

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

**RESOLUTION NO. R6V-2004-0043  
WDID NO. 6B199511001**

**CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS**

FOR

**COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS LANCASTER  
SUB-BASIN FULL-SCALE AQUIFER STORAGE  
AND RECOVERY PROJECT**

Los Angeles County

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

1. Discharger

On November 21, 2003, the County of Los Angeles Department of Public Works submitted a Report of Waste Discharge for the Lancaster Sub-Basin Full-Scale Aquifer Storage and Recovery Project (Project). For the purpose of this Regional Board Conditional Waiver of Waste Discharge Requirements (Waiver), the County of Los Angeles Department of Public Works is referred to as the "Discharger."

2. Project

The Antelope Valley/East Kern Water Agency (AVEK) has an entitlement of 138,000 acre-feet per year of State Water Project (SWP) water. SWP water is transported from the Sacramento, San Joaquin Delta through canals and pipelines to several areas of Southern California. The Discharger has determined through a Pilot Project and Demonstration Project that storage and recovery of treated SWP water in groundwater basins is a feasible mechanism for providing a long-term water supply for municipal and domestic use in the Antelope Valley Region. The purpose of the Project is to implement full-scale water storage in the local aquifer and recovery project.

3. Pilot Project

The Discharger previously conducted a Pilot Project to determine if aquifer storage and recovery was a viable option for further evaluation. The Pilot Project consisted of the injection of 118 acre-feet (AF) of SWP water over a two-week period in January 1994. The findings of the Pilot Project were as follows.

- a. The aquifer system in the Pilot Project area consists of an upper and lower aquifer, which are separated by a blue clay. Most of the existing production wells are located in the upper aquifer. The upper aquifer is suitable for storage and recovery. The lower aquifer is unsuitable for this use due to low transmissivity, low water quality and depth.

- b. The initial concentration of total dissolved solids (TDS) in the receiving groundwaters measured at the injection well was measured at 140 milligrams per liter (mg/L). The TDS concentration of the injected SWP water (252 mg/L) is suitable for municipal and domestic supply (below 1000 mg/L) and agricultural supply below (450 mg/L). The Pilot Project resulted in an increase in the concentration of TDS at the injection well. The SWP water is of different quality when compared with quality of groundwater. The project caused an increase in TDS in the aquifer, a temporary degradation of the groundwaters. Based on sampling conducted in November 1994, the increased TDS concentrations in the Pilot Project area had been generally abated by dispersion and removal of SWP for municipal use.
- c. The increase in water level in the vicinity of the injection well field during the Pilot Project was approximately 30 feet. A 3-foot increase in water level elevation was measured during the Pilot Project in a well one-mile downgradient from the injection well field. The increase in groundwater elevation indicates that the injected AVEK water migrates to the southeast, toward the extraction wells.
- d. Additional data and information about the hydrogeology beneath the well field will be collected during monthly and quarterly groundwater monitoring events and used to fine tune injection and extraction rates within the capture zone to control the increase in water elevation. Hydrogeologic control will ensure the plume will not flow out of the footprint of the original pumping depression.

#### 4. Demonstration Project

The Discharger also conducted a larger scale Demonstration Project to determine aquifer properties and to evaluate the effects of injecting treated SWP water on the basin groundwater chemistry. The production, fate and transport of disinfection by-products, (total trihalomethanes [THMs]) were studied and evaluated. THMs were shown to be present in the injected treated SWP water at a concentration of 97.6 ug/L (micrograms/liter) and in groundwater at a maximum concentration of 127 ug/L but both declined to below the maximum contaminant level of 80 ug/L. After the third extraction (cycle 3) both declined to below 55 ug/L during startup, extraction and shutdown. The total haloacetic acids sampling showed an analysis of 40 ug/L. The TDS analysis ranges from 230 to 335 parts per million (ppm). The Demonstration Project ended November 17, 1999 and determined that implementation of a full-scale project is a technically, economically, and institutionally feasible way to increase the Lancaster region's available water supply.

#### 5. Proposed Injection Cycle

Based on the availability of surplus SWP water, and a proposed average cycle of five months injection and seven months extraction annually, the Project involves the injection of up to an annual maximum of 6,843 AF of SWP water to, and extraction of 13,282 AF, from the upper aquifer of the groundwaters of the Lancaster Sub-Basin. The SWP water is conventionally treated (coagulation, flocculation, sedimentation, filtration) by AVEK for domestic purposes for compliance with standards imposed by the California Department of Health Services for domestic supply. AVEK proposes to modify treatment facilities by June 2006 to further reduce formation of disinfection byproducts such as THMs.

6. Injection Location

The AVEK water will be delivered through an existing water supply line. The water will be injected at 5 sites within the pumping depression through existing and new groundwater production wells to be installed as necessary. The areas of injection are within the area bounded on the west by 6<sup>th</sup> Street West, on the east by 7<sup>th</sup> Street East, on the south by Avenue M-4 in the City of Palmdale, and on the north by Avenue K-4, in the City of Lancaster. The Project area corresponds to the area of depressed groundwater elevation chosen for the January 1994 Pilot Project and subsequent Demonstration Project. The area was chosen because historic and present groundwater pumping caused a pumping depression. The 15 injection wells are completed in the area of the depression. The extracted water will be further treated and used for municipal, domestic, and industrial supply in accordance with existing water supply requirements.

