

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

**BOARD ORDER NO. R6V-2019-0252  
WDID NO. 6B360101001**

**REVISED WASTE DISCHARGE REQUIREMENTS  
AND WATER RECLAMATION REQUIREMENTS  
FOR**

**CITY OF BARSTOW  
BARSTOW WASTEWATER TREATMENT PLANT**

\_\_\_\_\_San Bernardino County\_\_\_\_\_

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

1. Discharger

The City of Barstow provides domestic and industrial wastewater collection, treatment, and disposal services and owns and operates the Barstow Wastewater Treatment Plant. For the purpose of this Board Order, the City of Barstow is the Discharger.

2. Facility

For the purpose of this Board Order, the Barstow Wastewater Treatment Plant is the Facility. The Facility collects domestic wastewater and industrial wastewater from the City of Barstow. The Facility treats wastewater through preliminary, primary, and secondary treatment processes and discharges undisinfected secondary treated, denitrified effluent to eight onsite percolation ponds and irrigated crop land adjacent to the south side of the Mojave River.

3. Facility Location

- a. General Location - The Facility is located east of the City of Barstow in San Bernardino County, south of the Mojave River, east of Interstate 15 (I-15), and north of Interstate 40 (I-40), as shown on Attachment A.
- b. Legal Location Description - The Facility and discharge sites are located within Sections 4, 9, and 10, Township 9 North (T9N), Range 1 West (R1W), San Bernardino Baseline and Meridian (SBB&M).
- c. Physical Address - The Facility address is 2200 Riverside Drive, Barstow, CA 92311.

4. Land and Facility Ownership

The Discharger owns the Facility and the associated properties, which are identified by the following assessor's parcel numbers in San Bernardino County.

Facility Assessor's Parcel Numbers			
0424-081-16-0000	0424-081-17-0000	0424-081-75-0000	0424-081-76-0000
0424-081-82-0000	0424-152-02-0000	0424-152-03-0000	0424-161-02-0000
0424-161-41-0000	0424-191-01-0000	0424-191-02-0000	0424-191-03-0000
0424-191-04-0000	0424-191-05-0000		

5. Reason for Action

The Discharger completed Facility upgrades to produce treated secondary, denitrified, domestic effluent. The Water Board is issuing revised waste discharge requirements (WDRs), water reclamation requirements (WRRs), and Monitoring Reporting Program (MRP) to:

- a. Reflect Facility upgrades that have occurred since the previous WDRs were last adopted. The upgrades produce improved effluent quality.
- b. Establish secondary wastewater treatment effluent limitations for a 4.5 million gallon per day (MGD) treatment plant.
- c. Include a total nitrogen effluent limitation to protect receiving groundwater beneficial uses as a municipal drinking water supply source.
- d. Include and combine groundwater sampling requirements for: a) discharge compliance with receiving water quality objectives, and b) nitrate plume tracking.
- e. Update the Facility's MRP to take into account additional groundwater monitoring wells constructed by the Discharger, the revised requirements in this Board Order, and changes in naming conventions for monitoring wells.
- f. Establish recycled water requirements for continued crop irrigation to the South Irrigation Field.
- g. Remove requirements for discharging to the North Irrigation Field that is no longer used and no longer owned by the Discharger.
- h. Require reports, data, and correspondence to be uploaded to the State Water Resources Control Board's (State Water Board's) GeoTracker database.
- i. Include language consistent with current state law, requirements, and policies.

6. Board Order History

- a. The Water Board adopted Resolution No. 6-66-18 on October 27, 1966, establishing WDRs for the Facility discharge.
- b. The Water Board adopted Resolution No. 6-70-16 on June 23, 1970, establishing WDRs for the Facility discharge.
- c. The Water Board adopted Board Order No. 6-82-80 on July 8, 1982, establishing WRRs for crop irrigation with recycled water.pro
- d. The Water Board adopted Board Order No. 6-85-60 on June 13, 1985, establishing revised WDRs/WRRs for Facility discharges.
- e. The Water Board adopted Board Order No. 6-94-26 on February 10, 1994, establishing revised WDRs/WRRs for Facility discharges. This Board Order rescinds Board Order No. 6-94-26.
- f. Subsequently, the Water Board adopted Cease and Desist Order (CDO) No. R6V-2004-0029 on July 27, 2004, requiring that effluent discharged to percolation ponds and irrigation fields must not exceed 26 milligrams per liter (mg/L) as total nitrogen and that Facility performance must be improved by July 30, 2009, to comply with WDRs/WRRs. The requirements of CDO No. R6V-2004-0029 are satisfied, and CDO No. R6V-2004-0029 will be separately considered for rescission.
- g. Cleanup and Abatement Order (CAO) No. R6V-2007-0017, adopted on May 25, 2007, required the Discharger to provide uninterrupted replacement water to private residences in the Soapmine Road area under certain conditions and to monitor all private wells four times per year (quarterly) until nitrate as nitrogen concentrations are less than 5 mg/L for a minimum of four consecutive quarters. The requirements of CAO No. R6V-2007-0017 are unaffected by this Board Order.
- h. CAO No. R6V-2013-0045, adopted on July 2, 2013, required the Discharger to achieve hydraulic control of nitrate-polluted groundwater and cleanup nitrate groundwater pollution caused by Facility discharges. The requirements of CAO No. R6V-2013-0045, and subsequent amendments, are unaffected by this Board Order.
- i. The sanitary sewer collection system is separately regulated under the State Water Board Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Order No. 2006-0003-DWQ, waste discharge identification (WDID) No. 6SSO11126. The requirements of that Board Order are unaffected by this Board Order.

- j. Stormwater discharges are separately regulated under the State Water Board’s General Permit for Storm Water Discharges Associated with Industrial Activities (IGP), Order No. 2014-0057-DWQ, WDID No. 636I026741. The requirements of IGP are unaffected by this Board Order.

7. Revised Report of Waste Discharge

The Discharger submitted a complete revised Report of Waste Discharge (ROWD) for updated WDRs/WRRs under California Water Code (CWC), section 13260, on January 14, 2019. The documents constituting the ROWD are listed in the following table.

Report of Waste Discharge Components		
Date	Item	Author
November 29, 2018	<ul style="list-style-type: none"> <li>• Form 200</li> <li>• Effluent data and graphs</li> <li>• Groundwater data and graphs</li> <li>• Preliminary Design Report</li> <li>• Revised Farm Management Plan</li> </ul>	City of Barstow
January 14, 2019	<ul style="list-style-type: none"> <li>• Responses to Water Board letter dated December 20, 2018 and email dated January 3, 2019</li> <li>• Biosolids disposal information</li> </ul>	City of Barstow

8. Facility Description

The Facility receives wastewater from residential, commercial, and industrial developments including pretreated industrial wastewater from the Burlington Northern and Santa Fe (BNSF) Railway Company classification yard. The Facility has produced treated secondary nitrified effluent since 1971. Since 2009, the Facility has been upgraded to produce treated secondary denitrified effluent. The Facility’s process flow diagram is shown on Attachment B.

- a. Collection System and Head Works – The plant has a design flow rate of 4.5 MGD and a current average daily flow of 2.1 MGD. The treatment plant headworks is equipped with fine screens and a grit chamber.
- b. Septage Receiving – The Facility does not currently accept septage waste.
- c. Primary Treatment – Prior to biological treatment, raw wastewater enters through two parallel settling tanks, called primary clarifiers.
- d. Secondary Treatment – After primary clarifiers, wastewater is treated in two parallel biological aeration basins with anoxic zones, and four secondary clarifiers.

- e. Solids Handling – Sludge and scum from the primary clarifiers are pumped to a gravity thickener. Sludge from the secondary clarifiers is pumped to an aerobic digester for stabilization. Scum from the secondary clarifiers is pumped to drying beds. Waste biosolids are dewatered in two screw presses and 10 small lined and 6 large lined drying beds. All the drying beds have sludge liquid collection drains that go to the inlet of the secondary aeration basins. The screw press filtrate is returned to the inlet of the secondary aeration basins. Headworks screenings and grit are classified and disposed to a local landfill. Dried sludge solids are hauled to offsite authorized disposal location, currently a composting facility located at 14479 Cougar Road, Helendale.
- f. Percolation Ponds – Secondary treated wastewater is discharged into eight percolation ponds on the south side of the Mojave River. The total percolation pond surface area is approximately 44 acres.
- g. Recycled Water – Secondary, denitrified effluent is applied to a 65-acre field (South Irrigation Field) as recycled water to irrigate crops, predominately alfalfa. Two fields (North and South Irrigation Fields), previously were used by the Discharger to dispose of biosolids and secondary treated nitrified effluent from the Facility. CDO No. R6V-2004-0029 required the Discharger to cease biosolids application at both irrigation fields. The Discharger also elected to only use recycled water at the South Irrigation Field and, since 2004, stopped applying effluent to the North Irrigation Field. A Farm Management Plan, dated October 31, 2018, estimated an average monthly water crop need of 21 million gallons (MG).

Based on data from September 2017 to October 2018, the average monthly effluent water balance for the Facility is shown in the following table.

Annual Effluent Discharge Water Balance for 2017 – 2018		
Location	Amount (million gallons)	Percent
Percolation pond	44.70	70.1%
Irrigation field	19.09	29.9%
Total wastewater volume	63.79	100%

- h. Effluent Quality – The average effluent nitrate as nitrogen and total dissolved solids (TDS) concentrations for 2015 to 2018 are presented in the following table.

Effluent Quality 2015 – 2018			
Period	Total Nitrogen (mg/L)	Nitrate as Nitrogen (mg/L)	TDS (mg/L)
2015 <sup>a</sup>	6.6	3.6	670
2016	8.0	5.5	639
2017	6.8	4.7	614
2018 <sup>b</sup>	7.5	5.7	638

Effluent Quality 2015 – 2018			
Period	Total Nitrogen (mg/L)	Nitrate as Nitrogen (mg/L)	TDS (mg/L)
Range <sup>c</sup>	7.2 ± 0.62	4.9 ± 0.95	640 ± 23
Limitations <sup>d</sup>	Not Specified	Not Specified	755 (Mean) 870 (Maximum)

<sup>a</sup> From April to December 2015.

<sup>b</sup> From January to October 2018.

<sup>c</sup> Based on one standard deviation (mean ± standard deviation).

<sup>d</sup> Board Order No. 6-94-26.

According to CDO No. R6V-2004-0029, during the period from January to August 2003, the Facility produced effluent containing an average total nitrogen concentration of 30 mg/L. The CDO required the Discharger to immediately meet the effluent total nitrogen interim limit of 26 mg/L. The Discharger improved the operational conditions, such as adjusting the aeration rate, which decreased the average effluent total nitrogen concentration to 26 mg/L.

The Facility upgrades to discharge treated secondary denitrified effluent were completed in 2009. Subsequently, the Discharger independently conducted additional Facility improvements.

Further Facility upgrades to improve nitrification and denitrification processes began in December 2013 and were completed in July 2015. The average effluent nitrate as nitrogen concentration from April 2015 to October 2018 was 4.9 mg/L. The Facility upgrades included the replacement of pipelines, the replacement of electrical gear, the installation of standby generator, modification of the anoxic zone, stormwater protection for solids, and the installation of dewatering equipment. The Discharger will continuously conduct Facility improvements including rehabilitation of all unit treatment processes at the Facility.

