants, such as petroleum products and sediment. The purpose of this measure is to remove the onsite</p>	<p>In addition, the General Construction Permit has Post Construction Requirements. With implementation of the proposed mitigation measures and implementation of BMPs place on-site in compliance with the General Construction Permit, the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p>

	<p>contribution to cumulative urban storm runoff and ensure the discharge from the sites is treated to reduce contributions of urban pollutants to downstream flows and to groundwater. If it is not possible to eliminate stormwater flows from leaving a site, the facility shall not be constructed until a drainage study has been conducted that verifies that there will be no adverse impacts to downstream stormwater management from implementation of the site development.</p>	
<p>Contingency mitigation measures to address potential groundwater quality impacts even though not forecast to occur in the water quality impact forecast.</p>	<p>Mitigation Measure 4.5-6 Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of the 2005 Basin Plan maximum benefit objectives or interfere with a designated beneficial use for a water or groundwater body. In addition to monitoring, the VVWRA will use models to forecast future TDS and Nitrate concentrations pursuant to the Basin Plan and Title 22 permit requirements. VVWRA will, based on monitoring, begin the planning to develop measures to either protect beneficial uses of groundwater or to treat groundwater to meet beneficial use requirements if a violation appears imminent.</p> <p>Mitigation Measure 4.5-7 Hydrogeologic studies, including modeling, will be completed for each percolation basin site to define the impacts from percolating the recycled water on known groundwater quality. If modeling demonstrates that contamination of a downstream well associated with such percolation expansion will adversely impact groundwater or water production capabilities, the recharge facility shall be closed and moved to an alternative location where such impacts will not occur or other adaptive management programs shall be implemented.</p> <p>Mitigation Measure 4.5-8 All water recharge operations shall be monitored, and if impacts that were not forecast to occur as a result of recycled water recharge operations cause unexpected significant adverse impact on the groundwater aquifer, the recharge operations shall be terminated or modified to eliminate the adverse impact.</p>	<p>Order RBV-2011-(Tentative) requires compliance with effluent limits and receiving water limits that are more protective than drinking water standards. With implementation of measures to comply with the permit the effects are limited. With implementation of the proposed mitigation measures, proposed BMPs, and other measures, the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p> <p>The Water Board finds the potential degradation to ground water to be substantial, however, it is considered less than significant because the degradation is limited in extent and protective of beneficial uses. In addition, the potential degradation was found to be in compliance with state policy Resolution NO. 68-16.</p> <p>With implementation of the proposed mitigation measures, proposed BMPs, and other measures, the impacts to hydrology and water quality from implementing the VVWRA Subregional WRP Project are considered to be less than significant.</p>

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.

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

**MONITORING AND REPORTING PROGRAM NO. R6V-2011-(TENTATIVE)
WDID NO. 6B360907006**

FOR

**APPLE VALLEY SUB-REGIONAL WATER RECLAMATION PLANT
SAN BERNARDINO COUNTY**

The Victor Valley Wastewater Reclamation Authority (VWVRA)(Discharger) owns and operates the Apple Valley Sub-Regional Plant (Reclamation Plant). Effluent from the Reclamation Plant is reused as landscape irrigation, agricultural irrigation and industrial process water for cooling purposes.

This Monitoring and Reporting Program, R6V-2011-(TENTATIVE), applies to the Facility, which includes the Reclamation Plant, and Agricultural sites.

The Discharger submitted a Sampling and Analysis Plan (SAP), **dated** ? (to be supplied by the Discharger prior to adoption), which describes sample collection methods, laboratory reporting limits, and quality control and assurance methods. The SAP shall be kept current and revised as necessary based on modified procedures, methods, or locations. All revisions must be submitted to the Water Board at least 30 days before their implementation.

I. MONITORING

A. Flow Monitoring for the Tertiary Treatment Reclamation Plant

The following information on the Tertiary Treatment Reclamation Plant (Reclamation Plant) shall be recorded in a permanent logbook and the information submitted according to the required frequency.

1. The total volume, in millions of gallons (MG), of wastewater to the treatment facilities for each day.
2. The total volume, in MG, of wastewater to the treatment facilities for each month.
3. The maximum instantaneous flow rate, in millions of gallons per day (MGD), of wastewater to the treatment facilities that occurs each day.
4. The calculated average flow rate, in MGD, of waste water to the treatment facilities for each month.
5. The total volume, in MG, of recycled water to any Agricultural site(s) for each month.
6. The calculated average flow rates in MGD of recycled water to the Agricultural site(s) for each month.
7. The flow of recycled water in MGD to each center pivot or other irrigation system at the Agricultural site(s) shall be recorded, and the volume in MG of recycled water to each center pivot or other irrigation system for each month

shall be recorded. This information shall be used to assess the crop agronomic water and nutrient needs.

