

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

**CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS  
NO. R6V-2007-0014  
WDID NO. 6B360105004**

FOR

**VICTOR VALLEY WATER DISTRICT AND  
HIGH DESERT POWER PROJECT LIMITED LIABILITY CORPORATION,  
HIGH DESERT POWER PLANT – GROUND WATER BANKING OPERATION**

\_\_\_\_\_ San Bernardino County \_\_\_\_\_

**WHEREAS** the California Regional Water Quality Control Board, Lahontan Region, (Water Board) finds:

1. The Conditional Waiver of Waste Discharge Requirements No. R6V-2007- (Proposed) replaces Conditional Waiver of Waste Discharge Requirements No. R6V-2002-0010, which expired on February 13, 2007.
2. The High Desert Power Project (HDPP) Limited Liability Corporation and Victor Valley Water District (VVWD) (Dischargers) operate a water treatment plant (WTP), water distribution system and a series of ground water injection/extraction wells as part of a ground water banking project (Facility) to supply water for the High Desert Power Plant. The Facility treats State Water Project (SWP) water for direct injection into ground water for banked underground storage to be used for power plant cooling in the event that SWP water is not available for direct use. No on-site waste disposal exists and concentrated WTP brine sludge and residue is disposed offsite. Sludge generation and disposal is discussed in the SAP and reported annually in the Annual Operations Report.
3. Water Code section 13260, subdivision (a) requires that any person discharging waste or proposing to discharge waste within the region that could affect the quality of waters of the State, other than into a community sewer system, shall file with the appropriate Water Board a Report of Waste Discharge containing such information and data as may be required by the Water Board.
4. The Dischargers submitted a Report of Waste Discharge (RWD) on March 29, 2006 and a Response to LRWQCB Comments, Application for Waste Discharge Requirements report on August 4, 2006. In the RWD, the Dischargers proposed revisions to the annual average treatment levels for Trihalomethanes (THMs) and Total Dissolved Solids (TDS). No additional changes to existing treatment levels or conditions from the original waiver are proposed. Pursuant to Water Code section 13269, subdivision (a) the Regional Board may waive Waste Discharge Requirements (WDRs) for projects that have filed a RWD. Such Waivers must be

in the public interest, may not exceed five years, may be conditional, and may be terminated at any time by the Regional Board. This Waiver establishes conditions and monitoring criteria for the discharge and conditionally waives WDRs because it is in the public interest to do so due to the following:

- a. The water quality changes are consistent with maximum benefit to the people of the State because the use of SWP water eliminates further ground water overdraft that would occur if ground water were used for cooling water purposes. The State also has an interest in increasing power output by encouraging new power plants statewide. This plant provides increased power capability for the area, jobs to the local economy, and reuses a former federal military base. The degree of degradation will diminish over the life of the project because the injection rates will likely be highest during the first fifteen years of commercial operation at the end of which a banked amount of approximately 13,000 AF must be achieved. Use of reverse osmosis technology would require additional SWP water per year to compensate for waste brine and would increase waste disposal costs due to additional waste brine and use additional landfill capacity.
- b. The water quality changes will not unreasonably affect present and anticipated beneficial uses because the area of degraded water is estimated to be limited to approximately 1800 feet from the points of injection (HDPP well field). The final water quality will not impact beneficial uses and no other ground water users are affected. Additionally, the injected SWP water will contain lower concentrations of trace metals, including arsenic and chromium, than background water quality.
- c. The water quality changes will not result in water quality less than prescribed in the Basin Plan because the injected SWP water will meet all California Code of Regulations, Title 22 drinking water standards and Basin Plan objectives.
- d. The project is consistent with the use of best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the State because the additional costs associated with using reverse osmosis technology are not warranted when considering the degree of treatment provided with ultrafiltration and ultraviolet disinfection. Although reverse osmosis (RO) has been identified as the best *available* treatment or control for removing TDS in the water prior to injection, best "available" control does not consider cost, unlike best "practicable" control. Moreover, the use of an RO system in this case may have negative environmental impacts that outweigh the marginal benefit of achieving slightly lower TDS levels. These negative environmental impacts include the need for additional acre-feet per year of SWP water to compensate for RO brine reject water and the generation of salt waste and the associated impacts of its disposal in local/regional landfills.

