CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MEETING OF JUNE 8-9, 2022
BARSTOW, CA

ITEM 11
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND WASTE DISCHARGE REQUIREMENTS FOR BASELOAD POWER WENDEL, LLC, WENDEL GEOTHERMAL POWER PLANT, LASSEN COUNTY

CHRONOLOGY	
April 12, 1984	The first Water Board Order adopted for the Wendel Geothermal Power Plant (Facility) (formerly known as Wineagle Geothermal Power Plant), Order No. 6-84-44
June 10, 1993	The Water Board adopted Order No. 6-93-56. This Order rescinded Order No. 6-84-44.
June 4, 1998	The Water Board adopted Order No. 6-98-34. This Order rescinded Order No. 6-93-56.
June 11, 2003	The Water Board adopted Order No. R6T-2003-0027. This Order rescinded Order No. 6-98-34.
January 14, 2009	The Water Board adopted Order No. R6T-2009-0006. This Order rescinded Board Order No. R6T-2009-006.
March 11, 2015	The Water Board adopted Order No. R6T-2015-0010. This Order expired April 30, 2020 and was not transferred to the new owner. This Order rescinded Board Order No. R6T-2009-0006.
June 9, 2022	The Water Board considers adopting Order R6T-2022-PROPOSED (Order). This Order would rescind Order No. R6T-2015-0010.

BACKGROUND
Baseload Power Wendel, LLC (BPW) is the new owner/operator of the Facility and submitted a complete Report of Waste Discharge (ROWD) for authorization for surface discharge of geothermal fluids. The previous Order for the facility issued in 2015 was not transferred to BPW from the prior owner and this National Pollution Discharge Elimination System (NPDES) Order was completed in accordance with Section 402 of the federal Clean Water Act. The Facility has not been in operation since 2016. BPW has been making repairs to the Facility to begin producing power to provide to the local municipality.

ISSUES

Should the Water Board adopt the NPDES and Waste Discharge Requirements (WDRs) Order for the Wendel Geothermal Power Plant discharge with new effluent limits for six constituents utilizing intake water credits?

DISCUSSION

The Facility discharges geothermal fluid from a production well at 1,400 feet below the ground surface and at a rate of 800 gallons per minute (gpm). The Facility utilizes heat from the fluid to produce power for the local municipality. The Facility does not add pollutants to the geothermal waste prior to discharge to the surface receiving water, Wendel Hot Springs. While no alteration of the geothermal fluid is made (other than heat extraction) the discharge from the Facility does contain naturally occurring toxic constituents including arsenic, boron, copper, lead, mercury, and molybdenum. Arsenic, copper, lead, mercury, and molybdenum are on the California Toxics Rule list set forth in title 40 of the Code of Federal Regulations. While there are no site-specific water quality objectives for the receiving water or Honey Lake, these six constituents are above the governing water quality objectives for surface discharge. As allowed for in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP), intake water credits allow the Facility to discharge constituents at concentrations equivalent to those in the influent water if the requirements for intake water credits are met. An important requirement for this allowance: both the ambient water quality and influent water must exceed the governing water quality objectives, and the Facility must not add to the concentrations in the influent prior to discharge. Evidence to support the use of intake water credits was provided during the prior permit terms and is described in the Fact Sheet. As a requirement of this new Order (section 6.3.2.1), BPW is required to submit a comprehensive intake water credit summary including water quality data for the surfacing springs (while they continue to surface) to confirm constituent concentrations of copper, lead, and mercury in the effluent are comparable with the surfacing springs.

Intake water credit effluent limitations are set at the lesser of either the 99th percentile or maximum concentration of influent concentrations. The Facility's historic water quality data provided from previous owners/operators was utilized in effluent limitation calculations and intake water credit analysis.

Differences between the 2015 Order and the proposed Order include the addition of a Best Management Practices (BMP) plan, additions to the monitoring and reporting program, and prohibition of petroleum-based oil lubricants. The BMP plan requirement (attachment G) has been added to the Order to ensure pollutants from the Facility's components minimize or remove the contribution of pollutants from those components to the discharge. The monitoring and reporting program (MRP) (attachment E) includes biannual monitoring of bis (2-ethylhexyl) phthalate after data contained in the ROWD had a single sampling event higher than the applicable water quality objective for surface discharge. As the Facility has not had a prior excursion of this constituent above the water quality objective and the constituent is not

DISCUSSION

common/expected with this type of facility or discharge, it was determined that there was no reasonable potential to exceed the water quality objective and the constituent was not given an effluent limitation but instead subject to biannual monitoring for the life of the Order. The Order prohibits utilization of petroleum-based lubricants after it was discovered that the Facility uses a petroleum-based oil pump lubricant for the production pump. The production pump delivers lubricants and discharges spent lubricant to Wendel Hot Springs along with the geothermal fluid waste. The possibility of surface discharge of hydrocarbons is a concern; therefore, Order prohibits the use and discharge or petroleum-based lubricants.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT BASINS

For purposes of the Sustainable Groundwater Management Act, the California Department of Water Resources identifies the following groundwater basin in Lassen County, along with priority, near the discharge location within the Lahontan Region.

