

Lahontan Regional Water Quality Control Board

April 30, 2015

WDID No. 6B360911001

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AMENDED BOARD ORDER NO. R6V-2014-0002-A1

MODIFIED POWER REQUIREMENTS TO ULTRA-VIOLET DISINFECTION DOSAGE FOR ACHIEVING RECYCLED WATER DISINFECTION CRITERIA – CITY OF VICTORVILLE INDUSTRIAL WASTEWATER TREATMENT PLANT, VICTORVILLE, SAN BERNARDINO COUNTY

This letter amends Board Order No. R6V-2014-0002, Section No. I.D.2., specifying the minimum dosage requirements for the Ultra-Violet (UV) disinfection system operated by the City of Victorville to provide recycled water from its Industrial Wastewater Treatment Plant

Existing Recycled Water Producer Requirement

Board Order No. R6V-2014-0002, Section I.D.2. states:

"2. The following criteria apply to operation of the UV disinfection system per the CDPH letter dated February 9, 2011 (Attachment H) [of the Order]

- a. *The UV system must deliver a minimum UV dose of 189 MJ/cm² at all times unless: (1) the CDPH allows a lower minimum UV dose and (2) the Executive Officer authorizes concurrence".*

Items b and c of this section are further dosage calculation equations and operational specifications recommended by the California Department of Public Health (CDPH), now Division of Drinking Water (DDW) incorporated into the Order.

This requirement effectively allows the minimum UV dosage to be modified by the Executive Officer provided concurrence is provided by the DDW.

Amended Recycled Water Producer Requirement

Board Order No. R6V-2014-0002, Section I.D.2. is deleted entirely and replaced as follows:

"2. The Discharger must operate the UV system in accordance to the criteria specified in the DDW letter dated December 4, 2014 (Enclosure 1 of this letter).

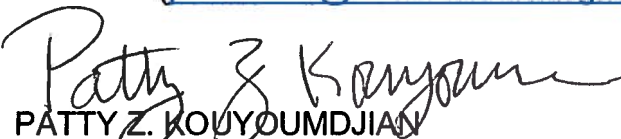
This effectively reduces the minimum UV dose required to achieve disinfection from 189 MJ/cm² to 80 MJ/cm² at all times. The required disinfection levels stated in Board Order No. R6V-2014-0002, Section I.D.1. remain unchanged.

Change Rationale

As stated in the letter dated December 4, 2014, DDW completed further research into the UV manufacturer technical specifications and relevant National Water Research Institute guidelines. Further, the City of Victorville conducted additional tests at the wastewater plant to verify UV system performance based upon the guidelines. As a result, the DDW has modified its UV dosage recommendations and provides further operational specifications as stated in its letter. This modification allows the City of Victorville to achieve considerable cost savings in the required power requirements to still achieve adequate disinfection of recycled water. The Monitoring and Reporting Program of Board Order R6V-2014-0002 (Enclosure 2) remains unchanged.

Please send your comments or documents to the Water Board's email address at RB6-Lahontan@waterboards.ca.gov and include the Facility WDID No. and Facility name in the Subject Line.

If you have any questions, please contact John Morales, P.E. at (760) 241-7366 (john.mmorales@waterboards.ca.gov) or Jehiel Cass, P.E., Senior Engineer at (760) 241-2434 (jehiel.cass@waterboards.ca.gov).


PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Enclosures: 1. DDW letter dated December 4, 2014
2. Board Order No. R6V-2014-0002

cc: John McGlade, City of Victorville (smcglade@ci.victorville.ca.us)
Sean McCarthy, DDW (sean.mccarthy@waterboards.ca.gov)



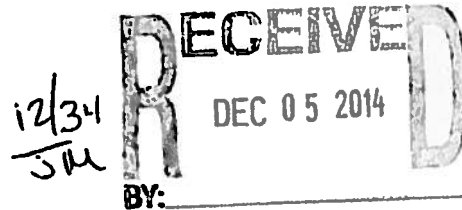
EDMUND G. BROWN, JR.
GOVERNOR



MATTHEW R. ROSENBERG
DEPUTY ATTORNEY GENERAL
DEPARTMENT OF ENVIRONMENTAL PROTECTION

State Water Resources Control Board
Division of Drinking Water

December 4, 2014



John Morales
Water Resources Control Engineer
Lahontan Regional Water Quality Control Board
14440 Civic Drive, Suite 200
Victorville, CA 92392

Dear Mr. Morales:

**CITY OF VICTORVILLE – SCLA WASTEWATER TREATMENT PLANT
TROJAN UV3000Plus™ REACTOR RE-COMMISSIONING**

The Division is in receipt of a report titled *SCLA Wastewater Treatment Facility UV Disinfection System Trojan UV3000Plus™ Spot Check Bioassay Report (Moreland Consulting, LLC, October 2014)*. The original field commissioning tests of the Trojan UV3000Plus™ reactors at the City of Victorville's SCLA plant were performed in 2010, with poor results, resulting in a minimum UV dose of 189 mJ/cm² and flow restrictions during conditions of low UV transmittance (UVT). These conditions and additional testing was recommended in the Division's approval letter dated February 9, 2011.

Subsequent to this approval, the Division reviewed the Trojan UV3000Plus™ reactor validation according to the August 2012 National Water Research Institute (NWRI)/Water Research Foundation UV Guidelines and revised its previous conditional acceptance letters for the UV3000Plus™ reactors. In the conditional acceptance letter dated June 16, 2014, the Division finds that the new UV dose equations, based upon the 2012 NWRI Guidelines are more appropriate to demonstrate the minimum coliform and virus disinfection criteria found in the Title 22 Water Recycling Criteria. The City has since performed an additional spot-check bioassay at the SCLA plant system to verify the predicted UV dose calculated by the operating equations in the new reactor validation report.

To re-commission and establish performance of the Victorville SCLA plant UV system, a ten-point spot-check bioassay was conducted September 8-10, 2014, using seeded MS2. Results, documenting virus disinfection performance of the UV system compared to the standards found in Title 22 of the California Code of Regulations, was submitted to Division of Drinking Water (DDW) for comments and acceptance in October 2014.

Ten tests were conducted at various flow rates (0.576 to 4.95 MGD) and UVTs (55% to 82%). These ten "spot checks" were compared to the dose predicted by the operating equations developed and documented in the Carollo Engineers April 2014 report entitled "Addendum – UV

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3000Plus™ (4" lamp spacing) Validation Report 2012 NWRI Analysis". This replaces the reactor validation performed in 2005 and documented in "UV3000Plus Validation Report, Final" (Carollo Engineers, February 2006). The 2014 Carollo report presents the results of the 2005 bioassay analyzed per the 2012 NWRI Guidelines.

For all ten of the test runs, the dose measured was greater than or equal to the dose predicted by the TrojanUV3000plus April 2014 report dose operating equation, which controls the power and dosage level applied.

The following recommendations are based on the equipment cited in the report. No equivalents or substitutions will be accepted without a demonstration of equivalent disinfection performance.

1. The Victorville SCLA UV system must be operated to deliver a minimum UV dose of 80 mJ/cm² at all times.
2. The equations below must be used as part of the automatic UV disinfection control system for calculating UV dose and should be specified as a permit provision. They are from the DDW June 16, 2014 acceptance letter, entitled "Conditional Acceptance Of Trojan UV3000plus Disinfection System, 2012 NWRI Analysis".

$$\text{Dose} = (\text{CR}) * (\text{FF}) * (\text{EOLL}) * 10^{-6.3439 - 0.8655 * \log \text{Flow} + 3.709 * \log \text{UVT} + 1.2909 * \log P}$$

Where:

Dose = Delivered UV dose per bank (mJ/cm²);

CR = Confidence Ratio, 0.906

FF = Fouling Factor, as determined per the NWRI UV guidance

UVT = % UV transmittance at 254 nm (%);

Flow = Flow rate per lamp [gallons per minute (gpm)/lamp], with gpm/lamp calculated as gpm divided by the number of lamps in one bank;

EOLL = End of Lamp Life factor = 0.98 at 9000 hours for the Heraeus lamp

P = percent power

3. The UV disinfection system reactor is limited to the following operational parameter ranges:
 - a. UVT at or above 55 %.
 - b. permit flow up to 4.95 MGD (3440 gpm).
 - c. The UV lamps are maintained below the maximum value of 9,000 hours of operation.
4. Proper cleaning and lamp replacement at 9000 hours must be maintained. The Trojan UV3000Plus system uses a 4-inch lamp spacing using the Heraeus lamp (Trojan part number 794447).

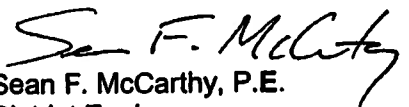
5. To maintain a Fouling Factor of 0.95, clean/wipe the quartz sleeves once every four hours, as demonstrated during re-commissioning.
6. On-line monitoring of flow, UVT, and power must be provided at all times.
7. Flow meters and UVT monitors must be properly calibrated to ensure proper disinfection.
8. UVT meter must be inspected and checked against a reference bench-top unit weekly to document accuracy. If the on-line analyzer UVT reading varies from the bench-top spectrophotometer UVT reading by 2% or more, the on-line UVT analyzer must be recalibrated by a procedure recommended by the manufacturer.
9. Flow meters measuring the flow through a UV reactor must be verified to determine accuracy at least monthly via checking the flow reading against other flow determination methods.
10. The Trojan UV3000Plus UV systems must be designed with a built-in automatic reliability feature that must be triggered by critical alarm setpoints.
11. Conditions that should trigger an alarm and startup the redundant bank of lamps include the following:
 - a. the UV dose goes below 105% of the minimum UV dose,
 - b. failure of one bank of lamps,
 - c. ballast failure and
 - d. multiple lamp failure
12. Conditions that should divert effluent to waste include the following:
 - a. UV dose is below the minimum UV dose,
 - b. UVT is below the minimum UVT of 55%,
 - c. complete UV reactor (channel) failure, and
 - d. flow exceeds the maximum flow.
13. The facility should be operated in accordance with an approved operations plan, which specifies clearly the operational limits and responses required for critical alarms. The operations plan should be submitted and approved prior to issuance of the operating permit. A copy of the approved operations plan should be maintained at the treatment plant and be readily available to operations personnel and regulatory agencies. A quick reference plant operations data sheet should be posted at the treatment plant and include the following information:
 - a. The alarm set points for flow, UV dose, UVT, UV lamp operation hours, and power.
 - b. The values of flow, UV dose, and UVT when effluent must be diverted to waste.

- c. The required frequency of calibration for all meters/analyzers measuring turbidity, flow, UV transmittance, and power.
- d. The required frequency of mechanical cleaning, equipment inspection, and replacement of cleaning solution.
- e. The UV lamp tracking procedures and replacement intervals.

14. Equivalent replacements or substitutions of equipment are not acceptable without an adequate demonstration of equivalent disinfection performance.

These applicable recommendations should be incorporated into the permit for the Victorville SCLA UV system. If you have any questions regarding this letter, please contact me at (909) 388-2602.

Sincerely,


Sean F. McCarthy, P.E.
District Engineer
San Bernardino District
Southern California Field Operations Branch

cc: Steve Ashton
Victorville Water District
P.O Box 5001
Victorville, CA 92393-5001

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
BOARD ORDER NO. R6V-2014-0002
WDID NO. 6B360911001**

**NEW WASTE DISCHARGE REQUIREMENTS AND
REVISED WATER RECYCLING REQUIREMENTS**

FOR THE

**CITY OF VICTORVILLE WATER DISTRICT INDUSTRIAL WASTEWATER TREATMENT
PLANT AND VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY, CITY OF
VICTORVILLE**

_____ San Bernardino County _____

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

1. General Project Description

The Victorville Water District (VWD), a County Water District and subsidiary district of the City of Victorville (City), submitted a Report of Waste Discharge for discharging disinfected tertiary treated water from its Industrial Wastewater Treatment Plant (IWTP) to percolation pond No. 14 located at the Victor Valley Wastewater Reclamation Authority (VWRA) site and using recycled wastewater at various sites at the Southern California Logistics Airport (SCLA). See Attachments A (Victorville IWTP General Location and Reuse Areas) and B (Pond 14 Site Map and Point-of-Compliance).

2. Report of Waste Discharge

The City, on behalf of the VWD, submitted a series of Report of Waste Discharge reports which are listed in Attachment C.

3. Term Definition for this Order

- a. Dischargers – The VWD, discharging waste collected citywide from its IWTP, and VWRA, land owner of the pond No. 14 site, are Dischargers for the disposal of wastewater to pond No. 14. The VWD will maintain and operate the Facility.
- b. Distributor – The Distributor of recycled wastewater to various use areas from the IWTP is the VWD.
- c. Facility – The Facility is the VWD's IWTP, the recycled water distribution pipelines extending from the IWTP to each use area site in the SCLA Complex each use area that is City owned, and pond No. 14.
- d. Mixing Zone – For purposes of this Order, a groundwater mixing zone exists below and adjacent to IWTP effluent pond No. 14 and VWRA effluent ponds 7 through 13 (excluding pond 9). The mixing zone is also defined as the zone where percolate from pond No. 14 commingles with percolate from ponds 7 through 13 a radial distance of 1,600 feet measured from the pond No. 14 centroid.
- e. Producer – The VWD is the Producer of tertiary treated recycled water.

- f. Recycled Water – For purposes of this Order, Recycled Water is treated industrial and domestic sewage meeting reuse requirements specified by the California Department of Public Health in title 22, California Code of Regulations, section 60301 et seq. As defined in Water Code section 13050, subdivision (n), recycled water, as a result of waste treatment, is suitable for a direct beneficial use or controlled use that would not otherwise occur and is therefore considered a valuable resource. "Recycled water" as defined in Water Code section 13050, subdivision (n) and "reclaimed water" as defined in Water Code section 13523 are synonymous.
- g. User – Except for the use of recycled water at the High Desert Power Project (HDPP), the City is the user of recycled water at various use areas that are City-owned, or operated, in the SCLA complex. This Order allows the City to add new users of recycled water provided: (1) those uses are in the SCLA complex, (2) a separate Engineering Report is submitted to the California Department of Public Health (CDPH) for each new use, (3) CDPH approval is obtained, (4) appropriate use area requirements are wholly consistent with this Order, (5) the Executive Officer authorizes the use, and (6) the City enters into Recycled Water Use agreements with each user in accordance with the provisions of this Order. If CDPH recommends use criteria not contained in this Order, the Water Board may require the user to obtain individual water reclamation requirements for the use.