5. The WTP is located on the Southern California Logistics Airport in Victorville with four injection/extraction wells located about five miles south (Attachment A).
6. The Dischargers use approximately 4,000 acre-feet (AF) of water per year for power plant cooling which is supplied directly from the SWP or extracted from the ground water "bank." According to criteria developed by the California Energy Commission (CEC), as part of project approval, the Dischargers must bank a total of 13,000 AF (a three-year supply plus 1,000 AF) by injection during the first five years of the project. At later times, the amount of water that is extracted will be replaced with an equal amount that is injected. On July 19, 2006, the CEC approved HDPP's petition to extend the deadline to inject the 13,000 AF from 5 years from the date of commercial operation to 15 years.
7. The Dischargers currently use conventional means (coagulation, sedimentation, and filtration) to remove settleable and suspended solids, turbidity and pathogens followed by ultrafiltration using a membrane filter to remove molecular constituents (including viruses) greater than 0.005 microns. After treatment and storage, water is disinfected with chloramine to maintain a 0.5 milligrams per liter (mg/L) combined chlorine residual to prevent biofouling in the 6.5-mile water pipeline and dual-purpose ground water injection and extraction wells. The injected water is continuously monitored, and any water with a TDS concentration over 400 mg/L is not used for injection but is used for other purposes in the power plant. During 2004 and 2005, higher than anticipated levels of TDS in the SWP water and elevated THM concentrations limited injection volumes. This Waiver requires that the TDS and THM concentrations in the injected water must achieve a yearly average of no greater than 322 mg/L and 2 micrograms per liter ( $\mu\text{g/L}$ ), respectively.
8. As part of the RWD, a ground water modeling report was submitted by the HDPP that evaluated the hydraulic and ground water quality changes resulting from a revision of TDS and THM discharge requirements. The possible degradation of ground water in the area of injection wells over a 30-year duration was predicted using solute fate and transport models (USGS, MT3D99, MODFLOW). Four predictive simulations were performed. One simulation was a baseline scenario reflecting the currently approved treatment levels and banked volume. The other three simulations reflected the proposed discharge requirements and three different total banked volumes.

Results of the modeling indicated that there would be no significant changes in predicted concentrations or duration of effects relative to the Baseline Scenario. Of the three modified scenarios, the "worst case" annual scenario indicated that receiving water concentrations may increase 200 to 250 mg/L for TDS and 1.25 to 1.5  $\mu\text{g/L}$  for THMs above the Baseline Scenario near the injection wells. The results also indicated that the lateral extent of these changes would be limited to within several hundred feet of the injection/extraction wells. There are currently no water users within one-half mile of the injection/extraction wells.

Reverse osmosis (RO) was previously identified in an anti-degradation analysis as the best available technology for removing TDS in the SWP water prior to injection to ensure there is no degradation. The Dischargers provided a Cost Analysis for three different RO systems: 200 gpm, 500 gpm, and 1000 gpm. The cost to operate the 200 gpm system is estimated to be \$133,000 for capital costs and \$1,612,200 for total operation and maintenance costs per year. Total Capital Costs for the 500 and 1000 gpm systems increased to between 14.5 and 19.5 million dollars due to the need of increasing the capacity of the Zero Liquid Discharge system to treat the additional volume of brine solution from the RO system. Currently, the CEC has required the Dischargers to install and operate a pre-injection ultraviolet disinfection system by June 2007 and, as a contingency, a RO system if the Dischargers fail to meet the milestones specified in CEC Order No. 06-0719-2.

9. In accordance with State Water Resources Control Board (SWRCB) Resolution No. 68-16 (*Statement of Policy With Respect to Maintaining High Quality of Waters in California*) and the Water Quality Control Plan for the Lahontan Region (Basin Plan) water degradation may be allowed if the following conditions are met: 1) any change in water quality must be consistent with maximum benefit to people of the State; 2) will not unreasonably affect present and anticipated beneficial uses; 3) will not result in water quality less than prescribed in the Basin Plan; and 4) discharges must use the best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the State.
10. Based on the information submitted as part of the August 23, 2001 RWD, the Water Board evaluated the ground water degradation resulting from the project in a document called *Addendum to Functional Equivalent of an Environmental Impact Report Certified by the California Energy Commission*. Since the Dischargers proposed revising the discharge requirements for TDS and THM, the Water Board evaluated the groundwater degradation resulting from the revision of discharge requirements in a document called *Second Addendum to Functional Equivalent of an Environmental Impact Report Certified by the California Energy Commission*. The Water Board finds that, for this project, a condition of long-term localized degradation in the vicinity of the injection/extraction wells is reasonable, acceptable and appropriate because of the following factors.
  - a. The water quality changes are consistent with maximum benefit to the people of the State because the use of SWP water eliminates further ground water overdraft that would occur if ground water were used for cooling water purposes. The State also has an interest in increasing power output by encouraging new power plants statewide. This plant provides increased power capability for the area, jobs to the local economy, and reuses a former federal military base. The degree of degradation will diminish over the life of the project because the injection rates will likely be highest during the first fifteen years of commercial operation at the end of which a banked amount