8. The calculated average flow rate, in MGD, of recycled water for reuse at the Reclamation Plant each month.
9. The freeboard (distance from the top of the lowest part of the dike to the water surface in a pond or reservoir) measured once each week in each pond or reservoir. If a pond or reservoir does not contain water, indicate that it is empty.

B. Influent Monitoring

Influent samples taken at a location representative of a raw influent shall be analyzed to determine the magnitude of the Table 1 parameters.

Table 1: Influent Monitoring

Parameter	Reporting Units ⁱ	Type of Sample	Frequency ⁱⁱ
BOD ⁱⁱⁱ	mg/L	24-hr composite	W
COD ^v	mg/L	24-hr composite	W
nitrate nitrogen	mg/L as N	24-hr composite	M
kjeldahl nitrogen	mg/L as N	24-hr composite	M
ammonia nitrogen	mg/L as N	24-hr composite	M
TPH gasoline range ^v	µg/L	grab ^{vi}	Q
TPH diesel range ^v	µg/L	grab ^{vi}	Q
total trihalomethanes ^{vii}	µg/L	grab ^{vi}	SA
bromodichloromethane	µg/L	grab ^{vi}	SA
bromoform	µg/L	grab ^{vi}	SA
chloroform	µg/L	grab ^{vi}	SA
dichlorobromomethane	µg/L	grab ^{vi}	SA
total dissolved solids (TDS)	mg/L	24-hr composite	SA
total phenols	µg/L	24-hr composite	A
inorganics ^{viii}	µg/L	24-hr composite	A
total cyanides	µg/L	grab ^{vi}	A
volatile organics ^{viii}	µg/L	grab ^{vi}	A
semi-volatile organics ^{viii}	µg/L	24-hr composite	A
pesticides - PCBs ^{viii}	µg/L	24-hr composite	A

Endnotes are at the end of the MRP.

C. Effluent Monitoring

1. Disinfected Secondary-Treated Effluent

Samples of the disinfected secondary-treated effluent flowing to the percolation ponds shall be collected and analyzed to determine the magnitude of Table 2 parameters.

Table 2: Effluent Monitoring - Disinfected Secondary

Parameter	Minimum Level ^(x) / Units ⁽¹⁾	Type of Sample	Frequency ⁽¹⁾
total coliform	MPN/100 ml	grab ^(vi)	D
BOD ⁽ⁱⁱⁱ⁾	mg/L	24-hr composite	W
total suspended solids	mg/L	24-hr composite	W
COD ^(iv)	mg/L	24-hr composite	W
dissolved oxygen	mg/L	grab ^(vi)	W
pH	pH units	grab ^(vi)	W
temperature	°Celsius	grab ^(vi)	W
total chlorine residual	mg/L	grab ^(vi)	W
MBAS ^(x)	mg/L	24-hr composite	M
TDS	mg/L	24-hr composite	M
chloride	mg/L	24-hr composite	M
sodium	mg/L	24-hr composite	M
sulfate	mg/L	24-hr composite	M
ammonia nitrogen	mg/L as N	24-hr composite	M
kjeldahl nitrogen	mg/L as N	24-hr composite	M
nitrate nitrogen	mg/L as N	24-hr composite	M
dissolved organic carbon ^(xi)	mg/L	24-hr composite	Q
TPH gasoline range ^(v)	50 µg/L	24-hr composite	Q
TPH diesel range ^(v)	100 µg/L	24-hr composite	Q
oil and grease	mg/L	grab ^(vi)	Q
total trihalomethanes ^(vii)	80 µg/L	grab ^(vi)	Q
bromodichloromethane	0.5 µg/L	grab ^(vi)	Q
bromoform	0.5 µg/L	grab ^(vi)	Q
chloroform	0.5 µg/L	grab ^(vi)	Q
dibromochloromethane	0.5 µg/L	grab ^(vi)	Q
total phenols	6.0 µg/L	24-hr composite	A
inorganics ^(xii)	µg/L	24-hr composite	A
total cyanides	5.0 µg/L	grab ^(vi)	A
volatile organics ^(viii)	µg/L	grab ^(vi)	A
semi-volatile organics ^(viii)	µg/L	24-hr composite	A
pesticides - PCBs ^(viii)	µg/L	24-hr composite	A
MTBE ^(xiii)	5.0 µg/L	grab ^(vi)	A

Endnotes are at the end of the MRP.

2. Disinfected Tertiary-Treated Effluent

Samples of disinfected tertiary-treated effluent shall be collected from the treatment plant and analyzed to determine the magnitude of the parameters listed in Table 3.