7. Project Area

The U.S. Geological Survey (USGS) completed a hydrologic model for the Project. Based on the model, the injected groundwater will remain in the groundwater depression and will be removed and blended during the extraction cycle. The area to be monitored covers an area of a two-mile radius around the proposed injection wells. The area of groundwater affected by the Project, generally encompasses Sections 26, 27, 34, and 35 of T7N, R12W, San Bernardino Base and Meridian, as shown on Attachments "A" and "B" which are made a part of this Waiver. The five sites containing the existing and proposed injection and extraction wells are located in the Cities of Lancaster and Palmdale, Los Angeles County, as follows.

- a. Site 1 - The injection/extraction wells located near the intersection of Avenue K-8 and 5th Street West, in the City of Lancaster
- b. Site 2 - The injection/extraction wells located near the intersection of Avenue L and 5th Street West, in the City of Lancaster
- c. Site 3 - The injection/extraction wells located near the intersection of Avenue K-8 and Division Street, in the City of Lancaster
- d. Site 4 - The injection/extraction wells located near the intersection of Avenue M and 7th Street West, in the City of Lancaster
- e. Site 5 - The injection/extraction wells located near the intersection of Avenue M and 5th Street East, in the City of Palmdale

A Monitoring and Reporting Program (Attachment "D") made a part of this Waiver requires groundwater monitoring to confirm that the USGS model is accurate, to measure the area of degradation, and to confirm that the condition of degradation is abated at the end of the Project.

8. Constituents of Concern (COCs)

Pursuant to definitions contained in Section 13050 of the California Water Code, the COCs, salts (inorganic salinity constituents), haloacetic acids, TDS, and THMs dissolved in the SWP water

are considered waste. These constituents are considered waste because: (1) the receiving waters do not contain THMs, (2) the concentration of COCs in the receiving waters are generally less than the concentration of COCs within the SWP water, and (3) the presence of any residual COCs shall be considered a "disposal." The concentrations of COCs in the treated SWP water meet standards established by the Department of Health Services for domestic supply.

9. Authorized Injection Sites

The injection wells contained in Sites 1-5 are the only authorized discharge sites for SWP water. These injection wells are illustrated on Attachment "A" of this Waiver. The groundwaters of the Lancaster Sub-basin within the existing overdraft depression as defined by the 2150-foot groundwater elevation contour are the only locations authorized to receive SWP water delivered through the injection wells.

10. Geology

The sediments beneath the Project area consist of interbedded gravel, sand, silt, and clay. The site is underlain by an upper and lower aquifer. Depth to groundwater in the upper aquifer is approximately 280 feet below ground surface (bgs). A 180-foot thick blue clay layer separates the upper and lower aquifers. The deeper aquifer is under confining pressure, has an upward vertical gradient augmented by overdraft from the upper aquifer, and has lower hydraulic conductivity and transmissivity, and is not suitable for storage.

11. Land Uses

The land uses at and surrounding the Project consist of the following:

- a. mixed residential, commercial, and industrial use in the Cities of Lancaster and Palmdale;
- b. Edwards Air Force Base and Air Force Plant #42; and
- c. open desert land.

12. Receiving Waters

The receiving waters are the groundwaters of the Antelope Valley Groundwater Basin (Department of Water Resources Hydrologic Unit No. 6-44).

13. Basin Plan

On March 31, 1995, the Regional Board adopted a Water Quality Control Plan for the Lahontan Region (Basin Plan). This Waiver implements the Basin Plan.

14. Beneficial Uses

The present and probable beneficial uses of the groundwaters of Antelope Valley Groundwater Basin as set forth and defined in the Basin Plan are:

- a. municipal and domestic supply;
- b. agricultural supply;

- c. industrial service supply; and
- d. freshwater replenishment.

15. Degradation Analysis

The Project will result in a temporary degradation of water quality. In accordance with State Water Resources Control Board Resolution No. 68-16 and the Basin Plan, the Discharger has submitted a Degradation Analysis for the Project as part of the Report of Waste Discharge. The Discharger has considered the following as part of the Degradation Analysis:

- a. The condition of degradation will be hydraulically contained within an existing groundwater depression.
- b. The treated SWP water meets State standards for municipal, domestic, and agricultural supply. Based on monitoring and hydraulic controls, the injected water will not adversely impact beneficial uses of the groundwaters.
- c. Some localized areas of the Antelope Valley Groundwater Basin are in overdraft, and expected growth in the Lancaster area may result in further overdraft of these areas. A Full-Scale Project is a feasible method of providing water to the people of Antelope Valley and countering overdraft in some areas of the Antelope Valley Groundwater Basin. According to the USGS, localized overdraft causes a condition of groundwater degradation.
- d. Treatment of the SWP water for TDS, haloacetic acids and THMs is technically feasible. Additional costs associated with the treatment may not be reasonable based on the incremental improvement in groundwater quality. AVEK is conducting a study to evaluate additional treatment of SWP water that may be necessary.
- e. Groundwater monitoring will be conducted during the Project to verify that the area of groundwater degradation is controlled, contained and removed.
- f. The Project includes a Contingency Plan which shall be implemented if: (1) the condition of degradation is not abated at the end of the Project **or** (2) the plume of degraded groundwater spreads outside the existing groundwater depression as defined by the 2150 foot groundwater elevation contours **or** (3) the concentration of THMs in the treated SWP injection water or commingled groundwater exceeds the conditions of this Waiver.
- g. The degradation will be abated by groundwater pumping for supply. After the completion of this Project, groundwater in excess of the SWP water will be extracted through restoring the groundwater close to its original background levels for salts THMs, haloacetic acids and TDS.

