State of California
California Regional Water Quality Control Board
Santa Ana Region

May 1, 2015

ITEM: **7***

SUBJECT: Renewal of Waste Discharge Requirements for the City of San Bernardino Municipal Water Department's Geothermal Facility, Order No. R8-2015-0007, NPDES No. CA8000015, San Bernardino County

DISCUSSION:

See the attached Fact Sheet.

RECOMMENDATION:

Adopt Order No. R8-2015-0007, NPDES No. CA8000015, as presented.

COMMENT SOLICITATION:

Comments were solicited from the discharger and the following entities:

U.S. Environmental Protection Agency, Permits Issuance Section (WTR-5) – Peter Kozelka
U.S. Army Corps of Engineers, Los Angeles District - Regulatory Branch
U.S. Fish and Wildlife Service, Carlsbad
State Water Resources Control Board, Office of the Chief Counsel – David Rice
State Water Resources Control Board, Division of Water Quality – Phil Isorena
State Department of Fish and Wildlife, Ontario
State Department of Water Resources - Glendale
Orange County Water District - Nira Yamachika/Marsha Westropp
San Bernardino County Flood Control – Annesley Ignatius
City of San Bernardino, Municipal Water Department – Stacey Aldstadt
Inland Empire Waterkeeper – Megan Brousseau
Orange County Coastkeeper - Garry Brown
Lawyers for Clean Water – Daniel Cooper

State of California
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Santa Ana Region

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ORDER NO. R8-2015-0007
NPDES NO. CA8000015

WASTE DISCHARGE REQUIREMENTS
FOR THE
CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
GEOTHERMAL HEATING PROJECT

T E N T A T I V E

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger/Facility Information

Discharger	City of San Bernardino Municipal Water Department
Mailing Address	P.O. Box 710, San Bernardino, CA 92402
Name of Facility	Geothermal Heating Project
The U.S. Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, Santa Ana Region (Regional Water Board) have classified this discharge as a minor discharge.	

Discharges by the City of San Bernardino Municipal Water Department from the discharge points identified below in Table 2 are subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Locations

Discharge Point	Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Noncontact geothermal water	34°5'45"N	117°18'0"W	Lytle Creek Channel
002	Noncontact geothermal water	34°6'15"N	117°16'15"W	Lined East Twin Creek Channel
002A	Noncontact geothermal water	34°6'15"N	117°16'15"W	Lined East Twin Creek Channel
003	Noncontact geothermal water	34°6'15"N	117°17'0"W	Warm Creek Channel
003A	Noncontact geothermal water	34°6'15"N	117°17'15"W	Warm Creek Channel
004C	Noncontact geothermal water	34°6'15"N	117°17'30"W	Warm Creek Channel
007	Noncontact geothermal water	34°3'45"N	117°17'0"W	Warm Creek Channel

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**May 1, 2015**
This Order shall become effective on:	**May 1, 2015**
This Order shall expire on:	**April 30, 2020**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**November 1, 2019**

IT IS HEREBY ORDERED, that this Order supersedes Order No. R8-2008-0007 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, Kurt V. Berchtold, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on May 1, 2015.

Kurt V. Berchtold, Executive Officer

TENTATIVE

Table of Contents

I. DISCHARGER/Facility Information 4
II. Findings 4
III. Discharge Prohibitions 5
IV. Effluent Limitations and Discharge Specifications 5
V. Receiving Water Limitations 5
VI. Provisions 6
A. Standard Provisions 6
B. Reopener Provisions 8
C. Monitoring and Reporting Program Requirements 8

List of Tables

Table 1. Discharger/Facility Information 1
Table 2. Discharge Locations 2
Table 3. Administrative Information 2
Table 4. Facility Information 4

List of Attachments

Attachment A – Definitions A-1
Attachment B – Location Map B-1
Attachment C – Not Used C-1
Attachment D – Federal Standard Provisions D-1
Attachment E – Monitoring and Reporting Program E-1
Attachment F – Fact Sheet F-1
Attachment G – EPA PPL Table G-1
Attachment H – ML Table H-1
Attachment I – Triggers for Monitoring Priority Pollutants I-1

I. DISCHARGER/FACILITY INFORMATION

Information regarding the City of San Bernardino Municipal Water Department's Geothermal Heating Project is summarized in Table 4, below, and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Discharger's permit application.

Table 4. Facility Information

Name of Facility	Geothermal Heating Project
Facility Contact, Title, and Phone	Matthew H. Litchfield, P.E., Director of Water Utility (909) 384-5291
Type of Facility	Industrial - Geothermal Heating Project
Facility Design Flow	2.88 million gallons per day

II. FINDINGS

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Water Board), finds:

A. **Legal Authorities.** This Order serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of California Water Code (CWC) commencing with Section 13260. This Order shall also serve as an NPDES permit pursuant to Section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the CWC for point source discharges from this facility to surface waters.

B. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for requirements in the Order, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A, B, D, E, G, H, and I are also incorporated into this Order.

C. **California Environmental Quality Act (CEQA).** Under CWC section 13389, the action to adopt these waste discharge requirements is exempt from the provisions of the California Environmental Quality Act (CEQA), (Public Resources Code section 21000 et seq).

D. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

E. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

III. DISCHARGE PROHIBITIONS

The discharge of any substance in concentrations toxic to human, animal, plant, or aquatic life is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

1. The discharge shall be limited to extracted and cooled geothermal groundwater that complies with the requirements of this Order.

2. There shall be no visible oil and grease in the discharge.

V. RECEIVING WATER LIMITATIONS

1. The discharge shall not cause:

   a. An increase in the temperature of the receiving waters above 90^0F (32^0C) from June through October or above 78^0F (26^0C) during the rest of the year.

   b. Any undesirable discoloration of the receiving waters, which causes or adversely affects beneficial uses.

   c. Deposition of oil, grease, wax or other materials in the receiving waters in concentrations which result in a visible film or in coating objects in the water, or which cause a nuisance or affect beneficial uses.

   d. An increase in the amounts of suspended or settleable solids of the receiving waters, which will cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors.

   e. Taste or odor-producing substances in the receiving waters at concentrations, which cause a nuisance or adversely affect beneficial uses.

   f. The presence of radioactive materials in concentrations which are deleterious to human, plant or animal life.

g. The depletion of the dissolved oxygen concentration below 5.0 mg/l in those creeks, tributaries, and Reaches 4 and 5 of Santa Ana River. In addition, the waste discharge shall not cause the median dissolved oxygen concentration to fall below 85% of saturation or the 95th percentile concentration to fall below 75% of saturation within a 30-day period.

h. The discharge of wastes shall not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Water Board or State Water Board, as required by the Clean Water Act and regulations adopted thereunder.

i. Pollutants not specifically mentioned and limited in this Order shall not be discharged at levels that will bioaccumulate in aquatic resources to levels, which are harmful to human health.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Federal Standard Provisions included in Attachment D of this Order and the following additional provisions:

   a. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this Facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

   b. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, discharge limitations (e.g., maximum daily effluent limitation), or receiving water limitation of this Order, the Discharger shall notify the Regional Water Board by telephone (951) 782-4130 within 24 hours of having knowledge of such noncompliance that may endanger public health or the environment, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and, prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the regular monitoring report.

   c. The discharge of pollutants shall not create a pollution, contamination, or nuisance as defined by Section 13050 of the CWC.

d. The Discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

e. This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

   (1) Violation of any terms or conditions of this Order;
   (2) Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts, or;
   (3) In addition to any other grounds specified herein, this Order may be modified or revoked at any time if, on the basis of any data, the Regional Water Board determines that continued discharges may cause unreasonable degradation of the aquatic environment.

f. If an effluent standard or discharge prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307 (a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and such standard or prohibition is more stringent than any limitation for that pollutant in this Order, this Order may be modified or revoked and reissued to conform to the effluent standard or discharge prohibition.

g. The Discharger shall file with the Regional Water Board a Report of Waste Discharge at least 180 days before making any material change in the character, location, or volume of the discharge. A material change includes, but is not limited to, the following:

   (1) Adding a major industrial waste discharge to a discharge of essentially domestic sewage, or adding a new process or product by an industrial facility resulting in a change in the character of the waste.
   (2) Significantly changing the disposal method or location, such as changing the disposal to another drainage area or water body.
   (3) Significantly changing the method of treatment.
   (4) Increasing the treatment plant design capacity beyond that specified in this Order.

h. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

i. The Discharger shall maintain a copy of this Order at the site so that it is available to site operating personnel at all times. Key operating personnel shall be familiar with its content.

j. In the event of any change in control or ownership of land or waste discharge facility presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Water Board.