Table 3: Effluent Monitoring - Tertiary Treatment

Parameter	Minimum Level ^{ix} /Units ⁱ	Type/Method	Minimum Frequency ⁱⁱ
flow	MGD	flow meter	continuous
turbidity ^{xiv}	NTU	turbidity meter	continuous
total chlorine residual	mg/L	chlorine residual meter	continuous
modal contact time ^{xv}	Minutes	calculated	D
CT value ^{xvi}	mg-minutes/L	calculated	D
total coliform	CFU/100 ml	grab ^{vi}	D
dissolved oxygen	mg/L	grab ^{vi}	W
pH	pH units	grab ^{vi}	W
temperature	°Celsius	grab ^{vi}	W
BOD ⁱⁱⁱ	mg/L	24-hr composite	M
COD ^{iv}	mg/L	24-hr composite	M
ammonia nitrogen	mg/L-N	24-hr composite	M
kjeldahl nitrogen	mg/L-N	24-hr composite	M
nitrate nitrogen	mg/L-N	24-hr composite	M
nitrite nitrogen	mg/L-N	24-hr composite	M
chloride	mg/L	24-hr composite	Q
sodium	mg/L	24-hr composite	Q
sulfate	mg/L	24-hr composite	Q
calcium	mg/L	24-hr composite	Q
magnesium	mg/L	24-hr composite	Q
MBAS ^x	mg/L	24-hr composite	Q
TOC ^{xvii}	mg/L	24-hr composite	Q
TDS	mg/L	24-hr composite	Q
total trihalomethanes ^{vii}	80 µg/L	grab ^{vi}	Q
bromodichloromethane	0.5 µg/L	grab ^{vi}	Q
bromoform	0.5 µg/L	grab ^{vi}	Q
chloroform	0.5 µg/L	grab ^{vi}	Q
dichlorobromomethane	0.5 µg/L	grab ^{vi}	Q
haloacetic acids (five) ^{xviii}	60 µg/L	grab ^{vi}	Q
monochloroacetic acid	2 µg/L	grab ^{vi}	Q
dichloroacetic acid	1 µg/L	grab ^{vi}	Q
trichloroacetic acid	1 µg/L	grab ^{vi}	Q
monobromoacetic acid	1 µg/L	grab ^{vi}	Q
dibromoacetic acid	1 µg/L	grab ^{vi}	Q
N-nitrosodimethylamine	0.002 µg/L	24-hr composite	Q
bis(2diethylhexyl)phthalate	2 µg/L	24-hr composite	Q
TPH gasoline range ^v	50 µg/L	grab ^{vi}	Q
TPH diesel range ^v	100 µg/L	grab ^{vi}	Q
total chromium ^{viii}	2 µg/L	24-hr composite	A

Table 3: Effluent Monitoring - Tertiary Treatment

Parameter	Minimum Level ^{ix} /Units ⁱ	Type/Method	Minimum Frequency ⁱⁱ
hexavalent chromium ^{viii}	2.5 µg/L	grab ^{vi}	A
total phenols	6.0 µg/L	24-hr composite	A
inorganics ^{viii}	µg/L	24-hr composite	A
total cyanides	5.0 µg/L	grab ^{vi}	A
volatile organics ^{viii}	µg/L	grab ^{vi}	A
semi-volatile organics ^{viii}	µg/L	24-hr composite	A
pesticides - PCBs ^{viii}	µg/L	24-hr composite	A
MTBE ^{xiii}	5.0 µg/L	grab ^{vi}	A

Endnotes are at the end of the MRP.

D. Groundwater Monitoring

The groundwater monitoring network is intended to evaluate the effects of the discharge from the unlined percolation ponds, and agricultural reuse operations. The network consists of the wells listed in Table 4. The well locations are depicted on the map in Attachment B (to be supplied by discharger prior to adoption).

Beginning immediately, grab samples shall be collected from the monitoring wells identified in Table 4. Additional wells shall be added as necessary to evaluate impacts to groundwater and the corrective actions. The SAP shall be updated accordingly.

Each well in Table 4 that is designated to be sampled on both a quarterly and tri-annual basis shall be sampled to determine the magnitude of the parameters shown in Tables 5 and 6 on a quarterly basis.