The Facility is not designed to treat TDS. Drinking water provided for domestic use contains TDS concentrations ranging from 450 to 480 mg/L and is further discussed in Finding 24. The average effluent TDS concentration from April 2015 to October 2018 was 640 mg/L, an approximate 150 to 200 mg/L increase over municipal drinking water TDS concentrations and typical for normal domestic usage. There were no TDS concentration exceedances above the 870 mg/L maximum effluent limitation reported since 2015.

9. Authorized Disposal/Recycling Sites

This Board Order authorizes the discharge of secondary treated, denitrified, undisinfected effluent to the eight onsite percolation ponds and South Irrigation Field. Discharge to unauthorized locations are prohibited by this Board Order.

10. Recycled Water Exceptions

As stated in the California Code of Regulations (CCR), title 22, section 60303, recycled water requirements do not apply to recycled water used onsite at a water recycling plant, or wastewater treatment plant, provided access by the public to the area of onsite recycled water use is restricted.

11. Recycled Water Use

The Discharger uses treated wastewater to grow crops, primarily alfalfa, on the existing 65-acre South Irrigation Field that are harvested and transported offsite as animal fodder for animals not producing milk for human consumption.

The Discharger provided water irrigation and nitrogen balance calculations for agricultural use at the South Irrigation Field showing that effluent can be applied to crops, primarily alfalfa, at agronomic rates. This Board Order does not authorize the application of commercial or organic fertilizer onto the South Irrigation Field.

The State Water Board's Recycled Water Policy requires that all Board Orders specifying recycled water treatment or recycled water use be updated to comply with the Policy. This Board Order complies with the Recycled Water Policy.

12. Industrial Pretreatment Program

An industrial pretreatment program is not required by this Board Order; however, the MRP requires annual reporting of the Discharger's voluntary implementation of an industrial pretreatment program.

The Discharger has developed an industrial pretreatment program to control the quality of influent flow into the Facility to prevent Facility upsets. The Discharger established its own pretreatment program consistent with the Code of Federal Regulations, title 40, part 403.8 (40 CFR part 403.8 [Pretreatment Program Requirements]). The Discharger issues industrial wastewater discharge permits to a number of local industries.

13. Land Uses

The Facility is located approximately two miles east of the intersection of I-15 and I-40 in the community of Barstow. Commercial and residential areas are located to the south, west, and north of the Facility along the Mojave River. The United States Marine Corps Logistics Base Barstow, Nebo Center (U.S. Marine Corps) is located to the east of the Facility. To the southwest of the Facility is a Barstow shopping mall. To the south of the Facility is the BNSF Railway main line. The Discharger's General Plan zones the Facility as "Public Facility."

14. Median Household Income

CWC, section 79505.5, considers a “Disadvantaged community as a community with an annual median household income (MHI) that is less than 80 percent of the statewide annual median household income.” The State Water Board considers a Severely Disadvantaged Community as having an MHI that is less than 60 percent of the statewide annual MHI.

The 2013 - 2017 California MHI is \$67,169, and the City of Barstow’s MHI is \$36,606. Thus, the City of Barstow is a Severely Disadvantaged Community.

15. Site Topography

The natural ground-surface at the Facility vicinity is flat and slopes in a northerly direction toward the Mojave River, which flows easterly.

16. Climatology

The Facility is under high desert climate between 2,000 and 4,000 feet in elevation above mean sea level and characterized by infrequent rainfall, cold winters, hot summers, and low relative humidity. According to the City of Barstow’s official website, the thirty-year average temperature is 62.3 degrees Fahrenheit (°F) and temperatures range from a high of 110°F in the summer to a low of 25°F in the winter. Humidity levels in the summer are less than 40 percent. Average annual rainfall is approximately 4 inches.

17. Site Soils and Geology

The Facility and authorized discharge sites are located near the normally dry Mojave River channel and approximately 1 mile southwest of the Harper fault zone, also known as the Waterman fault.

The authorized discharge sites are underlain by river deposits consisting of boulders, gravel, sand, interbedded silt and clay, and gravelly clay. These deposits are generally unconsolidated and highly permeable.

18. Site Hydrogeology and Groundwater Quality

The Facility overlies the Lower Mojave River Valley Groundwater Basin. The depth to groundwater in the vicinity of the Facility ranged between 7.2 and 55 feet below ground surface during the period between 2011 and 2018 (data obtained from the California Department of Water Resources).

The Discharger has been monitoring groundwater quality beneath the Facility since 1985. Elevated concentrations of TDS and nitrate have been detected in several groundwater monitoring wells. According to groundwater data collected between



2014 and 2018, nitrate concentrations in the groundwater have ranged from non-detect to 97 mg/L; TDS concentrations in the groundwater have ranged from 150 to 2,200 mg/L. The primary maximum contaminant level (MCL) for nitrate is 10 mg/L. The secondary MCL recommended limit for TDS is 500 mg/L.

19. Site Hydrology

The Facility is within the Lower Mojave River Hydrologic Area of the Mojave Hydrologic Unit. All water infiltrates into the ground, evaporates, or flows overland toward the Mojave River.

20. Lahontan Basin Plan

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

21. Receiving Waters

The receiving waters are groundwater within the Lower Mojave River Valley groundwater basin (California Department of Water Resources Groundwater Basin No. 6-40).

22. Beneficial Uses

The beneficial uses for the Lower Mojave River Valley groundwater basin listed in the Basin Plan are the following:

- a. Municipal and domestic supply (MUN);
- b. Agricultural supply (AGR);
- c. Industrial supply (IND);
- d. Freshwater replenishment (FRSH); and
- e. Aquaculture (AQUA).

23. Water Quality Objectives

Water quality objectives for the Lower Mojave River Valley groundwater basin and Mojave River Valley Basin include:

- a. Narrative Water Quality Objectives
  - i. Bacteria, coliform;

- ii. Chemical constituents;
- iii. Radioactivity; and
- iv. Taste and Odor.

b. Site-Specific Numerical Water Quality Objectives

The following site-specific water quality objectives are established in the Basin Plan, Table 3-20, for the Lower Mojave River Valley under the Mojave River Valley Groundwater Basin.

Station	Station Description	Water Quality Objective (Maximum)		
		TDS (mg/L)	Nitrate as Nitrate (mg/L)	Equivalent Nitrate as Nitrogen (mg/L)
4	Mojave River (upstream side of Waterman Fault)	560	11	2.48

24. Drinking Water Supply Water Quality

Drinking water supplied to the City of Barstow is distributed by the Golden State Water Company and produced from groundwater production wells in the Mojave River Basin, upgradient of the Facility. The drinking water supply quality affects the Facility’s effluent discharge quality, as this is the water used by residents for domestic purposes.

Water delivered to consumers between 2015 and 2017 complied with all primary and secondary state and federal drinking water standards. The table below summarizes drinking water test results for nitrate as nitrogen and TDS from the Golden State Water Company’s Consumer Confidence Reports and is compared to MCLs.

Barstow Supply Water Annual Average Nitrate and TDS Concentrations		
Period	Nitrate as Nitrogen (mg/L)	TDS (mg/L)
2015	3.2	480
2016	3.5	480
2017	2.9	450
Average 2015-2017	3.2	470
MCLs	10	500; 1,000; 1,500 <sup>1</sup>

<sup>1</sup> Recommended Limit (500 mg/L); Upper Limit (1,000 mg/L); Short-term Limit (1,500 mg/L).

25. Receiving Groundwater Quality

The range of nitrate and TDS concentrations measured in groundwater samples collected by the Discharger from April 2015 through October 2018 are tabulated in

the following table and compared to the receiving water quality objectives for groundwater set forth in the Basin Plan at the Facility. Items in bold font indicate values exceeding the groundwater quality objectives.

<b>Barstow Wastewater Plant Receiving Groundwater Quality Range in Shallow Zone</b>		
<b>Area</b>	<b>Nitrate as Nitrogen (mg/L)</b>	<b>TDS (mg/L)</b>
<b>North of Mojave River</b>		
<b>North Irrigation Field Upgradient Wells</b>		
MW-01s	0.77 – 11	150 – 350
MW-05s	<b>7.4 – 7.8</b>	<b>860 – 990</b>
MW-25s	<b>3.8 – 5.1</b>	No data available
<b>North Irrigation Field Surrounding Wells</b>		
MW-04s	<b>4.2 – 4.6</b>	290 – 410
MW-08s	<b>4.1 – 5.2</b>	No data available
MW-09s	<b>12 – 25</b>	No data available
MW-33s	<b>4.7 – 6.4</b>	No data available
<b>North Irrigation Field Downgradient Wells</b>		
MW-02s	<b>6.0 – 6.6</b>	260 – 380
MW-21s	1.5 – 2.1	No data available
MW-22s	<b>5.2 – 12</b>	No data available
MW-23s	<b>11 – 15</b>	No data available
MW-26s	<b>6.2 – 7.9</b>	No data available
MW-27s	<b>10 – 15</b>	No data available
MW-28s	<b>10 – 12</b>	No data available
MW-29s	<b>18 – 21</b>	No data available
MW-36s	<b>10 – 15</b>	No data available
MW-37s	<b>3.0 – 4.0</b>	No data available
MW-38s	<b>7.0 – 9.7</b>	No data available
MW-40s	<b>18 – 22</b>	No data available
<b>South of Mojave River</b>		
<b>South Irrigation Field Upgradient Wells</b>		
MW-03s	1.0 – 12	<b>1,200 – 2,200</b>
MW-10s	<b>11</b>	No data available
MW-11s	<b>6.1 – 9.5</b>	No data available
MW-16s	<b>43 – 53</b>	No data available
MW-17s	<b>8.6 – 11</b>	No data available
MW-18s	0.21 – 3.4	No data available
MW-19s	0.36 – 5.4	No data available
MW-24s	<b>14 – 15</b>	No data available
MW-32s	<b>3.0 – 3.8</b>	No data available
MW-34s	<b>14 – 97</b>	No data available
<b>South Irrigation Field Surrounding Wells</b>		
MW-06s	<b>8.0 – 15</b>	<b>1,200 – 1,700</b>
MW-30s	2.1 – 21	<b>1,100<sup>1</sup></b>
MW-35s	<b>21 – 39</b>	No data available
<b>Percolation Ponds Wells</b>		
MW-07s	0.3 – 2.3	<b>620 – 740</b>

<b>Barstow Wastewater Plant Receiving Groundwater Quality Range in Shallow Zone</b>		
<b>Area</b>	<b>Nitrate as Nitrogen (mg/L)</b>	<b>TDS (mg/L)</b>
MW-12s	<b>3.1 – 17</b>	No data available
MW-13s	<b>3.3 – 20</b>	No data available
MW-14s	<b>1.2 – 12</b>	<b>790</b> <sup>2</sup>
MW-15s	<b>0.36 – 1.9</b>	<b>740</b> <sup>2</sup>
<b>Percolation Ponds Downgradient Wells</b>		
MW-20s	0.26 – 1.7	<b>570</b> <sup>3</sup>
NWP-06s	<0.46 – 0.46	<b>660</b> <sup>1</sup>
MUN Groundwater Objectives	10	500; 1,000; 1,500
Numerical Groundwater Objectives <sup>4</sup>	2.48	560

<sup>1</sup> Sampled on April 9, 2019 by the Discharger.

<sup>2</sup> Sampled on April 11, 2019 by the Discharger.

<sup>3</sup> Sampled on April 10, 2019 by the Discharger.

<sup>4</sup> Basin Plan, Table 3-20 for Mojave River (upstream side of Waterman Fault) for groundwater underflow. The Facility is located immediately upstream of the Waterman Fault.