B. Reopener Provisions

1. This Order will be reopened to address any changes in State or federal plans, policies or regulations that would affect the quality requirements for the discharges.

2. This Order may be reopened to include effluent limitations for pollutants determined to be present in the discharge in concentrations that pose a reasonable potential to cause or contribute to violations of water quality objectives.

3. This Order may be reopened and modified in accordance with the requirements set forth at 40 CFR 122 and 124, to include the appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new State water quality standards applicable to effluent toxicity.

4. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

C. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order. This monitoring and reporting program may be modified by the Executive Officer at any time during the term of this Order, and may include an increase in the number of parameters to be monitored, the frequency of the monitoring or the number and size of samples to be collected. Any increase in the number of parameters to be monitored, the frequency of the monitoring or the number and size of samples to be collected may be reduced back to the levels specified in the original monitoring and reporting program at the discretion of the Executive Officer.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Best Management Practices (BMPs) are methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from point and nonpoint source discharges including storm water. BMPs include structural and non-structural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Criteria Continuous Concentration (CCC) equals the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects.

Criteria Maximum Concentration (CMC) equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Dilution Ratio is the critical low flow of the upstream receiving water divided by the flow of the effluent discharged.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Existing Discharger means any discharger that is not a new discharger. An existing discharger includes an "increasing discharger" (i.e., an existing facility with treatment systems in place for its current discharge that is or will be expanding, upgrading, or modifying its existing permitted discharge after the effective date of this Policy).

Infeasible means not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Load Allocation (LA) is the portion of receiving water's total maximum daily load that is allocated to one of its nonpoint sources of pollution or to natural background sources.

Maximum Daily Flow is the maximum flow sample of all samples collected in a calendar day.

MEC: Maximum Effluent Concentration.

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

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

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

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

New Discharger includes any building, structure, facility, or installation from which there is, or may be, a discharge of pollutants, the construction of which commenced after the effective date of this Policy.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Objectionable Bottom Deposits are an accumulation of materials or substances on or near the bottom of a water body, which creates conditions that adversely impact aquatic life, human health, beneficial uses, or aesthetics. These conditions include, but are not limited to, the accumulation of pollutants in the sediments and other conditions that result in harm to benthic organisms, production of food chain organisms, or fish egg development. The presence of such deposits shall be determined by RWQCB(s) on a case-by-case basis.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if

required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\Sigma[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

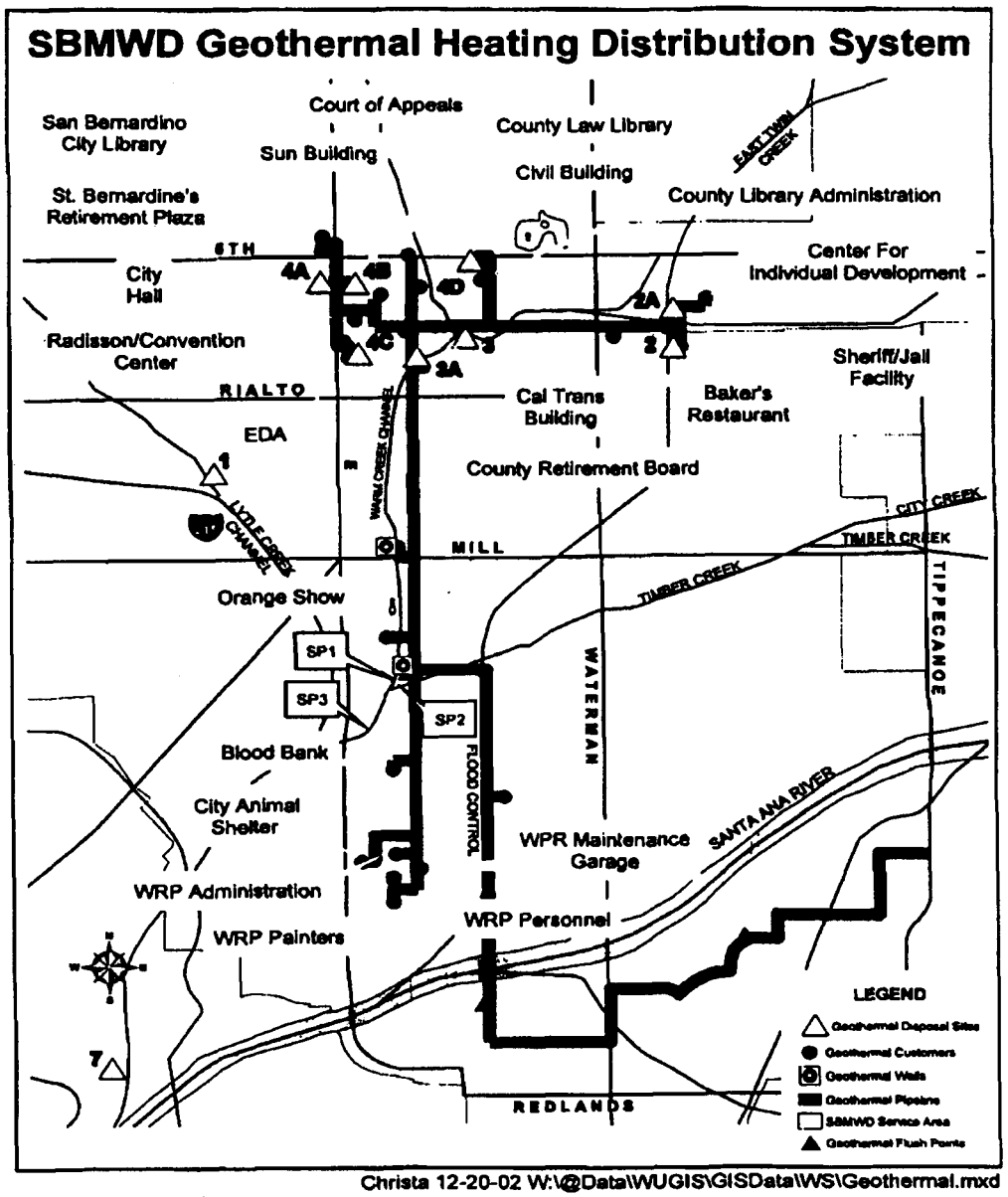
n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Use Attainability Analysis is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological and economic factors as described in 40 CFR 131.10(g) (40 CFR 131.3, revised as of July 1, 1997).

Water Effect Ratio (WER) is an appropriate measure of the toxicity of a material obtained in a site water divided by the same measure of the toxicity of the same material obtained simultaneously in a laboratory dilution water.

ATTACHMENT B – LOCATION



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ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass – Not Applicable

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, 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 for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

I. General Monitoring Provisions E-2
II. Monitoring Locations E-5
III. Influent Monitoring Requirements E-6
IV. Effluent and Receiving Water Monitoring E-6
V. Other Monitoring Requirements E-6
VI. Reporting Requirements E-7
  A. General Monitoring and Reporting Requirements E-7
  B. Self-Monitoring Reports E-8

List of Tables

Table 1 Monitoring Station Locations E-5
Table 2 Geothermal Influent Monitoring E-6
Table 3 Reporting Requirements E-8

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

California Water Code Sections 13267 and 13383 authorize the Regional Water Quality Control Board to require technical and monitoring reports. 40 CFR 122.48 also requires that all NPDES permits specify monitoring and reporting requirements. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements, which implement the state and federal regulations.

I. GENERAL MONITORING PROVISIONS

A. General Monitoring Provision

1. All sampling and sample preservation shall be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association) or 40CFR136. (revised as of April 11, 2007) "Guidelines Establishing Test Procedures for the Analysis of Pollutants," promulgated by the United States Environmental Protection Agency (EPA).