Table 4: Groundwater Monitoring Wells

Well	Screened Interval feet bgs	Location Section #	Frequency ⁱⁱ
MW-1	360 – 400	21	Q, Tri-A
MW-2	480 – 540	20	Q, Tri-A
MW-4	289 – 334	9	Q, Tri-A
MW-15R	333 – 363	3	Q, Tri-A
MW-16	286 – 331	10	Q, Tri-A
MW-17	245 – 290	12	
MW-18R	326 – 356	11	Q, Tri-A
MW-19	290 – 335	3	Q, Tri-A
MW-20	257 – 295	9	
MW-21	300 – 339	2	Q, Tri-A

Well	Screened Interval feet bgs	Location Section #	Frequency ^{II}
MW-22	282 – 320	4	Q, Tri-A
MW-23	268 – 397	16	Q, Tri-A
MW-24R	325 – 350	15	Q, Tri-A
MW-25	320 – 349	17	Q, Tri-A
MW-26	361 – 372	2	Q, Tri-A
MW-27	390 – 399	2	Q, Tri-A
MW-28	420 – 430	4	Q, Tri-A
MW-29	490 – 500	4	Q, Tri-A
MW-31	483 – 518	19	Q, Tri-A
MW-32	372 – 395	18	Q, Tri-A
MW-33	362 – 376	8	Q, Tri-A
MW-37	318 – 352	1	
MW-38	281 – 315	24	Tri-A
MW-39	306 – 345	23	Tri-A
MW-40	330 – 360	17	Q, Tri-A
MW-46	510 – 549	20	Q, Tri-A
MW-51	330 – 339	16	Q, Tri-A
MW-52	317 – 347	10	Q, Tri-A
MW-53	295 – 330	9	Q, Tri-A
MW-54	331 – 356	9	Q, Tri-A
MW-55	465 – 475	9	Q, Tri-A
MW-56	325 – 365	3	Q, Tri-A
MW-57	339 – 349	5	Q, Tri-A
MW-58	375 – 390	5	Q, Tri-A

Endnotes are at the end of the MRP.

Table 5: Field Parameters

Parameter	Units ^I
static water depth	feet bgs
electrical conductivity	µS/cm
pH	pH units
Temperature	degrees Celsius
dissolved oxygen	mg/L
Turbidity	NTU
Color	visual

Endnotes are at the end of the MRP.

Table 6: Quarterly Groundwater Monitoring Parameters

Parameter	Minimum Level ^{ix} / Units ⁱ	Parameter	Minimum Level ^{ix} / Units ⁱ
ammonia nitrogen	0.1 mg/L as N	sodium	mg/L
kjeldahl nitrogen	0.2 mg/L as N	sulfate	mg/L
nitrate nitrogen	0.2 mg/L as N	TOC	mg/L
TDS	25 mg/L	TPH gasoline range ^v	50 µg/L
MBAS ^x	mg/L	TPH diesel range ^v	100 µg/L
Chloride	mg/L	DEHP ^{xix}	2 µg/L

Endnotes are at the end of the MRP.

Table 7: Tri-Annual Groundwater Monitoring Parameters

Parameter	Minimum Level ^{ix} /Units ⁱ	Parameter	Minimum Level ^{ix} /Units ⁱ
ammonia nitrogen	0.1 mg/L as N	total trihalomethanes ^{vii}	80 µg/L
kjeldahl nitrogen	0.2 mg/L as N	bromodichloromethane	0.5 µg/L
nitrate nitrogen	0.2 mg/L as N	bromoform	0.5 µg/L
TDS	25 mg/L	chloroform	0.5 µg/L
total cyanides	5 µg/L	dichlorobromomethane	0.5 µg/L
total phenols	6 µg/L	haloacetic acids (five) ^{xviii}	60 µg/L
inorganics ^{viii}	viii	monochloroacetic acid	2 µg/L
volatile organics ^{viii}	viii	dichloroacetic acid	1 µg/L
semi-volatile organics ^{viii}	viii	trichloroacetic acid	1 µg/L
pesticides - PCBs ^{viii}	viii	monobromoacetic acid	1 µg/L
MTBE ^{xiii}	2.5 µg/L	dibromoacetic acid	1 µg/L

Endnotes are at the end of the MRP.

Groundwater monitoring reports shall contain running graphs and trend analyses of TDS and nitrate (as nitrogen) from historical groundwater monitoring data. The flow direction of groundwater shall be calculated quarterly. A graphical representation of the groundwater flow direction shall be included in the quarterly monitoring reports. Semi-annually, an updated figure(s) showing the groundwater nitrate plume and TDS concentrations shall be included. Because of the large spatial distribution of the monitoring well network, these figures should be presented on 11 by 14 inches or larger format. All monitoring wells must be clearly displayed and labeled on these figures.

E. Groundwater Extraction Operation

The following information shall be collected and reported.

1. Volumes of Extracted Groundwater

The rate, volume and operation of groundwater extraction wells shall be recorded in a permanent logbook for each well and reported in tabular form in the quarterly reports and summarized in the annual reports.

- a. The maximum and average daily pumping rate in gallons per minute (gpm);
- b. The total monthly, annual, and cumulative total volumes extracted from each well;
- c. The time periods of operation, i.e., the specific days that the extraction well was in operation;
- d. Any operational problems or maintenance activities.