4. Reason for Action

This Order revises, incorporates, and rescinds various previously issued water recycling requirements and establishes new waste discharge and water recycling requirements for: (1) the onsite discharge of tertiary treated disinfected wastewater effluent to percolation pond No. 14, (2) recycled water production requirements and (3) recycled water use area requirements for areas located at the SCLA complex. Recycled water uses include: dust control at SCLA runways, irrigation of parks and green belts, cooling at the HDPP, irrigation at the Westwinds Golf Course, and construction water within the SCLA complex area only. The SCLA complex is under the control of the Southern California Logistics Airport Authority (SCLAA), including the recycled water use areas, except for the HDPP, also located on SCLA, but which is under separate control. This Order requires the VWD to implement an industrial pre-treatment program.

5. Location

The IWTP is located at 34°36' 53" North latitude and 117°22' 23" West longitude. The IWTP is located at the northeast corner of SCLA, a commercial airport and formerly part of George Air Force Base, northwest of Victorville and east of Adelanto in San Bernardino County. Pond No. 14 is located about ¼ mile east of the IWTP on property owned by VVWRA. The various reuse sites are on the SCLA complex, located in the northwest portion of the City.

6. Land Uses

Nearby land uses are the SCLA to the west, VVWRA to the east, and open desert to the north and south with plans for future industrial development.

7. Previous Orders

- a. *Water Recycling and Waste Discharge Requirements - R6V-2010-0023* – Authorized the City to produce recycled water for use at two reuse areas separately regulated; the High Desert Power Project and Westwinds Golf course, and also authorized onsite sludge drying beds that were never constructed because all sludge generated from the IWTP is, and will continue to be, discharged to the VVWRA treatment plant through the former Adelanto Interceptor Sewer Transmission Line. This Order contains the relevant requirements of R6V-2010-0023, and rescinds Order R6V-2010-0023.
- b. *Amended Water Recycling Requirements – R6V-2003-0028-A2* – Authorized VVWRA to produce recycled water for the Westwinds Golf Course and also authorized the City, through its IWTP and distribution lines, to supply water to Westwinds Golf Course. This Order contains the relevant requirements of R6V-2003-0028-A2, makes them applicable to the VWD, and rescinds Order R6V-2003-0028-A2.
- c. *Amended Water Recycling Requirements – R6V-2009-0138-A1* – Authorized the delivery of recycled water from the VVWRA for use at the HDPP for cooling tower use, and also authorized the City to supply cooling water to the HDPP. This Order contains the relevant requirements of R6V-2009-0138-A1, makes them applicable to the VWD, and rescinds R6V-2009-0138-A1.

8. Facility Description

Current Conditions

The IWTP is a 2.5 million gallons per day (MGD) treatment capacity facility that can treat up to 1.0 MGD of industrial wastewater flows (currently primarily food and beverage clients) from the SCLA Industrial Park and up to 1.5 MGD of domestic sanitary flows from the City, including flow from the Federal Bureau of Prison. The IWTP was constructed and came online in 2010. The IWTP treatment facility is designed in a modular fashion consisting of the following unit processes (Attachment D):

- Preliminary screening processes;
- Primary treatment of industrial influent utilizing an Upflow Anaerobic Sludge Blanket (UASB) process;
- Industrial Flow equalization;
- Anoxic and aerobic wastewater treatment of the combined streams utilizing activated sludge processes;
- Membrane Bio-Reactor (MBR) filtration; and
- Disinfection utilizing ultraviolet light (UV).

Aerobic waste activated sludge is collected from the membrane bioreactor system and transferred to the aerobic sludge holding tank and aerobically digested. The treatment facility generates very little sludge. Once or twice a year, the collected digested sludge is sent to VVWRA's headworks from the sludge holding tank via the existing Adelanto

Interceptor Sewer Transmission Line. VVWRA will continue to accept bio-solids in this manner. Currently water in excess of the City's recycled water demand is also discharged to VVWRA via the Adelanto Interceptor Sewer Transmission Line.

Following adoption of this Order, disinfected tertiary recycled water produced in excess of recycled water demands will be discharged to pond No. 14 via a 16-inch pipeline. Recycled water will be used at the Westwinds Golf Course and at other locations at SCLA for landscape irrigation and industrial process water.

The IWTP currently operates at flows less than design. In 2012, the average daily flow was 0.50 MGD; with an average 0.43 MGD discharged to the Westwinds Golf Course and 0.07 MGD discharged to VVWRA.

The VWD's 2012 Annual Monitoring Report, submitted by the City on behalf of the VWD, indicates the following effluent quality:

Table 1 – Average 2012 IWTP Effluent Quality⁵

Constituent	Concentration (mg/L)
Chemical Oxygen Demand (COD)	25
Total Suspended Solids (TSS)	0.75
Ammonia	0.1
Nitrate-Nitrogen	1.25
Total Kjeldahl Nitrogen (TKN)	0.14
Total Dissolved Solids (TDS)	763
Sulfate	269
Chloride	56

Total nitrogen is the sum of TKN, nitrate and nitrite (typically negligible). For 2012, total nitrogen averaged about 1.39 mg/L. The VWD's consultant estimates that near full IWTP flow of less than 2.5 MGD, effluent nitrate-N concentrations will average 4.4 mg/L once additional Federal Bureau of Prison flows are treated.

Future Conditions

Treated effluent from the IWTP produced in excess of recycled water demand will be gravity fed from the 1-million gallon elevated storage tank, located at Westwinds Golf Course, through an existing 2.7 mile pipeline, a new 2,400 foot pipeline connection, and into pond No. 14. Discharges to pond No. 14 would occur at varying flow rates and times of the year based on recycled water demand. The VWD estimates that effluent total nitrogen concentrations will increase from an average of 1.39 mg/L in 2012 but will not exceed 6.1 mg/L at full IWTP flow of 2.5 mgd.

The VWD evaluated impacts on receiving groundwater from TDS for various planned IWTP flow and recycled water use scenarios as shown in Table 2. Initial discharge to pond No. 14 would average about 0.12 MGD, the same average flow rate of IWTP

⁵ 2010 Annual Report for the Victorville Wastewater Treatment Facility, Board Order No R6V-2010-0023, February 1, 2011, City of Victorville

effluent currently delivered to VVWRA for treatment and disposal. This discharge scenario would occur for up to 4 years and result in a short-term, localized groundwater quality degradation beneath pond No. 14. After a raw sewage lift station and force main is completed within 2 to 4 years, additional Federal Bureau of Prison domestic wastewater flows will be treated at the IWTP; with an estimated 0.50 MGD of effluent discharged to pond No. 14. After an additional 5 years, the VWD anticipates the IWTP effluent TDS concentration will be suitable for use by the HDPP. Reductions in TDS effluent levels would be from industrial source salt reductions and diversion of additional domestic sewage and flow from the Federal Bureau of Prison into the IWTP.

Table 2 - Potential Discharge of IWTP Effluent and TDS Concentrations at Different Flow Scenarios and Resultant Groundwater TDS Concentrations at 1,600 feet radius from pond 14

IWTP Effluent Flow rate (MGD)	Discharge to Pond 14 (MGD)	Discharge to HDPP (MGD)*	Recycled water uses (MGD)	Max effluent TDS Conc. (mg/L)	Resultant Max GW TDS Conc. At 1600 ft. from pond 14 (mg/L)	Comments
0.50	0.12	0	0.38	665	499.2	Initial conditions; 2 to 4 yrs.
0.88	0.50	0	0.38	550	499.7	After lift station is operational
1.5	1.05	0	0.45	516	499.4	HDPP is down for maintenance (normally 6 weeks per year)

* There will be no discharge to HDPP until the effluent TDS levels reduce to HDPP salinity requirements.

9. Industrial Wastewater Treatment Program

Under California Code of Regulations, title 23, section 2233(a), the Water Board may require a Discharger to have and enforce a pretreatment program. According to the report of waste discharge, the IWTP design is for 60 percent of the facility flow from domestic wastewater and 40 percent from industrial wastewater at the SCLA complex. Currently, the largest industrial source to the IWTP is the Snapple/Dr. Pepper plant. Future industrial sources have yet to be identified. Industrial sources may contribute constituents that, if not controlled by the Discharger, will have the potential to pass through or interfere with the facility, and may cause degradation or pollution in the receiving groundwater. Given the need to protect the groundwater resource, and the potential for constituents to pass through or interfere with the IWTP, this Order requires the Discharger to have and implement a pretreatment program that may include salinity control methods to achieve the effluent and receiving water limitations specified in this Order.

U.S Environmental Protection Agency (EPA) standards for an adequate pretreatment program are specified in 40 CFR 403.9. The Water Board is applying the EPA standards as the basis for an adequate pretreatment program.

California Code of Regulations, title 23, section 2233(b), allows the Water Board to adopt waste discharge requirements with a time schedule to require pretreatment programs be developed for facilities without an approved pretreatment program. This Order specifies a time schedule for the Discharger to establish and implement the program.

California Code of Regulations, title 23, section 2233(c), requires an annual report on the effectiveness of the pretreatment program. This Order specifies an annual report in the monitoring and reporting program.

10. Authorized Disposal Site and Recycled Water Use Areas

The authorized disposal site is Percolation pond No. 14, located at VVWRA. Currently, the City of Victorville purchases recycled water from the VVWRA for delivery and use at the High Desert Power Project. Authorized recycled water use areas are:

- a. The High Desert Power Project as cooling water,
- b. The Westwinds Golf Course (reclaimed water sent to the golf course is stored in a 1 million gallon elevated storage tank), and
- c. SCLA for the following additional reclaimed water use areas:
 - i. Firefighting water for the fire pump deluge system at the SCLA,
 - ii. Irrigation for parks, greenbelts, etc., at the SCLA Industrial Park,
 - iii. Construction water for future projects, and
 - iv. Dust control for the SCLA runways.

11. Recycled Water Use Requirements

The CDPH establishes criteria for the production and use of recycled water. This Order requires production and use of recycled water to comply with CDPH criteria codified in California Code of Regulations, title 22, section 60301, et seq.

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. The City has submitted two Engineering Reports and two addenda (Attachment E). The CDPH has accepted the Engineering Reports, except for the proposed re-use areas described in Finding No. 10.c. This Order requires CDPH to accept an Engineering Report for proposed new reuse areas before recycled water use in those areas is allowed. This Order allows the City to enter into Use Agreements with new users provided appropriate use area requirements are wholly consistent with this Order. Separate reclamation requirements may be necessary if appropriate use area requirements are different than contained in this Order.

12. California Code of Regulations, Title 27 Exemption

As provided in California Code of Regulations, title 27, section 20090(a), the following discharges are exempt from the Water Board title 27 regulations:

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

As the State Water Resources Control Board described in its Lodi decision⁶, subsection 20090(a) actually contains two distinct exemptions: a) a conditional "exemption" for the discharge of domestic sewage or treated effluent ("sewage exemption") and b) an unconditional exemption for treatment or storage facilities associated with municipal wastewater treatment plants ("sewage treatment plant exemption"). For the conditional sewage exemption, the discharge must be regulated by WDRs and be consistent with applicable water quality objectives.

The discharge of treated wastewater to percolation pond No. 14 meets the conditions for sewage exemption from the requirements of Title 27 because:

- a. The discharge is regulated by this Order.
- b. The discharge of treated wastewater complies with the Basin Plan because the discharge of treated effluent must attain effluent limitations that comply with water quality objectives and prohibitions described in the Basin Plan.

13. Site Hydrology

The City's IWTP facility and most recycled water re-use areas at SCLA are located on the bluffs along the west side of the Mojave River. The SCLA site is generally flat with drainage to the east, concentrated into arroyos that drain eastward to the Mojave River. The Mojave River is located east of SCLA and flows to the north. Between the bluff and the river is a bench where percolation pond No. 14 is located.

14. Site Geology

The percolation pond No. 14 site is comprised of sedimentary deposits; predominately sandy clay, sand, and gravel⁷.

⁶ State Water Resources Control Board (SWRCB) Water Quality (WQ) Order No. 2012-0001 "IN THE MATTER OF OWN MOTION REVIEW OF CITY OF LODI WASTE DISCHARGE REQUIREMENTS AND MASTER RECLAMATION PERMIT (ORDER NO. R5-2007-0113 [NPDES NO. CA0079243]) ISSUED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION - SWRCB/OCC FILE A-1886", which amended SWRCB WQ Order No. 2009-0005

⁷ Bader, J. S. et al, Data on Water Wells in the Upper Mojave Valley Area, San Bernardino County, California, USGS, 1958.

15. Site Hydrogeology

There are three aquifers in the vicinity of the Facility as follows:

- a. Beneath the IWTP, and generally beneath SCLA, is an upper alluvial unit of well-to poorly-graded sands containing the Upper Aquifer. The Upper Aquifer is encountered at about 80 feet below ground surface (bgs) and is about 80 feet thick. The Upper Aquifer groundwater flow direction is to the east. The upper aquifer is not present beneath percolation pond No. 14, which is at a lower elevation.
- b. An aquitard comprised of old lakebed lacustrine deposits with highly plastic clay approximately 25 feet thick occurs beneath the Upper Aquifer. The Upper Aquifer is perched on this unit. The aquitard "pinches out" east of the SCLA site near the bluffs allowing water in the upper Aquifer to percolate to the Lower or Regional Aquifer.
- c. A lower alluvial unit lies beneath the aquitard and consists of a heterogeneous mixture of interbedded sands, gravel, silt and clay. The upper 50 feet of this unit is unsaturated. The Lower, or Regional Aquifer, is located approximately 200 - 250 feet bgs and extends to about 700 feet bgs.
- d. Along the Mojave River, and in connection with the Regional Aquifer is the Mojave River Floodplain Aquifer. The Floodplain Aquifer is the principal production aquifer along the Mojave River and is located beneath percolation pond No. 14. Groundwater beneath percolation pond No. 14 is located at a depth of about 33 ft. bgs.
- e. Groundwater flow from the percolation pond Nos. 7 through 14 flows radially outward, away from the ponds into the Regional Aquifer and the Floodplain Aquifer.

The primary potential impact to receiving groundwater resulting from the discharge will be in the Regional and Floodplain Aquifers beneath pond No. 14. Existing discharges from VVWRA into adjacent pond No.'s 7 to 13 percolate and will co-mingle with discharges from pond No. 14.