2. All laboratory analyses shall be performed in accordance with test procedures under 40 CFR 136 (revised as of April 11, 2007) "Guidelines Establishing Test Procedures for the Analysis of Pollutants," promulgated by the United States Environmental Protection Agency (EPA), unless otherwise specified in this MRP. In addition, the Regional Water Board and/or EPA, at their discretion, may specify test methods that are more sensitive than those specified in 40 CFR 136.

3. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with the provision of Water Code Section 13176, and must include quality assurance/quality control data with their reports, or EPA or at laboratories approved by the Regional Water Board's Executive Officer.

4. In conformance with federal regulations 40 CFR 122.45(c), analyses to determine compliance with the effluent limitations for metals shall be conducted using the total recoverable method.

5. The Discharger shall require its testing laboratory to calibrate the analytical system down to the minimum level (ML)[1] specified in Attachment "H" for priority pollutants with effluent limitations in this Order, unless an alternative minimum level is approved by the Regional Water Board's Executive Officer. When there is more than one ML value for a given substance, the Discharger shall use the ML values, and their associated analytical methods, listed in Attachment "H" that are below the trigger values specified in Attachment "I". The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the lowest ML value and its associated analytical method, listed in Attachment "H" shall be used. Any internal quality control data associated with the sample must be reported when requested by the Executive Officer. The Regional Water Board will reject the quantified laboratory data if quality control data is unavailable or unacceptable.

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

   a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
   b. Sample results less than the reported ML, but greater than or equal to the laboratory's current Method Detection Limit (MDL)[2], shall be reported as "Detected, but Not Quantified," or "DNQ." The estimated chemical concentration of the sample shall also be reported.
   c. Sample results not detected above the laboratory's MDL shall be reported as "not detected" or "ND."

7. The Discharger shall submit to the Regional Water Board reports necessary to determine compliance with this Order and shall follow the chemical nomenclature and sequential order of priority pollutant constituents shown in Attachment "G" – Priority Pollutant Lists. The Discharger shall report with each sample result:

   a. The reporting level achieved by the testing laboratory; and
   b. The laboratory's current MDL, as determined by the procedure found in 40 CFR 136 (revised as of April 11, 2007).

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

2 *MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analytical concentration is greater than zero, as defined in 40 CFR 136, Appendix B, revised as of April 11, 2007.*

8. For non-priority pollutants monitoring, all analytical data shall be reported with method detection limits, as determined by the procedure found in 40 CFR 136 (revised as of April 11, 2007).

9. The Discharger shall have, and implement an acceptable written quality assurance (QA) plan for laboratory analyses. Duplicate chemical analyses must be conducted on a minimum of ten percent (10%) of the samples, or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. When requested by the Regional Water Board or EPA, the Discharger will participate in the NPDES discharge monitoring report QA performance study.

10. The Discharger shall assure that records of all monitoring information are maintained and accessible for a period of at least five years (this retention period supercedes the retention period specified in Section IV.A. of Attachment D) from the date of the sample, report, or application. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or by the request of the Regional Water Board at any time. Records of monitoring information shall include, as appropriate:

    a. The information listed in Attachment D- IV Standard Provisions – Records, subparagraph B. of this Order;
    b. The laboratory which performed the analyses;
    c. The date(s) analyses were performed;
    d. The individual(s) who performed the analyses;
    e. The modification(s) to analytical techniques or methods used;
    f. All sampling and analytical results, including
        i. Units of measurement used;
        ii. Minimum reporting level for the analysis (minimum level);
        iii. Results less than the reporting level but above the method detection limit (MDL);
        iv. Data qualifiers and a description of the qualifiers;
        v. Quality control test results (and a written copy of the laboratory quality assurance plan);
        vi. Dilution factors, if used; and
        vii. Sample matrix type.
    g. All monitoring equipment calibration and maintenance records;
    h. All original strip charts from continuous monitoring devices;
    i. All data used to complete the application for this Order; and,
    j. Copies of all reports required by this Order.
    k. Electronic data and information generated by the Supervisory Control and Data Acquisition (SCADA) System.

11. The flow measurement system shall be calibrated at least once per year or more frequently, to ensure continued accuracy.

12. Monitoring and reporting shall be in accordance with the following:

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

    b. The monitoring and reporting of influent and effluent shall be done more frequently as necessary to maintain compliance with this Order and or as specified in this order.

    c. Whenever the Discharger monitors any pollutant more frequently than is required by this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharge monitoring report specified by the Executive Officer.

    d. A "grab" sample is defined as any individual sample collected in less than 15 minutes.

    e. Annual samples shall be collected on in conjunction with other annual samples in August.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table 1 Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description	Latitude	Longitude
--	M-INF 001	Well water pump station, Well # 66 or Mill & D St	117°17'23.38"W 117°17'32.15"W	34°5'10.63"N 34°5'33.60"N
----	AIR1	Ambient Air Temperature taken at Wells	117°17'23.38"W 117°17'32.15"W	34°5'10.63"N 34°5'33.60"N
----	UP1	Temperature of upstream (Lytle Creek Flood Control Channel) not influenced by geothermal water.	117°17'46.89"W	34°4'54.922"N
003, 003A, & 004C,	SP1	Noncontact geothermal water discharged to Warm Creek Channel	117°17'27.02"W	34°5'9.99"N
002, 002A	SP2	Noncontact geothermal water discharged to lined East Twin Creek Channel	117°17'26.04"W	34°5'9.02"N
002, 002A, 003, 003A, & 004C	SP3	Downstream of the junction of East Twin and Warm Creeks	117°17'27.36"W	34°5'7.86"N

III. INFLUENT MONITORING REQUIREMENTS

Table 2 Geothermal Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and Minimum Levels
Flow	mgd	Recorder/ Totalizer	Monthly Reading	---
Temperature	°F	Recorder, or manual grab (see IV.A.4, below)	Monthly	---
pH	pH units	Grab	Annually	---
Total Hardness	mg/L	"	"	See Section I.A.5., above
Total Dissolved Solids	"	"	"	"
Chloride	"	"	"	"
Sodium	"	"	"	"
Boron	"	"	"	"
Fluoride	"	"	"	"
Selenium	"	"	"	"
Mercury	"	"	"	"
Arsenic	"	"	"	"

IV. EFFLUENT AND RECEIVING WATER MONITORING

1. Monthly, effluent temperatures shall be monitored at all discharge points that are being used. In addition, temperatures shall also be monitored at receiving waters within five to ten feet downstream from the discharge point after the discharge has mixed with the receiving water.

2. Any significant changes in the ambient temperatures that may have an impact on the receiving water temperatures must be reported in the next monitoring report following the monitoring period.

V. OTHER MONITORING REQUIREMENTS

1. Ambient air temperature shall be monitored at the geothermal wells.

2. Upstream receiving water temperature shall be measured at a point not influenced by the geothermal discharge at a distance of not more than 500 feet from the point of discharge.

VI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. All analytical data shall be reported with method detection limit[3] (MDLs) and with identification of either reporting level or limits of quantitation (LOQs).
3. Any internal quality control data associated with the sample must be reported when requested by the Executive Officer. The Regional Water Board will reject the quantified laboratory data if quality control data is unavailable or unacceptable.
4. Discharge monitoring data shall be submitted in a format acceptable by the Regional Water Board. Specific reporting format may include preprinted forms and/or electronic media. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this order.
5. The Discharger shall tabulate the monitoring data to clearly illustrate compliance and/or noncompliance with the requirements of the Order.
6. The Discharger shall submit to the Regional Water Board reports necessary to determine compliance with effluent limitations in this Order and shall follow the chemical nomenclature and sequential order of priority pollutant constituents shown in Attachment "G" – Priority Pollutant Lists. The Discharger shall report with each sample result:
   a. The reporting level achieved by the testing laboratory; and
   b. The laboratory's current MDL, as determined by the procedure found in 40 CFR 136 (revised as of April 11, 2007).
7. The Discharger shall report monitoring results for specific parameters in accordance with the following table:

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3 *The standardized test procedure to be used to determine the method detection limit (MDL) is given at Appendix B, 'Definition and Procedure for the Determination of the Method Detection Limit' of 40 CFR 136.*

Table 3 Reporting Requirements

Parameter	Measurement/Unit	Reporting Frequency
Flow	Monthly total flow, million gallons; and Last 12-month average daily flow as mgd of production and discharge.	Quarterly: On the 30th day of the month following each quarter.
Temperature of upstream (Lytle Creek Flood Control Channel)	°F	Quarterly
Ambient Air Temperature taken at Wells	°F	Quarterly
Effluent Temperature	°F	Quarterly
Receiving Water Temperature	°F	Quarterly
Influent monitoring per Table 2 pH and Temperature All other Table 2 parameters	 pH units and °F mg/L	 Quarterly Annually

B. Self-Monitoring Reports

1. Self-Monitoring Reports (SMRs) shall be submitted by the 30th day of the following each quarter and shall include all monitoring data collected during the previous quarter.