In consideration of these technical, economic, and social factors, the Regional Board finds that the condition of temporary degradation during the Project life is appropriate. Conditions such as injection limits, monitoring, and periodic review are necessary and appropriate to ensure the Project is conducted to protect beneficial uses. Discharge limits are needed to allow reasonable degradation while still maintaining a measure of safety to protect beneficial uses. A discharge (injection) limit of 72 mg/L for THM (90% of the MCL) is reasonable to allow for injected water

quality variation while protecting aquifer water quality. Consideration of any additional technology that becomes available to reasonably reduce COCs which are byproducts of disinfection with chlorine in the injection water shall be included in the periodic reviews of the project. The temporary degradation is appropriate because: (1) the condition will be controlled, (2) the Project will assist in abating an existing condition of overdraft, which may also be causing groundwater degradation, and (3) treatment of the SWP water currently is economically burdensome in consideration of the associated water quality improvement.

16. California Environmental Quality Act

The County of Los Angeles, the California Environmental Quality Act (CEQA) lead agency for the Project, determined that an Environmental Impact Report was needed for the Project. The County of Los Angeles completed in 2003, and certified on August 12, 2003 a final Environmental Impact Report (EIR) for the Project, discussing the injection and extraction of treated SWP water in the Project. The EIR did not identify any permanent or substantial unmitigated adverse changes in the environment of the Project. Temporary local groundwater quality degradation is anticipated in the form of marginally increased salts, haloacetic acids, TDS and THMs concentrations above background (non-detect) concentrations in the project area. The degradation is expected to be maintained below the State Department of Health Services respective Maximum Contaminant Levels (MCLs), be confined within the Project area, and exist only for the duration of the Project. Mitigation of any detectable THM degradation remaining within the Project area at the end of the Project will be addressed by the Discharger by additional extraction of groundwater and blending.

*Significant Impact No. 1* - the discharge of water from the development, testing and disinfection of wells could degrade surface or groundwater quality during the construction phase of the ASR project.

*Mitigation No. 1* - All discharges from development, testing and disinfection of wells will be conveyed, by either piped or open channel storm channel flow, to confined, bermed areas for dissipation by evaporation and percolation. No discharge will occur to surface waters. Prior to discharge the water will be held in tanks for settlement of sedimentation and for disinfection. Water will be held until the analytical results confirm a reduction of chlorine residual concentration to 0.5 mg/L or less. The process of development, testing and disinfection may last about a week for each well being constructed.

*Significant Impact No. 2* - Potential long-term impacts on groundwater quality include those associated with mixing of injected water with groundwater. The introduction of THMs to the aquifer would have a potential significant impact on the environment. Although the imported water and groundwater are both of drinking-water quality, and are both delivered to customers in Lancaster, imported water contains THMs, with concentrations greater than those in native groundwater. Formation of THMs requires the presence of chlorine, the presence of organic precursors and conditions favorable to the reactions forming THMs. The demonstration project showed that THMs continued to form in the groundwater system after injection.

*Mitigation No. 2a.* - During the life of the ASR Project, the District shall operate the ASR project in compliance with the Anti-degradation Analysis completed in accordance with SWRCB Policy (Resolution 68-16) maintaining present and potential beneficial uses for the Antelope Valley Basin as described in Chapter 2 of the Water Quality Control Plan for the Lahontan Region (Basin Plan) adopted March 31, 1995. The District shall also operate the ASR project in compliance with the drinking water regulatory program established by the California Legislature. The California Legislature established the drinking water regulatory program (Title 22 Code of Regulations) within the State Department of Health Services (DHS) in order to provide the orderly and efficient delivery of safe drinking water. The District shall operate the ASR project in compliance with primary and secondary drinking water standards established by DHS.

*Mitigation No. 2b.* - The District shall monitor injection rates, the volume of injected SWP water, and groundwater levels during the lifetime of the ASR project. Water flow monitoring shall include taking continuous measurements of the rate and amounts of injection and extraction through flow meters, which will be located at each ASR well. The District shall also monitor groundwater levels. Monitoring data will be used to further delineate the aquifer, to determine need for additional monitoring wells and adjust injection and/or pumping rates to ensure that impacts are contained within the project area.