16. Background Water Quality

The discharge of VVWRA effluent into percolation pond Nos. 7 through 13 began in about 2000 causing a hydraulic mound to form beneath the ponds, with groundwater flow radially outward from the pond area. Pond No. 14 has not been used and is dedicated to City flow from the IWTP. The City's discharge to pond No. 14 will be a small fraction of the VVWRA discharge to its adjacent percolation ponds.

Data from former George Air Force Base-owned wells (NZ-02, NZ-74, NZ-86) were used to establish naturally occurring background concentrations in the Floodplain Aquifer for nitrate and total dissolved solids (TDS). Samples from these wells were obtained before the VVWRA south percolation pond No's. 7 through 13 were constructed. At that time,

naturally occurring background groundwater quality in the Regional/Floodplain Aquifer in the vicinity of the percolation pond Nos. 7 through 14 was determined to be 0.62 mg/L nitrate as nitrogen (nitrate-N) and 294 mg/L TDS.

After VVWRA discharge into its percolation pond Nos. 7 through 13 began, groundwater degradation was observed. Pollution was indicated when groundwater nitrate-N concentrations exceeded 10 mg/L, the drinking water standard, incorporated into the Water Quality Plan for the Lahontan Region (Basin Plan). The Water Board issued Cease and Desist Order No.R6V-2008-0005 requiring VVWRA to upgrade its facility for nitrogen removal and address conditions of nitrate pollution present in groundwater. After VVWRA treatment plant upgrades were completed, lower effluent nitrate concentrations resulted in groundwater nitrate-N concentrations being reduced to less than 10 mg/L beneath the percolation ponds. Cease and Desist Order No.R6V-2008-0005 was rescinded in June 2013.

Data from VVWRA wells SP-1, SP-2, SP-3 and SP-4 were used to establish current background water quality beneath percolation pond No. 14. For the period April 2011 to October 2011, nitrate-N concentrations averaged 7.75 mg/L. The City's consultant used a background nitrate value in the mixing model of 7.04 mg/L as shown in Figure 1. For the period January 2010 through October 2012, TDS concentrations averaged of 444 mg/L. This is considered the current (degraded) background receiving groundwater quality in the vicinity of pond No. 14.

Other pollutant sources to groundwater are present in the area. The American Organics composting facility east of VVWRA percolation pond Nos. 7 through 13 is a source of TDS, chloride, nitrate and arsenic to the Floodplain Aquifer, although down gradient of pond No. 14. Former George Air Force Base, now the SCLA complex, is a source of the solvent trichloroethylene (TCE), a volatile organic compound, to the Upper and Regional Aquifers. TCE is present in groundwater beneath pond No. 14. The elevated water levels beneath percolation pond Nos. 7 through 14, create a mound that acts as a partial flow barrier, causing groundwater containing the TCE to circumvent the pond area, to the north and south. Existing wells installed by the Air Force and VVWRA are sufficient to establish groundwater elevations and are screened appropriately to evaluate the receiving groundwater effects from pond No. 14 discharges.

17. Receiving Waters

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

18. Basin Plan

The Water Board adopted a Basin Plan, which became effective on March 31, 1995. This Order implements the Basin Plan as amended.

19. Beneficial Uses

The beneficial uses of the groundwaters for the Upper Mojave River Valley Groundwater Basin, (Department of Water Resources Basin no. 6-42) 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).

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

The IWTP produces generally high quality effluent with respect to chemical oxygen demand (COD) and total nitrogen. However, the industrial sources to the IWTP result in elevated salt concentrations in the effluent, generally characterized as TDS. The IWTP has no ability to remove salts and passes salt through to the effluent. The average effluent TDS concentration during 2012 was 763 mg/L. As IWTP influent flow increases, because of additional domestic wastewater to the IWTP from the Federal Bureau of Prison, which contains less TDS than industrial wastewater, and further industrial source salinity controls become available, future effluent quality is expected to decrease to near 516 mg/L for TDS. The City is working with industrial dischargers to reduce IWTP influent TDS/levels, but has not specified specific TDS reductions that will occur. Under both current and future conditions, the effluent discharged to pond No. 14 is higher with respect to TDS than: (1) the naturally occurring groundwater TDS concentration of 294 mg/L, (2) the current average TDS background concentration of 444 mg/L, and (3) the "Recommended" TDS threshold of 500 mg/L set forth in secondary maximum contaminant level (MCL), which addresses taste and odor of drinking water⁸. The Discharger proposes to degrade groundwater with respect to TDS within a 1,600 foot mixing zone radius measured from the center of pond No. 14. While groundwater within the mixing zone will exceed a TDS concentration of 500 mg/L, it will still support the MUN beneficial use and not exceed the upper level of the "Consumer Acceptance Contaminant Level Ranges", which for TDS is 1,000 mg/L. Nonetheless, it is unlikely that domestic drinking water wells will be installed in this area. Some additional degradation with respect to TDS will occur outside the mixing zone for a short distance down-gradient of pond No. 14 (less than ½ mile).

The City provided groundwater data and a groundwater mixing analysis (mixing model) to estimate the potential localized effect on groundwater quality which is predicted from the City's proposed discharge to pond No. 14 of water that meets the requirements

⁸ The Basin Plan specifies groundwater objectives, which includes the TDS secondary maximum contaminant level (MCL). The TDS MCL, and thus water quality objectives, is a three part standard set forth in Table 64449B in Title 22 of the California Code of Regulations: 500 mg/L ("Recommended"), 1,000 mg/L ("Upper"), 1,500 mg/L ("Short term"). Constituent concentrations lower than the "Recommended" contaminant level are desirable for a higher degree of consumer acceptance. Constituent concentrations ranging to the upper contaminant level are acceptable if it is neither reasonable nor feasible to provide more suitable waters. Constituent concentrations ranging to the short term contaminant levels are acceptable only for existing community water systems on a temporary basis pending construction of treatment facilities or development of new water sources. (22 CCR, section 64449 (d).)

under Title 22 of the California Code of Regulations for recycled water. The mixing model simulates instantaneous and complete mixing of ambient groundwater with effluent seepage reaching the water table from pond No. 14 with the expected IWTP effluent concentrations. The mixing model assumes an initial volume of groundwater underlying pond No. 14 possessing background TDS and nitrate-N concentrations. The volume of the existing groundwater body is calculated as the product of the radius of interest (1,600 feet), an assumed saturated thickness of potentially impacted groundwater (assumed 50 feet), and the porosity of the underlying sediments (assumed to be 0.2) based on the low end of published literature values for a sand and gravel mixture⁹. Results are graphically depicted in Figure 1 for the initial plant discharge scenario.

Figure 1. Mixing model results at 1,600 ft. from Pond No. 14 Centroid

		TDS	665	<u>Plant Effluent</u>		
		NO ₃ ⁻ -N	1.25	0.15MGD		
		↓				
TDS	444	→		→	TDS	499.2
NO ₃ ⁻ -N	7.04				NO ₃ ⁻ -N	5.8
Incremental changes						
<u>Pre-Existing Groundwater</u>		TDS	+55.2mg/L	<u>Resultant Groundwater Quality 1,600 feet from Pond No. 14 centroid</u>		
		NO ₃ ⁻ -N	-1.2 mg/L			
Note: All values are mg/L. Actual plant effluent concentrations may be different. Assumes uniform concentration in the upper 50' of receiving groundwater.						

State Water Resources Control Board, Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," is called the non-degradation objective in the Basin Plan. Resolution 68-16 provides a two-part analysis to allow degradation. Step-one is to establish whether it is appropriate to allow degradation.

"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."

To achieve lower effluent TDS concentrations and reduce the salinity of the effluent to a level that would not cause degradation within the area 1,600 feet from the pond No. 14 centroid, the City's analysis indicates that a Reverse Osmosis (RO) system would be necessary to treat about 25% of the IWTP effluent prior to discharge into pond No. 14. The cost to install a RO system is estimated at \$2,949,000 with annual operating and maintenance costs (O&M) of \$145,000, including brine waste

⁹ to range from 20% to 35% porosity (sand and gravel), C.W. Fetter 1994. Applied Hydrogeology, 3rd Edition)

disposal. The City's current legal agreement with the industrial user allows the industrial user to discharge to the City's Facility with no further treatment. Should the City re-negotiate the agreement and require the industrial user to pay for an RO system or other additional treatment, the industrial discharger indicated it would likely relocate its operation to a different area with an associated loss of about 265 jobs. Further, short-term degradation will be reduced when additional domestic waste flows are added from the Federal Bureau of Prison, diluting the TDS effluent levels, causing TDS, for the long term to be maintained at close to 500 mg/L, which is the upper limit of the "Recommended" "Consumer Acceptance Contaminant Level Range". Costs of reverse osmosis at this time are therefore not warranted. The IWTP accommodates future industrial, as well as domestic sewage treatment needs that support economic growth. Together, these factors are consistent with maximum benefit to people of the STATE.

Excepting TDS, the IWTP discharge is high quality, tertiary treated effluent meeting Title 22 recycled water use standards. This Order imposes limits on flow and TDS effluent quality to ensure receiving groundwater beneficial uses are not impaired. The IWTP discharge to pond No. 14 will result in improved water quality with respect to nitrate. Collectively, these factors indicate that beneficial uses are not unreasonably affected.

This Order requires the TDS concentration at 1,600 feet from the center of pond No. 14 to be at or below 500 mg/L. This distance is the shortest where IWTP effluent disposed to pond No. 14 can mix in groundwater with VVWRA effluent disposed in ponds 7 through 13 and natural groundwater to result in receiving water TDS concentrations of less than 500 mg/L. There are no domestic wells within this distance. Within this distance, TDS may be as high as the effluent discharged (665 mg/L), but remain less than 1,000 mg/L (the MCL upper limit of the "Consumer Acceptance Contaminant Level Ranges"). This degradation will result in the receiving groundwater still meeting all narrative and numerical groundwater objectives.

- "2. Step two is to ensure discharge results in Best Professional Treatment and Controls. 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.*

RO technology has been identified as potential treatment mechanism. The use of RO for even a portion of the discharge will result in a modest improvement in current groundwater quality. The costs for such treatment are high (see above discussion) and do not seem commensurate with the benefit because without the use of RO, groundwater quality will be maintained near its current conditions and below 500 mg/L at 1600 feet downgradient of the discharge and beyond.

In summary, the proposed discharge degrades groundwater with respect to TDS in the immediate vicinity of pond No. 14, but improves groundwater with respect to nitrate, maintains all beneficial uses, and is consistent with State Water Board Resolution No. 68-16 in that the resulting water quality constitutes the highest water quality that is reasonable, considering all demands placed on the waters, economic and social considerations, and other public interest factors. Allowing degradation within the immediate vicinity of pond No. 14 for TDS at levels that are above the "Recommended" secondary MCL, but below the "Upper" secondary MCL is acceptable considering the socio-economic benefits in the region with respect to sustaining a healthy economy in the Victor Valley, and the fact that the levels of TDS will be at the "Recommended" secondary MCL within 1,600 feet of the discharge and before groundwater reaches any domestic wells.

21. Water Code Section 13241 Factors

Water Code section 13263 requires that the Water Board, when prescribing Waste Discharge Requirements, take into consideration the following factors of Water Code section 13241:

- a. Past, present, and probable future beneficial uses of water – The beneficial uses designated for the Upper Mojave River Valley Groundwater Basin are 1) MUN, 2) AGR, 3) IND, 4) FRSH, and 5) AQUA . The constituent of concern is total dissolved solids. This constituent is of concern because the discharge from the IWTP to percolation pond No. 14 will potentially increase the down gradient TDS concentration over the TDS recommended water quality objective of 500 mg/L, but less than the TDS upper water quality objective of 1,000 mg/L. There will be localized groundwater degradation within a short distance of pond No. 14, however all beneficial uses are still maintained, and water quality will meet the recommended objective before it meets any domestic wells. The current and future beneficial uses and existing water quality will be maintained.
- b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto – The environmental characteristics, which include geology, hydrology, up-gradient groundwater quality, and existing groundwater quality, are described above in the site hydrology, geology and hydrogeology Findings of the Order. This hydrologic unit has experienced overdraft conditions due to groundwater pumping for beneficial uses of municipal water supply. Percolation from pond No. 14 discharge into the receiving groundwater will recharge the groundwater basin. Groundwater is currently degraded by TDS and nitrate sources and polluted by TCE, an industrial solvent. For most constituents, the groundwater quality is sufficient to support the designated beneficial uses of municipal water supply.
- c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area – Water quality of the receiving groundwaters will continue to be protected through the Discharger's implementation of best practicable treatment technologies to ensure TDS and nitrate-N remain below the receiving water quality objectives of 500 mg/L and 10

mg/L, respectively. The receiving groundwater will continue to maintain its designated beneficial uses.

- d. Economic considerations - The objective of the City's IWTP is to provide for industrial and domestic wastewater treatment and supply recycled water to users that otherwise consume pumped groundwater. The installation of the 2,400 foot lateral pipeline is not anticipated to have significant environmental or economic impacts. Also, the operation and maintenance cost of this pipeline expansion is relatively minimal.
- e. The need for developing housing in the region - The order will allow the City to accommodate future housing growth by providing additional effluent disposal capacity and recycled water use opportunities.
- f. The need to develop and use recycled water - The discharge will support additional recycled water uses at SCLA and dispose of excess water into the Mojave River groundwater basin. The entire basin is in overdraft and has been adjudicated. The Mojave Water Agency is the Watermaster to oversee a settled agreement. Groundwater recharge into an aquifer in overdraft is an ancillary recycled water benefit.

22. California Environmental Quality Act

The Regional Water Board has considered two environmental documents that were prepared for this project, and the requirements of this Order, and finds that although there are some minor changes from what was described in the two negative declarations prepared in 2005 and 2009, none of those changes trigger the requirements in CEQA Guidelines section 15162 for a subsequent negative declaration, and that the project, as described in this Order, would not have any significant impact to the environment. The Regional Water Board will file a Notice of Determination within five days from the issuance of this order, and will include mitigation measures identified in the negative declarations that are within the Regional Board's jurisdiction and are necessary to reduce or eliminate significant impacts on the environment as conditions of approval in the order section below.