Priority	Groundwater Basin
Low	Honey Lake Valley (6-004)

Source: Sustainable Groundwater Management Act Basin Prioritization

CLIMATE CHANGE RESPONSE

Requirements and prohibitions presented in the Order and associated Monitoring and Reporting Program are consistent with Resolution R6T-2019-0277 (Resolution) the Water Board's Climate Change Mitigation and Adaptation Strategy in the following key resources areas: (1) Protection of Wetlands, Floodplains, and Headwaters; (2) Infrastructure Protection; and (3) Protection of Groundwater Quality and Supply.

The Order's requirement to develop and implement a BMP plan for the Facility upholds the infrastructure protection strategy of the climate change response. In addition to developing a plan to control pollutants common with geothermal discharge and control possible pollutants from the Facility's infrastructure, the BMP plan requires a comprehensive examination of each component for potential pollutant release during all conditions, ranging from routine operation to natural phenomenon and disasters.

Lastly, the Order supports protection of the groundwater supply by implementing water quality objectives that protect beneficial uses of the receiving water.

PUBLIC OUTREACH/INPUT

Notice of the availability of a draft permit, upcoming public hearing, and the opportunity to provide comment on the draft Order was published on the Water Board website on March 4, 2022. Staff notified interested parties and agencies, and the Discharger that the proposed Order would be considered at the Water Board's June 9, 2022 meeting. Comments received on the Tentative Order and the Response to Comments are provided in Enclosure 2.

PRESENTERS
Trevor Miller, Water Board, Water Resource Control Engineer.

RECOMMENDATION
Water Board staff recommends the adoption of Board Order No. R6T-2022-PROPOSED, National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for Baseload Power Wendel, LLC, Wendel Geothermal Power Plant, as proposed.

ENCLOSURE	ITEM	BATES NUMBER
1	Water Board Proposed Board Order No. R6T-2022-PROPOSED	**11 - 5**
2	Comments on Tentative Order and Water Board Staff Response to Comments	**11 - 97**

ENCLOSURE 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

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WATER QUALITY ORDER NO. R6T-2022-PROPOSED
NPDES NO. CA0103063
WDID NO. 6A180045901

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR BASELOAD POWER WENDEL, LLC, WENDEL GEOTHERMAL POWER PLANT

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Discharger	**Baseload Power Wendel, LLC**
Name of Facility	**Wendel Geothermal Power Plant**
Facility Address	**733-015 Antola Road** **Wendel, California 96136** **Lassen County**

Table 1. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North-South)	Discharge Point Longitude (East-West)	Receiving Water
001	Spent Geothermal Fluids	40° 21’ 24”	120° 15’ 23”	Wendel Hot Springs

This Order was adopted on:	**<June 9, 2022>**
This Order shall become effective on:	**<Date>**
This Order shall expire on:	**<Date>**

The Discharger must file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with Title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than: **180 days prior to the Order expiration date.** The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Lahontan Region have classified this discharge as follows: Minor discharge.

I, Michael R Plaziak, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on **<Date>**.

MICHAEL R. PLAZIAK, PG
EXECUTIVE OFFICER

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1. FACILITY INFORMATION

Information describing the Wendel Geothermal Power Plant (Facility) is summarized on the cover page and in sections 1 and 2 of the Fact Sheet (Attachment F). Section 1 of the Fact Sheet also includes information regarding the Facility's permit application.

2. FINDINGS

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

2.1. **Legal Authorities.** This Order serves as a Waste Discharge Requirement (WDR) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 1 subject to the WDRs in this Order.

2.2. **Background and Rationale for Requirements.** The Lahontan 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 the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G are also incorporated into this Order.

2.3. **Provisions and Requirements Implementing State Law.** The provisions/requirements in subsection 5.2 of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

2.4. **The Right to Access to Clean Water.** Water Code section 106.3 states in part "...every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." This Order does not authorize discharges to sources of drinking water and requires monitoring for potential degradation of water quality.