*Mitigation No. 2c.* - The District will utilize the simulation model developed during the demonstration project to estimate aquifer characteristics, calculate directions and quantities of groundwater flow, provide scaled groundwater contour maps and data from each well, and to analyze resulting effects on water levels. The District shall implement water quality monitoring throughout the life of the proposed project, for both source water being injected and the water being extracted. The District shall prepare a Sampling and Analysis Plan (SAP) that includes all items described in the mitigations and addresses all requirements of the attached Monitoring and Reporting Program. Background groundwater quality shall be developed for each monitoring point prior to initiation of the project. Analysis shall be performed on treated SWP water that is being injected at the beginning of each injection cycle to establish background water quality data for recharged water. The injected water shall be confined to the established pumping depression. The Monitoring plan must successfully confirm by groundwater monitoring at appropriate locations that the injected water is confined to the depression area. The District shall maintain THM levels in stored water below the MCL, thus not negatively affecting the District's or any other purveyor's ability to pump and serve groundwater from the regional aquifer for beneficial uses as described in Water Quality Control Plan for the Lahontan Region. The District shall continuously review and implement best practicable treatment or control methods and achieve the reduction of free chlorine and/or organic compounds.

*The Statement of Overriding Considerations* - The Statement considered as part of the CEQA evaluation for the ASR Project is presented below.

The Project will enhance the reliability of water supply in the Antelope Valley by storing SWP water in a manner that is cost effective and easily accessible for use by the District during high demand times. The development of the additional local storage facilities will provide a greater measure of water supply reliability in the event of emergencies and drought periods. The development of the additional storage using seasonally available water supplies can be utilized to either augment imported supplies or to meet total demand during outages of SWP facilities. The project will increase the level of conjunctive use in a cost-effective manner by storing SWP water in the Lancaster sub basin that can be extracted during periods when demand exceeds regular supply.

The proposed ASR Project would have the following significant, unavoidable, adverse impact: The ASR Project would introduce THMs to the groundwater within the Principal Aquifer of the Lancaster sub-basin through the injection of SWP water.

The County has adopted all feasible mitigation measures with respect to the significant, unavoidable, adverse impact identified above. Although these mitigation measures may lessen the impact, they would not reduce the potential impact to a level that is less than significant as a result of injecting SWP water into the Principal Aquifer of the Lancaster sub-basin. The County of Los Angeles has rejected as infeasible the mitigation measure utilizing granular activated carbon filtering of the water prior to injection. Moreover, the County has examined a reasonable range of alternatives to the ASR Project. Based on this examination, the County has determined that none of the alternatives are feasible because the alternatives are not environmentally preferable to the proposed ASR Project or do not meet most of the basic project objectives.

The County finds that as a result of implementing the proposed ASR Project, the District and the Lancaster sub-basin would benefit from the following substantial environmental benefits:

- i. The proposed project would enhance the reliability of water supply in the Antelope Valley and would help support current demand and future growth in the area.
- ii. The proposed project would increase the level of conjunctive use, which would improve the overall reliability of the District system by augmenting water supplies during peak demand periods.
- iii. The proposed project would provide greater operational flexibility, which would allow for key system components to be placed out of service for inspection and maintenance activities without interruption in water service.
- iv. The proposed project would avoid or reduce overdraft of the basin.
- v. The proposed project would halt the decline of groundwater levels, and thereby reduce energy consumption required for pumping lifts.
- vi. The proposed project would reduce potential subsidence problems.



- vii. The "No project" alternative would perpetuate the depletion of local groundwater resources resulting in the detrimental environmental effects and potential curtailment of service to district customers. Negative impacts of the "No Project" alternative outweigh the adverse effects of the proposed ASR Project.
- viii. The Spreading Ground Alternative requires periodic removal of soil layers to maintain adequate percolation rates. Potential noise, air quality, and traffic impacts would be associated with this periodic maintenance

For the foregoing reasons, the County determined that the ASR Project's benefits outweigh, and therefore override, the Project's one significant unavoidable adverse environmental effect.

17. Intent to Issue Waiver

The Regional Board has notified the Discharger and all known interested agencies and persons of its intent to issue a Conditional Waiver for the Project.

18. Public Meeting

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

**THEREFORE BE IT RESOLVED:**

1. Pursuant to the California Water Code, Section 13269 (a), Waste Discharge Requirements are Conditionally Waived for the Full-Scale Lancaster Sub-Basin Aquifer Storage and Recovery Project, in consideration of the technical, economic and social factors described above. Further, the Regional Board finds that the condition of temporary localized degradation in the vicinity of the injection/extraction wells is reasonable, acceptable and appropriate provided appropriate measures are taken to control conditions caused by the Project.
2. This Waiver expires on **October 13, 2009** unless terminated at an earlier date by the Regional Board five years from Board meeting approval. The Regional Board may renew this Waiver if appropriate at that time or earlier.
3. The following conditions apply. Failure to adhere to any of the conditions below will cause this Waiver to become void.
  - a. Neither the treated SWP water injected into the groundwaters of the Antelope Valley Groundwater Basin, nor groundwaters within the recharge zone shall contain: (1) THMs in excess of a maximum concentration of 72 ug/L or a monthly running average of 40 ug/L, (2) total haloacetic acid compound concentrations in excess of 25 ug/L as a monthly running average, or (3) bromate in excess of a maximum concentration of 10 ug/L, (4) chlorite in excess of a maximum concentration of 1.0 mg/L, or (5) total organic carbon (TOC) in excess of an annual (calendar-year) average of 4.0 mg/L.
  - b. The treated SWP water injected into the groundwaters of the Antelope Valley Groundwater Basin shall not contain TDS in excess of 350 mg/L.