2. SMRs shall be submitted using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

3. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

ATTACHMENT F – FACT SHEET

Table of Contents

I. Permit Information F-3
II. Facility Description F-4
A. Description of the Facility F-4
B. Discharge Points and Receiving Waters F-5
C. Compliance Summary F-5
III. Applicable Plans, Policies, and Regulations F-6
A. Legal Authorities F-6
B. California Environmental Quality Act (CEQA) F-6
C. State and Federal Regulations, Policies, and Plans F-6
IV. Rationale For Effluent Limitations and Discharge Specifications F-9
A. Discharge Prohibitions F-9
B. Technology-Based Effluent Limitations F-9
C. Water Quality-Based Effluent Limitations (WQBELs) for Discharge Points 001 to 007 ..... F-9
1. Scope and Authority F-9
2. Water Quality Criteria and Objectives F-10
3. Summary of Effluent Data F-11
4. Determining the Need for WQBELs F-13
D. Summary of Final Effluent Limitations F-13
V. Rationale for Receiving Water Limitations F-14
A. Surface Water F-14
B. Groundwater F-14
VI. Rationale for Monitoring and Reporting Requirements F-14
A. Influent Monitoring F-14
B. Effluent Monitoring F-14
C. Receiving Water Monitoring F-14
1. Surface Water F-14
VII. Rationale for Provisions F-15
A. Standard Provisions F-15
B. Special Provisions F-15
1. Reopener Provisions F-15
VIII. Public Participation F-15
A. Notification of Interested Parties F-15
B. Written Comments F-16
C. Public Hearing F-16
D. Waste Discharge Requirements Petitions F-16
E. Information and Copying F-17
F. Register of Interested Persons F-17
G. Additional Information F-17

List of Tables

Table 1. Discharger/Facility Information F-3
Table 2. Typical Extraction Rates and Discharge Flows from Each Well F-4
Table 3. 5-year Average Extracted and Discharge Flows F-4
Table 4. Discharge Points and Receiving Waters F-5
Table 5. Basin Plan Beneficial Uses F-7
Table 6. Copper and Lead Data for Geothermal Wells F-11

ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Discharger and Facility.

Table 1. Discharger/Facility Information

WDID	8 362233001
Discharger	City of San Bernardino Municipal Water Department
Mailing Address	PO Box 710, San Bernardino, CA 92402
Discharger Contact	Matthew Litchfield, Director of Water Utility
Name of Facility	Geothermal Heating Project
Facility Address	N/A
Billing Address	Same as Mailing Address
Type of Facility	Geothermal Heating
Major or Minor Facility	Minor
Watershed	Santa Ana River Watershed
Receiving Waters	Tributaries of Reaches 4 and 5 of the Santa Ana River
Receiving Water Type	Inland Surface Water

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

The Discharger discharges geothermal wastewater to creeks and storm drainage systems that are tributaries to Reaches 4 and 5 of the Santa Ana River. The creeks and the Santa Ana River are waters of the United States. The discharger is currently regulated under Order No. R8-2008-0007, which was adopted on June 6, 2008 and expired on June 1, 2013.

The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on April 9, 2013. A site visit was conducted on August 10, 2013, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

A. Description of the Facility

The Discharger owns and operates two geothermal production wells. One well, known as "Meeks and Daley No. 66", is located at Central Avenue and South Arrowhead Avenue. The other is known as the "Mill and D" well, which is located near the intersection of Mill and "D" Streets. Both wells are in the City of San Bernardino. The wells are pumped alternately and produce up to 2.88 million gallons per day (gpd) of geothermal water from within the San Jacinto Fault system.

Geothermal water is extracted and delivered through insulated pipes to heat various municipal buildings, including the Discharger's office at City Hall and other buildings in the downtown area of the City of San Bernardino. The pipeline has a total length of about 18 miles. The geothermal water is coursed through non-contact heat exchanger systems where the geothermal heat is transferred to domestic water. The domestic water temperature is raised from 62^{0}F to 86^{0}F, while the geothermal water temperature of up to 112^{0}F is cooled to various temperatures, the lowest to 56^{0}F.

The cooled geothermal water is then discharged either to the sanitary sewer or to storm drains and creeks tributary to the Santa Ana River.

Table 2 shows the well production and discharge flow for two typical winter months. Table 3 summarizes the average monthly flows during the previous permit cycle.

Table 2. Typical Extraction Rates and Discharge Flows from Each Well

Well No.	Extraction Rate Max Monthly	Discharge Flow to Creeks From Heating Systems Max Monthly
Mill and D	1.714 mgd in Dec. 2012	1.49 mgd in Dec. 2012
#66	1.41 mgd in Nov. 2012	1.35 mgd in Nov. 2012

Table 3. 5-year Average Extracted and Discharge Flows

Years	Average Extracted Flow		Discharge Flow to Creeks from Heating System		Discharge to Sewer	
2008- 2012	mg/month	mgd	mg/month	mgd	mg/month	mgd
	43.04	41	37.12	22	5.92	0.19

B. Discharge Points and Receiving Waters

As noted above, after heat exchange, waste geothermal water is discharged into either the sanitary sewer or to tributaries of the Santa Ana River. The water is currently discharged from four outfalls. Three additional outfalls may be used in the future. These outfalls feed into storm channels/lined creeks that are tributaries of the Santa Ana River. The receiving waters include Warm Creek, Twin Creek, and Lytle Creek. These creeks are tributaries to Reaches 4 and 5 of the Santa Ana River.

A summary of discharge points and receiving waters is shown in Table 4, below.

Table 4. Discharge Points and Receiving Waters

Discharge Serial No.	Latitude	Longitude	Description and Receiving Water	Flow Monthly average (mgd) & Frequency
001	34°5'45"N	117°18'0"W	Noncontact cooled geothermal water discharged to lined Lytle Creek Channel	This is a future discharge point
002	34°6'15"N	117°16'15"W	Noncontact cooled geothermal water discharged to lined East Twin Creek Channel	Variable up to 0.12 mgd
002A	34°6'15"N	117°16'15"W	Noncontact cooled geothermal water discharged to lined East Twin Creek Channel	Variable up to 0.07 mgd
003	34°6'15"N	117°17'0"W	Noncontact cooled geothermal water discharged to Warm Creek Channel	Variable up to 0.13 mgd
003A	34°6'15"N	117°17'15"W	Noncontact cooled geothermal water discharged to Warm Creek Channel	This is a future discharge point
004C	34°6'15"N	117°17'30"W	Noncontact cooled geothermal water discharged to Warm Creek Channel	Variable up to 1.1 mgd
007	34°3'45"N	117°17'0"W	Noncontact cooled geothermal water discharged to Warm Creek Channel	This is a future discharge point

C. Compliance Summary

Based on a review of geothermal well water quality which is representative of the discharge quality, the monitoring data submitted by the Discharger for the 2008-2014 indicated that the receiving water temperature may have exceeded the temperature limit specified in the previous Order during the months of July, August, and September. However, the Discharger has demonstrated that these exceedances were caused by high ambient air temperature, rather than the discharge. The Discharger has no control over the natural heating of receiving waters as a result of increased air temperature.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to Chapter 5.5, Division 7 of the California Water Code (CWC) (Section 13370 et seq.) and Section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA). It serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4, Division 7 of the CWC (Section 13260 et seq.). The Order also serves as a NPDES permit for point source discharges from this facility to surface waters.