of approximately 13,000 AF must be achieved. Use of reverse osmosis technology would require additional SWP water per year to compensate for waste brine and would increase waste disposal costs due to additional waste brine and use additional landfill capacity.

- b. The water quality changes will not unreasonably affect present and anticipated beneficial uses because the area of degraded water is estimated to be limited to approximately 1800 feet from the points of injection (HDPP well field). The final water quality will not impact beneficial uses and no other ground water users are affected. Additionally, the injected SWP water will contain lower concentrations of trace metals, including arsenic and chromium, than background water quality.
- c. The water quality changes will not result in water quality less than prescribed in the Basin Plan because the injected SWP water will meet all California Code of Regulations, Title 22 drinking water standards and Basin Plan objectives.
- d. The project is consistent with the use of best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the State because the additional costs associated with using reverse osmosis technology are not warranted when considering the degree of treatment provided with ultrafiltration and ultraviolet disinfection. Reverse osmosis would reduce the TDS in the injected water, but costs significantly more than ultrafiltration and would result in water losses of 10 percent or more and would create a disposal problem for the brine from the treatment process. Therefore, ultrafiltration represents the best practicable treatment or control.

Based on the factors listed in items a. through d., above, the Water Board finds that: (1) changes in water quality as a result of this project are consistent with maximum benefit to people of the State; (2) beneficial uses will not be affected; (3) changes in water quality will be consistent with Basin Plan objectives; and (4) the best practicable treatment or control of the discharge is used such that no pollution or nuisance results. Therefore, the Water Board further finds the project is consistent with SWRCB Resolution No. 68-16.

- 11. Cooling water will be used about 8.5 times through the evaporative cooling tower before becoming concentrated into brine slurry and a solid salt residue. The Facility proposes to dispose approximately eight (8) tons per day of this residue into a Class III municipal solid waste landfill because the material would not be classified as "hazardous" waste. However, this material could leach to ground water and be classified as "designated" waste that may not be disposed into a Class III landfill. This Waiver requires that the salt residue be adequately characterized and disposed into a legal waste management unit capable of accepting the waste.
- 12. The Dischargers have proposed a monitoring program to verify the quality of water injected and to determine the effect of injected water on receiving ground water

consisting, in part, of continuous specific conductivity and turbidity monitoring in the pre-injection water streams. Specific conductivity measurement will be converted to TDS values. Flow monitoring will measure the rates and amounts of water injected and extracted. Chemical constituents (general minerals, general physical parameters, total metals, total organic carbon, total trihalomethane formation potential, combined chlorine, giardia and cryptosporidium) will be measured in the injection water. Ground water will be measured for elevation to determine if hydraulic control of the injected water is behaving as predicted in the computer model. Trihalomethane compounds will also be monitored in addition to the above constituents.

13. Pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code section 21000, et seq.), the CEC, acting as Lead Agency, circulated a Commission Decision (Docket No 97-AFC-1), for the proposed Project and certified it on May 3, 2000. This document includes conditions regarding potential impacts to water quality. The CEC process is certified by the California Secretary for Resources as meeting the requirements of CEQA section 21080.5 for environmental review and written documentation and is the equivalent of an Environmental Impact Report (EIR).
  - a. The CEC evaluated the project with respect to SWRCB Resolution No. 75-58 (*Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling*) and determined that the use of SWP water is consistent with Resolution No. 75-58.
  - b. The CEC identified and evaluated a number of potential impacts for which the Water Board has jurisdiction. Those impacts and an analysis of them are described in the *Addendum to Functional Equivalent of an Environmental Impact Report Certified by the California Energy Commission*. The Water Board also evaluated the potential impacts from the revision of TDS and THM discharge requirements in the *Second Addendum to Functional Equivalent of an Environmental Impact Report Certified by the California Energy Commission*. All other impacts evaluated by the CEC are not under the jurisdiction of the Water Board and were not evaluated by Water Board.
  - c. Since the CEC completed the Functional Equivalent of an EIR, the project proponent substituted ultrafiltration (following conventional treatment of the SWP water) for the reverse osmosis treatment proposed originally. As initially proposed, a side-stream of the injected water would have been treated using reverse osmosis technology to remove TDS constituents so that the injected water would be of equal quality to background water. Under the current project conditions, the entire stream of injected water is treated using ultrafiltration. The ultrafiltration currently in place meets the requirements of CEC Order No. 06-0719-2. As a result of the change in treatment technology, the entire stream of injected water is treated to remove colloidal particles (including viruses). However, TDS constituents are not removed. The Dischargers are