2. Nitrate and TDS Mass Removal

The Discharger shall provide estimates of the following information in tabular form and shall describe procedures used to develop these estimates.

- a. Estimated total monthly, annual, and cumulative total mass, in pounds, of nitrate as nitrogen and TDS extracted from each well.
- b. Estimated total monthly, annual, and cumulative total mass, in pounds, of nitrate and TDS extracted from all wells.

The Discharger shall report this information in the quarterly reports and shall provide summaries of this information and recommendations to further optimize the extraction system in the annual reports.

F. Vadose Zone Monitoring

1. Agricultural Site

Vadose zone monitoring for the Agricultural Site shall be performed at the stations listed in Table 8. Station numbers refer to the field center pivot number. Vadose zone monitoring shall be for the parameters and frequencies described in Table 9.

**Table 8: Vadose Zone Monitoring Stations
 Agricultural Site**

Station ID	Location	Monitoring Depth (feet bgs)			
		Pressure/Vacuum Samplers		Passive Capillary Lysimeter	Soil Moisture Sensor
		Shallow	Deep		
VZ 1	Pivot 1	5	14	4.8	2, 3, 5, 10, & 14
VZ 4	Pivot 4	5	14	5.0	2, 3, 5, 10, & 14
VZ 5	Pivot 5	5	14	5.0	2, 3, 5, 10, & 14
VZ 7	Pivot 7	5	14	4.6	2, 3, 5, 10, & 14
VZ 7A	Pivot 7	5	--	4.7	2, 3, 5, 10, & 14

Station ID	Location	Monitoring Depth (feet bgs)			
		Pressure/Vacuum Samplers		Passive Capillary Lysimeter	Soil Moisture Sensor
		Shallow	Deep		
VZ 7B	Pivot 7	5	--	4.3	2, 3, 5, 10, & 14
VZ 12	Pivot 12	5	14	4.5	2, 3, 5, 10, & 14
VZ 14	Pivot 14	5	14	4.7	2, 3, 5, 10, & 14
VZ 15	Pivot 15	5	14	4.3	2, 3, 5, 10, & 14
VZ 19	Pivot 19	5	14	5.0	2, 3, 5, 10, & 14
VZ P	pistachio orchard	5	14	5.0	2, 3, 5, 10, & 14
VZ 23	Pivot 23	--	--	5.0	2, 3, 5, 10, & 14
VZ 24	Pivot 24	5	14	5.0	2, 3, 5, 10, & 14
VZ 25	Pivot 25	--	--	5.0	2, 3, 5, 10, & 14
VZ 27	Pivot 27	5	14	5.0	2, 3, 5, 10, & 14

Table 9: Vadose Zone Monitoring Parameters & Frequencies Agricultural Site

Parameter	Minimum Level/Units ⁱ	Frequency ⁱⁱ
ammonia nitrogen	0.1 mg/L as N	Q
kjeldahl nitrogen	0.2 mg/L as N	Q
nitrate nitrogen	0.2 mg/L as N	Q
nitrite nitrogen	0.1 mg/L as N	Q
electrical conductivity	µS/cm	Q
Bromoform	0.5 µg/L	A
Chloroform	0.5 µg/L	A
Dibromochloromethane	0.5 µg/L	A
Dichlorobromomethane	0.5 µg/L	A

Endnotes are at the end of the MRP.

Table 10: Vadose Zone Monitoring Parameters & Frequencies Storage Reservoir Site

Parameter	Minimum Level/Units ⁱ	Frequency ⁱⁱ
ammonia nitrogen	0.1 mg/L as N	Q
kjeldahl nitrogen	0.2 mg/L as N	Q
nitrate nitrogen	0.2 mg/L as N	Q
nitrite nitrogen	0.1 mg/L as N	Q
Conductivity	µS/cm	Q

Endnotes are at the end of the MRP.

G. Biosolids Storage and Disposal

The following information on the biosolids generated at the Reclamation Plant shall be recorded monthly and reported in the quarterly monitoring reports.

1. Total quantity of biosolids generated during the monitoring period;
2. The location where biosolids were dried or stored on site;
3. Cumulative total quantity of biosolids currently on site including the quantity of biosolids added during this monitoring period;

Discharger shall include in each monitoring report the amount and type of all grit and screenings hauled off site for disposal or recycle. The person or company doing the hauling and the legal point of disposal or recycle shall also be recorded.