B. California Environmental Quality Act (CEQA)

Under CWC Section 13389, the action to adopt waste discharge requirements that serve as an NPDES permit is exempt from the provisions of CEQA, Public Resources Code section 21000 et seq. (County of Los Angeles v. California State Water Resources Control Board (2006) 143 Cal.App.4th 985, mod. (Nov. 6, 2006, B184034) 50 Cal.Rptr.3d 619, 632-636.)

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The Regional Water Board adopted an updated Water Quality Control Plan for the Santa Ana Basin (hereinafter Basin Plan) that became effective on January 24, 1995. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Plan. In addition, State Water Resources Control Board (State Water Board) Resolution No. 88-63 (Sources of Drinking Water Policy) requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic water supply use to water bodies. Based on the exception criteria specified in Resolution No. 88-63, the Regional Water Board excepted Reach 5 (starting from Orange Avenue in Redlands) of the Santa Ana River and downstream reaches from the municipal and domestic supply beneficial use.

   On January 22, 2004, the Regional Water Board adopted Resolution No. R8-2004-0001, amending the Basin Plan to incorporate revised boundaries for groundwater subbasins, now termed "management zones", new nitrate-nitrogen and TDS objectives for the new management zones, and new nitrogen and TDS management strategies applicable to both surface and ground waters.

   As previously discussed, the Facility discharges wastewater from several discharge points. The designated beneficial uses of receiving waters affected by the discharge from the Facility are as follows:

Table 5. Basin Plan Beneficial Uses

Receiving Water Name	Beneficial Use(s)
Lytle Creek, East Twin Creek (Valley Reaches)	Intermittent beneficial uses: Municipal and Domestic Supply, Groundwater Recharge, Water Contact Recreation, Non-Contact Water Recreation, Warm Freshwater Habitat, and Wildlife Habitat
Warm Creek	Creek not listed in Basin Plan
Reach 4 of Santa Ana River	Present or Potential: Groundwater recharge, water contact recreation, non-contact water recreation, warm freshwater habitat, and wildlife habitat.
Reach 5 of Santa Ana River	Present or Potential: Agricultural Supply, Groundwater Recharge, Water Contact Recreation, Non-Contact Water Recreation, Warm Freshwater Habitat, Wildlife Habitat, and Rare, Threatened or Endangered Species

Requirements of this Order implement the Basin Plan.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes (title 40, Code of Federal Regulations (CFR), section 131.21, 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

5. **Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16. This Order renews waste discharge requirements for ongoing discharges of geothermal wastewater to surface waters of the United States. No change in the nature of these discharges has occurred. Therefore, the ongoing discharges will not result in a lowering of water quality and are thus consistent with state and federal antidegradation policies.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. The limitations in this Order are at least as stringent as the effluent limitations in the prior Order.

7. **Stormwater Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from industrial operation sites. There is no storm water discharges associated with the industrial activity from this Facility.

8. **Monitoring and Reporting Requirements.** Sections 13267 and 13383 of the CWC authorize the Regional Water Board to require technical and monitoring reports. 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement State and federal requirements. This MRP is provided in Attachment E.

9. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations at 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

The Order prohibits the discharge of any substance in concentrations toxic to human, animal, plant, or aquatic life.

B. Technology-Based Effluent Limitations

This Order does not include any technology-based effluent limitations, as none have been established for this type of facility.

C. Water Quality-Based Effluent Limitations (WQBELs) for Discharge Points 001 to 007

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a

proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Water Quality Criteria and Objectives

The National Toxics Rule, California Toxics Rule (CTR) and State Implementation Policy (SIP) specify numeric objectives for toxic substances and the procedures whereby these objectives are to be implemented. The procedures include those used to conduct reasonable potential analysis to determine the need for effluent limitations for priority and non-priority pollutants.

The CTR contains aquatic life and human health numeric water quality criteria for priority toxic pollutants, including copper and lead. The CTR criteria for copper and lead are hardness-based. The CTR provides equations for calculating these metals in the dissolved fraction, as each equation contains a multiplied conversion factor (provided in the CTR). To convert to the total metals fraction, each equation must be divided by the conversion factor or the conversion factor can simply be removed from the equation.

The equation for the conversion of dissolved CTR criteria to total CTR criteria is:

Total fraction acute criteria =WER x (Conversion Factor/ Conversion Factor) x EXP{mA*[ln(Hardness)]+bA}, or

Total fraction criteria =WER x EXP{mA*[ln(Hardness)]+bA}

Where:
WER = 1,
Hardness = 290 mg/L,
Conversion factors, mA, and bA are provided in the CTR.

The equations for total copper and total lead as CTR criteria are shown in the table below. A hardness value of 290 mg/L was used for receiving surface water, which was the average effluent hardness over the last five years.

CTR Values using Hardness of 290 mg/L

Acute Criteria	Dissolved Equation	Total Equation	Total Equation with Values	Total Acute Criteria, µg/L	Total Cronic Criteria, µg/L
Copper	WER*Conversion Factor* EXP{mA*[ln(Hardness)]+bA}	WER* EXP{mA*[ln(Hardness)]+bA}	1*EXP{0.942*[ln(290)]-1.7}	38.2	23.2
Lead	WER*Conversion Factor quation* EXP{mA*[ln(Hardness)]+bA}	WER* EXP{mA*[ln(Hardness)]+bA}	1*EXP{1.273*[ln(290)]-1.46}	317	12.3

3. Summary of Effluent Data

Tables 6 & 7, below, summarize the flow-weighted copper and lead concentrations for the geothermal well water and the two discharge points during the study used between September 2008 to April 2009 and the recent concentrations of the well water.

Table 6. Copper and Lead Data for Geothermal Wells

Mill and D Street Well			Well 66		
Date	Copper µg/L	Lead µg/L	Date	Copper µg/L	Lead µg/L
9/29/08	1.1	ND	9/29/08	11	2.1
11/19/08	1.5	ND	11/21/08	2.9	ND
12/2/08	2.0	ND	12/2/08	1.8	ND
1/5/09	1.2	0.6	12/15/08	2.4	ND
1/6/09	1.2	ND	12/16/08	1.8	ND
1/7/09	1.0	ND	12/17/08	3.0	ND
1/8/09	1.0	ND	12/18/08	1.7	ND
1/9/09	1.2	ND	12/19/08	2.0	ND
3/17/09	1.2	ND	1/21/09	2.3	ND
3/18/09	1.3	ND	2/10/09	1.7	0.6
3/19/09	2.0	ND	2/12/09	3.4	ND
3/24/09	1.1	ND	2/17/09	1.9	ND
3/25/09	1.1	ND	2/19/09	1.7	ND
3/26/09	1.1	ND	2/24/09	1.4	ND
3/31/09	1.6	ND	2/26/09	1.4	ND
4/1/09	5.4	0.8	3/3/09	3.0	ND
4/2/09	1.5	ND	3/4/09	2.1	ND
4/7/09	1.6	ND	3/5/09	2.9	ND
4/8/09	1.9	ND	3/10/09	1.9	ND
4/9/09	4.7	ND	3/11/09	2.0	ND
2/5/15	0.9	1.3	2/5/15	1.7	0.5