- c. The discharge shall not cause a condition of pollution as defined in Section 13050 of the California Water Code, or a threatened pollution.
- d. The discharge shall not cause a nuisance as defined in Section 13050 of the California Water Code.
- e. The discharge of SWP water as a result of this Project, except to the authorized disposal/injection sites, as defined by the 2150-foot groundwater elevation contour in the existing pumping depression shown in Attachment "B," is prohibited.
- f. The Project shall not cause a degradation of the groundwaters of the Antelope Valley Groundwater Basin outside the project area overdraft depression as illustrated in Attachment "B" of this Waiver. Degradation shall be measured as detailed in the Monitoring and Reporting Program (Attachment D).
- g. The condition of groundwater degradation caused by the Project shall be fully cleaned up and abated at the end of the Project. The Project is subject to five-year review of effectiveness or failure starting October 13, 2009 until the Project is terminated.
- h. The Contingency Plan describing the actions which will be taken to abate a condition of groundwater degradation, contain a plume of groundwater degradation outside the recharge zone, and/or abate the effects of physical damage to structures caused by changes in land surface elevation as a result of the Project, shall be implemented if any of the following conditions occur.
  - i. The condition of degradation spreads outside the existing groundwater pumping depression as shown on Attachment "B" of this Waiver; **OR**,
  - ii. The condition of degradation is not abated at the end of the Project, **OR**
  - iii. The concentration of THMs in the treated SWP injection water or commingled groundwater exceeds limits stated in this Waiver.
- i. The Discharger shall comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment "C", which is made part of this Waiver. Standard Provisions 12 and 15 shall not apply for the purposes of this Waiver.
- j. Pursuant to the California Water Code, Section 13267(b), the Discharger shall comply with the Monitoring and Reporting Program attached (Attachment D).
- k. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of the Monitoring Program.
- l. The Discharger shall encourage and implement improved SWP water treatment for the reduction of THM precursors due to chlorination or use appropriate treatment technologies to treat the AVEK water prior to injecting it into the authorized location in waters supplied for underground injection at the earliest feasible time.

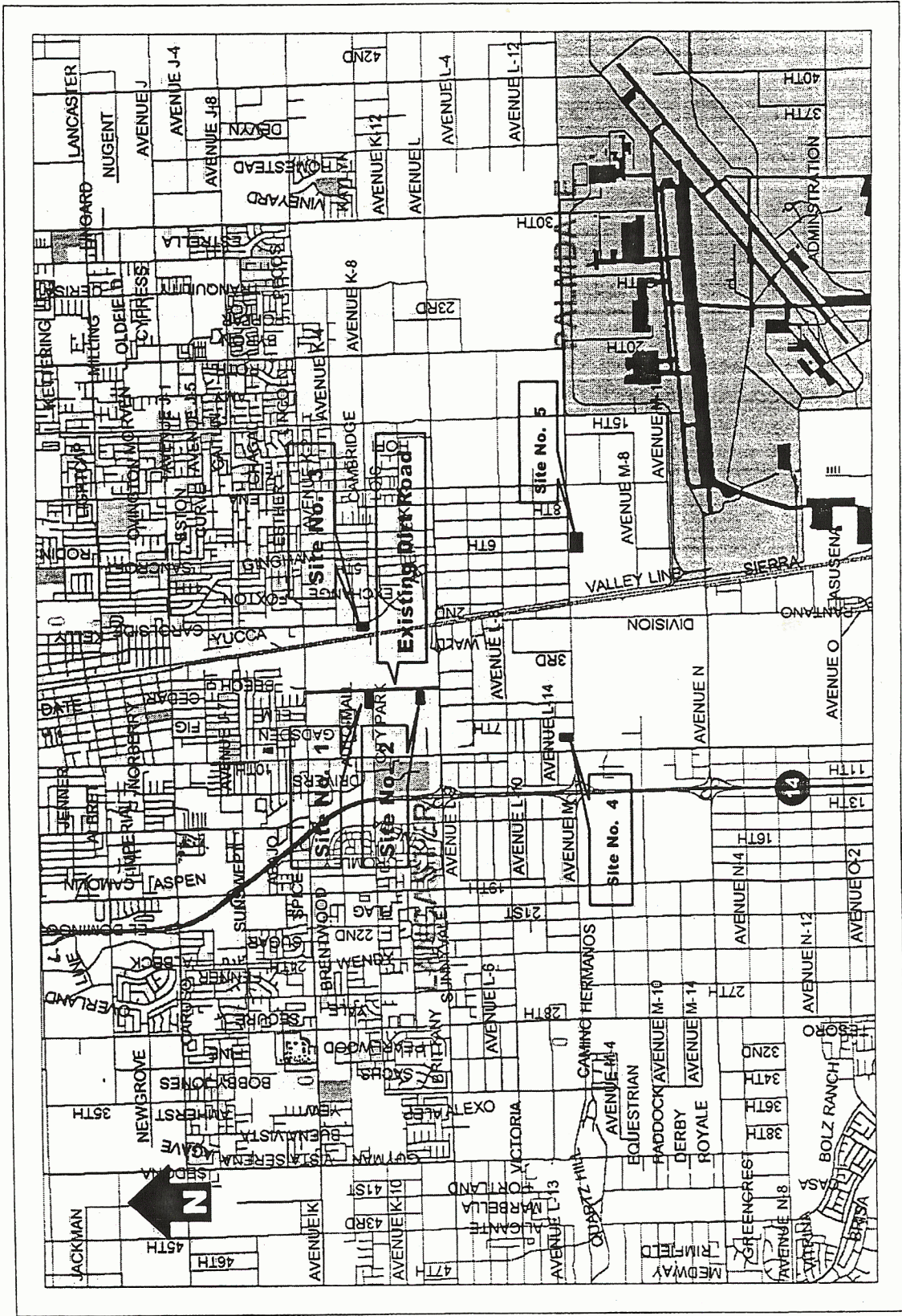
- m. A minimum of 60 days prior to implementation of the Project, the Discharger shall submit a report detailing, background salts, haloacetic acids, TDS and THM concentrations for each monitoring point. The technical report shall include proposed methods for data analysis in consideration of the existing data population for each individual well.
  - n. This Waiver only authorizes the Project described in the previously submitted Report of Waste Discharge and any proposed modifications must be submitted for review.
  - o. Annually, on **January 15 of 2005**, and annually and semi-annually thereafter, following implementation of the project, a progress report shall be submitted to the Regional Board describing how the Discharger has complied with this Waiver including an analysis of water quality and elevation monitoring data collected to verify compliance with this Waiver. Included in the report shall be a time series comparison of predicted water elevation and quality changes over time versus observed changes for each well and for each COC. This report shall be signed by a California registered Civil Engineer or Geologist and shall reference this Waiver.
  - p. By **June 8, 2009** (five years after adoption minus 120 days), a report shall be submitted to the Regional Board evaluating how the Discharger has complied with this Waiver and results of the Project to date. If the Project is proposed to continue, a revised Report of Waste Discharge shall be submitted. The revised Report of Waste Discharge shall evaluate any new technologies that would improve the Project.
  - q. Within six months after the end of the Project, the Discharger shall submit a Project Completion Report. The Report shall contain the following:
    - i. Tabular, graphical and scaled maps displaying data collected during the Project;
    - ii. Findings and conclusions regarding the data; and
    - iii. Certification that the condition of groundwater degradation has been abated **or** a description of actions which are being taken to abate the condition of degradation.
  - r. The Discharger shall provide a report by **January 15, 2005** and annually thereafter describing what methods have been evaluated and will be implemented to reduce the concentration of constituents of concern including but not limited to salts, TDS, THMs and haloacetic acid.
4. Board Order No. 6-96-007 is hereby rescinded.