H. Agricultural Site Monitoring

1. An Annual Cropping Plan shall be submitted by November 15 of each year containing, but not limited to, the following items describing the proposed cropping plan for the upcoming calendar year.
 - a. Names, addresses, and telephone numbers of all users of reclaimed wastewater at the Agricultural Site.
 - b. For each field, provide the following information:
 - i. Location using a U.S. Geological Survey 7.5 minute topographic quadrangle map;
 - ii. Acreage, crop names, and types (i.e. fodder, seed or other);
 - iii. Approximate planting dates;
 - iv. Approximate harvest dates;
 - v. Irrigation method;
 - vi. Volume of water expected to be used based on crop needs (irrigation efficiency, evapotranspiration and need for maintenance leaching). Provide basis for calculations including field data or references;
 - vii. Amount of nitrogen expected to be applied to the crop from all sources including estimates of nitrogen available in the root zone;
 - viii. Amount of nitrogen expected in the harvested crop per harvest and total amount expected to be removed from the field per year;
 - ix. Describe the fate of nitrogen that has been applied or is available in the root zone that is not accounted for in the crops harvested.
2. The following shall be reported in the Agricultural Site Monitoring, Operation, and Chemical Use Report on a quarterly basis.
 - a. Monthly analyses and a summary, by a certified soil scientist or qualified agronomist, of the amount of water and nitrogen applied or is available to the crops per irrigated field. The analyses must compare the actual water

- and nitrogen applications to those predicted in the Annual Cropping Plan and discuss any significant differences. Additionally, this monthly report must include an evaluation of the actual crop production using normally accepted quantifiable measure of crop growth status to that projected in the Annual Cropping Plan at harvest.
- b. For each harvest completed during the quarter, the report must include the total amount of nitrogen harvested based on the results of site-specific plant tissue analyses. Conservative estimates of the amount of nitrogen harvested may be used in lieu of site-specific plant tissue analysis provided the estimate is justified by literature references. The production from the field may be determined by multiplying the number of bales by an average bale weight. The results of this calculation must be compared to the total amount of nitrogen applied to the crop from all sources (recycled water, other water, and fertilizer) or available during production. Any significant differences must be addressed in an Annual Cropping Plan.
 - c. Recycled water balance for the quarter and the crop cycle including: the amount of water applied to each field, water losses due to irrigation efficiency, evapotranspiration, and the amount of water in storage in the vadose zone or available for percolation below the root zone. These values must be compared to the values proposed in the Annual Cropping Plan and any significant differences must be addressed. If recycled water is blended with non-recycled water to meet an increased water demand during warmer seasons or for other reasons, the quantity and percentage of recycled water and the total water applied shall be determined and reported. Nitrogen content of non-recycled water shall also be determined and reported.
3. Monthly, the Discharger shall make a Recycled Water Treatment and Use Report that includes, but is not limited to the following information.
- a. Results of a daily use area inspection (when recycled water is used) to ensure that application of recycled water is consistent with use area criteria specified in California Code Of Regulations (CCR), Title 22, sections 60304(d) and 60310. Findings of the inspections shall be recorded in a permanent logbook maintained at the Facility.
 - b. The Operating Records as required in CCR, Title 22, section 60329 to demonstrate that all recycled water applied complies with the Department of Public Health's water recycling requirements specified in the Waste Discharge Requirements. The information must include verification that the treatment levels for disinfected secondary recycled water were achieved and that the methods of recycled water application were implemented as required in CCR, Title 22, section 60304(d).

4. An Agricultural Site Operations Report shall be submitted quarterly, maintained onsite, and made available for inspection by Water Board staff.

I. Chemical Use Monitoring

The Discharger shall record the names and chemical compositions, quantities and dates of application of all chemical fertilizers, herbicides and pesticides applied to any crop grown on the Agricultural Site in a permanent log book. Chemical use information shall be submitted to the Water Board on a quarterly basis.

J. Operation and Maintenance Monitoring

A brief summary of any operational problems and maintenance activities that may affect effluent quality shall be submitted to the Water Board with each monthly monitoring report. This summary shall discuss:

1. Any modifications or additions to the waste water conveyance system, treatment facilities, disposal/water recycling facilities, or storage facilities;
2. Any major maintenance conducted on the waste water conveyance system, treatment facilities, disposal/water recycling facilities, or storage facilities;
3. Any major problems occurring in the waste water conveyance system, treatment facilities, disposal/water recycling facilities, or storage facilities;
4. The calibration of any flow measuring devices.

K. Sampling and Analytical Methods

The Discharger must collect, store, and analyze samples according to the most recent version of appropriate USEPA methods and in accordance with a sampling and analysis plan approved by the Water Board's Executive Officer. A laboratory certified for these analyses by the State of California Environmental Laboratory Program or approved by the Executive Officer must perform all water analyses. All reporting of laboratory results must identify the specific methods of analysis.

1. Definitions

Median - The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) - MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in Code of

Federal Regulations, Title 40, Part 136, Attachment D, revised as of July 3, 1999.