Table 7. Copper and Lead Data for Discharge Points

Discharge Point at County Law Library				Discharge Point at Center for Individual Development			
Date	Time	Copper µg/L	Lead µg/L	Date	Time	Copper µg/L	Lead µg/L
9/29/08	1438	2.4	ND	9/29/08	1510	5.6	0.7
11/19/08	1144	2.4	2.6	11/19/08	1113	5.4	1.2
11/21/08	1036	4.1	1.1	11/21/08	0855	4.4	2.7
12/16/08	1030	43.0	7.5	12/2/08	1300	5.5	1.3
1/8/09	1327	2.5	1.2	12/2/08	1300	2.5	0.8
1/21/09	1345	6.0	3.1	12/16/08	1120	3.8	0.7
2/10/09	1030	1.8	ND	1/8/09	1440	1.1	ND
2/10/09	1330	1.6	ND	2/10/09	1100	17.0	1.4
2/10/09	1030	2.3	2.4	2/12/09	0845	1.9	ND
2/10/09	1330	1.6	1.0	2/17/09	0902	2.1	ND
2/12/09	0819	1.8	ND	2/19/09	1018	2.4	ND
2/12/09	0812	1.6	ND	2/24/09	1250	1.4	ND
2/12/09	1330	1.6	ND	2/26/09	1021	1.8	ND
2/12/09	1335	1.6	0.6	3/3/09	1602	1.7	ND
2/17/09	0835	1.6	ND	3/4/09	0820	3.3	ND
2/17/09	0955	1.7	ND	3/5/09	0917	2.6	ND
2/17/09	0830	1.5	0.5	3/10/09	1328	1.8	ND
2/17/09	0955	1.5	ND	3/11/09	1425	1.8	ND
2/19/09	0950	1.5	ND	3/12/09	0835	1.5	ND
2/19/09	1110	1.7	ND	3/17/09	0847	1.3	ND
2/19/09	0950	1.5	ND	3/18/09	1122	1.3	ND
2/19/09	1110	1.6	0.7	3/19/09	1317	1.3	ND
2/24/09	1230	2.0	0.9	3/24/09	1227	1.3	ND
2/24/09	1330	1.5	ND	3/25/09	1030	1.4	ND
2/24/09	1220	1.5	1.0	3/26/09	1325	1.4	ND
2/24/09	1320	1.5	1.2				
2/26/09	0936	1.5	ND				
2/26/09	1045	1.4	ND				
2/26/09	0955	2.2	1.1				
2/26/09	1105	1.9	1.4				
3/3/09	0339	3.1	2.3				

4. Determining the Need for WQBELs

To determine representative effluent sampling locations, Order R8-2008-0007 required the Discharger to conduct a special study by monitoring for copper and lead, both at wellheads and at the discharge outfalls. This was intended to determine whether there was a difference between extracted geothermal water and discharged geothermal wastewater with respect to these constituents. The results of the investigation concluded that there was no difference observed between the influent and the effluent water quality.

The special study included sampling of the geothermal wells and two discharge points. The two representative locations (the County Law Library and the Center for Individual Development) were identified for testing. These two locations were chosen for testing because it was believed that these sites would have the highest potential for elevated copper and lead due to the large amounts of copper tubing used within the facilities' heat exchange systems. None of the samples collected directly from the geothermal wells and the two discharge points during the test period had results for copper or lead in excess of the trigger values of 7.5 µg/l and 4.1 µg/L, respectively.

The information collected during the study and the recent priority pollutant analysis indicate that there are no pollutants above trigger values. A reasonable potential analysis was conducted on priority pollutants that indicate that there is no reasonable potential for the discharge of geothermal well water to cause any potential for elevated copper, lead, and priority pollutants to be in the discharge. Consequently, no effluent limits are prescribed for the priority pollutants in the Order. Also, the study and the recent priority pollutant analysis demonstrate that the system should continue to be considered a noncontact heating system with the well quality representative of the discharge quality.

The tables above show copper and lead concentrations of samples taken from both geothermal wells and two discharge points (County Law Library & Center for Individual Development) are comparable. The Discharger attributes the high readings that are higher than the trigger values for geothermal well 66 in the first sample for copper and lead as an anomaly. The single high value in each sample group should be rejected for statistical reasons.

Metal	Lowest Applicable CTR Criterion, µg/L	Maximum Effluent Concentration, µg/L	Reasonable Potential?
Copper	38.2 (acute) -23.2 (chronic)	5.4	No
Lead	317 (acute) -12.3(chronic)	1.8	No

D. Summary of Final Effluent Limitations

There are no numeric effluent limitations for chemicals or temperature in the Order. However, this Order may be reopened to include effluent limitations for metals if their concentrations measured in the well water exceed CTR limits.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

The receiving water limitations in this Order are based on the water quality objectives contained in the Basin Plan for Inland Surface Waters.

B. Groundwater

There are no groundwater limitations in the Order.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement State and federal requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

The extracted geothermal water from the two wells is considered as the influent flow. The Discharger is required to collect samples at wellheads on the presumption that the well water will be representative of the discharge since there are no chemicals added to the geothermal water. As such, water quality monitoring at wellheads should be indicative of the water quality of the effluent except for temperature. The effluent temperature is expected to be lower than the influent due to heat exchange with cold water.

B. Effluent Monitoring

No effluent monitoring. See the discussion above regarding influent monitoring.

C. Receiving Water Monitoring

1. Surface Water

Receiving water monitoring is required to determine the increase in the temperature of the receiving waters, and limits are included consistent with the Basin Plan.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

The provisions are based on 40 CFR Part123. The Regional Water Board may reopen the permit to modify permit conditions and requirements. Causes for modifications include the promulgation of new regulations, modification in sludge use or disposal practices, or adoption of new regulations by the State Water Board or Regional Water Board, including revisions to the Basin Plan.

VIII.PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Santa Ana Region (Regional Water Board) is considering the renewal of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the City of San Bernardino Municipal Water Department's Geothermal Heating Project. As a step in the WDR renewal process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to renew waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the posting of Notice of Public Hearing in the area of the discharge and at the Regional Water Board website: http://www.waterboards.ca.gov/santaana.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on April 10, 2015.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	May 1, 2015
Time:	9:00 A.M.
Location:	City Council Chambers City of Loma Linda 25541 Barton Road Loma Linda, CA 92354

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/santaana where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (ROWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 9:00 a.m. and 3:00 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (951) 782-4499.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this tentative Order should be directed to Najah N. Amin at (951) 320-6362.

ATTACHMENT G - EPA PRIORITY POLLUTANT LIST

EPA PRIORITY POLLUTANT LIST					
Metals		**Acid Extractibles**		**Base/Neutral Extractibles (continuation)**	
1.	Antimony	45.	2-Chlorophenol	91.	Hexachloroethane
2.	Arsenic	46.	2,4-Dichlorophenol	92.	Indeno (1,2,3-cd) Pyrene
3.	Beryllium	47.	2,4-Dimethylphenol	93.	Isophorone
4.	Cadmium	48.	2-Methyl-4,6-Dinitrophenol	94.	Naphthalene
5a.	Chromium (III)	49.	2,4-Dinitrophenol	95.	Nitrobenzene
5b.	Chromium (VI)	50.	2-Nitrophenol	96.	N-Nitrosodimethylamine
6.	Copper	51.	4-Nitrophenol	97.	N-Nitrosodi-N-Propylamine
7.	Lead	52.	3-Methyl-4-Chlorophenol	98.	N-Nitrosodiphenylamine
8.	Mercury	53.	Pentachlorophenol	99.	Phenanthrene
9.	Nickel	54.	Phenol	100.	Pyrene
10.	Selenium	55.	2, 4, 6 – Trichlorophenol	101.	1,2,4-Trichlorobenzene
11.	Silver		**Base/Neutral Extractibles**		**Pesticides**
12.	Thallium	56.	Acenaphthene	102.	Aldrin
13.	Zinc	57.	Acenaphthylene	103.	Alpha BHC
	Miscellaneous	58.	Anthracene	104.	Beta BHC
14.	Cyanide	59.	Benzidine	105.	Delta BHC
15.	Asbestos (not required unless requested)	60.	Benzo (a) Anthracene	106.	Gamma BHC
16.	2,3,7,8-Tetrachlorodibenzo-P-Dioxin (TCDD)	61.	Benzo (a) Pyrene	107.	Chlordane
	Volatile Organics	62.	Benzo (b) Fluoranthene	108.	4, 4' - DDT
17.	Acrolein	63.	Benzo (g,h,i) Perylene	109.	4, 4' - DDE
18.	Acrylonitrile	64.	Benzo (k) Fluoranthene	110.	4, 4' - DDD
19.	Benzene	65.	Bis (2-Chloroethoxy) Methane	111.	Dieldrin
20.	Bromoform	66.	Bis (2-Chloroethyl) Ether	112.	Alpha Endosulfan
21.	Carbon Tetrachloride	67.	Bis (2-Chloroisopropyl) Ether	113.	Beta Endosulfan
22.	Chlorobenzene	68.	Bis (2-Ethylhexyl) Phthalate	114.	Endosulfan Sulfate
23.	Chlorodibromomethane	69.	4-Bromophenyl Phenyl Ether	115.	Endrin
24.	Chloroethane	70.	Butylbenzyl Phthalate	116.	Endrin Aldehyde
25.	2-Chloroethyl Vinyl Ether	71.	2-Chloronaphthalene	117.	Heptachlor
26.	Chloroform	72.	4-Chlorophenyl Phenyl Ether	118.	Heptachlor Epoxide
27.	Dichlorobromomethane	73.	Chrysene	119.	PCB 1016
28.	1,1-Dichloroethane	74.	Dibenzo (a,h) Anthracene	120.	PCB 1221
29.	1,2-Dichloroethane	75.	1,2-Dichlorobenzene	121.	PCB 1232
30.	1,1-Dichloroethylene	76.	1,3-Dichlorobenzene	122.	PCB 1242
31.	1,2-Dichloropropane	77.	1,4-Dichlorobenzene	123.	PCB 1248
32.	1,3-Dichloropropylene	78.	3,3'-Dichlorobenzidine	124.	PCB 1254
33.	Ethylbenzene	79.	Diethyl Phthalate	125.	PCB 1260
34.	Methyl Bromide	80.	Dimethyl Phthalate	126.	Toxaphene
35.	Methyl Chloride	81.	Di-n-Butyl Phthalate		
36.	Methylene Chloride	82.	2,4-Dinitrotoluene		
37.	1,1,2,2-Tetrachloroethane	83.	2-6-Dinitrotoluene		
38.	Tetrachloroethylene	84.	Di-n-Octyl Phthalate		
39.	Toluene	85.	1,2-Dipenylhydrazine		
40.	1,2-Trans-Dichloroethylene	86.	Fluoranthene		
41.	1,1,1-Trichloroethane	87.	Fluorene		
42.	1,1,2-Trichloroethane	88.	Hexachlorobenzene		
43.	Trichloroethylene	89.	Hexachlorobutadiene		
44.	Vinyl Chloride	90.	Hexachlorocyclopentadiene		