Overall, the upgradient groundwater south of the Mojave River of the effluent discharge area is poorer in quality than the downgradient water quality and generally exceeds the site-specific numerical groundwater quality objectives for TDS and nitrate as nitrogen.

26. Groundwater Monitoring Network

As of March 2019, there are 45 shallow zone, 11 intermediate zone, and 6 deep zone groundwater monitoring wells, operated by the Discharger and by the U.S. Marine Corps, located in the Facility vicinity, as shown on Attachment C.

This Board Order requires the Discharger to maintain an established groundwater monitoring network around the percolation ponds and the South Irrigation Field to verify that the discharge complies with receiving water quality objectives and Board Order requirements. In addition, the MRP associated with this Board Order requires the Discharger to conduct groundwater monitoring on the north side of the Mojave River.

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

State Water Board Resolution No. 68-16 “*Statement of Policy with Respect to Maintaining High Quality Waters in California*,” also called the non-degradation policy, states:

1. “*Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that a change will be consistent with the maximum benefit to the people of the State,*

*will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.*

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

Groundwater quality upgradient of the Facility (well MW-03s) exceeds the Basin Plan water quality objectives established for nitrate as nitrate and TDS. However, groundwater quality downgradient of the Facility is below the water quality objective for nitrate as nitrate and is below the upper limit (1,000 mg/L) for TDS concentrations, as evidenced by data from well NWP-06s. The Facility's improved effluent quality, discharged via the percolation ponds located south of the Mojave River, will recharge the groundwater and, through dilution, will improve groundwater concentrations for nitrate and TDS over time and attain the numerical receiving groundwater quality objectives for nitrate and TDS downgradient of the Facility. Therefore, the Facility's discharge dilutes poorer quality groundwater, and this will ensure the receiving groundwater quality objective will be maintained.

This Board Order establishes a total nitrogen effluent limitation of 10 mg/L, consistent with the MUN beneficial use. Additionally, the Discharger's recent improvements to upgrade the Facility will ensure the discharge will not cause further groundwater degradation and will retain the current effluent quality. The Facility's recent historical performance in reducing total nitrogen (and nitrate) indicate improved effluent quality. Establishing this Board Order will be protective of groundwater quality.

The Water Board finds that the discharge is consistent with the State Water Board Resolution No. 68-16 because this Board Order (1) is consistent with maximum benefit to the people of the state and (2) acknowledges the Facility has implemented best practicable treatment or control of the discharge. This is accomplished through: (1) compliance with the requirements set forth in this Board Order; (2) implementation of a MRP; and (3) compliance with effluent limitation for total nitrogen to protect beneficial uses.

28. California Water Code, Section 13241 Considerations

Pursuant to CWC, section 13241, the requirements of this Board Order take into consideration the following factors.

- a. Past, present, and probable future beneficial uses of water – The receiving waters are groundwater of the Mojave Valley Groundwater Basin, an adjudicated basin of which the Lower Mojave River Valley groundwater basin is

a part. The receiving water limitations in this Board Order are to maintain the most sensitive beneficial use: Municipal and Domestic Supply (MUN). This Board Order establishes a total nitrogen effluent limitation protective of the beneficial use. This Board Order does not authorize alteration of the beneficial uses of the groundwater from discharges authorized by this Board Order.

- b. Environmental characteristics of the hydrographic unit under consideration, including the quality of the water available thereto – The Mojave Valley is a closed groundwater basin and will experience increases in salt loading from natural and anthropogenic sources over time. Near the Facility, recent and historical data indicate that TDS and nitrate concentrations do not meet the receiving groundwater quality objectives. The discharge of treated effluent to percolation ponds would positively affect groundwater recharge while at the same time meet the objective of reducing groundwater level declines set by the Mojave Valley Groundwater Adjudication. It is in the best interest of the people of the state for the Discharger to meet effluent limitations contained in this Board Order. Recent Facility upgrades have improved effluent quality and therefore, limits further groundwater degradation.
- c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area – The Mojave Valley groundwater basin is adjudicated, and the Discharger participates with the Mojave Valley Watermaster in coordinated water supply efforts. Recent upgrades will improve receiving groundwater quality with respect to nitrogen but will not remove TDS. The Discharger is required to comply with CAO No. R6V-2013-0045 to cleanup underlying polluted groundwater. The Discharger has continuously implemented a Farm Management Plan for irrigated cropland at the South Irrigation Field. According to the water irrigation and nitrogen balance calculations provided by the Discharger, the calculations show that effluent is applied to crops, primarily alfalfa, at agronomic rates.
- d. Economic considerations – The Facility upgrade is completed. The costs associated with continued Facility operation are similar to other communities. Upgrade of the Facility to treat TDS and to further reduce effluent total nitrogen would require installation of a reverse osmosis system or an ion exchange system, which is not currently economically feasible for this severely disadvantaged community.
- e. The need for developing housing within the region – The Facility has a treatment capacity of 4.5 MGD but currently treats approximately 2.1 MGD. Thus, there is some excess treatment capacity to accommodate future growth flow.
- f. The need to develop and use recycled water – This Board Order authorizes the Discharger to treat and discharge undisinfectated secondary recycled water effluent to the South Irrigation Field pursuant to CCR, title 22, section 60304(d).

29. Human Right to Safe, Clean, Affordable, and Accessible Water

CWC, section 106.3, establishes a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes and directs state agencies to consider this policy when adopting regulations pertinent to those uses of water. This Board Order promotes that policy by prohibiting the discharge from causing further groundwater pollution and establishing a new nitrogen effluent limitation. The groundwater in the area includes a municipal beneficial use. The nearest public water supply well is located 2,000 feet north of the Facility and is inactive.

This Board Order requires the Discharger to monitor groundwater on both the north and south sides of the Mojave River.

30. California Code of Regulations, Title 27

CCR, title 27, section 20090(a) and (b) states that discharges are exempt from title 27 requirements for waste disposal provided the activity meets and continues to meet the following pre-conditions:

*“(a) 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.”*

*“(b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:*

- (1) The applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;*
- (2) The discharge is in compliance with the applicable water quality control plan; and*
- (3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, title 22 of this code as a hazardous waste.”*

In this case, the Discharger will continue to meet the conditional exemption for discharges of domestic sewage because: 1) the discharge is regulated by WDRs, 2) the discharge requirements are consistent with applicable water quality objectives, 3) the Facility is a municipal wastewater treatment plant, and 4) all residual biosolids are disposed off-site in an authorized manner as required in CCR, title 27, section 20220(c).

### 31. California Environmental Quality Act

These revised WDRs govern existing facilities, which the Discharger is currently operating. The project consists only of the continued operation of the existing facilities governed by these revised WDRs and is therefore exempt from the provisions of the California Environmental Quality Act (Public Resources Code, section 21000 et seq.) in accordance with CCR, title 14, section 15301.

### 32. Technical and Monitoring Reports

This Board Order requires the Discharger to submit self-monitoring and technical reports and comply with the MRP pursuant to CWC, section 13267. Effluent and groundwater monitoring are required to determine if Facility discharges are impacting waters of the State. The MRP associated with this Board Order requires the Discharger to collect representative effluent and groundwater samples and analyze and report the sampling data to evaluate compliance with the Basin Plan water quality objectives and this Board Order. These reports will evaluate compliance with the Board Order requirements and ensure the discharge complies with the Basin Plan. Therefore, the burden, including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

### 33. Basis for Establishing Effluent Limitations

The numerical effluent limitations imposed by this Board Order are described below.

- a. Biochemical oxygen demand (BOD), total suspended solids (TSS), and pH – Effluent limitations are based on the United States Environmental Protection Agency (USEPA) secondary treatment standards for wastewater treatment plants.
- b. Dissolved oxygen (DO) – Effluent limitations are based on the protection of MUN beneficial use to minimize groundwater degradation and prevent odor nuisance conditions in the percolation ponds.
- c. Methylene blue active substances (MBAS) – Effluent limitation is protective of MUN beneficial use and is also the secondary maximum contaminant limitation for foaming agents as a monthly average limitation. This Board Order retains the monthly maximum limitation of Board Order No. 6-94-26.
- d. Oil and grease – Effluent limitations are based on the State Water Board's General Permit for Storm Water Discharges Associated with Industrial Activities, Order No. 2014-0057-DWQ.
- e. Total dissolved solids (TDS) – This Board Order retains the TDS effluent limitation of Board Order No. 6-94-26.



- f. Total Nitrogen – An effluent limitation for total nitrogen is set at the MUN beneficial use level, which is the primary MCL of 10 mg/L for nitrate as nitrogen. Total nitrogen is the sum of total Kjeldahl nitrogen (ammonia and organic nitrogen), nitrate, and nitrite.

34. Disinfection Byproducts Controls

Disinfection is not required by this Board Order.

35. Classification and Annual Fees

Pursuant to CCR, title 23, section 2200(a), the “threat to water quality” from the Facility discharge is “category 2” because discharges of waste could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance. The “complexity” is “category A” because the Facility has numerous discharge points and groundwater monitoring wells to monitor groundwater quality. This classification is subject to change based on treatment or discharge method modifications or revised state regulations. Annual fees are based on this classification.

36. Time Schedules

Time schedules are not required by this Board Order.

37. Notification of Interested Parties

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

38. Consideration of Public Comments

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

**IT IS HEREBY ORDERED**, pursuant to CWC, sections 13260 and 13263, and the authority of the Water Board, that Board Order No. 6-94-26 is hereby rescinded, except for enforcement related purposes:

**IT IS FURTHER HEREBY ORDERED**, pursuant to CWC, sections 13260, 13263, and 13267, that the Discharger must comply with the following:

I. **FLOW, FREEBOARD AND AUTHORIZED DISCHARGE LIMITS**

- A. The flow of influent wastewater during a 24-hour period must not exceed 4.5 million gallons.

- B. The freeboard in any pond system must not be less than two feet as measured from a fixed referenced indicator based upon the lowest elevation point on any of the dikes for that pond.
- C. The authorized discharge sites are the eight percolation ponds and the 65-acre South Irrigation Field, shown on maps included with this Board Order.
- D. If dissolved oxygen concentrations in the percolation ponds are below 1.0 mg/L during two consecutive sampling events, the Discharger must take appropriate action to increase dissolved oxygen and commence weekly monitoring in the affected ponds until problem has been resolved.

**II. EFFLUENT DISCHARGE LIMITATIONS**

Facility discharges must not exceed the following effluent limitations prior to discharge to the percolation ponds and the South Irrigation Field.

<b>Effluent Limitations</b>			
<b>Constituent</b>	<b>Units</b>	<b>Monthly Average</b>	<b>Maximum</b>
Biochemical oxygen demand (BOD) (5-day at 20°C)	mg/L	30	45
Dissolved oxygen (DO)	mg/L	>1.0	>1.0
Methylene blue active substances (MBAS)	mg/L	0.5	2.0
Oil and grease	mg/L	NA	15
pH	pH units	NA	6.0 – 9.0
Total dissolved solids (TDS)	mg/L	755	870
Total nitrogen	mg/L	NA	10.0
Total suspended solids (TSS)	mg/L	30	45

NA: Not Applicable.