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 October 13, 2004.

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HAROLD J. SINGER  
EXECUTIVE OFFICER

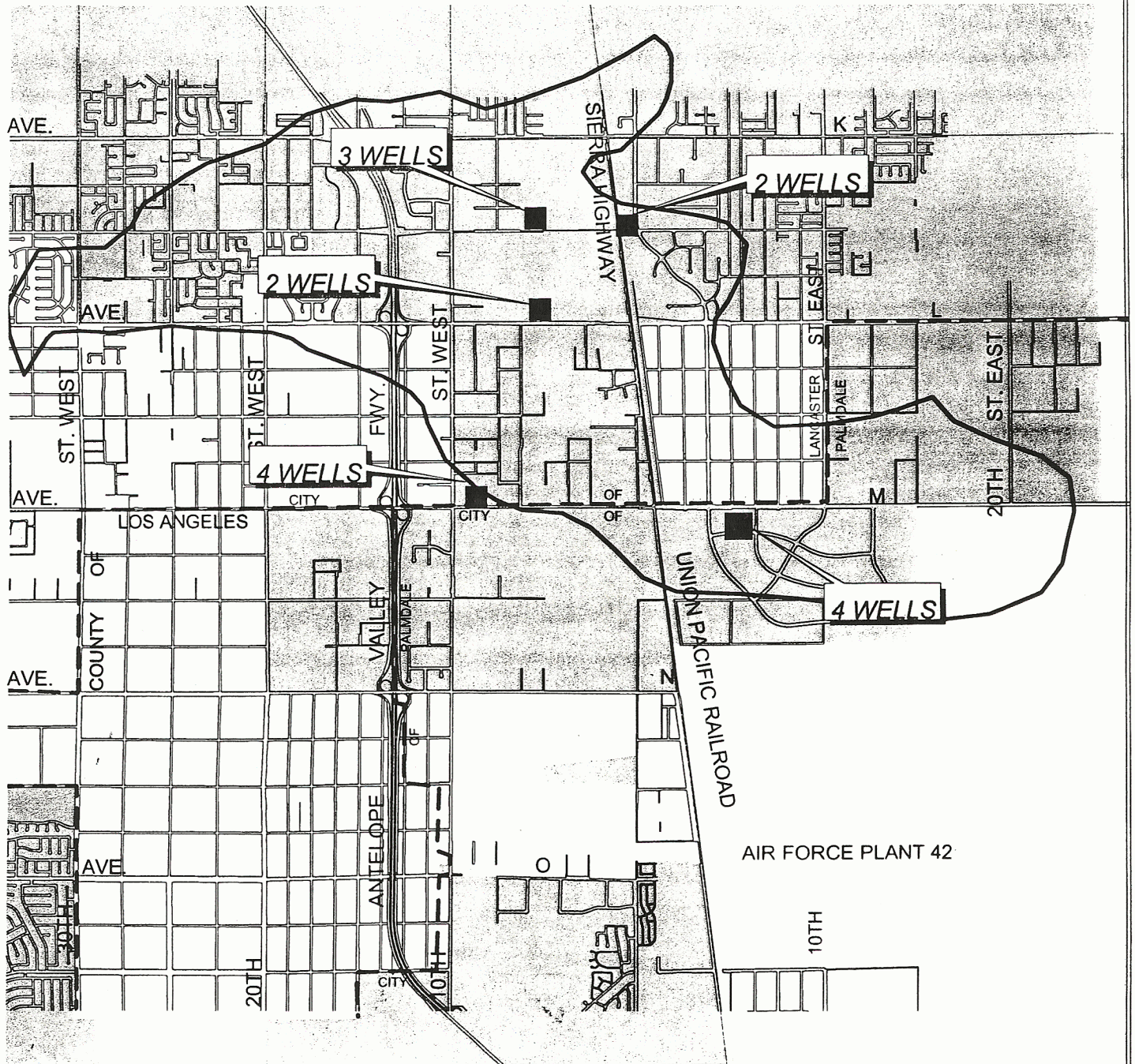
Attachments:           A.     Location, Topography, and Authorized Disposal Points Map  
                              B.     Pumping Depression in the Project Area  
                              C.     Standard Provisions for Waste Discharge Requirements  
                              D.     Monitoring and Reporting Program