ATTACHMENT H – MINIMUM LEVELS

MINIMUM LEVELS IN PPB (µg/l)

Table 1- VOLATILE SUBSTANCES[1]	GC	GCMS
Acrolein	2.0	5
Acrylonitrile	2.0	2
Benzene	0.5	2
Bromoform	0.5	2
Carbon Tetrachloride	0.5	2
Chlorobenzene	0.5	2
Chlorodibromomethane	0.5	2
Chloroethane	0.5	2
Chloroform	0.5	2
Dichlorobromomethane	0.5	2
1,1 Dichloroethane	0.5	1
1,2 Dichloroethane	0.5	2
1,1 Dichloroethylene	0.5	2
1,2 Dichloropropane	0.5	1
1,3 Dichloropropylene (volatile)	0.5	2
Ethylbenzene	0.5	2
Methyl Bromide (*Bromomethane*)	1.0	2
Methyl Chloride (*Chloromethane*)	0.5	2
Methylene Chloride (*Dichloromethane*)	0.5	2
1,1,2,2 Tetrachloroethane	0.5	1
Tetrachloroethylene	0.5	2
Toluene	0.5	2
trans-1,2 Dichloroethylene	0.5	1
1,1,1 Trichloroethane	0.5	2
1,1,2 Trichloroethane	0.5	2
Trichloroethylene	0.5	2
Vinyl Chloride	0.5	2
1,2 Dichlorobenzene (volatile)	0.5	2
1,3 Dichlorobenzene (volatile)	0.5	2
1,4 Dichlorobenzene (volatile)	0.5	2

Selection and Use of Appropriate ML Value:

ML Selection: When there is more than one ML value for a given substance, the discharger may select any one of those ML values, and their associated analytical methods, listed in this Attachment that are below the calculated effluent limitation for compliance determination. If no ML value is below the effluent limitation, then the discharger shall select the lowest ML value, and its associated analytical method, listed in the PQL Table.

ML Usage: The ML value in this Attachment represents the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences. Assuming that all method-specific analytical steps are followed, the ML value will also represent, after the appropriate application of method-specific factors, the lowest standard in the calibration curve for that specific analytical technique. Common analytical practices sometimes require different treatment of the sample relative to calibration standards.
Note: chemical names in parenthesis and italicized is another name for the constituent.

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1 *The normal method-specific factor for these substances is 1, therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance.*

MINIMUM LEVELS IN PPB (µg/l)

Table 2 – Semi-Volatile Substances[2]	GC	GCMS	LC
2-Chloroethyl vinyl ether	1	1	
2 Chlorophenol	2	5	
2,4 Dichlorophenol	1	5	
2,4 Dimethylphenol	1	2	
4,6 Dinitro-2-methylphenol	10	5	
2,4 Dinitrophenol	5	5	
2- Nitrophenol		10	
4- Nitrophenol	5	10	
4 Chloro-3-methylphenol	5	1	
2,4,6 Trichlorophenol	10	10	
Acenaphthene	1	1	0.5
Acenaphthylene		10	0.2
Anthracene		10	2
Benzidine		5	
Benzo (a) Anthracene (*1,2 Benzanthracene*)	10	5	
Benzo(a) pyrene (*3,4 Benzopyrene*)		10	2
Benzo (b) Flouranthene (*3,4 Benzofluoranthene*)		10	10
Benzo(g,h,i)perylene		5	0.1
Benzo(k)fluoranthene		10	2
bis 2-(1-Chloroethoxyl) methane		5	
bis(2-chloroethyl) ether	10	1	
bis(2-Chloroisopropyl) ether	10	2	
bis(2-Ethylhexyl) phthalate	10	5	
4-Bromophenyl phenyl ether	10	5	
Butyl benzyl phthalate	10	10	
2-Chloronaphthalene		10	
4-Chlorophenyl phenyl ether		5	
Chrysene		10	5
Dibenzo(a,h)-anthracene		10	0.1
1,2 Dichlorobenzene (semivolatile)	2	2	
1,3 Dichlorobenzene (semivolatile)	2	1	
1,4 Dichlorobenzene (semivolatile)	2	1	
3,3' Dichlorobenzidine		5	
Diethyl phthalate	10	2	
Dimethyl phthalate	10	2	
di-n-Butyl phthalate		10	
2,4 Dinitrotoluene	10	5	
2,6 Dinitrotoluene		5	
di-n-Octyl phthalate		10	
1,2 Diphenylhydrazine		1	
Fluoranthene	10	1	0.05
Fluorene		10	0.1
Hexachloro-cyclopentadiene	5	5	
1,2,4 Trichlorobenzene	1	5	

MINIMUM LEVELS IN PPB (µg/l)

Table 2 - SEMI-VOLATILE SUBSTANCES[2]	GC	GCMS	LC	COLOR
Pentachlorophenol	1	5		
Phenol [3]	1	1		50
Hexachlorobenzene	5	1		
Hexachlorobutadiene	5	1		
Hexachloroethane	5	1		
Indeno(1,2,3,cd)-pyrene		10	0.05	
Isophorone	10	1		
Naphthalene	10	1	0.2	
Nitrobenzene	10	1		
N-Nitroso-dimethyl amine	10	5		
N-Nitroso -di n-propyl amine	10	5		
N-Nitroso diphenyl amine	10	1		
Phenanthrene		5	0.05	
Pyrene		10	0.05	

Table 3– INORGANICS[4]	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAA	COLOR	DCP
Antimony	10	5	50	0.5	5	0.5			1000
Arsenic		2	10	2	2	1		20	1000
Beryllium	20	0.5	2	0.5	1				1000
Cadmium	10	0.5	10	0.25	0.5				1000
Chromium (total)	50	2	10	0.5	1				1000
Chromium VI	5							10	
Copper	25	5	10	0.5	2				1000
Lead	20	5	5	0.5	2				10000
Mercury				0.5			0.2		
Nickel	50	5	20	1	5				1000
Selenium		5	10	2	5	1			1000
Silver	10	1	10	0.25	2				1000
Thallium	10	2	10	1	5				1000
Zinc	20		20	1	10				1000
Cyanide								5	