**III. RECEIVING WATER LIMITATIONS**

- A. The Discharger must not cause the groundwater of the Lower Mojave River Valley to contain:
  - 1. Bacteria – In groundwaters designated as MUN, the median concentration of coliform organisms over any seven-day period must be less than 1.1 most probable number per 100 milliliters (1.1 MPN/100 mL).
  - 2. Chemical Constituents – Groundwaters designated as MUN must 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 CCR, title 22 of CCR, which are incorporated by reference into the Basin Plan: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of

section 64444 (Organic Chemicals), Table 64449-A of section 64449 (SMCLs – Consumer Acceptance Limits), and Table 64449-B of Section 64449 (SMCLs – Consumer Acceptance Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

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

Groundwaters must not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

3. Radioactivity – Groundwaters designated as MUN must not contain concentrations of radionuclides in excess of the limits specified in Table 64442 of section 64442 and Table 64443 of section 64443 of CCR, title 22 which is incorporated by reference into the Basin Plan. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.
  4. Taste and Odors – Groundwaters must 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 must not exceed adopted SMCLs specified in table 64449-A of section 64449 (SMCLs – Consumer Acceptance Limits), and table 64449-B of section 64449 (SMCLs – Consumer Acceptance Ranges) of CCR, title 22, including future changes as the changes take effect.
- B. The Discharger must not cause an exceedance of the groundwater quality objectives for the Lower Mojave River Valley.
- C. The Discharger must not cause an exceedance of any applicable water quality standard for receiving water adopted by the Water Board or State Water Resource Control Board.

#### **IV. RECYCLED WATER REQUIREMENTS**

##### **A. Recycling Water Treatment Requirements**

1. Secondary effluent produced by the Facility and use of the effluent at the agriculture site(s) must, at minimum, meet the undisinfected secondary recycled water levels defined in CCR, title 22, section 60301.900.
2. Effluent must be fully oxidized, and the use is restricted to fodder and fiber crops and pasture for animals not producing milk for human consumption, as provided under CCR, title 22, section 60304(d)(4).

**B. Recycled Water Use Requirements**

1. The Discharger must comply with the use area requirements of the Uniform Statewide Reclamation Criteria, which are contained in CCR, title 22, section 60310.
2. Secondary effluent produced by the Facility and use of the effluent at the agriculture site must comply with the Uniform Statewide Reclamation Criteria, which are contained in CCR, title 22, sections 60301 through 60355.
3. Effluent applied as irrigation water to crops must not exceed the agronomic crop water or nutrient demand indicated in the Farm Management Plan.
4. The Discharger must not apply recycled water to another site until the Discharger obtains acceptance of the Engineering Report from the Water Board's Executive Officer, after approval by the State Water Board, Division of Drinking Water.

**V. GENERAL REQUIREMENTS AND PROHIBITIONS**

- A. The discharge must not cause or threaten to cause pollution, as defined in CWC, section 13050, subdivision (l).
- B. Neither the treatment nor the discharge must cause a nuisance, as defined in CWC, section 13050, subdivision (m).
- C. The discharge of waste that causes exceedance of any numeric or narrative water quality objective contained in the Basin Plan is prohibited.
- D. Where any applicable numeric or narrative water quality objective contained in the Basin Plan is already being exceeded, the discharge of waste that causes further degradation or pollution is prohibited.
- E. The discharge of waste to surface waters is prohibited.
- F. The offsite disposal of waste residue, including sludge, must be in a manner that complies with all local, state, and federal requirements.
- G. Bypass (the diversion of waste streams from any portion of Facility) is prohibited.
- H. The discharge, bypass, or diversion of untreated or treated wastewater, sludge, grease, or oils from the collection system, transport, or treatment plant treatment system, to unauthorized site(s) or surface waters is prohibited, except for authorized recycled water uses as specified in this Board Order.
- I. All facilities used for collection, transport, treatment, or disposal of waste 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.

- J. The discharge of secondary treated wastewater, except to the authorized discharge sites, is prohibited.
- K. The discharge of untreated wastewater is prohibited.
- L. The Facility must be maintained and operated at maximum operating efficiency for biological and nutrient removal.
- M. The Discharger must comply with all existing Federal and State Laws and regulations that apply to sewage sludge use and disposal practices.

## VI. **PROVISIONS**

### A. Operator Certificates

The Facility must be supervised by persons possessing a wastewater treatment plant operator certificate of appropriate grade pursuant to CCR, title 23, section 3670 et seq.

### B. Standard Provisions

The Discharger must comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment D, which is made part of this Board Order.

### C. Monitoring and Reporting

Pursuant to CWC, section 13267(b), the Discharger must comply with the MRP, as specified by the Executive Officer. The Executive Officer may amend the MRP.

### D. Farm Management Plan

1. Pursuant to CWC, section 13267, the Discharger must comply with the previously submitted Farm Management Plan and revise it when conditions change (including, but not limited to, any changes to crop type, area, effluent application, or nutrients applied, or nutrients removed) for the irrigation site. The reporting requirements for the plan are specified in the MRP.
2. No commercial or organic fertilizer must be applied to the South Irrigation Field site.

E. Sampling and Analysis Plan

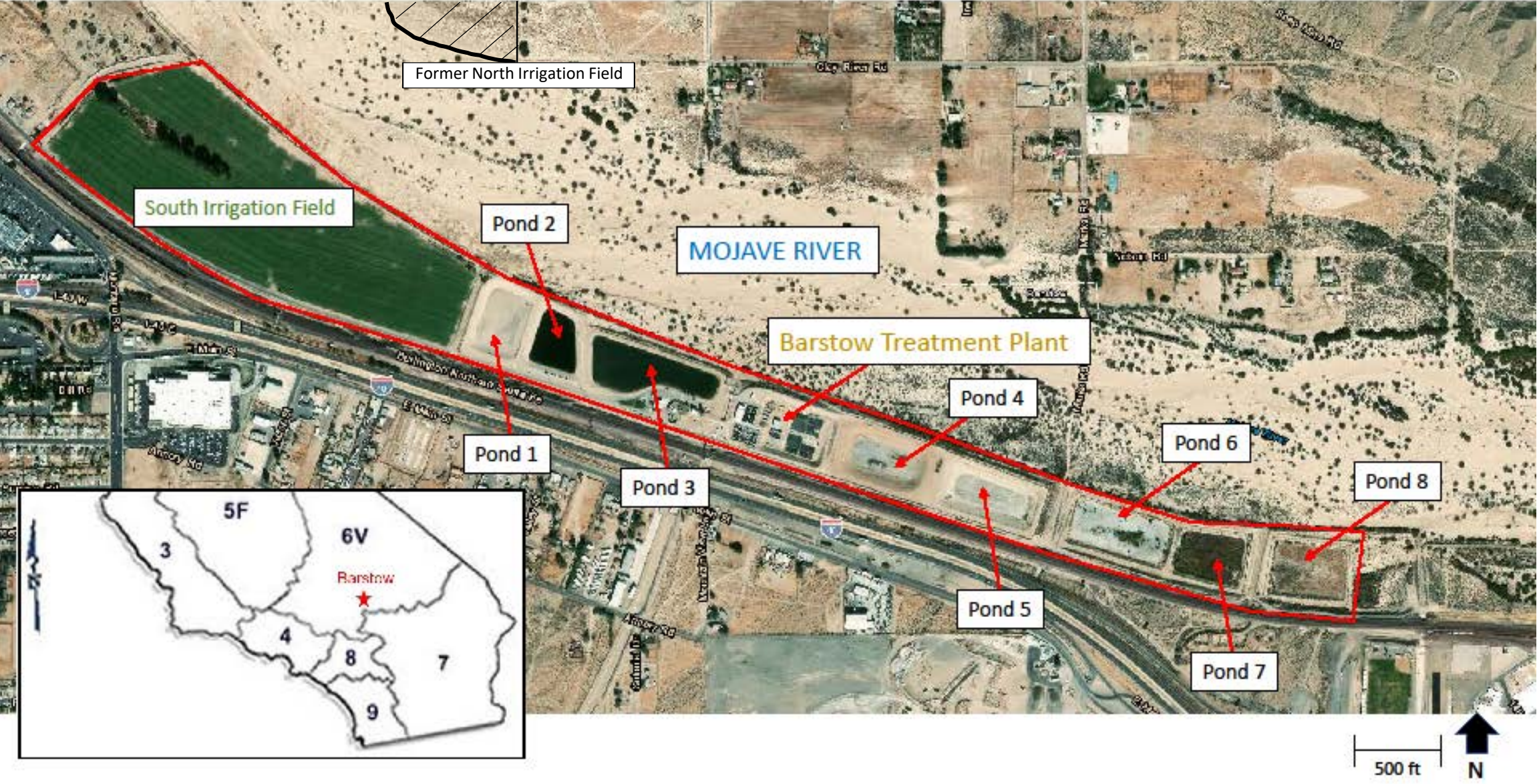
Pursuant to CWC, section 13267, the Discharger must submit a Sampling and Analysis Plan (SAP), revised when conditions change (including, but not limited to, any changes to sampling methods, locations, or analytical methods and procedures). The reporting requirements for the SAP are specified in the MRP.

I, Patty Kouyoumdjian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Board Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on July 10, 2019.

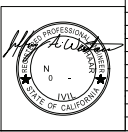
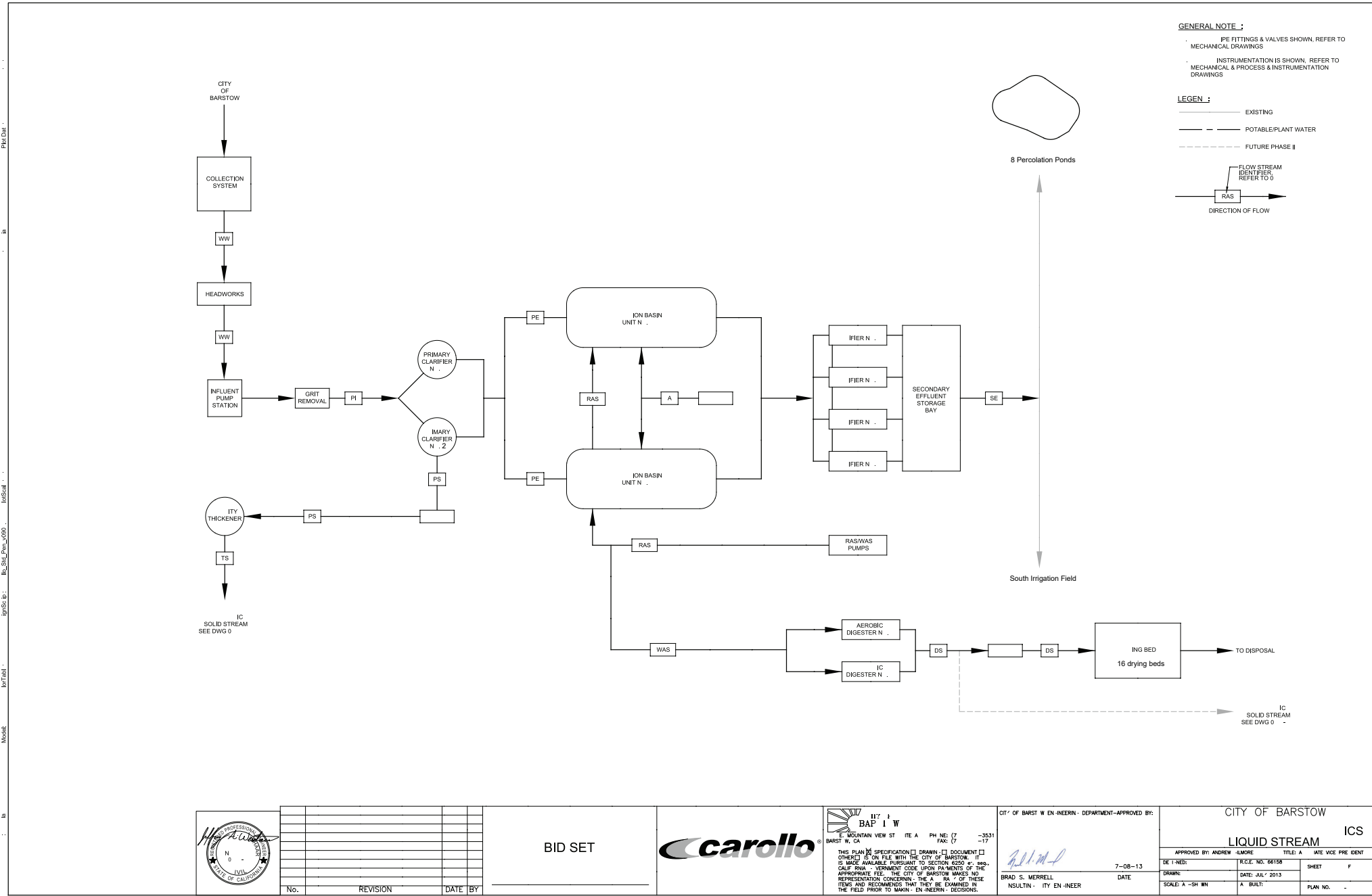
  