2.5 **California Environmental Quality Act.** This action to adopt an NPDES permit is statutorily exempt from the provisions of the California Environmental Quality Act (CEQA, Public Resources Code sections 21000, et seq.), pursuant to section 13389 of the Water Code.

2.6 **Notification of Interested Parties.** The Lahontan Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written

comments and recommendations. Details of the notification are provided in the Fact Sheet.

2.7. **Consideration of Public Comment.** The Lahontan 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.

THEREFORE, IT IS HEREBY ORDERED that Order No. R6T-2015-0010 is rescinded upon the effective date of this Order 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 CWA and regulations and guidelines adopted thereunder, the Discharger must comply with the requirements in this Order. This action in no way prevents the Lahontan Water Board from taking enforcement action for past violations of the previous Order.

3. DISCHARGE PROHIBITIONS

3.1. In accordance with the Region-wide and Unit/Area-Specific Prohibitions in section 4.1 of the *Water Quality Control Plan for the Lahontan Region* (Basin Plan), the discharger must comply with the following prohibitions unless a specific exemption is granted in writing by the Lahontan Water Board:

3.1.1. The discharge of waste[1] that causes violation of any narrative or numeric water quality objective contained in the Basin Plan is prohibited.

3.1.2 Where any numeric or narrative water quality objective contained in the Basin Plan is already being violated, the discharge of waste that causes further degradation or pollution is prohibited.

3.1.3. The discharge of waste that could affect the quality of waters of the state that is not authorized by the State Water Resources Control Board (State Water Board) or Lahontan Water Board through waste discharge requirements, NPDES permit, cease and desist order, certification of water quality compliance pursuant to CWA section 401, or other appropriate regulatory mechanism is prohibited.

3.1.4. The discharge of untreated sewage[2], garbage, or other solid wastes into surface waters of the Region is prohibited.

3.1.5. The discharge of pesticides to surface or ground waters is prohibited.

3.2. The discharge of waste (discharge), except to authorized discharge point Discharge Point 001, is prohibited.

3.3. The discharge must not cause pollution as defined in section 13050 of the Water Code, or a threatened pollution.

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[1] "Waste" is defined in Water Code section 13050 subdivision (d) and includes, but is not limited to, waste earthen materials (such as soil, silt, sand, clay, rock, or other organic or mineral material).
[2] , “Untreated sewage” is that which exceeds secondary treatment standards of the Federal Water Pollution Control Act, which are incorporated in section 4.4 of the Basin Plan.

3.4. Neither the treatment nor the discharge must cause a nuisance as defined in section 13050 of the Water Code.

3.5. **Maximum Daily Flow.** Discharges exceeding a maximum daily flow of 1.152 million gallons per day (MGD) are prohibited.

3.6. **Petroleum-Based Lubricant.** The discharge of petroleum-based oil lubricants is prohibited.

4. EFFLUENT LIMITATIONS AND DISCHARGE PROHIBITIONS

4.1. Effluent Limitations – Discharge Point 001

4.1.1. **Final Effluent Limitations – Discharge Point 001**

Table 2. Effluent Limitations

Parameter	Units	Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	--	270	--	--
Copper, Total Recoverable	µg/L	--	10	--	--
Lead, Total Recoverable	µg/L	--	5.8	--	--
Mercury, Total Recoverable	µg/L	--	0.31	--	--
Boron, Total Recoverable	µg/L	--	5,700	--	--
Molybdenum, Total Recoverable	µg/L	--	71	--	--

4.1.1.1. The Discharger must maintain compliance with the above effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program, Attachment E.

4.1.2. Interim Effluent Limitations – Not Applicable

4.2. Land Discharge Specifications – Not Applicable

4.3. Recycling Specifications – Not Applicable

5. RECEIVING WATER LIMITATIONS

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge must not cause the following in Wendel Hot Springs:

5.1. Surface Water Limitations

5.1.1. This Discharger must not cause a violation of any applicable water quality standard for receiving water adopted by the Lahontan Water Board or the State Water Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder.