2 *With the exception of phenol by colorimetric technique, the normal method-specific factor for these substances is 1000, therefore, the lowest standards concentration in the calibration curve is equal to the above ML value for each substance multiplied by 1000.*

3 *Phenol by colorimetric technique has a factor of 1.*

4 *The normal method-specific factor for these substances is 1, therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance.*

MINIMUM LEVELS IN PPB (µg/l)

Table 4- PESTICIDES – PCBs[5]	GC
Aldrin	0.005
alpha–BHC (*a-Hexachloro-cyclohexane*)	0.01
beta–BHC (*b-Hexachloro-cyclohexane*)	0.005
Gamma–BHC (*Lindane; g-Hexachloro-cyclohexane*)	0.02
Delta-BHC (*d-Hexachloro-cyclohexane*)	0.005
Chlordane	0.1
4,4'-DDT	0.01
4,4'-DDE	0.05
4,4'-DDD	0.05
Dieldrin	0.01
Alpha-Endosulfan	0.02
Beta-Endosulfan	0.01
Endosulfan Sulfate	0.05
Endrin	0.01
Endrin Aldehyde	0.01
Heptachlor	0.01
Heptachlor Epoxide	0.01
PCB 1016	0.5
PCB 1221	0.5
PCB 1232	0.5
PCB 1242	0.5
PCB 1248	0.5
PCB 1254	0.5
PCB 1260	0.5
Toxaphene	0.5

Techniques:
GC - Gas Chromatography
GCMS - Gas Chromatography/Mass Spectrometry
HRGCMS - High Resolution Gas Chromatography/Mass Spectrometry (i.e., EPA 1613, 1624, or 1625)
LC - High Pressure Liquid Chromatography
FAA - Flame Atomic Absorption
GFAA - Graphite Furnace Atomic Absorption
HYDRIDE - Gaseous Hydride Atomic Absorption
CVAA - Cold Vapor Atomic Absorption
ICP - Inductively Coupled Plasma
ICPMS - Inductively Coupled Plasma/Mass Spectrometry
SPGFAA - Stabilized Platform Graphite Furnace Atomic Absorption (i.e., EPA 200.9)
DCP - Direct Current Plasma
COLOR - Colorimetric

5 *The normal method-specific factor for these substances is 100, therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance multiplied by 100.*

ATTACHMENT I – TRIGGERS FOR MONITORING PRIORITY POLLUTANTS

	CONSTITUENT	µg/L
1	Antimony	7
2	Arsenic	75
3	Beryllium	--
4	Cadmium	1.9
5a	Chromium III	65
5b	Chromium VI	5.7
6	Copper	7.2
7	Lead	4.1
8	Mercury	0.026
9	Nickel	16
10	Selenium	2.5
11	Silver	0.8
12	Thallium	3.2
13	Zinc	37
14	Cyanide	2.6
15	Asbestos	--
16	2,3,7,8-TCDD (Dioxin)	0.000000007
17	Acrolein	160
18	Acrylonitrile	0.03
19	Benzene	0.6
20	Bromoform	2.2
21	Carbon Tetrachloride	0.13
22	Chlorobenzene	340
23	Chlorodibromomethane	0.22
24	Chloroethane	--
25	2-Chloroethyl vinyl ether	--
26	Chloroform	--
27	Dichlorobromomethane	0.28
28	***1,1-Dichloroethane***	***5***
29	1,2-Dichloroethane	0.19
30	1,1-Dichloroethylene	0.029
31	1,2-Dichloropropane	0.26
32	1,3-Dichloropropylene	5
33	***Ethylbenzene***	***300***
34	Methyl Bromide	24
35	Methyl Chloride	--
36	Methylene Chloride	2.4
37	1,1,2,2-Tetratchloroethane	0.085

	CONSTITUENT	µg/L
38	Tetratchloroethylene	0.4
39	***Toluene***	***150***
40	***1,2,-Trans-dichloroethylene***	***10***
41	***1,1,1-Trichloroethane***	***200***
42	1,1,2-Trichloroethane	0.3
43	Trichloroethylene	1.35
44	***Vinyl Chloride***	***0.5***
45	2-Chlorophenol	60
46	2,4-Dichlorophenol	46.5
47	2,4-Dimethylphenol	270
48	2-Methy-4,6-Dinitrophenol	6.7
49	2,4-Dinitrophenol	35
50	2-Nitrophenol	--
51	4-Nitrophenol	--
52	3-Methyl-4-Chlorophenol	--
53	Pentachlorophenol	0.14
54	Phenol	10500
55	2,4,6-Trichlorophenol	1.05
56	Acenapthene	600
57	Acenapthylene	--
58	Anthracene	4800
59	Benzidine	0.00006
60	Benzo (a) anthracene	0.0022
61	Benzo (a) pyrene	0.0022
62	Benzo (b) fluoranthene	0.0022
63	Benzo (g,h,i) pyrylene	--
64	Benzo (k) fluorantene	0.0022
65	Bis (2-Chloroethoxy) methane	--
66	Bis (2-Chloroethyl) ether	0.016
67	Bis (2-Chloroisopropyl) ether	700
68	Bis (2-ethyhexyl) phthalate	0.9
69	4-Bromophenyl phenyl ether	--
70	Butyl benzyl phthalate	1500
71	2- Chloronapthalene	850
72	4-Chlrorphenyl phenyl ether	--
73	Chrysene	0.0022
74	Dibenzo (a,h) anthracene	0.0022
75	***1,2-Dichlorobenzene***	***600***

See notes below for italicized constituents.

ATTACHMENT I. -Continued

	CONSTITUENT	µg/L
76	1,3-Dichlorobenzene	200
77	***1,4-Dichlorobenzene***	***5***
78	3,3-Dichlorobenzidine	0.02
79	Diethyl phthalate	11,500
80	Dimethyl phthalate	156,500
81	Di-N-butyl phthalate	1,350
82	2,4-Dinitrotoluene	0.055
83	2,6-Dinitrotoluene	--
84	Di-N-octyl phthalate	--
85	1,2-Diphenylhydrazine	0.02
86	Fluoranthene	150
87	Fluorene	650
88	Hexachlorobenzene	0.00038
89	Hexachlorobutadiene	0.22
90	***Hexachlorocyclopentadiene***	***50***
91	Hexachloroethane	0.95
92	Indeno (1,2,3-cd) pyrene	0.0022
93	Isophorone	4.2
94	***Naphthalene***	***17***
95	Nitrobenzene	8.5
96	N-Nitrosodimethylamine	0.00035
97	N-Nitrosodi-N-propylamine	0.0025
98	N-Nitrosodiphenylamine	2.5
99	Phenantrene	--

	CONSTITUENT	µg/L
100	Pyrene	480
101	***1,2,4 -Trichlorobenzene***	***5***
102	Aldrin	0.00007
103	BHC Alpha	0.0020
104	BHC Beta	0.007
105	BHC Gamma	0.010
106	BHC Delta	--
107	Chlordane	0.00029
108	4,4-DDT	0.0003
109	4,4-DDE	0.0003
110	4,4-DDD	0.00042
111	Dieldrin	0.00007
112	Endosulfan Alpha	0.028
113	Endosulfan Beta	0.028
114	Endosulfan Sulfate	55
115	Endrin	0.018
116	Endrin Aldehyde	0.38
117	Heptachlor	0.00011
118	Heptachlor Epoxide	0.00005
119	PCB 1016	0.000085
120	PCB 1221	0.000085
125	PCB 1260	0.000085
126	Toxaphene	0.00037

Notes:

1. For constituents not shown italicized, the values shown in the Table are fifty percent of the most stringent applicable receiving water objectives (freshwater or human health (consumption of water and organisms) as specified for that pollutant in 40 CFR 131.38[1]).
2. For constituents shown bold and italicized, the values shown in the Table are based on the California Department of Health Services maximum contaminant levels (MCLs) or Notification Level. Notification Level based trigger is underlined.
3. For hardness dependent metals, the 5th percentile value of hardness, 57 mg/L, in receiving water--Santa Ana River is used and for pentachlorophenol, the pH value used is 7.5 standard units.

[1] *See Federal Register/ Vol. 65, No. 97 / Thursday, May 18, 2000 / Rules and Regulations.*