currently required by the CEC to install and operate a pre-injection ultraviolet disinfection system by June 2007 to reduce THM concentrations. The CEC also required the installation and operation of a RO system, as a contingency, if the project fails to meet the water injection milestones specified in CEC Order No. 06-0719-2.

- d. Under California Code of Regulations, title 14, sections 15052 (Shift in Lead Agency Designation) and 15162 (Subsequent EIR and Negative Declarations), a responsible agency shall assume the lead agency role and prepare a subsequent EIR if substantial changes are proposed in the project that will require major revisions of the previous environmental document due to the involvement of new significant environmental effects. As described in the *Addendum to Functional Equivalent of an Environmental Impact Report Certified By the California Energy Commission*, and the *Second Addendum to Functional Equivalent of an Environmental Impact Report Certified by the California Energy Commission*, the project and the revision of TDS and THM discharge requirements result in less than significant environmental effects. Therefore, the Water Board finds that none of the conditions described in these sections are met, and the CEQA lead agency status should not be shifted from the CEC to the Regional Board, and no subsequent EIR is necessary.
- e. Under California Code of Regulations, title 14, section 15163 (Supplement to an EIR), a responsible agency may prepare a Supplement to an EIR if minor changes are necessary to make the previous EIR adequate. The Water Board finds that none of the conditions described in this Section requires a supplement to an EIR.
- f. Under California Code of Regulations, title 14, section 15164 (Addendum to an EIR or Negative Declaration), a responsible agency is required to prepare subsequent environmental documentation if minor changes are proposed in the project that do not require a subsequent EIR. As previously stated, the Water Board prepared the *Second Addendum to Functional Equivalent of an Environmental Impact Report Certified by the California Energy Commission* and finds that the Second Addendum is appropriate to address cumulative impacts from the minor degradation resulting from the revision of discharge requirements for TDS and THM.

**THEREFORE BE IT RESOLVED:**

1. In accordance with Water Code section 13269, the Water Board has determined that, consistent with the Basin Plan, it is in the public interest to conditionally waive Waste Discharge Requirements given the consideration of the technical, economic and social factors described above and provided the following conditions are met.
2. This Conditional Waiver expires on **March 14, 2012** (five years after adoption) unless terminated by the Water Board before then. The Water Board may renew

this Conditional Waiver if appropriate at that time or earlier.

3. The following conditions apply:

- a. The discharge of injection water shall not contain concentrations in excess of the following limits as determined based on a running one-year average of samples collected.

<u>Constituent</u>	<u>Mean</u>	<u>Maximum</u>
Total Dissolved Solids	322 mg/L <sup>1,2</sup>	400 mg/L <sup>3,4</sup>
Combined Chlorine Residual		0.5 mg/L <sup>5</sup>
Turbidity		1.0 NTU <sup>5</sup>
Trihalomethanes	2.0 µg/L <sup>6</sup>	5.0 µg/L <sup>5</sup>

- b. Concentrated brine and sludge residue from the WTP and power plant cooling shall be adequately characterized to determine if it is “hazardous” or “designated” and disposed into an approved waste management unit. No concentrated brine and sludge residue may be disposed into a Class III landfill or any unlined waste management unit or any waste management unit without a clay liner.
- c. The injection of SWP water shall not cause a violation of any applicable water quality standards for receiving water adopted by the Water Board or the State Water Resources Control Board.
- d. Installation and destruction of injection/extraction or monitoring wells shall be in accordance with California Well Standards criteria (DWR Bulletins 74-90 and 74-81). Well Completion Reports shall be submitted to the DWR as required in the Water Code, section 13751. The well construction details shall be reported for each new well.