\_\_\_\_\_  
PATTY Z. KOUYOUMDJIAN  
EXECUTIVE OFFICER

- Attachments:
- A. Barstow Wastewater Treatment Plant Site Plan
  - B. Barstow Wastewater Treatment Plant Process Schematic
  - C. Barstow Groundwater Monitoring Well Locations
  - D. Standard Provisions for Waste Discharge Requirements, dated September 1, 1994

# Attachment A – Barstow Wastewater Treatment Plant Site Plan



# Attachment B - Barstow Wastewater Treatment Plant Process Schematic



No.	REVISION	DATE	BY

BID SET



11' 1" BAP I W  
 E. MOUNTAIN VIEW ST. STE A PH. NO: (7) 353-3531  
 BARSTOW, CA FAX: (7) 353-1717

THIS PLAN SPECIFICATION DRAWING DOCUMENT IS ON FILE WITH THE CITY OF BARSTOW. IT IS MADE AVAILABLE PURSUANT TO SECTION 6250 OF THE CALIF. PUBLIC GOVERNMENT CODE UPON PAYMENT OF THE APPROPRIATE FEE. THE CITY OF BARSTOW MAKES NO REPRESENTATION CONCERNING THE ACCURACY OF THESE ITEMS AND RECOMMENDS THAT THEY BE EXAMINED IN THE FIELD PRIOR TO MAKING ANY DECISIONS.

CITY OF BARSTOW ENGINEERING DEPARTMENT - APPROVED BY:  
 BRAD S. MERRELL  
 NSULTIN CITY ENGINEER

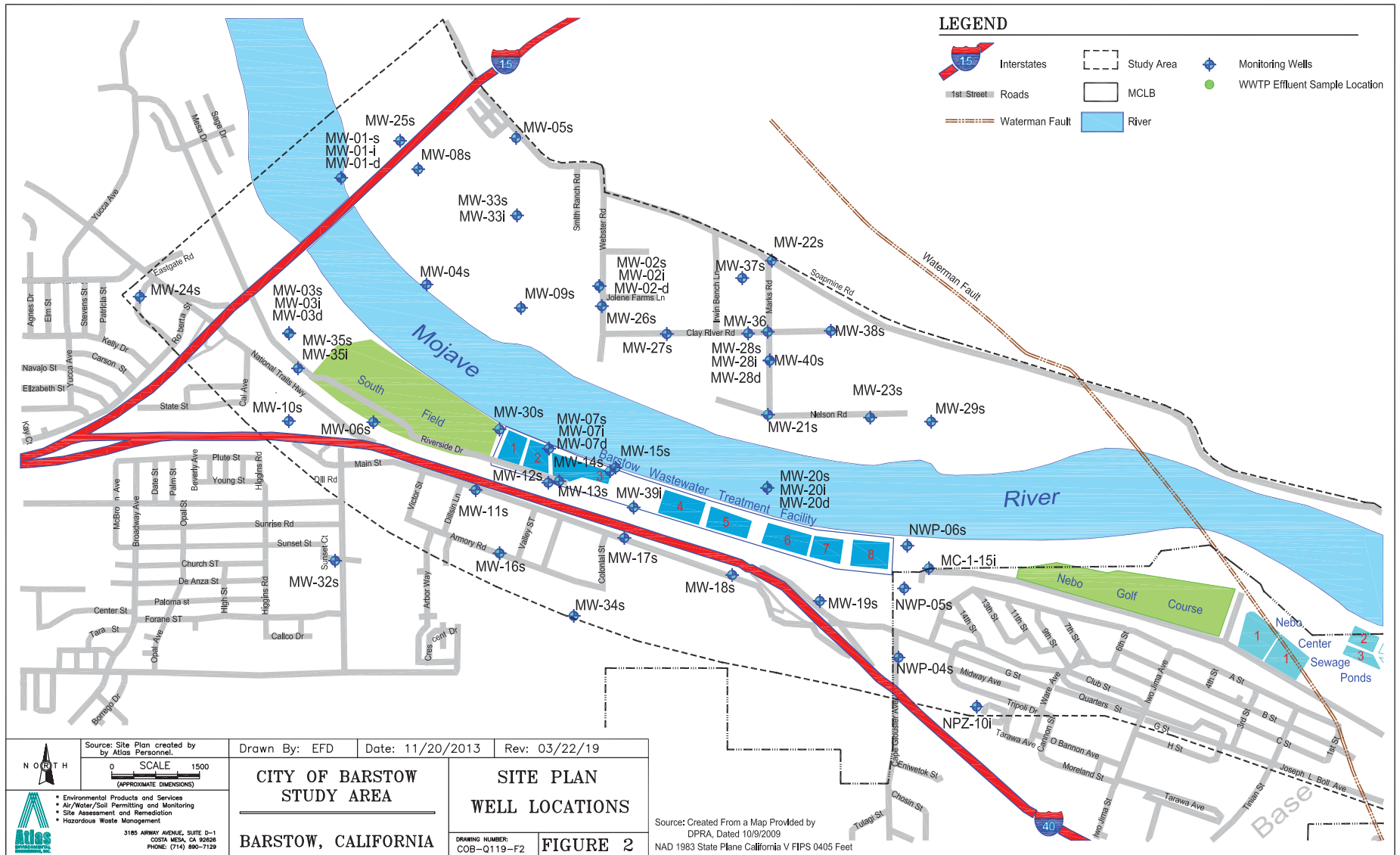
7-08-13  
 DATE

CITY OF BARSTOW		IC5	
LIQUID STREAM			
APPROVED BY: ANDREW ALMORE	TITLE: A	DATE: JUL 2013	SHEET: F
DE 1-NER:	R.C.E. NO. 66158	A BUILT:	PLAN NO.:
SCALE: A - SH 1/4"			

Note: Water Board staff clarified figure to state 16 drying beds upon request by the City of Barstow, June 12, 2019.



# Attachment C - Barstow Groundwater Monitoring Well Locations



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

**STANDARD PROVISIONS  
FOR WASTE DISCHARGE REQUIREMENTS**

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

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

2. Reporting Requirements

- a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.
- b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.
- c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.
- d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.
- e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation.

- f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

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

4. Duty to Comply

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

5. Duty to Mitigate

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

6. Proper Operation and Maintenance

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

7. Waste Discharge Requirement Actions

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

8. Property Rights

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

9. Enforcement

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

10. Availability

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

11. Severability

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

12. Public Access

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

13. Transfers

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

14. Definitions

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

15. Storm Protection

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

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

**MONITORING AND REPORTING PROGRAM**

**NO. R6V-2019-0252**

**WDID NO. 6B360101001**

**FOR**

**CITY OF BARSTOW**

**BARSTOW WASTEWATER TREATMENT PLANT**

\_\_\_\_\_San Bernardino County\_\_\_\_\_

**I. GENERAL REQUIREMENTS**

A. Authorization Basis and Effective Date

This Monitoring and Reporting Program (MRP) is being required pursuant to California Water Code (CWC), section 13267 and is effective on the date it is signed by the Water Board's Executive Officer.

B. California Water Code, Section 13267

CWC, section 13267 (a) states that the regional board, "in establishing or reviewing any water quality control plan or waste discharge requirements, or in connection with any action relating to any plan or requirement authorized by this division, may investigate the quality of any waters of the state within its region."

Information requested in this MRP is necessary to establish compliance with waste discharge requirements (WDRs). Effluent and groundwater monitoring are required to determine if discharges from the Barstow Wastewater Treatment Plant (Facility) are impacting waters of the State. The MRP requires the Discharger to collect representative effluent and groundwater samples and analyze and report the sampling data to evaluate compliance with the *Water Quality Control Plan for the Lahontan Region* (Basin Plan) water quality objectives and WDRs. These reports will evaluate compliance with Board Order requirements and ensure the discharge complies with the Basin Plan. Therefore, the burden, including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

In addition, this MRP includes information to establish groundwater nitrate concentrations north of the Mojave River, not associated with current discharges from the Facility but associated with the City of Barstow (Discharger) historical discharges and Cleanup and Abatement Order (CAO) No. R6V-2013-0045. These monitoring requirements are necessary to evaluate and investigate the quality of the state's waters pursuant to CWC, section 13267. The reports are needed to determine the current extent of nitrate and impacts to groundwater quality from the City of Barstow's historical discharges. Therefore, the burden,

including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

C. Summary of Reports Required

The Discharger, who discharges undisinfectated secondary treated wastewater generated from the Facility to percolation ponds and the South Irrigation Field, is required to submit technical or monitoring reports pursuant to CWC, section 13267.

Following is a summary of reports required under this program.

Summary of Required Reports		
Report Name	Period	Report Due Date
Self-monitoring reports	Quarterly – due the 1 <sup>st</sup> day of second month following the quarter: January 1 – March 31 April 1 – June 30 July 1 – September 30 October 1 – December 31	<b>May 1</b> <b>Aug 1</b> <b>Nov 1</b> <b>Feb 1 of following year</b>
Annual Report, including nitrogen removal assessment	January 1 – December 31 of prior year	<b>March 1 each year</b>
Sampling and Analysis Plan	One time, updated as necessary	<b>November 7, 2019</b>

Each quarterly report must provide information on: (1) general operations, (2) operational problems, (3) compliance assessment, and (4) data for constituents, as specified below.

D. Report and Correspondence Submittal

All correspondence, reports, and groundwater monitoring data must be uploaded to the State Water Resources Control Board’s (State Water Board’s) GeoTracker database under the site global identification number **WDR100027318**. The GeoTracker website can be accessed at the following, where accounts can be registered: <https://geotracker.waterboards.ca.gov/esi/login.asp>. Please contact the GeoTracker Help Desk if you have any questions. Contact information for the Help Desk is email: [GeoTracker@waterboards.ca.gov](mailto:GeoTracker@waterboards.ca.gov), phone: (866) 480-1028. Please send a copy of the GeoTracker email upload confirmation to the assigned Water Board project staff.