The VVWRA adopted a Mitigated Negative Declaration for the 18 MGD Regional Wastewater Treatment Facility Expansion Project, which addressed pond No. 14. A Notice of Determination for this project (State Clearinghouse No. 2005081167) was submitted to the Clerk of the San Bernardino County Board of Supervisors dated October 24, 2005. The project included not only the construction of pond No. 14, but also of three other new percolation ponds located south of treatment plant; ponds 11-13. Water Board Order R6V-2012-0058 authorized VVWRA to use ponds 11-13, and pond No. 14 was reserved for future use by the City of Victorville.

Water Board staff comments, dated September 29, 2005, on the VVWRA Initial Study stated we did not concur that the project would have a less than significant impact on water quality standards. At the time, VVWRA effluent was contributing to violation of receiving groundwater quality standards for nitrate. Subsequently, VVWRA plant modifications have reduced nitrate receiving water concentrations to less than the water quality standard of 10 mg/L for nitrate.

Subsequently, the City of Victorville adopted a Mitigated Negative Declaration for its new IWTP. A Notice of Determination for this project (State Clearinghouse No. 2009031029) was submitted to the Clerk of the San Bernardino County Board of Supervisors dated May 06, 2009. At that time, the City intended to utilize all of its effluent for recycled water use and did not evaluate potential impacts resulting from effluent disposal to pond No. 14. From 2010 to 2013, effluent from the City IWTP was discharged to VVWRA and commingled with VVWRA effluent disposed into the Mojave River or percolation ponds 1 – 13.

Under these WDRs, the City of Victorville will continue to produce recycled water at the IWTP; however, until new users are identified and during times when recycled water use is low, the effluent from the IWTP will now be discharged to pond No. 14. This change does not trigger any of the requirements in CEQA Guidelines section 15162 for a subsequent negative declaration as the change is not substantial nor result in any unmitigated significant impacts.

First, there are no substantial changes proposed by the use of pond No. 14 for the disposal of tertiary treated water from Victorville's IWTP. The project does not require major revisions of the 2005 or 2009 negative declarations due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Impacts related to the construction and use of pond No. 14 for percolation of effluent was already analyzed in 2005, and the impacts of the discharge of effluent as recycled water or into VVWRA's existing ponds (by means of co-mingling IWTP effluent with normal VVWRA effluent) was analyzed in 2009. That the effluent from the IWTP will now be discharged into pond No. 14 does not result in any new significant impacts. Although the effluent from the City's IWTP has higher concentrations of TDS because it is less diluted by domestic waste than the influent to VVWRA's treatment plant, it is lower in all other constituents. Additionally, requirements included in this Order to ensure compliance with water quality objectives, including restricting TDS effluent limits commensurate with increases in flow, setting a receiving water limit for the discharge, and requiring implementation of an Industrial Wastewater Pretreatment Program consistent with federal requirements, ensure that there are no significant impacts to water quality.

Similarly, there are no substantial changes with respect to the circumstances under which the project is undertaken that will require major revisions of the negative declarations due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. As described above, the use of pond No. 14 for discharge of tertiary treated effluent when there are not sufficient recycled water users to take the water will not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects because this permit contains restrictions, as identified above, to reduce potential impacts related to TDS to insignificant levels.

Finally, no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous negative declarations were adopted, shows either new significant effects not previously discussed, that significant effects previously examined will be substantially more severe than previously shown, that mitigation measures or alternatives previously found infeasible would now be feasible and would substantially reduce one or more significant effects of the project, or that there are mitigation measures or alternatives that are considerably different from those previously analyzed that would substantially reduce one or more significant effects of the project. Impacts related to TDS, though not previously analyzed, would not be significant and are not substantially different from the other water quality impacts previously analyzed in the negative declarations.

23. Basis for Numerical Effluent Limitations

- a. Biochemical Oxygen Demand (BOD) and Total Suspended Solids – Secondary effluent treatment standards from the Basin Plan.
- b. Total Nitrogen – Based on the Report of Waste Discharge submitted on January 23, 2013, an effluent concentration of 6.1 mg/L total nitrogen is expected at full plant flow of 2.5 mgd. An effluent concentration for total nitrogen is of 6.1 mg/L is specified in this Order and ensures that the receiving water limit for nitrate-N (10.0 mg/L) is met, because nitrate is a fractional component of total nitrogen.
- c. TDS – Based on the results of a mixing model evaluating existing groundwater and contributions from the VVWRA and IWTP discharges, the following maximum effluent TDS concentrations and associated flows are not expected to increase groundwater TDS concentrations above 500 mg/L at a distance of 1,600 ft. from the pond No. 14 centroid.

Table 3 – Effluent TDS Concentrations and Pond No. 14 Flows Resulting in Receiving Water Below 500 mg/L at 1,600 ft from Pond No. 14 Centroid

Annual Average Pond No. 14 Effluent Flow (MGD)	Annual Average Effluent TDS Concentration (mg/L)	Background GW TDS Concentration (mg/L)	Resultant Groundwater TDS Concentration (mg/L)
Up to 0.15	665	444	499.2
Up to 0.5	550	444	499.7
Up to 0.88	528	444	499.5
Up to 1.5	516	444	499.4

Based on the model results shown in Table 3, this Order establishes a four tier TDS effluent limit based on flow. For example, when the annual average effluent flow to pond No. 14 is less than 0.15 MGD, the resultant annual average effluent concentration must be 665 mg/L or less. This Order requires an annual evaluation of flow and TDS for compliance assessment using the chart in Attachment F.

24. Basis for Numerical Receiving Groundwater Limitations

The water quality objectives for receiving groundwater with a "Municipal" beneficial use are defined in the Basin Plan as both the primary and secondary drinking water standards (maximum contaminant levels, or MCLs). TDS has a three-part secondary standard: 500 mg/L Recommended, 1,000 mg/L Upper, and 1,500 mg/L Short-Term. Both the naturally occurring background and current degraded background TDS concentrations beneath pond No. 14 are less than 500 mg/L. Additional degradation with respect to TDS will occur beneath pond No. 14. To limit the extent and degree of resulting degradation, this Order applies a numerical receiving water limit (500 mg/L TDS) at a fixed distance (1,600 feet) from the pond No. 14 centroid. A fixed distance of 1,600 feet from pond No. 14 centroid was selected because the groundwater mixing model by the Discharger demonstrated that this was the smallest reasonable area of degradation without the implementation of RO technology. While TDS concentrations within this radius will exceed 500 mg/L, and also exceed current background water quality concentrations a short distance beyond, the concentrations will not exceed the Upper TDS limit of 1,000 mg/L. This distance ensures the most restrictive receiving groundwater water quality objectives are met; consistent with the maximum benefit to the people of the State, and 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.

25. Right to Safe, Clean, Affordable, and Accessible Water

Water Code section 106.3 requires all relevant State agencies to consider that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order does not authorize the discharge waste to the groundwater below drinking water standards.

The groundwater in the area includes municipal use, and the discharge will be monitored to ensure the groundwater is not being impaired for municipal use. If the beneficial use of the groundwater is impaired, the Discharger will have to take actions to restore the groundwater to support beneficial uses.

26. 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 issuing permits for recycled water projects. This Order implements the Recycled Water Policy.

This Order requires the Discharger to develop, or participate in development, of a Salt and Nutrient Management Plan that is consistent with Paragraph 6 of the Recycled Water Policy. The Recycled Water Policy requires that Salt and Nutrient Management Plans are completed and proposed to the Water Board by May 14, 2014 unless the Water Board finds that the stakeholders are making progress towards completion of a plan and grants a two-year extension. The Mojave Water Agency is taking the lead role to develop a Salt and Nutrient Management Plan for the Mojave River Valley Groundwater Basin.

27. Classification and Fees

The "Threat to Water Quality" from the IWTP is category "3" because the discharge will cause further groundwater degradation within a groundwater basin that is used as a drinking water source and "Complexity" is category "A" because the proposed discharge involves a treatment process for industrial discharges that may include toxic wastes. The discharge requires groundwater monitoring. This classification results in fees being imposed by the State Board pursuant to California Code of Regulations, title 23, section 2200, subject to change based on treatment or disposal method modifications or revised state regulations.

28. Notification of Interested Parties

The Water Board has notified the Discharger and interested persons of its intent to adopt new Waste Discharge Requirements for the discharge.

29. Consideration of Interested Parties

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

30. Anaerobically Digestible Waste for Co-Digestion

If the Discharger proposes to receive hauled-in anaerobically digestible material for injection into an anaerobic digester, the Discharger shall notify the Water Board and develop and implement standard operating procedures (SOPs) for this activity.

If hauled-in waste for digestion is already on-going, the SOPs shall be developed within 90 days. Otherwise, the SOPs shall be developed prior to initiation of the hauling. The SOPs shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; and spill response. In addition, the SOPs shall address avoidance of the introduction of materials that could cause interference, pass through, or upset of the treatment processes; avoidance of prohibited material, vector control, odor control, operation and maintenance, and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall provide training to its staff on the SOPs and shall maintain records for a minimum of three years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of three years for the disposition, location, and quantity of cumulative pre-digestion-segregated solid waste hauled off-site.

IT IS HEREBY ORDERED that pursuant to Water Code section 13263 (for waste discharges) and section 13823 (for recycled water production and uses), the Producer/Discharger shall comply with the following:

I. SPECIFICATIONS

A. Influent Flow Limitations

1. The average monthly influent flow to the IWTP must not exceed 2.5 MGD.

B. Effluent Limitations

1. All wastewater discharged to pond No. 14 shall not contain concentrations of parameters in excess of the limits shown below.

Table 4 - Effluent Limitations

Constituent	Units	Average monthly	Average weekly	Average Annual
BOD (5-day at 20°C)	mg/L	30	45	--
TSS	mg/L	30	45	--
Total nitrogen	mg/L	6.1	--	--
Methyl Blue Active Substances	mg/L	1.0		

Table 5 - Effluent Limitations

Constituent	Units	Instantaneous Minimum	Instantaneous Maximum
pH	Std pH units	6.5	8.5
Pond freeboard	inches	24	--
Dissolved Oxygen	mg/L	1.0	--

2. All wastewater discharged to pond No. 14 shall meet the following variable limits for TDS, and as shown on the chart contained in Attachment F. Annual average flow must be rounded to the nearest 0.01 MGD, and the annual average TDS concentration must be rounded to the nearest 1 mg/L.

Table 6 – TDS Effluent Limitations

Annual Average Flow to Pond No. 14	Annual Average TDS Limit, mg/L
0 MGD	No limit
> 0 and ≤ 0.15 MGD	665
> 0.15 MGD and ≤ 0.50 MGD	550
>0.50 MGD and ≤ 0.88 MGD	528
> 0.88 MGD and ≤ 1.50 MGD	516
>1.50 MGD and ≤ 2.50 MGD	465

C. Receiving Water Limitations

1. As a result of the discharge, at a distance 1,600 feet down gradient of the pond No. 14 centroid, the receiving groundwater shall not exceed a TDS concentration of 500 mg/L.
2. The discharge must not cause the presence of the following substances or conditions in groundwater in the Upper Mojave River Valley Groundwater Basin:
 - a. **Bacteria** – In groundwater designated as MUN, the median concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.
 - b. **Chemical Constituents** – Groundwater designated as MUN shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 64444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels – Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels – Ranges).
 - c. Waters designated as AGR shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e. agricultural purposes).
 - d. Groundwater shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

- e. **Radioactivity** – Groundwaters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of section 64443 (Radioactivity) of Title 22 of the California Code of Regulations.
- f. **Taste and Odors** – Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For groundwater designated as MUN, at a minimum, concentrations shall not exceed adopted secondary maximum contaminant levels specified in Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels – Consumer Acceptance Contaminant Levels), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels – Consumer Acceptance Contaminant Level Ranges) of Title 22 of the California Code of Regulations.
- g. **Color** – Waters must not contain color-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses.
- h. **Toxicity** – All waters must be maintained free of toxic substances in concentrations that individually, collectively, or cumulatively cause a detrimental physiological response in human, plant, animal, or aquatic life is prohibited.

D. Recycled Water Producer Requirements

- 1. All disinfected tertiary recycled water supplied to the recycled water distribution system must, at some point following the treatment process but prior to reuse, meet the requirements specified in California Code of Regulations, title 22, (Division 4 beginning with section 60001 et. seq.), specifically:
 - a. Section 60301.230 for Disinfected Tertiary Recycled Water that is filtered and subsequently disinfected.
 - i. Because ultraviolet light disinfection is utilized in the IWTP, disinfection must be demonstrated to inactivate and/or remove 99.999 percent of plaque-forming units of F-specific bacteriophage MS2, or polio virus [as specified in Section 60301.300]. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of demonstration.
 - ii. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed a most probable number (MPN) of 2.2 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 shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.
 - b. Section 60301.320 for Filtered Wastewater in the effluent that is passed through microfiltration, ultrafiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following:

- i. 0.2 NTU [as specified in Section 60301.630] more than 5 percent of the time within a 24-hour period, and
- ii. 0.5 NTU at any time.
- c. Section 60301.650 for Oxidized Wastewater such that the effluent organic matter has been stabilized, is non-putrescible, and contains dissolved oxygen.
- d. Section 60325 for Personnel such that the Facility shall be provided with a sufficient number of qualified personnel (per section 13625 of the Water Code) to operate the facility effectively so as to achieve the required level of treatment at all times.
- e. Section 60323 for Engineering Report such that the Facility shall maintain and exercise accordingly a contingency plan that will assure that no untreated or inadequately treated wastewater will be delivered to the use area.
- f. Section 60327 for Maintenance such that the Facility shall have a preventive maintenance program to ensure that all equipment is kept in reliable operating condition.
- g. Section 60329 for Operating Records and Reports such that operating records shall be maintained at the Facility or a central depository within the City of Victorville. These records shall include: all analyses specified in the monitoring program, records of operational problems, plant and equipment breakdowns, and diversions to emergency storage or disposal, and all corrective or preventive actions taken. Process or equipment failures triggering an alarm shall be recorded and maintained as a separate record file which shall include the time and cause of failure and corrective action taken.
- h. Section 60331 for Bypass such that there shall be no bypass of untreated or partially wastewater from the treatment plant or any intermediate unit processes to the point of use.
- i. Section 60335 for Alarms such that:
 - i. Alarm devices shall be installed to provide warning of: (1) loss of power from the normal power supply, (2) failure of a biological treatment process, (3) failure of a disinfection process, (4) failure of a filtration process, or (5) any other specific process failure for which warning is required.
 - ii. All required alarm devices shall be independent of the normal power supply for the Facility.