5.1.2. **Water Quality Objectives Which Apply to All Surface Waters:** These narrative and numerical water quality objectives apply to all surface waters (including wetlands) within the Lahontan Region and can be found in chapter 3 of the Basin Plan. The discharge to surface waters of flows generated within, or as a result of, the Facility must not cause a violation of the following water quality objectives for the surface waters of the Susanville Hydrologic Unit:

5.1.2.1. **Bacteria, Coliform.** Waters must not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes. The fecal coliform concentration during any 30-day period must not exceed a log mean most probable number (MPN) of 20 per 100 mL, nor must more than 10 percent of all samples collected during any 30-day period exceed 40 MPN per 100 mL. U.S. EPA recommends that the log mean should ideally be based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30-day period (Reference: *Ambient Water Quality Criteria for Bacteria – 1986*, EPA 440/5-84-002, page 2). However, a log mean concentration exceeding 20 MPN per 100 mL for any 30-day period must indicate violation of this objective even if fewer than five samples were collected.

5.1.2.2. **Biostimulatory Substances.** Waters must not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.

5.1.2.3. **Chemical Constituents.** Waters must not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses. The receiving water has been designated as agricultural supply (AGR) and must not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).

5.1.2.4. **Color.** Waters must be free of coloration that causes nuisance or adversely affects the water for beneficial uses.

5.1.2.5. **Dissolved Oxygen.** The dissolved oxygen concentration, as percent saturation, must not be depressed by more than 10 percent, nor must the minimum dissolved oxygen concentration be less than 80 percent of saturation.

5.1.2.6. **Floating Materials.** Waters must not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses. For natural high-quality waters, the concentrations of floating material must not be altered to the extent that such alterations are discernible at the 10 percent significance level.

5.1.2.7. **Nondegradation of Aquatic Communities and Populations.** All wetlands must be free of substances attributable to wastewater or other discharges that

produce adverse physiological responses in humans, animals, or plants; or that lead to the presence of undesirable or nuisance aquatic life. All wetlands must be free from activities that would substantially impair the biological community as it naturally occurs due to physical, chemical, and hydrologic processes.

5.1.2.8. **Oil and Grease.** Waters must not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect the water for beneficial uses. For natural high quality waters, the concentration of oils, greases, or other film or coat generating substances must not be altered.

5.1.2.9. **Radioactivity.** Radionuclides must not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

5.1.2.10. **Sediment.** The suspended sediment load and suspended sediment discharge rate of surface waters must not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.

5.1.2.11. **Settleable Materials.** Waters must not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high-quality waters, the concentration of settleable materials must not be raised by more than 0.1 milliliter per liter.

5.1.2.12. **Suspended Material.** Waters must not contain suspended materials in concentrations that cause nuisance or that adversely affect the water for beneficial uses. For natural high-quality waters, the concentration of total suspended materials must not be altered to the extent that such alterations are discernible at the 10 percent significance level.

5.1.2.13. **Taste and Odor.** Waters must not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. For naturally high-quality waters, the taste and odor must not be altered.

5.1.2.14. **Temperature.** The natural receiving water temperature of all waters must not be altered unless it can be demonstrated to the satisfaction of the Lahontan Water Board that such an alteration in temperature does not adversely affect the water for beneficial uses.

5.1.2.15. **Toxicity.** All waters must be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, and/or other appropriate methods as specified by the Lahontan Water Board.

The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, must not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association, et al. 2012, or subsequent editions).

5.1.2.16. **Turbidity.** Waters must be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity must not exceed natural levels by more than 10 percent.

5.1.3. **Water Quality Objectives Which Apply to Honey Lake:** These numerical water quality objectives apply to Honey Lake and can be found in chapter 3 of the Basin Plan. The discharge to surface waters of flows generated within, or as a result of, the Facility must not cause a violation of the following water quality objectives for the surface waters of the Honey Lake:

5.1.3.1. The average value at any given time (based on 3 samples from 3 different locations) must not exceed:

5.1.3.1.1. Arsenic (in mg/L) = 37,113 x (lake volume in acre-feet)$^{-0.98418}$

5.1.3.1.2. Boron (in mg/L) = 836,820 x (lake volume in acre-feet)$^{-0.98133}$

5.1.3.1.3. Molybdenum (in mg/L) = 16,667 x (lake volume in acre-feet)$^{-0.97658}$

5.1.3.2. The pH (based on the average of values from at least 3 samples from 3 different locations) must not at any time be depressed below 8.0 nor raised above 10.0.

5.2. Groundwater Limitations

5.2.1. The groundwater limitations in this Order are based upon the water quality objectives contained in the Basin Plan (pages 3-13 and 3-14) and are a required part of this Order. Water quality objectives that apply to the Honey Lake Valley Basin include the following:

5.2.1.1. **Bacteria, Coliform.** In groundwaters designated as municipal and domestic supply (MUN), the median concentration of coliform organisms over any seven-day period must be less than 1.1 MPN per 100 mL.