E. GeoTracker

The Discharger must comply with the Electronic Submittal of Information (ESI) requirements by submitting all analytical *data* required under the MRP in electronic data format (EDF) to the State Water Board’s GeoTracker database.

This includes monitoring locational data (latitude and longitude) and searchable portable data format (PDF) monitoring reports.

The following information **must be uploaded one-time**.

1. Boring Logs and Well Screen Intervals: Requirement applies to existing wells and any newly installed boring or wells. Boring logs must be prepared by an appropriate licensed professional (civil engineer or geologist) and submitted in PDF format. If a monitoring well is installed, the total well depth, screen depth, and screen interval must be reported.
2. Locational Data: Permanent groundwater sampling locations must be surveyed by a California registered surveyor. The surveyed locational information for these sampling points must be submitted using the Geo\_XY file and include survey information for the measuring point elevation and elevation of the ground surface.
3. Site Map: An electronic site plan map must be submitted into the GEO\_MAP file and display site features, pond locations, adjacent streets, and sampling locations for all groundwater monitoring wells. The site map is a stand-alone document that may be submitted in various formats. Updated site maps must be submitted when site conditions change.

The following data **must be uploaded each time a well is sampled**.

4. Lab Data: Analytical data (including geochemical data) for all samples collected must be submitted in specified EDF format.
5. Depth to Water Data: Monitoring wells need to have the static depth to water information reported in the GEO\_WELL file whenever the data is collected, even if the well is not actually sampled during the sampling event.
6. Elevation Data: Groundwater elevation measurements (as related to the top of the measuring point elevation) must be reported as elevation above mean sea level and submitted as part of the GEO\_Z file. Measuring points and measuring point elevations must be specified for each monitoring well.

#### F. General Provisions

The Discharger must comply with the “General Provisions for Monitoring and Reporting” dated September 1, 1994, which is made part of this MRP as Attachment A.

## G. Reports

### 1. Data Tables

- a. The Discharger must place the following data into tables, including date information:
  - i. Influent treatment plant flow;
  - ii. Effluent flow to percolation ponds and agriculture sites;
  - iii. Groundwater monitoring data (including field parameters);
  - iv. Percolation pond freeboard data; and
  - v. Historical data for entries covering, at minimum, the last five years.
- b. The Discharger must submit the data tables to the Water Board in one or more Microsoft Excel® files or one or more comma delimited formatted files with the PDF monitoring report submission.
- c. Where additional data are collected above minimum reporting requirements, that additional data must be reported.

### 2. Laboratory Reports

- a. The Discharger must include in the monitoring report all original analytical laboratory reports.
- b. For sample results greater than or equal to the laboratory's reporting limit (RL), the Discharger must report the results as measured by the laboratory (i.e., the measured chemical concentration in the sample). When sample results are less than the laboratory's RL yet are greater than or equal to the laboratory's Method Detection Limit (MDL), the Discharger must report the results as "Detected, but Not Quantified (DNQ)." The Discharger must also report the estimated chemical concentration of the sample using an appropriate data qualifier (e.g., "J" flag).

### 3. Compliance Self-Assessment

- a. The Discharger must use Attachment B, or other form with the same information, as a cover letter for all reports provided to the Water Board associated with this MRP.



- b. The Discharger must provide a written explanation for all numeric and narrative plant effluent and receiving water violations, including dates and cause of violations and measures to prevent violation reoccurrence, in each report. Include a specific assessment as to whether any data indicate a violation of receiving water quality objectives as a result of the discharge.
- c. Quarterly reports must include graphs or charts covering the monitoring period, where appropriate, to illustrate trends (e.g., effluent and groundwater results). Annual Reports must include graphs or charts covering, at minimum, five prior years, where appropriate, to illustrate trends (e.g., effluent and groundwater results).

## II. **MONITORING**

Each report must include the information specified below.

### A. Flow, Operations, and Pond Conditions Monitoring

The following data must be recorded in a permanent logbook and the information submitted according to the frequency listed.

1. Total volume – in million gallons (MG), of wastewater flow to the facility for each day and month as measured by an influent flow meter, located between an influent pump station and a grit removal chamber.
2. Calculated average daily flow rate – in million gallons per day (MGD), of wastewater to the treatment facility calculated for each month.
3. Total volume – in MG, of flow to the percolation ponds in use each month as measured by an effluent flow meter.
4. Total volume – in MG, of recycled water used on the irrigation site during each month as measured by a flow meter, located at the effluent transport pipe from percolation ponds 3 and 4 to irrigation field.
5. Freeboard – (vertical distance from the lowest point of a dike or invert of an overflow structure to the water surface in a pond) of each pond on the last day of the month, to the nearest ¼ foot. If a pond does not contain secondary effluent, the Discharger must report that the pond is empty. Each pond or basin must have a surveyed reference marker installed at its lowest elevation.
6. Report – operational problems and maintenance activities affecting plant performance, effluent discharges, and compliance with WDRs, and proposed corrective actions and a schedule for completion of corrective actions, if needed.

7. Report – monthly visual inspections of the Facility, including but not limited to, treatment plant area, percolation ponds, monitoring well locations, and agricultural areas. If there is nothing noteworthy for a given month, then that must be noted.
  
8. Projected capacity – Annually, report the previous year’s annual average flow (in MGD) in comparison to the treatment plant’s rated capacity (in MGD). Report also the projected annual average flow (in MGD) for the next four consecutive years. If the projected annual average flow will reach the treatment plant’s rated capacity within four years, provide plans and time schedules stating how the Discharger will prevent flow volumes from exceeding the treatment plant’s rated capacity or propose to increase the rated capacity.

**B. Effluent Monitoring**

1. Monitor and report – plant effluent as follows:

<b>Effluent Monitoring</b>			
<b>Constituent</b>	<b>Units</b>	<b>Sample Type</b>	<b>Frequency</b>
Biochemical oxygen demand (BOD) <sup>1</sup>	mg/L <sup>2</sup>	24-hr Composite	2 X Monthly
Dissolved oxygen (DO)	mg/L <sup>2</sup>	Grab	2 X Monthly
Oil and grease	mg/L	Grab	2 X Monthly
pH	pH units	Grab	2 X Monthly
Total suspended solids (TSS)	mg/L	24-hr Composite	2 X Monthly
Ammonia as nitrogen	mg/L	24-hr Composite	Monthly
Methylene blue active substances (MBAS)	mg/L	24-hr Composite	Monthly
Nitrate as nitrogen	mg/L	24-hr Composite	Monthly
Nitrite as nitrogen	mg/L	24-hr Composite	Monthly
Total phenolics	mg/L	Grab	Monthly
Total dissolved solids (TDS)	mg/L	24-hr Composite	Monthly
Total Kjeldahl nitrogen (TKN)	mg/L	24-hr Composite	Monthly
Total nitrogen <sup>3</sup>	mg/L	Calculated	Monthly
General minerals series <sup>4</sup>	(varies)	Grab	Annually
Metals series <sup>5</sup>	µg/L <sup>6</sup>	Grab	Annually
Perchlorate	µg/L	Grab	Annually
Semi-volatile organic compounds (SVOCs)	µg/L	Grab	Annually
Volatile organic compounds (VOCs)	µg/L	Grab	Annually

<sup>1</sup> 5-Day BOD at 20°C.

<sup>2</sup> Milligrams per liter.

<sup>3</sup> Sum of nitrate as nitrogen, nitrite as nitrogen, and TKN.

<sup>4</sup> See MRP, section II., E.3 below.

<sup>5</sup> See MRP, section II., E.4 below.

<sup>6</sup> Micrograms per liter.

2. Field tests – may be conducted by site personnel with a direct read instrument calibrated per manufacturer’s specifications. All samples other than field measurements must be conducted by a California-certified laboratory and a United States Environmental Protection Agency (USEPA) analytical method or accepted standard method. An alternate method may be proposed and used if acceptable to the Water Board Executive Officer.
3. Report – up to the first decimal point for the effluent total nitrogen in the quarterly monitoring report and the Annual Report.

C. Recycled Water Use Monitoring

The Discharger must record and submit the following information each quarter:

1. Total volume – in MG, of recycled water used on the irrigation site during each month as measured by a flow meter, located at the recycled water transport pipe from percolation ponds 3 and 4.
2. Report – evidence of standing water or over-irrigation.
3. Record and submit – if there is no recycled water used or no crops harvested on the irrigation site during any reporting period, the report must so state.

D. Pond Monitoring

1. Permanent marker – must be placed in the percolation ponds with marked reference to the lowest surveyed pond dike or berm surface elevation. The marker must have calibrations indicating water level and available freeboard.
2. Freeboard – in feet, to the nearest 0.1 foot, must monitor each pond monthly and report results quarterly. If a pond is dry, report as dry.
3. Summary – of visual observations and action(s) taken to correct any observed problem(s), reported quarterly.

E. Groundwater Monitoring

This MRP covers two groundwater monitoring objectives: (1) to evaluate the impact of the Facility’s discharge on the receiving water quality and (2) to monitor groundwater quality on the north side of the Mojave River.

The Discharger has installed additional groundwater monitoring wells to investigate historical releases of nitrogen to groundwater associated with past waste disposal practices. The following attachments to this MRP relate to the groundwater monitoring program.

- Attachment C – Map showing the locations of groundwater monitoring wells.  
Attachment D – List of groundwater monitoring well names and properties.  
Attachment E – List of groundwater monitoring well sampling frequency.

1. Monitoring wells – to be Sampled and Frequency

Attachment E describes the monitoring wells that must be sampled and sampling frequency. Following the approach described on Attachment E, the Water Board Executive Officer may accept changes in the groundwater sampling program monitoring well list and sampling frequency.

2. Constituents – to be Sampled

When monitoring wells are sampled for constituents of concern, the following constituents must be analyzed.

Groundwater Monitoring Constituents					
Constituent	Units	Sample Type	Frequency (see Attachment E)		
			Quarterly	Annually	Every 5 years
Ammonia as nitrogen	mg/L	Grab	Column A	Column B	Column C
Electrical conductivity	µS/cm <sup>1</sup>	Grab	Column A	Column B	Column C
Nitrate as nitrogen	mg/L	Grab	Column A	Column B	Column C
Nitrite as nitrogen	mg/L	Grab	Column A	Column B	Column C
pH	pH units	Grab	Column A	Column B	Column C
Static groundwater elevation	feet msl <sup>2</sup>	Grab	Columns A and B		Column C
TDS	mg/L	Grab	Column A	Column B	Column C
TKN	mg/L	Grab	Column A	Column B	Column C
Total nitrogen	mg/L	Grab	Column A	Column B	Column C
General minerals series <sup>3</sup>	(varies)	Grab			Columns A, B, and C
Metals series <sup>4</sup>	µg/L	Grab			Columns A, B, and C
VOCs	µg/L	Grab			Columns A, B, and C

<sup>1</sup> Microsiemens per centimeter.

<sup>2</sup> Feet above mean sea level.

<sup>3</sup> See MRP, section E.3 below.

<sup>4</sup> See MRP, section E.4 below.

3. General mineral analyses – use the following list:

<b>General Mineral Analysis</b>	
<b>Cations</b>	<b>Units</b>
Calcium	mg/L
Magnesium	mg/L
Potassium	mg/L
Sodium	mg/L
<b>Anions</b>	<b>Units</b>
Bicarbonate	mg/L
Carbonate	mg/L
Chloride	mg/L
Fluoride	mg/L
Nitrate	mg/L
Phosphate	mg/L
Sulfate	mg/L
<b>Calculated Constituent</b>	<b>Units</b>
Anion sum	meq/L <sup>1</sup>
Cation sum	meq/L
Total alkalinity	mg/L
Total hardness	mg/L

<sup>1</sup> Milliequivalents per liter.