- iii. The person to be warned shall be the plant operator, superintendent, or any other responsible person designated by the management of the treatment plant and capable of taking prompt corrective action.
- j. Section 60337 for Power Supply in that the power supply shall be provided with one of the following reliability features: (1) alarm and standby power source, (2) alarm and automatically actuated short-term retention of disposal provisions as specified in Section 60341, or (3) automatically actuated long-term storage or disposal provisions as specified in Section 60341.
- k. Section 60341 for Emergency Storage or Disposal such that:
 - i. Where short-term retention or disposal provisions are used as a reliability feature, these shall consist of facilities reserved for the purpose of storing or disposing of untreated or partially treated wastewater for at least a 24-hour period and include (1) necessary diversion devices, (2) provisions for odor control, conduits, pumping and pump-back equipment, and (3) provided with independent or a standby power source.
 - ii. Where long-term storage or disposal provisions are used as a reliability feature, these shall: (1) consist of ponds, reservoirs, percolation areas, downstream sewers leading to other treatment or disposal facilities or any other facilities reserved for the purpose of emergency storage or disposal if untreated or partially treated wastewater, (2) have sufficient capacity for at least 20 days, include necessary diversion works, provisions for odor and nuisance control, conduits, and pumping and pump-back systems, and (3) provided with independent or a standby power source.
 - iii. Automatically actuated systems shall include sensors, instruments, valves and other devices to enable fully automatically actuated diversion of effluent in the event of a treatment process failure and a manual reset to prevent automatic restart until the failure is corrected.
- l. Section 60345 for Biological Treatment such that all processes shall be provided with one of the following reliability features:
 - i. Alarm and multiple biological treatment units capable of producing oxidized wastewater with one unit not in operation.
 - ii. Alarm, short-term retention or disposal provisions, and standby replacement equipment.
 - iii. Alarm and long-term storage and disposal provisions.
 - iv. Automatically actuated long-term storage or disposal provisions.

2. The following criteria apply to operation of the UV disinfection system per the CDPH letter dated February 9, 2011 (Attachment H).
 - a. The UV system must deliver a minimum UV dose of 189 mJ/cm² at all times unless: (1) the CDPH allows a lower minimum UV dose and (2) the Executive Officer authorizes concurrence.
 - b. The equations below must be used as part of the automatic UV disinfection control system for calculating UV dose.

$$\text{Dose} = (\text{CF}) * (\text{FF}) * (\text{EOLL}) * 10^{-4.63 - 0.7 * \log \text{Flow} + 2.91 * \log \text{UVT} + 1.09 * \log P}$$

and

$$\text{CF} = -0.003 \times \text{UVT} + 1.075 \text{ (correction factor to the 2005 bioassay)}$$

Where:

Dose = Delivered UV dose per bank with 48 lamps (mJ/cm²)

FF = 0.95 fouling Factor based upon a cleaning frequency of once every 24 hours

UVT = UV transmittance at 254 nm (%)

Flow = Flow rate per lamp [gallons per minute (gpm)/lamp], with gpm/lamp calculated as gpm divided by the number of lamps in one bank; this is calculated based upon the total flow through the complete UV disinfection system measured by the magnetic flow meter (total flow through both channels)

EOLL = End of Lamp Life factor = 0.98 at 9000 hours for the Heraeus lamp

P = percent power

- c. Other UV operational limitations and specifications as described in CDPH letter dated February 9, 2011 (Attachment H).

E. Recycled Water Use Area Requirements

1. A copy of these requirements shall be maintained at the Westwinds Golf Course and be available at all times to reuse area personnel.
2. If the City provides recycled water to the HDPP, the City and High Desert Power Project shall establish an agreement ensuring that recycled water is delivered and used in accordance with this Order, the water recycling criteria contained in California Code of Regulations, title 22, division 4, chapter 3, sections 60301 through 60355, and any Guidelines for Use of Recycled Water as issued by the California Department of Public Health. The agreement shall allow for the periodic inspection of recycled water use areas at the High Desert Power Project by City staff to monitor use compliance. A copy of such agreement shall be maintained at the IWTP and High Desert Power Project facility.
3. Recycled water shall meet the definition for disinfected tertiary recycled water in California Code of Regulations, title 22, section 60301.230.

4. Application of recycled water for irrigation shall be limited to an amount that will not cause migration of recycled water and salts below the root zone beyond the extent necessary to maintain vegetation growth.
5. The following requirements are based on the State Water Board Recycled Water Policy.
 - a. Recycled water must not be applied at rates or amounts that cause ponding or runoff.
 - b. Incidental runoff is allowed only from sprinkler overspray.
 - c. By **February 1, 2014**, the City must prepare, submit to the Water Board, implement and maintain onsite at the IWTP and Westwinds Golf Course; a **Recycled Water Use Operations and Management Plan**. The plan shall include: (1) provisions for leak detection and correction within 72 hours or prior to the release of 1,000 gallons of water, (2) description of proper design and aim of sprinklers, (3) description of measures to refrain from applying recycled water to landscape irrigation areas during precipitation events, (4) management of landscape ponds containing recycled water such that no discharge occurs unless as a result of a 25-year, 24-hour storm event or greater, (5) Water Board notification in the event of a landscape pond discharge, (6) a use area checklist that will be utilized by field operations staff in assessing whether recycled water application at each use area comports to this Order, and (7) Water Application Plan to ensure recycled water is not applied at rates or amounts exceeding the seasonal plant agronomic demand.
6. The following requirements are based upon CDPH recommendations:
 - a. The application of the recycled water and use site control shall be in accordance with applicable requirements of the Victorville Water District Ordinance No. VWD-003 concerning the use of recycled water.
 - b. Recycled water used for cooling tower make-up water, golf course irrigation, firefighting, landscape irrigation, dust control and construction water shall be limited to disinfected tertiary treated water.
 - c. The VWD shall ensure that there is no cross connections between domestic potable water lines and recycled water lines at all times. Where irrigation and domestic water lines have been designed side by side, a minimum clearance of four feet shall be maintained between the lines to ensure that no cross connections are made between the two systems. The recycled water piping shall not include any hose bibs. If quick couplers are used, then they must differ (e.g. in size or color) from those used for the potable water system.
 - d. Prior to initial delivery of recycled water through the distribution system, the system shall be inspected and tested for possible cross connections. The cross connection shutdown testing for both potable and recycled water

distribution systems must be completed and submitted to CDPH for review and approval. Shutdown tests shall be repeated as per City requirements.

- e. Marking of all recycled water system pipelines and appurtenances should be done per American Water Works Association and the CDPH requirements for the recycled water system identification.
- f. Recycled water use shall be limited to times when the public is not present. All necessary measures shall be undertaken to eliminate possible exposure of the public to the recycled water.
- g. The dust control operation shall neither create migration of mists nor create any ponding or surface flow to drainage courses. All recycled water use is limited to the authorized construction site and appropriate signs must be posted on the trucks used for transporting recycled water and around the construction site, informing public of recycled water use.
- h. The CDPH requires that an Area Supervisor be certified by an approved recycled water site supervisor training program. The training should entail the following components: procedures used when working with recycled water, rules and regulations associated with recycled water use, hazards of working with recycled water, and basic cross connection and backflow principles and procedures. Supervisors must be appointed for the recycled water site supervisor training class.
- i. Treated wastewater used for dust control or soil compaction must be applied at a rate and amount that does not cause runoff or excessive ponding.
- j. By **June 1, 2014**, or before intended delivery, whichever occurs first, the City shall submit to the CDPH an Engineering Report for the re-use areas that are City owned, or operated within the SCLA complex described in Finding No. 10.c, and must obtain CDPH acceptance before recycled water use in those areas. Treated wastewater must not be supplied to a reuse area until: (1) the Water Board has received the CDPH recommendations, and (2) the Discharger has received written acceptance of the Engineering Report from the Executive Officer.
- k. The VWD may further deliver recycled water to users within the SCLA complex under the following conditions:
 - 1. The intended recycled water use is within the SCLA complex,
 - 2. A separate Engineering Report is submitted to the California Department of Public Health (CDPH) for each new use,
 - 3. The Water Board receives CDPH approval and recommendations for the use,
 - 4. The appropriate CDPH recommendations are wholly consistent with the Recycled Water Use requirements of this Order,
 - 5. The City enters into Recycled Water Use agreements with each user, and
 - 6. The Executive Officer authorizes the use.

- I. If CDPH recommends recycled water use criteria not contained in this Order, the Water Board may require the user to obtain individual water reclamation requirements for the use.
- m. When delivery of recycled water is proposed to use areas not under ownership or control of the VWD, the VWD shall enter into a Recycled Water Use agreement that allows the VWD to access the property, inspect the recycled water use application, obtain necessary operational data, take specific actions to rectify recycled water use problems, and stop recycled water delivery if necessary.

F. General Requirements and Prohibitions

1. There must be no discharge, bypass, or diversion of untreated or treated wastewater, sludge, grease, or oils from the transport, treatment, or authorized disposal and recycling sites to adjacent land areas or surface waters.
2. Surface flow, or visible discharge of untreated or treated wastewater, from the authorized disposal sites to adjacent land areas or surface waters, is prohibited.
3. All facilities used for collection, transport, treatment, or disposal of waste regulated by this Order must 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.
4. The freeboard of any percolation pond at the land discharge site shall not be less than 24 inches.
5. The discharge must not cause pollution, or threatened pollution, as defined in Water Code section 13050, subdivision (l).
6. Neither the treatment nor the discharge must cause a nuisance, as defined in Water Code section 13050, subdivision (m).
7. The disposal of waste residue, including sludge (biosolids), must be in a manner in compliance with all local, state, and federal requirements.
8. The discharge of waste, as defined in the Water Code, that causes violation of any narrative water quality objective contained in the Basin Plan, is prohibited.
9. The discharge of waste that causes violation of any numeric water quality objective contained in the Basin Plan, is prohibited.
10. Any discharge that causes the receiving groundwater at or outside a distance of 1,600 ft. from the pond No. 14 centroid to exceed 500 mg/L TDS is prohibited.

II. PROVISIONS

- A. Pursuant to Water Code section 13267, the Producer/Discharger must comply with the Monitoring and Reporting Program as specified by the Water Board's Executive Officer.
- B. The Producer/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. The IWTP 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.
- D. The City must maintain coverage under the current Statewide General Industrial Storm Water Permit for the IWTP because it is listed by category in 40 CFR 122.26 and has a Standard Industrial Classification Code of 4952. A copy of the current permit, evidence of coverage and current Storm Water Pollution Prevention Plan must be maintained onsite.
7
- E. The following Orders are rescinded:
1. Order No. R6V-2010-0023
 2. Order No. R6V-2003-0028-A2
 3. Order No. R6V-2009-0138-A1
- F. Pretreatment Program
1. **On or before July 9, 2014**, the Discharger must submit either one of the following:
 - a. Pretreatment program to the Water Board for Water Board approval. The content of the program submission must contain the information specified in 40 CFR 403.9 (b), or
 - b. An executed interjurisdictional agreement granting VVWRA the authority to implement the pretreatment program in the Discharger's service area.
 2. **On or before October 9, 2014**, the Discharger must begin implementation of the pretreatment program, either through its own program or through the interjurisdictional agreement with VVWRA.
- G. Notwithstanding Standard Provisions 2.b, if a discharge change is proposed, the revised Report of Waste Discharge must be submitted at least 140 days prior to the intended discharges per Water Code section 13264, subdivision (a)(2).

**VICTORVILLE WATER DISTRICT
IWTP, POND No.WDR and REUSE WRRs
San Bernardino County**

- 29 -

**BOARD ORDER NO.
R6V-2014-0002
WDID NO. 6B360911001**

I, Patty Z. Kouyoumdjian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on January 9, 2014.

Patty Z. Kouyoumdjian

**PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER**

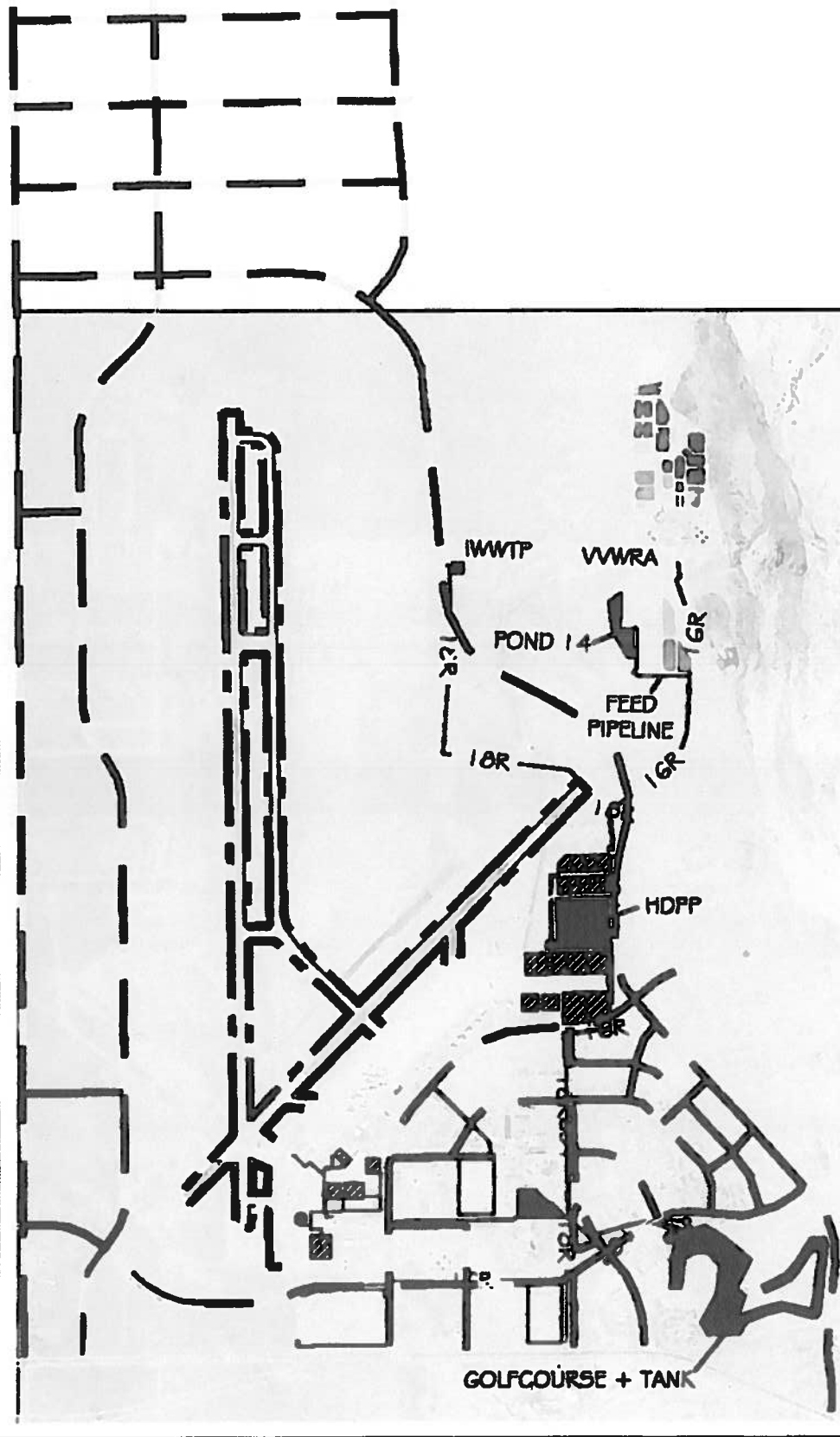
- Attachments:
- A. Victorville IWTP General Location and Reuse Areas Map
 - B. Pond 14 Site Map and Point-of-Compliance
 - C. Report of Waste Discharge Documents
 - D. Process Flow Diagram
 - E. CA Department of Public Health Table Status
 - F. TDS Effluent Limitation Compliance Assessment Chart
 - G. Standard Provisions for Waste Discharge Requirements
 - H. CDPH Letter February 9, 2011, SCLA Wastewater Treatment Plant – Trojan 30000+UV Reactor, City of Victorville (System No. 3690021)