5.2.1.2. **Chemical Constituents:**

5.2.1.2.1 Groundwaters designated as MUN must not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this Order: Table 64431-A (Inorganic Chemicals), Table 64431-B (Fluoride), Table 64444-A (Organic Chemicals), Table 64449- A (SMCLs-Consumer Acceptance Limits), and Table 64449-B (SMCLs-Ranges). This incorporation-by-reference

is prospective including future changes to the incorporated provisions as the changes take effect.

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

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

5.2.1.3. **Radioactivity.** Groundwaters designated as MUN must not contain concentrations of radionuclides in excess of the limits specified in Table 4 of section 64443 (Radioactivity) of Title 22 of the California Code of Regulations, which is incorporated by reference into this Order. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

5.2.1.4. **Taste and Odor.** Groundwaters must not contain taste- or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For groundwaters designated as MUN, at a minimum, concentrations must not exceed adopted SMCLs specified in Table 64449-A (SMCLs-Consumer Acceptance Limits) and Table 64449-B (Secondary Maximum Contaminant Levels Ranges) of Title 22 of the California Code of Regulations, which is incorporated by reference into this Order. This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

6. PROVISIONS

6.1. Standard Provisions

6.1.1. The Discharger must comply with all Standard Provisions included in Attachment D.

6.1.2. The Discharger must comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

6.1.2.1. Surface waters as used in this Order include, but are not limited to, wetlands and live streams, either perennial or ephemeral, which flow in natural or artificial watercourses, and natural lakes and artificial impoundments of waters within the State of California.

6.1.2.2. Groundwaters as used in this Order include, but are not limited to, all subsurface waters being above atmospheric pressure, and the capillary fringe of these waters.

6.1.2.3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the Discharger from liabilities under federal, state, or local laws, nor guarantee the Discharger a capacity right in the receiving waters.

6.1.2.4. All discharges authorized by this Order must be consistent with the terms and conditions of this Order. The discharge of any pollutant more frequently than, or

at a level in excess of, that identified and authorized by this Order shall constitute a violation of the terms and conditions of this Order.

6.1.2.5. Pursuant to Water Code section 13263, subdivision (g), no discharge of waste into the waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge. All discharges of waste into waters of the state are privileges, not rights.

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

6.1.2.7. The Discharger must 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.

6.1.2.8. The Water Code and the CWA provide for civil liability and criminal penalties for violations of the Order limits including imposition of civil liability or referral to the Attorney General.

6.1.2.9. A copy of the NPDES permit must be kept and maintained by the Discharger and be available at all times to operating personnel.

6.1.2.10. Provisions of the Order are severable. If any provision of the requirements is found invalid, the remainder of the requirements must not be affected.

6.1.2.11. In the event the Discharger is unable to comply with any of the conditions of this Order due to:

6.1.2.11.1 Breakdown or serious malfunction of water treatment equipment;

6.1.2.11.2 Accidents caused by human error or negligence;

6.1.2.11.3 Overflows from the system; or

6.1.2.11.4 Other causes such as acts of nature.

The Discharger must notify the Lahontan Water Board Executive Officer as soon as the Discharger or the Discharger's agents have knowledge of any discharge in violation of this Order, or any emergency discharge or other discharge of water to the receiving water, in accordance with the notification requirements in the Standard Provisions for NPDES Permits, included in this Order as Attachment D, and with Water Code sections 13267 and 13383.

6.1.2.12. Pursuant to Water Code section 13267, subdivision (b), the Discharger must notify the Lahontan Water Board of any substantial change in the volume or character of pollutants introduced into the Facility from the conditions existing at the time of adoption of this Order.

6.1.2.13. Adequate notice must include information on the quality and quantity of effluent discharged into the receiving waters for the Facility, as well as any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the Facility. A substantial change in volume is considered an

increase in excess of 10 percent of the mean daily flow rate. The Discharger must forward a copy of such notice directly to the U.S. EPA Regional Administrator.

6.1.2.14. The Discharger must file a Report of Waste Discharge (ROWD) with the Lahontan Water Board at least 180 days before making any material change or proposed change in the character, location, or volume of the discharge.

6.1.2.15. Pursuant to Water Code section 13260, subdivision (c), any change in the ownership and/or operation of property subject to the NPDES Permit must be reported to the Lahontan Water Board within 10 days of the change. Notification of applicable NPDES Permit requirements must be furnished in writing to the new owners and/or operators, and a copy of such notification must be sent to the Lahontan Water Board within 10 days of the change.