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<sup>1</sup> The mean TDS limit represents the estimated injection water quality (Table 8, Report of Waste Discharge).  
<sup>2</sup> To determine compliance with the mean TDS limit, hourly electrical conductivity readings shall be recorded and converted to an equivalent TDS value. The average of all hourly TDS values over the reporting period shall be determined and reported.  
<sup>3</sup> The maximum TDS limit represents 80% of the secondary drinking water standard of 500 mg/L.  
<sup>4</sup> To determine compliance with the maximum TDS limit, hourly electrical conductivity readings shall be recorded and converted to an equivalent TDS value. More than one exceedance greater than the maximum limit over a running four-day period is considered a violation. This calculation shall be determined and reported.  
<sup>5</sup> To determine compliance with the maximum combined chlorine residual limit, turbidity limit, and trihalomethane limit, the maximum values based on the frequency specified in the attached Monitoring Program shall be determined and reported.  
<sup>6</sup> To determine compliance with the mean trihalomethane limit, the average of all samples for the reporting period shall be determined and reported based on the sampling frequency described in the attached Monitoring Program.

- e. The Facility shall be equipped with sampling points and sounding devices at appropriate locations in the WTP and at individual injection/extraction wells so that water quality samples and water level measurements can be collected.
- f. A revised RWD (including revised ground water flow fate and transport model) must be submitted if the injected or extracted water volumes exceed by more than 10 percent in any one year the volumes described in *Table 3 (High Desert Power Project Groundwater Banking Operation-Scenario 1)* of the March 29, 2006 Report of Waste Discharge or more than 15% over a running five-year period.
- g. Prior to injection of treated SWP water, the natural background water quality shall be determined for each constituent listed in the attached monitoring program (General minerals, Total Metals, General Physical Parameters, Other Constituents) and organic constituents as determined from US EPA methods 8015 and 8260 and reported for each well.
- h. The Dischargers shall monitor treated pre-injection water, receiving ground water and extracted groundwater as described in the attached Monitoring and Reporting Program to verify the conditions of this waiver. A Sampling and Analysis Plan (SAP) shall be submitted by **April 15, 2007** that describes sample collection method and procedures, sample frequencies and methods of analysis and data quality control. A revised SAP shall be submitted if changes are made to the program.
- i. Annual reports shall be submitted to the Water Board in accordance with the attached Monitoring and Reporting Program describing how the Dischargers have complied with this Conditional Waiver including water quality and ground water elevation monitoring data collected to verify compliance with this Conditional Waiver and as required by the CEC.
- j. By **October 15, 2011** (five years after adoption minus 120 days), a report shall be submitted to the Water Board evaluating how the Dischargers have complied with this Conditional Waiver. Included in the report shall be a time series comparison of predicted water elevation and quality changes over time versus observed changes. This report shall be signed by a California registered Civil Engineer or Geologist and shall reference this Conditional Waiver.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Waiver adopted by the California Regional Water Quality Control Board, Lahontan Region, on March 14, 2007.



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HAROLD J. SINGER  
EXECUTIVE OFFICER

- Attachments:
- A. Regional Setting
  - B. Monitoring and Reporting Program

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

**MONITORING AND REPORTING PROGRAM NO. R6V-2007-0014**

**WDID NO. 6B360105004**

**FOR**

**HIGH DESERT POWER PLANT & VICTOR VALLEY WATER DISTRICT  
GROUND WATER BANKING PROJECT**

San Bernardino County

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1. Scheduled Reports to be Filed With the Water Board

The following reports shall be submitted to the Water Board pursuant to Water Code Section 13267, as specified below.

- a. By **April 15, 2007**, submit required Sampling and Analysis Plan.
- b. By **March 1, 2008** and by **March 1 of each year thereafter**, submit required annual reports.
- c. By **October 15, 2011** (five years after adoption minus 120 days), submit required report that evaluates how the Dischargers have complied with this Conditional Waiver. The report shall include a time series comparison of predicted water elevation and quality changes over time versus observed changes.