R6V-2014-0002/City of Victorville/Adopted_wdr_CityofVictorville

ATTACHMENT A

VICTORVILLE IWWTP GENERAL LOCATION AND REUSE AREA MAP

NORTH
SCALE: 1"=3,000'

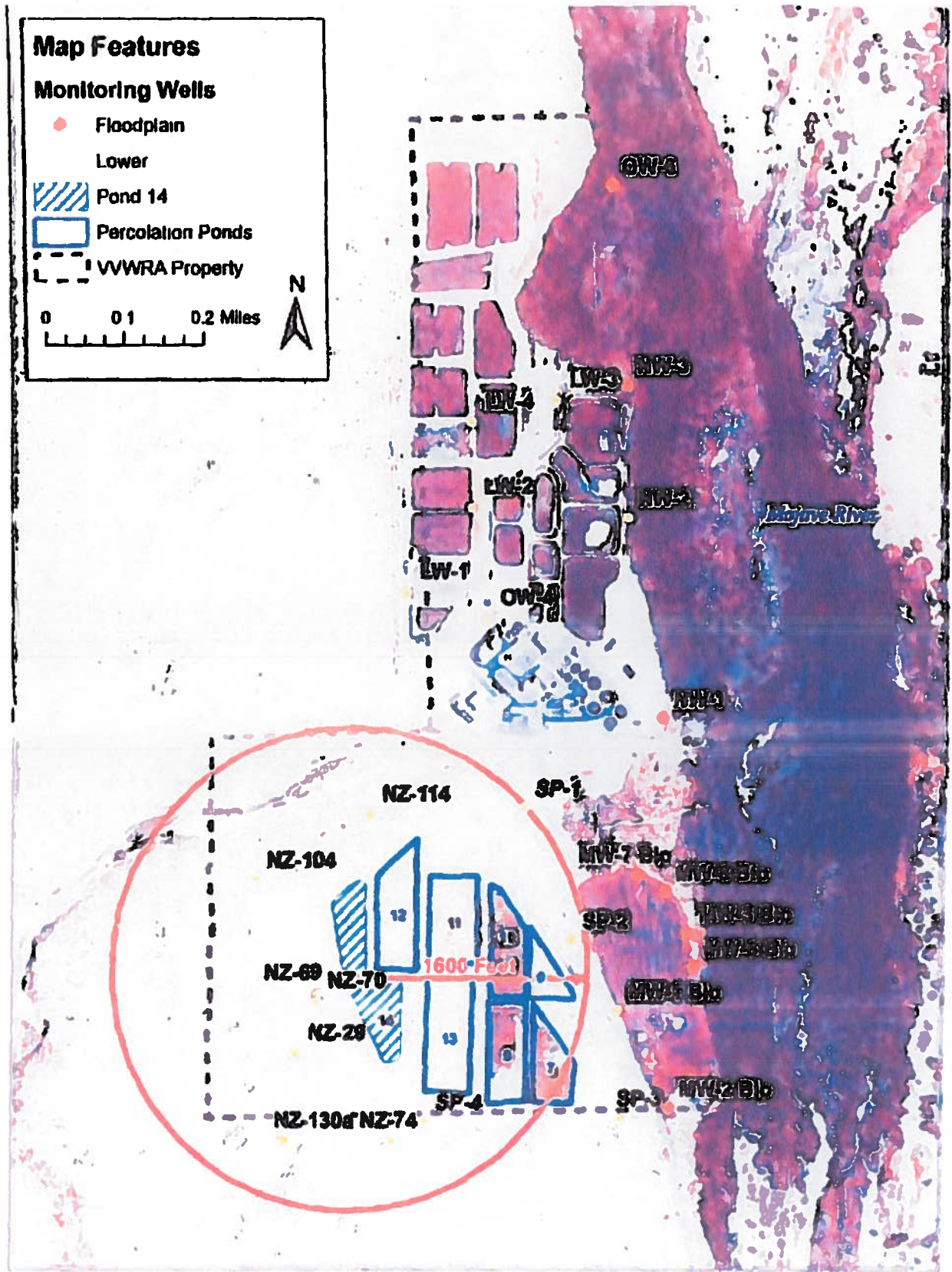


- IRRIGATION SITES
- DUST AREA
- ▨ DELUGE TANKS

Map Features

Monitoring Wells

- Floodplain
 - Lower
 - ▨ Pond 14
 - ▭ Percolation Ponds
 - - - VVWRA Property
- 0 0.1 0.2 Miles
- N



ATTACHMENT B

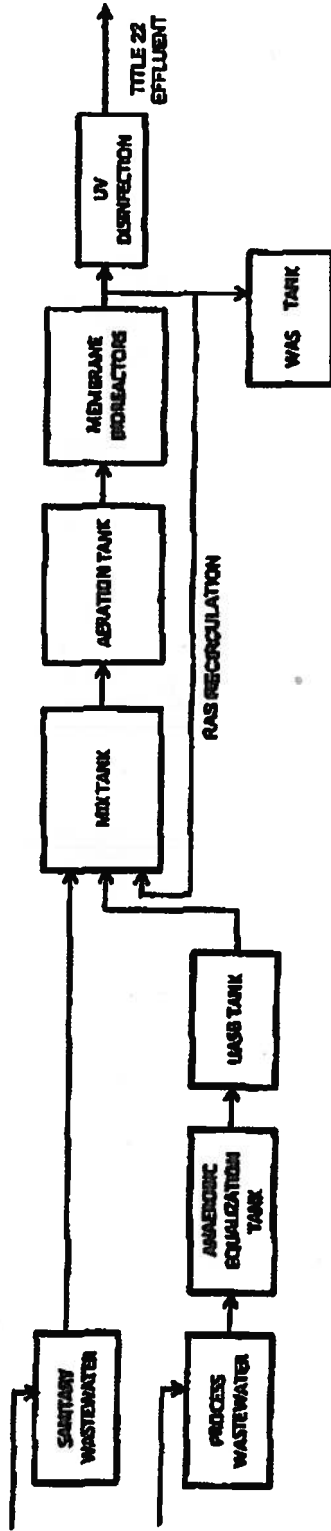
Attachment C. Report of Waste Discharge Documents

Document	Document date or date received	Purpose
Report of Waste Discharge, Form 200, with attachments	January 23, 2013	Request authorization to discharge treated wastewater to the land discharge site, percolation pond No. 14.
Additional Information For Report of Waste Discharge For The City of Victorville Industrial Wastewater Treatment Plant	March 21, 2013	Complementary information to the initial RWD submittal.
City of Victorville – E-Mail response to Report of Waste Discharge	April 17, 2013	Summary of issues discussed per a conference call meeting on April 16, 2013
Additional Information For The City of Victorville Industrial Wastewater Treatment Plant Report of Waste Discharge	May 15, 2013	Support documentation to the Report of Waste Discharge
Review of Additional Information For Report of Waste Discharge For The City of Victorville Industrial Wastewater Treatment Plant	June 18, 2013	Water Board staff response letter addressing inadequacies in the RWD submitted May 15, 2013.
December 6, 2012 Meeting Summary & Annual Fees	December 7, 2012	Summary of key points discussed during a December 6, 2012 meeting pertaining to the completion of the RWD.
CEQA ^a	No further CEQA analysis is needed reliant upon the 2005 Negative Declaration. provided the City effluent is similar to VVWRA effluent.	The City of Victorville previously filed a CEQA Mitigated Negative Declaration and received a Notice of Determination for the treatment facility and the Authority filed a Mitigated Declaration and received a Notice of Determination for the percolation pond.
Notice of Exemption	ROWD does not include a date as to when the State Clearinghouse No 2006081167 determined that the proposed project was exempt from CEQA	The State Clearinghouse No. 2006081167 was the agency supplying the exemption to CEQA
Title 22 Engineering Report – The City of Victorville (system No. 3880021)	June 10, 2013	The CDPH finds the proposal and modification to the Title 22 Engineering Report for recycled water use by HDPP acceptable.
Title 22 Engineering Report – The City of Victorville (system No.	June 10, 2013	A separate Engineering Report is required for each new recycled water use site to provide use area requirements pertaining to the actual

3890021)		location of use of the recycled water and location of potable & recycled water piping within the use area premise in accordance with the City's Recycled Water Ordinance.
Additional analysis to further evaluate the impacts of the proposed MWTP	July 18, 2013	Projections of TDS concentrations within a closer vicinity to percolation pond 14.
E-mails from the Discharger	June 28, 2013, July 1, 2013, July 29, 2013, July 31, 2013	Process flow diagrams, maps, coordination with consultant on TDS data

Note: Items marked (*) are not part of the report of waste discharge, but satisfy the California Environmental Quality Act

**CITY OF VICTORVILLE
INDUSTRIAL WASTEWATER TREATMENT PLANT**



AEREBATIONS
 RAS - Return Activated Sludge
 UV - Ultra Violet
 UASB - Upflow Anaerobic Sludge Blanket
 WAS - Waste Activated Sludge

ATTACHMENT D

ATTACHMENT E				
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH				
City of Victorville Industrial Wastewater Treatment Plant				
DOCUMENT	DATE	USE	CDPH Status	COMMENTS
1. Engineering Report for the production distribution and use of Recycled Water, Victorville Industrial Wastewater Treatment Facility	2/2010	Recycled Water for HDPP & Westwinds Golf Course	Acceptable	April 8, 2010
2. Engineering Report for recycled water use by High Desert Power Project	5/2009	Recycled Water for cooling process at HDPP	Acceptable	June 5, 2013
3. Addendum to the Feb. 2, 2010 Engineering Report for the Production, Distribution and Use of Recycled Water Victorville Industrial Wastewater Treatment Facility	3/2013	Additional recycled water uses produced by the City's WWTP.	Acceptable and on-going	June 5, 2013

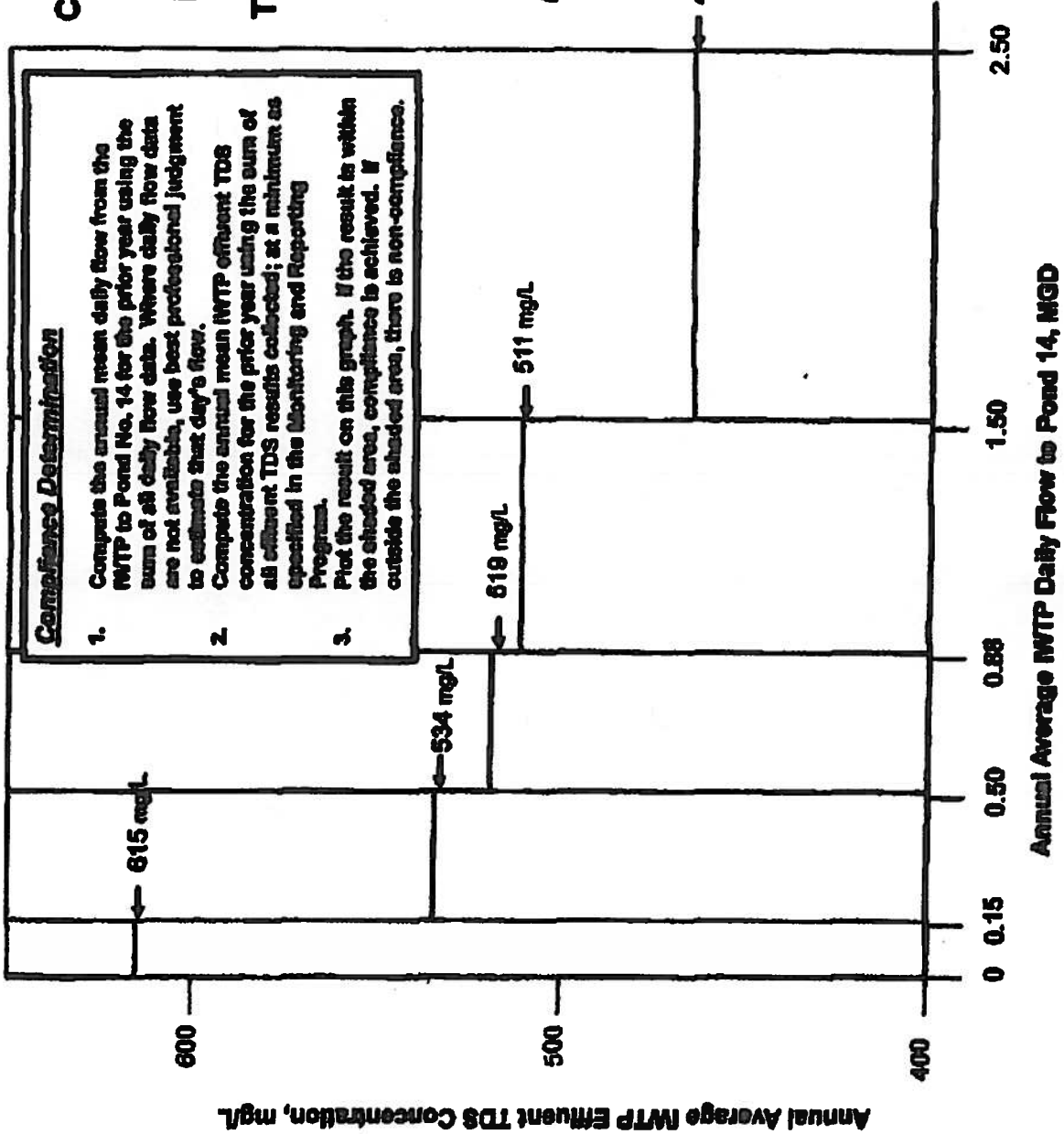
**City of Victorville
IWTP**

Effluent Limits

**TDS Compliance
Assessment
Chart**

Shaded zone are TDS concentrations of compliance

Non-shaded zones are TDS concentrations of non-compliance



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.