ATTACHMENT "A"  
Local Vicinity Map

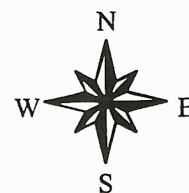
Source: Thomas Bros. Maps

**FIGURE 2-1: ASR SITES**



**LEGEND**

- ASR Sites
- WWD 40-04 Boundary
- - - 2150' Groundwater level contour
- - - City Boundary



0 4000 8000 12000 Feet

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-2004-0043  
WDID NO. 6B199511001**

FOR

**COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS  
LANCASTER SUB-BASIN FULL-SCALE AQUIFER STORAGE  
AND RECOVERY PROJECT**

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Los Angeles County

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**I. DEGRADATION STANDARD**

**A. Total Dissolved Solids (TDS)**

The Conditional Waiver of Waste Discharge Requirements (Waiver) allows a condition of temporary groundwater degradation to occur under specific conditions. Based on a preliminary hydrologic model developed by the United States Geological Survey for the Lancaster Sub-basin, the Discharger has modeled the probable geographic limits of groundwater degradation which will occur during the Project. The limits are within an existing pumping depression. The Discharger is required to monitor points both within and outside the pumping depression to monitor the effects of the discharge.

The Waiver requires the Discharger to implement a Contingency Plan if specific conditions occur. These conditions are when (1) the condition of degradation extends outside the pumping depression and/or (2) the condition of degradation is not abated at the end of an injection/extraction cycle or at the end of the Project, or (3) monitoring indicates concentrations greater than allowed by the Waiver conditions.

In order to evaluate the presence and extent of degradation during the Project, background water quality has been developed for each monitoring point. The Discharger has submitted background TDS concentrations for each monitoring point.

**B. Disinfection Byproducts**

Because State Water Project (SWP) water is chlorinated by Antelope Valley/East Kern Water Agency (AVEK), it will contain total trihalomethanes (THMs). According to the California State Department of Health Services, other disinfection byproducts include mono-, di-, and trichloroacetic acids, mono- and dibromoacetic acids, bromate and chlorite. These disinfection byproducts do not occur naturally in the groundwater. Data collected during the small-and demonstration scale pilot projects indicated complete containment of the THMs in the groundwater between January and November 1994.

## II. MONITORING

### A. Discharge

The following shall be recorded as specified below and reported semi-annually and annually.

1. Daily: The volume of SWP water discharged to the authorized disposal sites (injection wells) each day. The data should be recorded in average gallons per minute for each day, and reported semi-annually.
2. Monthly: The average and recorded maximum concentration of COCs, TDS and disinfection byproducts (as described above) in the SWP water discharged to the authorized disposal points (injection wells) should be recorded monthly and reported semi-annually.
3. Monthly: The taste and odor test results of the SWP water discharged to the authorized disposal points recorded monthly and reported semi-annually.

### B. Groundwater

#### 1. Monitoring Points

Monitoring points sufficient to monitor the water quality both within and outside of the injection zone shall be installed. Monitoring points proposed by the Discharger to monitor groundwater within and outside the pumping depression are completed separately in the upper and lower aquifer. Currently, 12 of the monitoring points are production wells, which are screened only in the upper aquifer. Three of the monitoring points are production wells screened in both the upper and lower aquifer. Descriptions of well locations and as built drawings of each monitoring well are contained in the Sampling and Analysis Plan (SAP). The monitoring points shall be evaluated and monitoring points may be added to adequately monitor the discharge.