Minimum Level (ML) - ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Not Detected (ND) - Sample results that are less than the laboratory's MDL.

Reporting Level (RL) - RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this MRP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

2. General

Analytical method for each constituent shall be selected to provide the reporting limits specified in this MRP.

3. Reporting Protocols

The Discharger shall report with each sample result the applicable reported ML and the current MDL.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols.

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported

- value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. The Discharger is to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
 - e. When determining an average of more than one analytical result, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure.
 - i. The data set shall be ranked from low to high, ranking the reported ND determinations the lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

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 MRP (Attachment A).
2. The Discharger shall arrange all reported data in tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance this MRP.
3. The results of any analysis taken more frequently than required for the parameters and locations specified in this MRP shall be submitted to the Water Board in the next monitoring report.

4. The Discharger must attach to any monitoring report provided to the Water Board a certified cover letter. The information contained in the certified cover letter must clearly identify any violations of this MRP and the Waste Discharge Requirements for the Facility, discuss corrective actions taken or planned, and propose a time schedule for completing identified corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation. The Discharger shall notify the Water Board by letter when compliance with requirement has been achieved.
5. The monitoring and reporting required by this program becomes effective on the first day of month after the MRP's signature date.
6. The Discharger shall furnish to the Water Board within a reasonable time, any information which the Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this MRP or to determine compliance with the MRP. Upon request, the Discharger shall also furnish to the Water Board copies of records required to be kept by this MRP. (California Water Code, section 13267)

B. Report Content and Submittal Periods

Monthly and annual reporting due dates have been extended from the statewide standard guidelines at the Discharger's justified request. The Discharger must submit monitoring reports according to the following schedule:

1. Monthly monitoring reports shall be submitted to the Water Board by the 15th working day of the second month following each monthly monitoring period. Data that is required on a frequency longer than one month will be incorporated into the monthly report for the month the analyses are required. The following treatment plant reports shall be provided on a monthly frequency.
 - a. Flow Monitoring
 - b. Influent Monitoring Report
 - c. Effluent Monitoring Report
 - d. Operation and Maintenance Report
 - e. Recycled Water Treatment and Use Report
2. Quarterly monitoring reports shall be submitted to the Water Board by the 15st working day of the second month following each quarterly monitoring period. This reporting schedule provides the Discharger with an additional 14 days beyond the Water Board's standard reporting schedule because the Discharger has indicated additional time was needed to provide for logistical constraints associated with access to water supply wells and monitoring wells located on land not owned or controlled by the Discharger.

3. The quarterly monitoring period shall end on March 31st, June 30th, September 30th, and December 31st of each calendar year. Data that are required on a frequency longer than one quarter will be incorporated into the quarterly report that coincides with the period for which the analyses are required. The following reports shall be provided on a quarterly frequency.
 - a. Groundwater Monitoring Report
 - b. Groundwater Extraction Operations Report
 - c. Agricultural Site Monitoring Report
 - d. Agricultural Vadose Zone Monitoring Report
 - e. Agricultural Site Monitoring, Operations, and Chemical Use Monitoring Report
 - f. Chemical Use Monitoring Report
 - g. Storage Reservoir Site Vadose Zone Monitoring Report
 - h. Biosolids Storage and Disposal Report
4. An annual monitoring report for the period from January through December shall be submitted by March 1st of each year. The report must contain the following:
 - a. Treatment Plant
 - i. A summary and evaluation of the monthly and quarterly information in Reporting Requirement II.B.1 and II.B.2, which also includes compliance status;
 - ii. The names and grades of all the certified operators;
 - iii. The Annual Federal Biosolids Report (40 Code of Federal Regulations Part 503).
 - b. Groundwater Monitoring
 - i. Discussion of groundwater monitoring results, specifically:
 - spatial and temporal trends in nitrate and TDS concentrations;
 - detection of or increase in any parameters that may indicate the Discharger's activities have caused additional impacts to groundwater;
 - detection of any parameter above its water quality objective.
 - ii. Summary of groundwater monitoring data and evaluation of adequacy of the existing monitoring well network to:
 - establish the lateral and vertical extent of the nitrate/TDS groundwater plume and monitor for future migration;
 - monitor for any groundwater quality impacts involving other parameters.
 - iii. If indicated by b.ii, the Discharger shall propose additional monitoring wells and a well completion schedule to ensure the well network will adequately monitor groundwater impacts quality.