2. Required Monitoring Parameters and Frequency

PARAMETERS	UNITS	FREQUENCY <sup>1</sup>
<b>Continuous Injection Water Monitoring</b>		
Specific Conductance	µmhos/cm	Continuous
Turbidity	NTU	Continuous
Combined Chlorine Residual	mg/L	Continuous
<b>Flow Monitoring</b>		
Inj/Ext Flow	Gallons	Continuous
Cumulative flow	Gallons	Continuous
Average Flow Rate	Gal per min.	Continuous
<b>Injection Water Chemistry Monitoring</b>		
<b>General Minerals</b>		
Total Dissolved Solids (TDS)	mg/L	Semi-annually
Specific Conductance	µmhos/cm	Semi-annually
Sulfate (SO <sub>4</sub> )	mg/L	Semi-annually
Chloride (Cl)	mg/L	Semi-annually

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<sup>1</sup> Quarterly monitoring shall reflect samples collected in each calendar quarter.  
Semi-annual monitoring shall reflect samples collected in each half of the calendar year.  
Annual monitoring shall reflect samples collected during each calendar year.

PARAMETERS	UNITS	FREQUENCY <sup>2</sup>
Calcium (Ca)	mg/L	Semi-annually
Magnesium (Mg)	mg/L	Semi-annually
Sodium (Na)	mg/L	Semi-annually
Potassium (K)	mg/L	Semi-annually
Bicarbonate (HCO <sub>3</sub> )	mg/L	Semi-annually
Hardness (as CaCO <sub>3</sub> )	mg/L	Semi-annually
Alkalinity (as CaCO <sub>3</sub> )	mg/L	Semi-annually
Fluoride (F)	mg/L	Semi-annually
Nitrate (as NO <sub>3</sub> )	mg/L	Semi-annually
Nitrite (as N)	mg/L	Semi-annually
Iron (Fe)	mg/L	Semi-annually
Manganese (Mn)	mg/L	Semi-annually
<b>Total Metals</b>		
Aluminum (Al)	mg/L	Semi-annually
Antimony (Sb)	mg/L	Semi-annually
Arsenic (As)	mg/L	Semi-annually
Barium (Ba)	mg/L	Semi-annually
Beryllium (Be)	mg/L	Semi-annually
Boron (B)	mg/L	Semi-annually
Cadmium (Cd)	mg/L	Semi-annually
Total Chromium (Cr)	mg/L	Semi-annually
Hexavalent Chromium (Cr VI)	mg/L	Semi-annually
Copper (Cu)	mg/L	Semi-annually
Lead (Pb)	mg/L	Semi-annually
Mercury (Hg)	mg/L	Semi-annually
Nickel (Ni)	mg/L	Semi-annually
Selenium (Se)	mg/L	Semi-annually
Thallium (Th)	mg/L	Semi-annually
Zinc (Zn)	mg/L	Semi-annually
<b>General Physical Parameters</b>		
pH	Units	Semi-annually
Temperature	Deg. C	Semi-annually
Apparent Color	Units	Semi-annually
Odor	Units	Semi-annually
Turbidity	NTU	Daily
Methylene Blue Active Substances (MBAS)	mg/L	Semi-annually
<b>Other Constituents</b>		
Total Organic Carbon	mg/L	Semi-annually
Trihalomethane Formation Potential	µg/L	Semi-annually

<sup>2</sup> Quarterly monitoring shall reflect samples collected in each calendar quarter.

Semi-annual monitoring shall reflect samples collected in each half of the calendar year.

Annual monitoring shall reflect samples collected during each calendar year.

PARAMETERS	UNITS	FREQUENCY <sup>3</sup>
Total Trihalomethane Compounds	mg/L	Monthly
Coliform	mpn/100 ml	Monthly
Combined Chlorine Residual	mg/L	Daily
<b>Ground Water Monitoring</b>		
General Minerals	See Above	Semi-annually
General Physical Parameters	See Above	Semi-annually
Metals	See Above	Semi-annually
Total Trihalomethane Compounds	mg/L	Semi-annually
Groundwater Elevation	Feet above msl	Quarterly
<b>Sludge Monitoring</b>		
Quantity generated	Cubic yards	Quarterly
Quantity disposed offsite	Cubic yards	Quarterly
Classification (Haz, Desig, Non Haz Solid)		Quarterly
Final disposition of waste (location & dates of disposal)		Quarterly
<b>General Reporting - (Items to be included with annual reports)</b>		
Operation and maintenance performed		Annually
Narrative compliance evaluation		Annually
Water Treatment Plant Operator Certification		Annually
Compliance Calculations		Annually
Violations noted		Annually
Contact Name/Telephone No./email		Annually
		Annually

<sup>3</sup> Quarterly monitoring shall reflect samples collected in each calendar quarter.  
Semi-annual monitoring shall reflect samples collected in each half of the calendar year.  
Annual monitoring shall reflect samples collected during each calendar year.