4. Metal analyses – use the following list:

<b>Metal Analysis</b>	
<b>Constituent</b>	<b>Units</b>
Aluminum	µg/L
Arsenic	µg/L
Barium	µg/L
Cadmium	µg/L
Chromium, total	µg/L
Cobalt	µg/L
Copper	µg/L
Iron	µg/L
Lead	µg/L
Mercury	µg/L
Molybdenum	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Thallium	µg/L
Vanadium	µg/L
Zinc	µg/L

5. Field parameters – as described in the table below, must be collected and recorded during each groundwater monitoring well sampling event. The final field parameters at the time of sample collection must be recorded in a table and reported with laboratory analytical data.

Field Parameters	
Parameter	Units
Color	Visual
DO	mg/L
Electrical conductivity	µS/cm
pH	pH units
Static water depth	feet bgs <sup>1</sup>
Temperature	Degrees Celsius (°C)
Turbidity	NTU <sup>2</sup>

<sup>1</sup> Below ground surface.

<sup>2</sup> Nephelometric turbidity unit.

6. Well purging method – describe the well purging method for each groundwater monitoring well sample event. The preferred method is low flow purging and sampling procedures as described by the USEPA to minimize drawdown when collecting samples.  
<https://www.epa.gov/sites/production/files/2015-06/documents/EQASOP-GW001.pdf>
7. Scaled groundwater iso-contour elevation map – show groundwater level elevation above mean sea level to the nearest 1 foot and iso-concentration map showing nitrate concentrations (5, 10, 15, and 20 mg/L contours) overlaid with groundwater elevations and groundwater flow direction(s) on maps at an appropriate scale. Show TDS groundwater iso-concentration maps overlaid with groundwater elevations and groundwater flow direction(s). A California licensed professional civil engineer or professional geologist must prepare and approve the contour map.
8. Location map – include a map showing well locations, groundwater elevation contours with respect to mean sea level, groundwater flow direction, and gradient.
9. Trend analysis – for any new groundwater monitoring wells, complete a trend analysis after at least four samples from new wells are collected to calculate initial background water quality for that well. Submit calculated background results in the first monitoring report after at least four samples are collected. In subsequent reports, provide a comparison of the groundwater constituent concentrations to background water quality using any of the parametric or non-parametric trend analysis methods described in the USEPA *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, and latest edition.

10. Well repairs – when groundwater monitoring wells must be repaired, replaced, destroyed, or installed, a Work Plan must be prepared under the supervision of, and be signed and stamped by, a Professional Geologist or Professional Civil Engineer with competence in groundwater hydrogeology registered in California and submitted to the Water Board for acceptance.
11. Well standards – groundwater monitoring wells must be installed according the California Well Standards, Combined, California Department of Water Resources Bulletins 74-81 and 74-90.
12. Investigations – guidance for conducting groundwater investigations including representative sampling of groundwater; drilling, logging and sampling; and well design and construction may be found on the web site of the Department of Toxic Substances Control at:  
[http://www.dtsc.ca.gov/PublicationsForms/prog\\_pubs.cfm?prog=Site%20Cleanup](http://www.dtsc.ca.gov/PublicationsForms/prog_pubs.cfm?prog=Site%20Cleanup)

#### F. Biosolids Monitoring

The plant is a publicly owned treatment plant under the Clean Water Act. Therefore, the Discharger must sample, report, and otherwise manage biosolids in compliance with Code of Federal Regulations, title 40, part 503 (40 CFR 503) as required by the USEPA. The Discharger must report annually, the following for the previous year:

1. Total volume – annual biosolids generated at the wastewater treatment plant.
2. Location(s) and address(s) – of the site(s) where biosolids were transported (i.e., landfills, agriculture sites, or composting facilities).

#### G. Farm Management Report

The following information must be submitted quarterly.

1. Farm Management Plan – the Discharger must revise the previously submitted Farm Management Plan when conditions change (including, but not limited to, any changes to crop type, area, effluent application, or nutrients applied, or nutrients removed), for the irrigation site.
2. Report Mass Harvested – in pounds, of cut and dried alfalfa (or other crop) removed from irrigation site each month. If no crop is harvested, then so state.
3. Report Another Crop – If another crop is rotated with alfalfa, report the crop grown.

#### H. Pretreatment Source Control

In the Annual Report, the following information related to the Discharger's pretreatment program to satisfy, in part, federal requirements contained in 40 CFR Part 403 must be reported.

1. Inventory – significant users, including names, addresses, categories, industrial pollutants, and volumes of wastewater discharged. A significant industrial user is either:
  - a. An industrial user discharging more than 25,000 gallons per day;
  - b. A categorical industrial user defined in 40 CFR 400 – 471;
  - c. A use that can cause upset, pass through, or interference to the wastewater treatment system; and
  - d. Any industrial user using acidic or metallic material discharges to the collection system without treatment.
2. Discuss – upset, interference, or pass through incidents, if any, at the treatment plant that the Discharger knows, or suspects was caused by industrial discharges into the collection system.
3. Discuss – enforcement actions taken or proposed for industrial users.
4. Discuss – summary of the pretreatment and/or source control functions including, but not limited to:
  - a. Legal authorities;
  - b. Pretreatment source control requirements;
  - c. Status of funding and personnel to implement the pretreatment source control program;
  - d. Summary of sampling location, laboratory data analyses required by the Discharger before the discharge to collection system from the industrial uses;
  - e. Summary of inspections completed; and
  - f. Summary of complaints received, and any action taken.



### III. ROUTINE REPORTS

#### A. Quarterly Reports

Quarterly monitoring reports **are due on the 1st day of the second month following the end of each quarterly monitoring period** in accordance with the Reports Required table in this MRP, section I.C. Each quarterly report must provide information on:

1. General operations,
2. Operational problems,
3. Compliance assessment,
4. Data from the monitoring section of this program,
5. Agriculture use data,
6. Any problem with Industrial pretreatment discharge to collection system causing collection system deterioration or upset in wastewater treatment system,
7. Any information on the groundwater cleanup on the north side of the Mojave River, and
8. If there is no discharge to a percolation pond during any reporting period, the report must so state.

#### B. Annual Report

The Discharger must submit an Annual Report **by March 1** of each year that covers the period from January 1 through December 31 of the previous calendar year and must, as a minimum, include the following.

1. Facility site map showing treatment plant, disposal and recycled water components, crop fields, and monitoring well locations.
2. Graphs and tables of static groundwater elevation versus time for each monitoring well. Please provide the data for the past five years of measurement, at minimum.
3. Graphs and tables showing 5-year trends in effluent concentrations for the following constituents: ammonia, BOD, nitrate, TDS, TKN, total nitrogen, and TSS.

4. Compliance records and corrective actions taken or planned to bring the Discharger into full compliance with WDRs.
5. Modifications or additions, or major maintenance conducted on flow measuring equipment, treatment, or disposal facilities during the past year. If none, then so state.
6. Analysis of groundwater quality trends with respect to nitrate as nitrogen and TDS for all monitoring wells. Please include any monitoring data for the past five years and include monitoring data for new wells, as data are collected.
7. Names and grades of all certified operators.
8. Include a summary of the following Farm Management information:
  - a. Mass harvested, in pounds, of alfalfa (or other crop) at the irrigation site each month;
  - b. If any recycled water was applied beyond the crops need and reason for the over application; and
  - c. If another crop is rotated with alfalfa, report the crop grown.

C. Sampling and Analysis Plan

By **November 7, 2019**, pursuant to General Provisions No. 1.d of the General Provisions for Monitoring and Reporting, please submit a revised Sampling and Analysis Plan (SAP). The SAP must include a detailed description of procedures and techniques for:

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

9. Frequency of calibration for any onsite field equipment or flow meters; and
10. Description of how onsite measurements are performed.

The Discharger must also keep the most recent version of the SAP at the plant and accessible to personnel performing sampling and analyses. The SAP is subject to review during the Water Board's plant compliance inspections.

D. Spill Reporting

1. In accordance with the requirements of Health and Safety Code (HSC), section 5411.5, the Discharger must provide notification to the local health officer or the director of environmental health with jurisdiction over the affected water body of any unauthorized release of sewage or other waste that causes, or probably will cause, a discharge to any waters of the state.
2. In accordance with the requirements of CWC, section 13271, the Discharger must provide notification to the Office of Emergency Services (OES) of the release of reportable amounts of hazardous substances or sewage that causes, or probably will cause, a discharge to any waters of the state. CCR, title 23, section 2250, defines a reportable amount of sewage as being 1,000 gallons. The phone number for reporting these releases to OES is (800) 852-7550.
3. The Discharger must notify the Water Board of any unauthorized release of sewage from its wastewater treatment plant that causes, or probably will cause, a discharge to a water of the state as soon as possible, but not later than **two (2) hours** after becoming aware of the release. This notification does not need to be made if the discharger has notified OES. The phone number for reporting these releases of sewage to the Water Board is (760) 241-6583. At a minimum, the following information must be provided:
  - a. Location, date, and time of the release;
  - b. Water Body that received or will receive the discharge;
  - c. Estimate of the amount, or volume, of sewage or other waste released and the amount that reached a surface water at the time of notification;
  - d. If ongoing, the estimated flow rate of the release at the time of the notification; and
  - e. Name, organization, phone number, and email address of the reporting representative.

4. As soon as possible, but **not later than twenty four (24) hours** after becoming aware of an unauthorized discharge of sewage or other waste from its wastewater treatment plant to a water of the state, the Discharger must submit a statement to the Water Board by email at [Lahontan@waterboards.ca.gov](mailto:Lahontan@waterboards.ca.gov). If the discharge is 1,000 gallons or more, this statement must certify that OES has been notified of the discharge in accordance with CWC, section 13271. The statement must also certify that the local health officer or director of environmental health with jurisdiction over the affected water bodies has been notified of the discharge in accordance with HSC, section 5411.5. The statement shall also include, at a minimum, the following information.
- a. Agency, Board Order No. and MRP No., if applicable;
  - b. Location, date, and time of the discharge;
  - c. Water Body that received the discharge;
  - d. Map showing the release location;
  - e. Description of the level of treatment of the sewage or other waste discharged;
  - f. Initial estimate of the amount, or volume, of sewage or other waste released and the amount that reached a surface water;
  - g. OES control number and the date and time that notification of the incident was provided to OES; and
  - h. Name of the local health officer or director of environmental health representative notified (if contacted directly), the date and time of notification, and the method of notification (e.g., telephone, email, fax).

Ordered by:  Dated: 7/31/2019  
PATTY Z. KOUYOUMDJIAN  
EXECUTIVE OFFICER

- Attachments:
- A. General Provisions for Monitoring and Reporting, dated September 1, 1994
  - B. Lahontan Water Board Monitoring Report Cover Letter Form
  - C. Barstow Groundwater Monitoring Well Locations
  - D. Groundwater Monitoring Wells Table
  - E. Wells to be Sampled and Frequency

## Attachment A

### 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 man approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

## 2. OPERATIONAL REQUIREMENTS

### a. Sample Results

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

### b. Operational Log

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

## 3. REPORTING

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

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

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

#### 4. NONCOMPLIANCE

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

x:PROVISIONS WDRS

file: general

**Attachment B – Lahontan Water Board Monitoring Report Cover Letter Form**

Date \_\_\_\_\_

California Regional Water Quality Control Board  
Lahontan Region  
15095 Amargosa Road, Building 2, Suite 210  
Victorville, CA 92394

**Facility Name:**

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**Address:**

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---

**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:**

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

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c) Reported Value(s) or Volume:

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d) WDRs/NPDES  
Limit/Condition:

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

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f) Explanation of Cause(s):

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

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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.