6'B ATTACHMENT H



State of California—Health and Human Services Agency
California Department of Public Health



EDMUND G. BROWN JR.
Governor

February 8, 2011

John Morales
Water Resources Control Engineer
Lahontan Regional Water Quality Control Board
14440 Civic Drive, Suite 200
Victorville, CA 92392

Dear Mr. Morales:

SCLA WASTEWATER TREATMENT PLANT – TROJAN 3000+ UV REACTOR CITY OF VICTORVILLE (SYSTEM NO. 3690021)

The Department is in receipt of the report titled *Engineering Report for the Production, Distribution and Use of Recycled Water – Southern California Logistics Airport Wastewater Treatment Plant*, dated February 2, 2010. The Department provided comments in a letter dated April 8, 2010 requesting an on-site check-point bioassay to verify performance of the UV reactor. The results of the bioassay were submitted to the Department in a report titled *SCLA Wastewater Treatment Facility, UV Disinfection System, Field Commissioning Test*, dated December 2010.

Testing Results

To verify performance of the Victorville SCLA plant UV system at several flows and UVTs, an on-site bioassay was conducted. An eight-point checkpoint bioassay was conducted using seeded MS2. Results, documenting virus disinfection performance of the UV system compared to the standards found in Title 22 of the California Code of Regulations, was submitted to CDPH for acceptance. The comments listed below are based on the review of the commissioning test report.

There are issues raised by the Victorville testing. Comparing the Victorville SCLA UV system test results to the Trojan validation testing, the ratio of the measured and predicted data is -80 percent to +14 percent where '-' reflects the maximum percent under prediction of the measured UV dose and '+' reflects the maximum percent over prediction of the measured UV dose in the data set. Seven of the eight "checkpoint" test results were below what is expected. The report explains:

Southern California Drinking Water Field Operations Branch, San Bernardino District
464 West 4th Street, Suite 437, San Bernardino, CA 92401
Telephone: (909)383-4325 / Fax: (909)383-4746
Internet Address: www.cdph.ca.gov

"The fundamental conclusions drawn from the study are (1) the system currently treats too much industrial wastewater to allow for the assumed minimum UV transmittance of 65% at this time, and (2) the system actually applies a lower dose than would be expected from the underlying approved dose equation."

Further Testing and Additional Issues

1. To adequately characterize the ability of the Victorville SCLA UV system to meet the NWRI UV Guidelines, and the microbiological water quality objective of Title 22, Chapter 3, Article 1, Section 60301.230(a)2, more bioassay testing should be conducted. This additional testing is recommended in the Startec report. A new test protocol describing proposed flow, UVT, and power conditions must be submitted for review.
2. After completion of additional testing, the results must be submitted for review.

Operational Issues

3. The Victorville SCLA UV system must be operated to deliver a minimum UV dose of 189 mJ/cm² at all times
4. The equations below must be used as part of the automatic UV disinfection control system for calculating UV dose and should be specified as a permit provision. They are from the CDPH July 23, 2009 acceptance letter, entitled "Revised Conditional Acceptance Of Trojan Uv3000plus™ Disinfection System, Correction Factor For 2005 Bioassay":

$$\text{Dose} = (\text{CF}) \cdot (\text{FF}) \cdot (\text{EOLL}) \cdot 10^{-4.63 - 0.7 \cdot \log \text{Flow} + 2.91 \cdot \log \text{UVT} + 1.09 \cdot \log \text{P}}$$

and

$$\text{CF} = -0.003 \times \text{UVT} + 1.075 \text{ (correction factor to the 2005 bioassay)}$$

Where:

Dose = Delivered UV dose per bank with 48 lamps (mJ/cm²);

FF = 0.95 Fouling Factor based upon a cleaning frequency of once every 24 hours (as documented in the report)

UVT = % UV transmittance at 254 nm (%);

Flow = Flow rate per lamp (gallons per minute (gpm)/lamp), with gpm/lamp calculated as gpm divided by the number of lamps in one bank; this is calculated based upon the total flow through the complete UV disinfection system measured by the magnetic flow meter (total flow through both channels)

EOLL = End of Lamp Life factor = 0.98 at 9000 hours for the Heraeus lamp

P = percent power

5. The UV disinfection system reactor is limited to the following operational parameter ranges:
 - a. UVT at or above 55 %.
 - b. Assuming full power, worst case conditions of 55 % UVT, 189 mJ/cm² dose, EOLL of 0.98, and FF of 0.95, permit flow up to 17.4 gpm per lamp per bank. Therefore, using four banks (one bank is for redundancy requirements) the plant capacity, at 55 % UVT, is 1.60 MGD (1112 gpm).
 - c. At a UVT of 57%, permit flow up to 1.84 MGD (1278 gpm), based upon full power, 189 mJ/cm² dose, EOLL of 0.98, and FF of 0.95.
 - d. At a UVT of 80%, permit flow up to 2.25 MGD (1580 gpm), based upon full power, 189 mJ/cm² dose, EOLL of 0.98, and FF of 0.95.
 - e. The UV lamps are maintained below the maximum value of 9,000 hours of operation.
6. To maintain a Fouling Factor of 0.95, clean/wipe the quartz sleeves once every eight hours.
7. Flow meters and UVT monitors must be properly calibrated to ensure proper disinfection.
8. UVT meter must be inspected and checked against a reference bench-top unit weekly to document accuracy.
9. If the on-line analyzer UVT reading varies from the bench-top spectrophotometer UVT reading by 2% or more, the on-line UVT analyzer must be recalibrated by a procedure recommended by the manufacturer.
10. Flow meters measuring the flow through a UV reactor must be verified to determine accuracy at least monthly via checking the flow reading against other flow determination methods.
11. The facility should be operated in accordance with an approved operations plan, which specifies clearly the operational limits and responses required for critical alarms. The operations plan should be submitted and approved prior to issuance of the operating permit. A copy of the approved operations plan should be maintained at the treatment plant and be readily available to operations personnel and regulatory agencies. A quick reference plant operations data sheet should be posted at the treatment plant and include the following information:

- a. The alarm set points for secondary and tertiary turbidity, high and low flow, UV dose and transmittance, UV lamp operation hours, and power.
 - alarm set points for tertiary turbidity shall be 0.2 NTU.
- b. The values of secondary and tertiary turbidity, high and low flow, UV dose and transmittance, UV lamp operation hours, and power when flow must be diverted to waste.
- c. The required frequency of calibration for all meters measuring turbidity, flow, UV transmittance, and power.
- d. The required frequency of mechanical cleaning/wiping and equipment inspection
- e. The UV lamp age tracking procedures and replacement intervals.

12. The Trojan UV3000Plus™ UV systems must be operated with a built-in automatic reliability feature that must be triggered when the system is below the target UV dose of 189 mJ/cm² at all times. If the measured UV dose goes below the minimum UV dose, the UV reactor in question must alarm and startup the next available UV lamp bank.

13. Conditions that should shut a reactor down and divert flow include: inability to meet the target dose, high flow, low UVT, or reactor failure.

- Automatic diversion for tertiary turbidity shall be > 0.5 NTU.
- Automatic diversion for UV dose shall be < 189 mJ/cm².
- Automatic diversion for UVT shall be < 55%.

14. Equivalent replacements or substitutions of equipment are not acceptable without an adequate demonstration of equivalent disinfection performance.

These applicable recommendations should be incorporated into the final permit for the SCLA Wastewater Treatment Plant. As noted earlier, an additional bioassay test is required to adequately characterize the ability of the Victorville SCLA UV system to meet the NWRI UV Guidelines, and the microbiological water quality objective of Title 22. The UV system should be operated at a target dose of 189 mJ/cm².

John Morales
February 9, 2011
Page 5

We appreciate the opportunity to review and comment on the subject project. If you have any questions regarding this letter, please contact me at (909) 383-4328.

Sincerely,


Sean F. McCarthy, P.E.
Senior Sanitary Engineer
San Bernardino District

cc: Steve Ashton
Victorville Water District
17185 Yuma Street
Victorville, CA 92395

Brian Bernados, CDPH – Technical Programs Branch

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MONITORING AND REPORTING
PROGRAM NO. R6V-2014-0002
WDID NO. 6B360911001

FOR

CITY OF VICTORVILLE WATER DISTRICT INDUSTRIAL WASTEWATER TREATMENT
PLANT AND VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY,
CITY OF VICTORVILLE

_____ San Bernardino County _____

I. GENERAL REQUIREMENTS

A. Effective date

This monitoring and reporting program (MRP) is being required pursuant to Water Code section 13267, is enforceable under Water Code section 13268 and is effective on the date signed by the Water Board's Executive Officer.

B. Overview of Reports Required

The Discharger must submit **twelve (12) Monthly Monitoring Reports** and **two (2) Annual Reports (Annual Compliance Summary and Annual Pretreatment Program)** each year. The Discharger must submit a **one-time Sampling and Analysis Plan**, and update it as needed. The monthly monitoring reports are due on the thirtieth day of the following month. Each monthly report must provide information on: (1) general operations, (2) operational problems, (3) compliance assessment, and (4) data for constituents as specified below. The May and November reports (due by June 30 and December 30, respectively) shall include the April and October groundwater monitoring results specified below. The annual monitoring reports are due March 1 of each year.

C. Certified Cover Letter

The Discharger must use Attachment A as a cover letter, or a cover letter containing the same information, certifying all reports provided to the Water Board associated with this MRP

D. General Provisions

The Discharger must comply with the "General Provisions for Monitoring and Reporting" dated September 1, 1994, which is made part of this Monitoring and Reporting Program as Attachment B.

E. Sampling and Analysis Plan

By **April 1, 2014**, pursuant to General Provision No. 1.d. of the General Provisions for Monitoring and Reporting, the Discharger must submit to the Water Board a **Sampling and Analysis Plan (SAP)**. Also, a copy of the sampling and analysis plan must be maintained at the Facility and available for inspection. The SAP must include a detailed description of procedures and techniques for:

1. Sample collection, sample locations, including purging techniques, sampling equipment, and decontamination of sampling equipment;
2. Ground water well purging methods and sample collection methods (the procedure should be consistent with the Guidance Manual for Ground Water Investigations, revised 2008, by the California Department of Toxic Substances Control, or consistent with USEPA, Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers, May 2008 or subsequent revision);
 - a. Sample preservation and shipment;
 - b. Analytical methods and procedures;
 - c. Chain of custody control;
 - d. Quality assurance/quality control (QA/QC);
 - e. Frequency of calibration of any onsite equipment (pH meter, electrical conductivity meter, flow meter); and
 - f. Description of how onsite measurements are done.

F. Operation and Maintenance

The Discharger must maintain a log of any operational problems and maintenance activities that may affect effluent quality or disposal site operations and submit the information to the Water Board with each quarterly report. Monitoring reports shall include a summary of these activities, including, but not limited to, the following.

1. Any modifications or additions to the wastewater conveyance system, treatment facilities, or disposal facilities;
2. Any major maintenance conducted on the wastewater conveyance system, treatment facilities, or disposal facilities;
3. Any major problems occurring in the wastewater conveyance system, treatment facilities, or disposal facilities; and

4. The calibration of any wastewater flow measuring devices.

II. MONTHLY MONITORING and REPORTING

The Discharger must submit monthly self monitoring reports. The monthly monitoring reports are due the 28th day of the following month. Each report must include the information specified below.

A. Facility Monitoring

1. The total volume of wastewater into the IWTP for each day, in million gallons.
2. The average daily flow rate into the IWTP for the month, in millions of gallons per day (MGD).
3. The maximum daily flow into the IWTP for the month.
4. The total volume of wastewater discharged to pond No. 14 per day, in MGD.
5. All analytical data collected for the month must be placed in tabular data summary tables for influent, effluent, recycled water and groundwater quality.
6. A copy of original laboratory data sheets must be included.
7. A summary of operational problems and maintenance activities affecting effluent discharges or compliance with waste discharge requirements, and proposed corrective measures, if needed, and a schedule for completion.
8. Results of monthly visual inspections at the IWTP and pond No. 14. If there is nothing noteworthy for a given month, then that must be noted.
9. Results of weekly freeboard measurements (distance from the top of the lowest part of the dike to the wastewater surface in a pond) in pond No. 14 to the nearest quarter ($\frac{1}{4}$) of a foot. A permanent monitoring station must be located at the lowest surveyed elevation of the pond No. 14 dike. If pond No. 14 does not contain wastewater, indicate that it is empty.
10. Flow measuring devices must be installed to measure and record influent and effluent and recycled use flows. Flow measurement devices shall be calibrated annually or as needed. Calibration results shall be included in the annual report.
11. The Discharger may collect additional samples than are required, but must provide the data from all samples collected and analyzed. If the data is collected for operational purposes and done by a non-certified laboratory, then that detail must be noted.

B. Influent Monitoring

Representative samples of influent shall be collected and analyzed to determine the magnitude of the following parameters.

Table 1 – Influent Monitoring

Parameter	Units	Sample Type	Frequency
pH ¹	pH units	Grab	1 time/month
Electrical Conductivity ¹	micromhos/cm	Grab	1 time/month

¹Field test accomplished by site personnel with a direct read instrument calibrated per manufacturer's specifications.

C. Effluent Monitoring

1. Representative samples of treated effluent discharged shall be collected and analyzed to determine the magnitude of the following parameters.