- iv. If a sample cannot be obtained from any monitoring well, the Discharger shall include an explanation of the cause of the problem and describe how the monitoring deficiency will be corrected.
 - v. If a sample cannot be obtained from any well listed in Table 4 for three consecutive quarterly monitoring events, the Discharger shall propose corrective actions that address the current and anticipated data needs for the groundwater monitoring program and provide a schedule for implementation of the corrective action. The proposed corrective action shall be submitted to the Water Board within 60 days after the third missed sampling event.
 - vi. A summary of the compliance record and corrective actions needed or taken or planned to bring the discharge into full compliance with this MRP and the Facilities waste discharge requirements.
5. An Annual Cropping Plan as described in I.H.1 shall be submitted on November 15 of each year.

Ordered by: _____
HAROLD J. SINGER
EXECUTIVE OFFICER

Dated: _____

Attachments: A. General Provisions for Monitoring and Reporting
B. Groundwater Monitoring Network

Endnotes:

U:/ Cindi / John / Drafts / VVWRA / Tentative for Sub-Regional Plants / Tentative MRP for AppleValley sub-regional plant

ⁱ Units: mg/L = milligrams/liter; µg/L = micrograms/liter; ng/L = nanograms/liter; N = nitrogen; CFU/100 ml = colony forming units/100 milliliters; kg = kilograms; C = centigrade; MGD = million gallons/day; µS/cm = micro-Seimens/centimeter; NTU = nephelometric turbidity units; bgs = below ground surface.

ⁱⁱ Frequencies: D = daily; W = weekly; M = monthly; Q= quarterly; SA = semiannually; A = annually; TriA = triannual (every three years).

ⁱⁱⁱ BOD = biochemical oxygen demand (5 day, 20°Celsius) of an unfiltered influent sample; filtered sample for final effluent.

^{iv} COD = chemical oxygen demand of an unfiltered influent sample; filtered sample for final effluent.

^v TPH = total petroleum hydrocarbons. Use USEPA Test Method SW 8015 with calibration based on the appropriate fuel standard.

^{vi} Grab samples as defined for respective parameters in current SAP. Note, for influent and effluent samples, 1,2,4-trichlorophenol, hexachlorobenzene, hexachlorobutadiene, hexachlorethane, & naphthalene will be collected as 24-hour composites rather than grab samples.

^{vii} Total trihalomethanes = sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane.

^{viii} Analyses shall be conducted for analytes with the specified minimum levels listed in Attachment E with the exception of hexavalent chromium, which will have a minimum level of 2.5 µg/L and mercury will have a minimum level of 0.01 µg/L. PCBs = polychlorinated biphenyls.

^{ix} The parameter must be reported in the same units as specified for the minimum level. Minimum level is defined in Section I. K. 1. of the MRP.

^x MBAS = methylene blue active substances.

^{xi} Dissolved organic carbon of a filtered sample.

^{xii} For disinfected secondary effluent monitoring inorganic analyses shall be conducted for analytes with the specified minimum levels listed in Attachment E with the exception of hexavalent chromium, which will have a minimum level of 2.5 µg/L, and mercury, which will have a minimum level of 0.04 µg/L.

^{xiii} MTBE = methyl tertiary butyl ether.

^{xiv} For each 24-hour period, record and report the average turbidity, amount of time (minutes) the turbidity exceeded 5 NTUs (if any), and the maximum turbidity.

^{xv} The modal contact time at the highest and lowest flows shall be recorded and reported for each 24-hour period where there is production of disinfected tertiary treated waste water. The "modal contact time" is the amount of time elapsed between the time that a tracer, such as salt or dye, is injected into the influent at the entrance to a chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber. For the purpose of this determination, modal contact time shall be derived from a predetermined plot correlating modal contact times to varying flow conditions. (CCR, Title 22, section 60301.600)

^{xvi} CT = chlorine residual (mg/L) x modal contact time (minutes). When chlorine is used as the disinfectant in production of disinfected tertiary treated waste water, the lowest CT value shall be calculated for each 24-hour period. To calculate the lowest value, first record the following data for the 24-hour period:

- (a) Modal contact time under highest flow and corresponding total chlorine residual at that time.
- (b) Lowest total chlorine residual and corresponding modal contact time.
- (c) Highest total chlorine residual and corresponding modal contact time.
- (d) Modal contact time under lowest flow and corresponding total chlorine residual at that time.

Calculate CT values for each of the four conditions. The lowest of the calculated CT values is the lowest CT for the period.

^{xvii} TOC = total organic carbon of an unfiltered influent sample; filtered sample for final effluent.

^{xviii} Haloacetic acids (five) = sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, dibromoacetic acid.

^{xix} Quarterly monitoring for DEHP [bis(2diethylhexyl)phthalate] is only required in the following monitoring wells: MW-2, MW-4, MW-16, MW-22, MW-28, and MW-32.

TENTATIVE

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.

x:PROVISIONS WDRS

file: general pro mrp