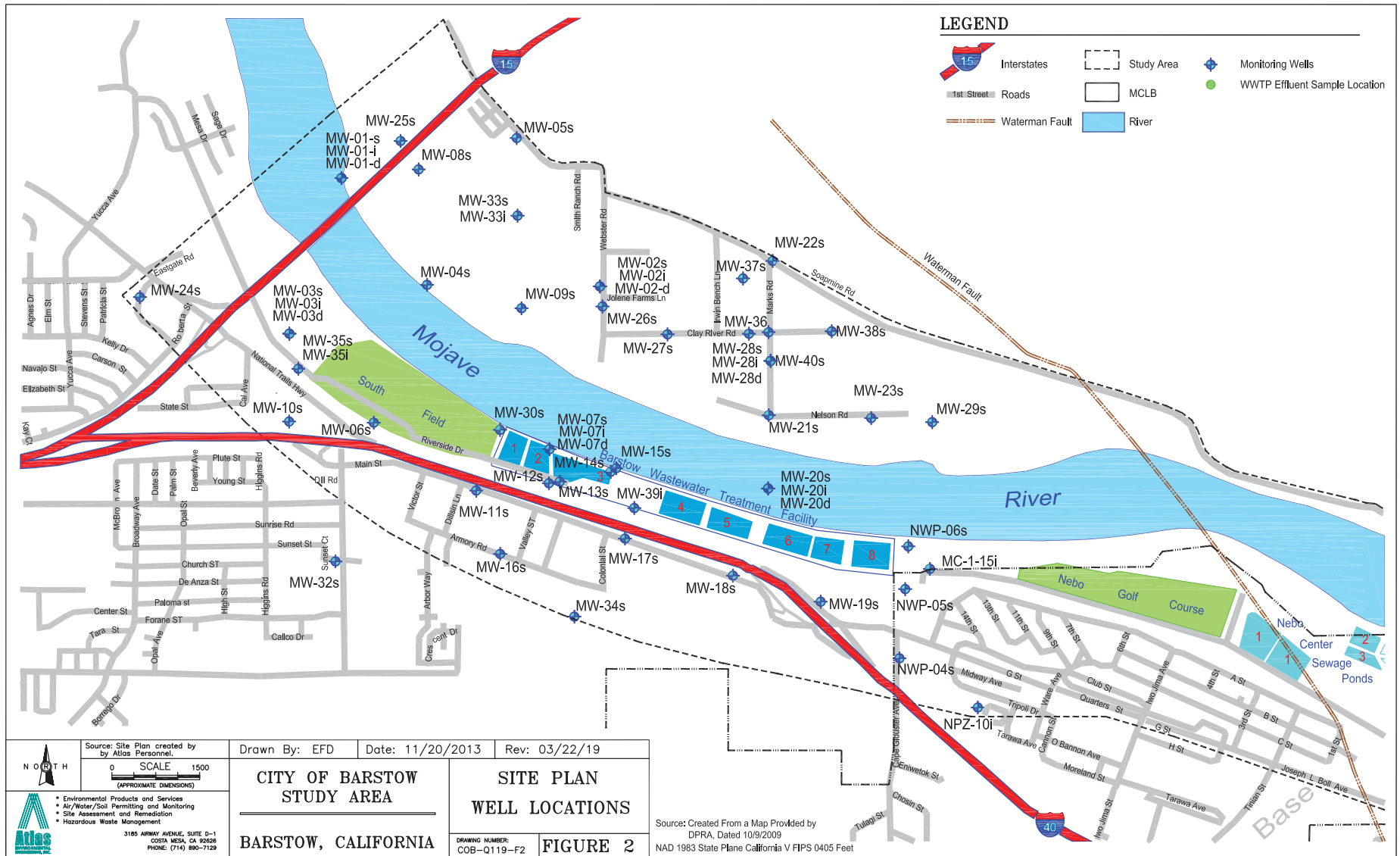
Sincerely,

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

# Attachment C - Barstow Groundwater Monitoring Well Locations



## LEGEND

- Interstates
- Study Area
- Monitoring Wells
- WWTP Effluent Sample Location
- Roads
- MCLB
- Waterman Fault
- River

Source: Site Plan created by Atlas Personnel.

Drawn By: EFD Date: 11/20/2013 Rev: 03/22/19

**CITY OF BARSTOW STUDY AREA**

**SITE PLAN WELL LOCATIONS**

**BARSTOW, CALIFORNIA**

DRAWING NUMBER: COB-Q119-F2 **FIGURE 2**

Source: Created From a Map Provided by DPRA, Dated 10/9/2009  
NAD 1983 State Plane California V FIPS 0405 Feet

13185 AIRWAY AVENUE, SUITE D-1  
COSTA MESA, CA 92626  
PHONE: (714) 890-7129

## Attachment D – Groundwater Monitoring Wells Table

<b>Groundwater Monitoring Wells</b>			
<b>Shallow Zone Monitoring Wells</b>		<b>Screen Interval (feet below ground surface)</b>	<b>Total Depth (feet)</b>
<b>Old Name</b>	<b>New Name</b>		
E1(1)	MW-01s	40 - 80	100
R1(2)	MW-02s	20 - 40	40
D2(3)	MW-03s	60 - 80	100
P1(4)	MW-04s	50 - 80	85
G1(5)	MW-05s	27 - 57	57
F1(6)	MW-06s	40 - 80	85
H2(7-2)	MW-07s	20 - 50	55
	MW-08s	25 - 40	45
	MW-09s	16 - 36	40
	MW-10s	60 - 80	82
	MW-11s	30 - 40	41
	MW-12s	15 - 30	30
	MW-13s	9 - 24	24.5
	MW-14s	15 - 30	30
	MW-15s	5 - 20	20
	MW-16s	40 - 65	65
	MW-17s	35 - 60	60
	MW-18s	40 - 50	50
	MW-19s	35 - 50	50
	MW-20s	6 - 21	21
	MW-21s	3 - 18	18
	MW-22s	30 - 60	60
	MW-23s	5 - 20	20
	MW-24s	90 - 105	105
	MW-25s	15 - 30	30
	MW-26s	5 - 65	65
	MW-27s	5 - 65	65
	MW-28s	5 - 65	65
	MW-29s	5 - 25	25
	MW-30s	10 - 25	27
	MW-32s	40 - 60	60
	MW-33s	10 - 30	32
	MW-34s	60 - 75	75
	MW-35s	55 - 75	78
	MW-36s	7 - 27	28
	MW-37s	14 - 34	38.5
	MW-38s	6 - 26	32
	MW-40s	8 - 28	29
	NWP-04s	62 - 82	83
	NWP-05s	39 - 59	69
	NWP-06s	12 - 32	34
<b>Intermediate Zone Monitoring Wells</b>		<b>Screen Interval (feet below ground surface)</b>	<b>Total Depth (feet)</b>
<b>Old Name</b>	<b>New Name</b>		
	MC-1-15i	80 - 100	100
E1(1)	MW-01i	140 - 160	180
R1(2)	MW-02i	120 - 140	140

<b>Groundwater Monitoring Wells</b>			
<b>Intermediate Zone Monitoring Wells</b>		<b>Screen Interval (feet below ground surface)</b>	<b>Total Depth (feet)</b>
<b>Old Name</b>	<b>New Name</b>		
D2(3)	MW-03i	170 - 190	190
H1(7-1)	MW-07i	134 - 154	159
	MW-20i	105 - 115	115
	MW-28i	145 - 165	165
	MW-33i	140 - 160	160
	MW-35i	147-167	170
	MW-39i	150 - 170	170
	NPZ-10i	70 - 90	90
<b>Deep Zone Monitoring Wells</b>		<b>Screen Interval (feet below ground surface)</b>	<b>Total Depth (feet)</b>
<b>Old Name</b>	<b>New Name</b>		
E1(1)	MW-01d	230 - 250	270
R1(2)	MW-02d	260 - 280	280
D2(3)	MW-03d	280 - 300	300
	MW-07d	240 - 260	260
	MW-20d	240 - 260	260
	MW-28d	240 - 260	260

**Attachment E**

**Wells to be Sampled and Frequency**

The table below describes the groundwater monitoring wells that must be sampled and frequency of sampling.

**Column A:** Conduct static groundwater elevation measurements and constituent sampling of groundwater monitoring wells in accordance with the table in MRP, section II.E.2 starting in Third Quarter 2019.

**Column B:** Conduct static groundwater elevation measurements quarterly and constituent sampling of groundwater monitoring wells in accordance with the table in MRP, section II.E.2 starting in Fourth Quarter 2019.

**Column C:** Conduct static groundwater elevation measurements quarterly and constituent sampling in accordance with the table in MRP, section II.E.2 starting in Fourth Quarter 2019.

The following symbols used in the table represent monitoring well screen intervals with multiple completions.

- s = Shallow screen interval
- i = Intermediate screen interval
- d = Deep screen interval

The Discharger may propose to modify this schedule for well sampling and submit for Water Board staff review. Upon written request by the Discharger, changes to the following table may be proposed and must include adequate justification. Water Board staff will review proposed changes and make recommendations to the Water Board Executive Officer. If proposed changes are accepted, the Executive Officer will issue an amended MRP for the Facility.

<b>Static Groundwater Monitoring Wells Elevation Measurements</b>		
<b>Column A</b>	<b>Column B</b>	<b>Column C</b>
<b><i>Shallow Zone</i></b>		
MW-07s	MW-01s	MW-05s
MW-14s	MW-02s	MW-10s
MW-15s	MW-03s	MW-16s
MW-20s	MW-04s	MW-22s
MW-30s	MW-06s	MW-24s
NWP-06s	MW-08s	MW-32s
	MW-09s	MW-34s
	MW-11s	
	MW-12s	
	MW-13s	
	MW-17s	
	MW-18s	
	MW-19s	

<b>Static Groundwater Monitoring Wells Elevation Measurements</b>		
<b>Column A</b>	<b>Column B</b>	<b>Column C</b>
<b>Shallow Zone</b>		
	MW-21s	
	MW-23s	
	MW-25s	
	MW-26s	
	MW-27s	
	MW-28s	
	MW-29s	
	MW-33s	
	MW-35s	
	MW-36s	
	MW-37s	
	MW-38s	
	MW-40s	
	NWP-05s	
<b>Intermediate Zone</b>		
	MW-01i	MW-28i
	MW-02i	MW-33i
	MW-07i	MC-1-15i
	MW-20i	
	MW-35i	
	MW-39i	
<b>Deep Zone</b>		
	MW-01d	MW-03d
	MW-02d	MW-20d
	MW-07d	MW-28d

*Note: Some wells (NWP-05s, NWP-06s, and MC-1-15i), which are listed on the above table, are located on federal land controlled by the United States Marine Corps Logistics Base Barstow, Nebo Center. The Discharger may use data collected by federal contractors, if possible, provided the wells are surveyed to a common datum and collected data represent a similar temporal period. Otherwise, the Discharger must request access to sample those wells and, if denied, show evidence of denial.*