Table 2 – Plant Effluent Monitoring

Constituent ¹	Units	Sample Type	Frequency
BOD²	mg/L	24-hour Composite	Quarterly
TSS²	mg/L	24 hour Composite	Quarterly
Ammonia-N	mg/L	Grab	1 time/month
Nitrite-N	mg/L	Grab	1 time/month
Nitrate-N	mg/L	Grab	1 time/month
Total Kjeldahl Nitrogen	mg/L	Grab	1 time/month
Total Nitrogen	mg/L	Calculated value	1 time/2 weeks
pH³	pH units	Grab	1 time/month – field
Total Dissolved Solids (TDS)	mg/L	24-hour Composite	1 time/2 weeks
Fixed Dissolved Solids (FDS)	mg/L	Grab	1 time/month
Dissolved Oxygen	mg/L	Grab	1 time/month-field
Methyl Blue Active Substances	mg/L	Grab	1 time/month
Boron	mg/L	24-hr composite	Apr & Oct
Fluoride	mg/L	Grab	Apr & Oct
Chloride	mg/L	Grab	Apr & Oct
Sodium	mg/L	Grab	Apr & Oct
Sulfate	mg/L	Grab	Apr & Oct
Sulfide	mg/L	Grab	Apr & Oct
Total Phenols	mg/L as C ₆ H ₅ OH	Grab	Apr & Oct

¹ Constituents in bold have effluent limits.

² Monitoring for BOD and TSS shall be effective when 50% of the total domestic effluent flow is reached.

³ Field test accomplished by site personnel with a direct read instrument calibrated per manufacturer's specifications.

2. For parameters in bold in Table 2, which have specified numerical effluent limitations, state whether or not compliance was achieved. Compliance with the TDS effluent limitation will be assessed annually as described below in section IV.B.9.b.
3. Each monthly report shall state the fraction of domestic and industrial waste treated. When the fraction of domestic waste treated reaches 50%, then effluent monitoring for BOD/TSS shall begin as specified.

D. Recycled Water Production Monitoring

1. Representative samples of recycled water quality shall be collected and analyzed after disinfection for the parameters listed below.

Table 3 - Recycled Water Monitoring

Parameter	Station	Units	Sample Type	Analytical Method	Minimum Frequency
Flow to each reuse area	Pump Station	MG/month	Continuous	SCADA ¹	Daily
Turbidity	Final Effluent Station	NTU	Continuous	EPA 180 – field	Daily
Total Coliform	Final Effluent Station	MPN/100ml	Grab	SM 9221	Daily
UV Dose	Final Effluent Station	mJ/cm ²	Continuous	SCADA ¹	Daily

¹SCADA = Supervisory Control and Data Acquisition system used to automatically monitor and adjust plant performance and control

E. Recycled Water Use Area Monitoring

1. Weekly, each reuse area where recycled water is used shall be visually inspected to verify compliance with use area requirements. The results shall be recorded in a log book kept at the IWTP.
2. Monthly, provide a summary of weekly re-use area inspections. State whether irrigation water use was at plant agronomic rates and how irrigation did not exceed seasonal plant demand conforming to the Recycled Water Use Operations and Management Plan. For any reuse area or use area condition not in compliance with the Order, provide a description and implementation schedule for correcting the condition.
3. For any recycled water use not under the ownership or control of the VWD and where the VWD supplies recycled water, the VWD must obtain and report necessary recycled water use information, unless that user has separate water recycling requirements.

4. Quarterly, provide:
 - a. the total amount of recycled water supplied,
 - b. the total number of recycled water reuse sites, and
 - c. the locations of those sites.

III. GROUNDWATER MONITORING

Groundwater monitoring shall be conducted in April and October of each year to establish: (1) elevation contours and the direction of groundwater flow and (2) compliance with receiving water limitations.

A. Groundwater Elevations

1. A map shall be submitted showing groundwater contour isopleths and the direction of groundwater flow shall be submitted in the monthly reports due **June 30** and **December 30**. The map shall adequately portray and delineate the groundwater mound resulting from combined City and VVWRA percolation ponds.
2. A table shall be included describing for each monitoring well: (1) depth to groundwater below the ground surface, (2) top-of-casing elevation, (3) ground surface elevation above mean sea level, (4) groundwater elevation above mean sea level, and (5) elevations of well screen top and bottom.
3. Groundwater elevations shall be collected concurrently with sampling events in April and October of each year.
4. The area represented in the maps shall include the treatment plant and any area affected by effluent discharges from the treatment plant.
5. All available groundwater elevation data, as collected by the City and others, shall be used to produce the Spring and Fall maps of contours of equal groundwater elevations.
6. Separate adjacent monitoring well networks are maintained by the US Air Force (to evaluate solvent clean up at former George Air Force Base), the American Organics facility (to evaluate effects of the composting facility to groundwater) and VVWRA (to evaluate effects of discharges into percolation ponds). The Discharger, Air Force, American Organics, and VVWRA have agreed to coordinate data collection and share selected groundwater data. The City of Victorville shall make every available effort to utilize groundwater elevation data collected by other parties. Monitoring reports shall list references for data collected by others. The purpose of this requirement is to obtain the most accurate groundwater elevation contour map illustrating groundwater flow directions by using available groundwater elevation data to develop maps of Spring and Fall contours of equal groundwater elevation that are representative of the upper part of the aquifer system.

7. The map shall specify well numbers of all relevant wells in the vicinity of pond No. 14, including wells owned by other parties (e.g., VVWRA, Air Force, and American Organics).
8. The design of the sample collection procedures and data analysis methods shall conform to methods outlined in Section 20415 and Section 20420(b),(c),(f),(h), and (i) of California Code of Regulations, Title 27, or an equivalent.

B. Groundwater Quality

1. After appropriate groundwater well purging, representative samples shall be collected from the following wells (the City may coordinate with the Air Force and VVWRA on the receipt of data from their monitoring wells):

Table 4 – Groundwater Monitoring Wells

Well	General Location	Owner
SP-4	Southwest of the South Ponds	VVWRA
NZ-29	West of Pond 14	Air Force
NZ-70	West of Pond 14	Air Force
NZ-74	West of Pond 14	Air Force
NZ-104	West of Pond 14	Air Force
NZ-114	West of Pond 14	Air Force
NZ-130a	West of Pond 14	Air Force

2. Groundwater samples shall be analyzed for the following parameters.

Table 5 – Groundwater Analytes and Sampling Frequency

Parameter	Units	Frequency
Nitrate-N	mg/L	Apr & Oct
Total Dissolved Solids	mg/L	Apr & Oct

3. Every second year, beginning with the April 2014 sampling event (e.g., April 2016, April 2018, April 2020), additional analysis shall be made for the following.

Table 6 – Additional Parameters

Parameter Class	Units
General Minerals:	mg/L
MBAS	
Zinc	
Alkalinity	
Calcium	
Manganese	
Potassium	
Sodium	
Chloride	
Fluoride	
Sulfate	
Copper	
Iron	

Magnesium	
Volatile Organic Constituents per method EPA 8260B	µg/L

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

Table 7 – Field Parameters

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

5. Reports shall include the following.
- a. Tables and graphs of final results.
 - b. Include a concentration isopleth contour map for total dissolved solids.
 - c. Include a statement of compliance with respect to groundwater receiving water limitations specified in the Order.
 - d. Prior to discharge into pond No. 14, the Discharger shall establish baseline conditions in all monitoring wells for all constituents. This baseline shall be used for future trend analysis in assessing the receiving groundwater quality from pond No. 14 discharges.
6. Other Groundwater Issues
- a. For any new groundwater well installed, the Discharger must prepare a Water Well Driller's Report and file it with the California Department of Water Resources (DWR) in accordance with the provisions of sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the Water Code.
 - b. All groundwater monitoring reports shall be signed by a California registered civil engineer, geologist or hydrogeologist.
 - c. Monitoring well designs must conform to California Well Standards defined in Department of Water Resources Bulletins 74-81 and 74-90.

IV. ANNUAL REPORTING

A. Pretreatment Monitoring

By **March 1 of each year**, beginning **March 1, 2015**, and unless the Discharger implements the pretreatment program through a interjurisdictional agreement that grants the authority to implement the pretreatment program in the Discharger's service area, the Discharger must submit an Annual Pretreatment Report describing the Discharger's pretreatment activities over the previous calendar year. In the event that the Discharger is not in compliance with any requirement, then the Discharger must also include the reason for noncompliance and state how and when the Discharger will comply with requirement. The report must include, but is not limited to, the following information:

1. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the IWTP influent and effluent for those pollutants US EPA has identified under Section 307(a) of the Clean Water Act, which are known or suspected to be discharged by industrial clean water users. The Discharger is not required to sample and analyze for asbestos. Biosolids must be analyzed pursuant to the current federal requirements (40 CFR part 503). Biosolids results must be expressed in mg/kg dry sludge, 100% dry weight basis.
2. Wastewater sampling and analysis must be performed at the intervals specified in the Discharger's Pretreatment Program Plan, yet to be submitted. The Discharger must also provide any influent, effluent, or biosolids monitoring data for non-priority pollutants that the Discharger believes may be causing or contributing to interference, pass through, or adversely impacting biosolids quality. Sampling and analysis must be performed in accordance with the techniques prescribed in 40 CFR part 136 and amendments thereto.
3. A discussion of Upset, Interference, or Pass Through incidents, if any, at the IWTP that the Discharger knows or suspects were caused by industrial users of the IWTP system. The discussion must include the reason(s) why the incident(s) occurred, the corrective action(s) taken, and, if known, the name and address of the industrial user(s) responsible. The discussion must also include a review of the applicable local or federal discharge limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass Through, Interference, or noncompliance with sludge disposal requirements.
4. An updated list of the Discharger's significant industrial users (SIU), including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger must provide a brief explanation for each deletion. The SIU list must identify the SIUs subject to Federal Categorical Standards by specifying which set(s) of standards are applicable to each SIU. The list must also indicate which SIUs are subject to local limitations.

5. The Discharger must characterize the compliance status of each significant industrial user by providing information, which includes:
 - a. SIU name;
 - b. Industrial category;
 - c. Number of samples taken by the IWTP during the year;
 - d. Number of samples taken by the SIU during the year;
 - e. A description that states the procedures used to ensure that all needed certificates were provided for Facilities which have a toxic organic management plan;
 - f. Standards violated during the year (Federal and local, reported separately);
 - g. Whether the facility was in Significant Non-Compliance (SNC), as defined by 40 CFR part 403.8 (f)(2)(viii), at any time in the year; and
 - h. A summary of enforcement or other actions taken during the year to return the SIU to compliance, including the type of action, and amount of fines assessed/collected (if any). Briefly describe any proposed actions, for bringing the SIU into compliance.
6. A short description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority or enforcement policy; funding mechanisms; resource requirements; or staffing levels.
7. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.
8. A summary of public participation activities that involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR part 403.8 (f)(2)(vii).
9. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.
10. A description of any changes in biosolids disposal methods and a discussion of any concerns not described elsewhere in the report and a brief description of any program the POTW implements to reduce pollutants from nondomestic users that are not classified as SIUs.

B. Annual Compliance Summary Report

By **March 1 of each year**, an Annual Compliance Summary Report must be submitted to the Water Board providing the following:

1. A summary and evaluation of the information obtained for the prior year.
2. Graphical and tabular presentation of all influent, effluent, recycled water monitoring data and groundwater monitoring data obtained from the previous year. These must be reported and compared with similar data from previous years.
3. Groundwater reports must include multi-year graphs and trend analyses for total dissolved solids.
4. An assessment of groundwater degradation caused by effluent discharged to pond No. 14.
5. An assessment of the effect and influence of offsite contaminant sources (e.g., constituents similar to those of interest in the City's effluent) from former George AFB, VVWRA or the American Organics facility on groundwater beneath the Discharger's pond site.
6. A summary of the compliance record and corrective actions needed, taken, or planned to bring the discharge into full compliance with the Waste Discharge Requirements.
7. A statement certifying when monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
8. Provide the dates and the amount of waste sludge transported offsite for further treatment and disposal.
9. Total Dissolved Solids Compliance Evaluation

a. Effluent

Provide an annual assessment of whether TDS effluent limitations were met in the prior calendar year. If effluent limits were violated, report that condition, propose actions to correct the condition in the current year, and identify an implementation schedule. Compliance shall be determined as follows.

- i. Compute the annual mean daily flow from the IWTP to pond No. 14 for the prior year using the sum of all daily flow data.
- ii. Compute the annual mean IWTP effluent TDS concentration for the prior year using the sum of all effluent TDS results collected; at a minimum as specified in the Monitoring and Reporting Program.

- iii. Plot and provide the result on a graph similar to the graph included in Attachment F of the Waste Discharge Requirements. If the result is within the shaded area, compliance is achieved; if outside the shaded area, there is non-compliance.

b. Groundwater

- i. Provide a trend analysis showing TDS concentrations for all wells sampled.
- ii. Include a statement indicating whether groundwater TDS concentrations at a distance of 1,600 feet from the pond No. 14 centroid have exceeded 500 mg/L.
- iii. By **March 1, 2015**, the Discharger shall submit a work plan and schedule proposing to construct a groundwater monitoring well network consisting of both existing and proposed new monitoring well(s) to evaluate groundwater quality within the mixing zone; out to its periphery (1600 feet from the centroid of pond No. 14). The monitoring well network shall be adequately sited and constructed to evaluate shallow groundwater quality resulting from the pond No. 14 discharge. The work plan shall be signed by a California Registered Geologist or Civil Engineer.
- iv. By **March 1, 2016**, provide certification signed by a California registered Geologist or Civil Engineer that construction of the new monitoring well is completed. Include a figure showing well construction details including X,Y,Z coordinates, well type and diameter and well screen interval.

Ordered by: Patty Z. Kouyoumdjian Dated: January 9, 2014
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Attachment: A. Monitoring Report Cover Letter Certification Form
B. General Provisions for Monitoring and Reporting

ATTACHMENT A

Date _____

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

Facility Name:

Address:

Contact Person:

Job Title:

Phone:

Email:

WDR/NPDES Order Number:

WDID Number:

Type of Report (circle one):

Monthly Quarterly Semi-Annual Annual Other

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

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

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

Year:

Violation(s)? (Please check one): _____ **NO** _____ **YES***

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

a) Brief Description of Violation:

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

c) Reported Value(s) or Volume: _____

d) WDRs/NPDES
Limit/Condition: _____

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

f) Explanation of Cause(s): _____

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

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

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

Sincerely,

Signature: _____

Name: _____

Title: _____

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

**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.