#### 2. Sampling and Analysis Plan

The required SAP shall contain and describe methods and procedures for sampling each of the monitoring points described above and reporting semi-annually. Samples, both of receiving water and water injected, shall also be collected at the end of each 5 month and 7 month injection-extraction cycle, and at the end of the Project. Samples shall be collected and analyzed in accordance with the SAP as required in the General Provisions for Monitoring and Reporting, which are attached to this Monitoring and Reporting Program. Samples shall be analyzed for the COCs in Table 1 and the disinfection byproducts listed below in this Monitoring and Reporting Program.

**Table 1**  
Maximum Contaminant Levels and Detection Limits for Purposes of SAP Reporting  
Disinfection Byproducts and COCs

<i>Disinfection Byproducts and COCs</i>	<i>Maximum Contaminant Level (mg/L)</i>	<i>Detection Limit for Purposes of Reporting (mg/L)</i>
Total trihalomethanes (TTHM)	0.080	
Bromodichloromethane		0.0005
Bromoform		0.0005
Chloroform		0.0005
Dibromochloromethane		0.0005
Haloacetic acids (five) (HAA5)	0.060	
Monochloroacetic Acid		0.002
Dichloroacetic Acid		0.001
Trichloroacetic Acid		0.001
Monobromoacetic Acid		0.001
Dibromoacetic Acid		0.001
Bromate – BrO <sub>3</sub>	0.010	0.005
Chlorite – OC <sup>1</sup> <sub>2</sub>	1.0	0.02
Total Organic Carbon (TOC)		
Total Dissolved Solids (TDS)		

3. Aquifer Characteristics

The parameters listed in Table 2 shall be calculated, prepared in tabular form, and graphed for each groundwater data set.

**Table No. 2 - Groundwater Field Measurements and Calculations**

<b>Parameter</b>	<b>Units</b>
Depth to Groundwater	feet bgs
Static Water Level Elevation	feet above mean sea level
Electrical Conductivity	micromhos/cm
pH	pH Units
Temperature	deg. F or C
Turbidity	Nephelometric Turbidity Units (NTUs)
Groundwater Gradient	ft/mile
Direction of Groundwater Flow	

### III. REPORTING REQUIREMENTS

#### A. Scheduled Reports To Be Filed With The Regional Board

The following reports shall be submitted to the Regional Board as specified below.

##### Semi-annual Monitoring Reports

1. The data recorded in accordance with the Discharge Monitoring requirements above.
2. The data recorded in accordance with the Groundwater Monitoring requirements above.
3. For the data collected during each month, a tabular, graphical and scaled map showing locations of discharge and groundwater monitoring points and containing groundwater elevation contours and groundwater flow direction.
4. Based on data collected, a graphical representation of the plume of groundwater degradation which may be occurring as a result of the discharge of SWP water. The plume shall be illustrated in relation to the pumping depression as determined for the period.
5. A statement in regards to the need for implementation of the Contingency Plan in reflection of the criteria for implementation.
6. A letter transmitting the essential points in each report shall accompany each report. The letter shall include a discussion of any violations found since the last report was submitted, and shall describe actions taken or planned for correcting those violations.
7. If the Discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting this schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.
8. A map or aerial photograph showing the locations of discharge and groundwater monitoring points.

#### B. Injection/Extraction Cycle Reports

At the end of each injection/extraction cycle, the Discharger shall submit a single summary report. The report shall include the following:

1. The discharge and groundwater monitoring data collected during the event.

2. A graphical representation(s) of the degradation plume during the cycle.
3. Certification that the condition of degradation has been abated at the end of the extraction portion of the cycle.
4. If the Contingency Plan was implemented during the cycle, the reasons for implementation and the effectiveness of the implementation in abating the condition of groundwater degradation.

C. Unscheduled Reports To Be Filed With The Regional Board

1. Notice of Contingency Plan Implementation

Should the monitoring data indicate that one or more of the criteria for implementation of the Contingency Plan are met, the Discharger shall:

- a. Immediately notify the Regional Board verbally as to the monitoring point(s) and constituent(s) or parameter(s) involved;
- b. Provide written notification by certified mail within seven days of such determination.
- c. Submit a supporting technical report within 90 days of the verbal notification regarding the effectiveness of the Contingency Plan.

D. General Provisions

The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of this Monitoring and Reporting Program.

E. Submittal Periods

Semi-annual monitoring reports containing all of the information described above shall be submitted to the Regional Board on the 15th day of the month following each semi-annual period (annually on January 15 and July 15).

F. Annual Report

On or before **November 1, 2005**, and before **November 1** every year thereafter the Discharger shall submit an annual report to the Regional Board. This report shall evaluate the impacts of the Project on water quality and recommend any measures to reduce degradation.

Ordered by: \_\_\_\_\_

Dated: **October 13, 2004**

HAROLD J. SINGER  
EXECUTIVE OFFICER

- Attachments: A. Location of Monitoring Points  
B. General Provisions for Monitoring and Reporting