6.1.2.16. If a Discharger becomes aware that any information submitted to the Lahontan Water Board is incorrect, the Discharger must immediately notify the Lahontan Water Board, in writing, and correct that information.

6.1.2.17. If the Discharger becomes aware that its NPDES Permit is no longer needed (because the discharge will cease), the Discharger must notify the Lahontan Water Board in writing within 10 days and request that the Order be rescinded.

6.1.2.18. 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.

6.1.2.19. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, or receiving water limitation of this Order, the Discharger must notify the Lahontan Water Board by telephone (530) 542-5400 within 24 hours of having knowledge of such noncompliance and must confirm this notification in writing within five days, unless the Lahontan Water Board waives confirmation. The written notification must state the nature, time, duration, and cause of noncompliance, and must 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 normal monitoring report.

6.2. Monitoring and Reporting Program (MRP) Requirements

The Discharger must comply with the MRP, and future revisions thereto, in Attachment E.

6.3. Special Provisions

6.3.1. **Reopener Provisions**

6.3.1.1. If more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Federal Water Pollution Control Act or

amendments thereto, the Lahontan Water Board may revise and modify this Order in accordance with such more stringent standards.

6.3.1.2. The Lahontan Water Board may reopen this Order to establish new conditions or effluent limitations should monitoring data, toxicity testing data, or other new information indicate that a constituent is discharged at a level that will do any of the following:

6.3.1.2.1. Cause, have reasonable potential to cause, or contribute to an in-stream excursion above any water quality criteria or objective, or

6.3.1.2.2. Cause, have reasonable potential to cause, or contribute to a violation of any narrative water quality objective contained in the Basin Plan.

6.3.1.3. **Intake Water Credits.** The Discharger submitted information as detailed in section 1.4.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP) demonstrating that the required conditions are met for intake water credits. As the SIP conditions were met, the Lahontan Water Board included effluent limitations based on the 99th percentile value representing the upper range of the variability between intake and effluent pollutant concentrations, not to exceed the maximum observed intake concentration, due to sampling and analysis variability. To the extent that the characteristics of the influent (and subsequently the effluent) change, the effluent limitations specified in this Order may be modified, if new information is submitted by the Discharger to the Lahontan Water Board.

6.3.2. **Special Studies, Technical Papers and Additional Monitoring Requirements**

6.3.2.1. **Intake Water Credit Summary Report for Copper, Lead, and Mercury**

During the term of this permit, the Discharger must conduct a study to confirm conditions for intake water credits in accordance with Section 1.4.4 of the SIP, and prepare a report that will provide the Lahontan Water Board with the data to evaluate the applicability of intake credits to the Facility's discharge for the next permit issuance, reissuance, or renewal. At a minimum and to the satisfaction of the Lahontan Water Board, the report must address the following conditions for intake water credits as detailed in section 1.4.4 of the SIP for copper, lead, and mercury:

1. "*The observed maximum ambient background concentration, as determined in section 1.4.3.1, and the intake water concentration of the pollutant exceeds the most stringent applicable criterion/objective for that pollutant;*
2. *The intake water credits provided are consistent with any TMDL applicable to the discharge that has been approved by the RWQCB, SWRCB, and U.S. EPA;*
3. *The intake water is from the same water body as the receiving water body. The discharger may demonstrate this condition by showing that:*

a. the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge, is similar to that of the intake water;

b. there is a direct hydrological connection between the intake and discharge points;

c. the water quality characteristics are similar in the intake and receiving waters; and

d. the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period of time and with the same effect had it not been diverted by the discharger.

The RWQCB may also consider other factors when determining whether the intake water is from the same water body as the receiving water body;

4. *The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and*

5. *The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body*."

Lahontan Water Board will consider all historical and current water quality data of the ambient Wendel Hots Springs towards granting intake credits. If the Discharger has or knows of any additional information that it wishes to be considered, please provide that information within this report. The intake credit summary report must be submitted to the Lahontan Water Board no later than **<TWO YEARS AFTER ADOPTION DATE>.**

6.3.3. **Best Management Practices and Pollution Prevention**

6.3.3.1. **Best Management Practices Plan.** The Discharger must develop and implement a Best Management Practices (BMP) Plan that includes site-specific plans and procedures implemented and/or to be implemented to prevent the generation and potential release of additional pollutants from the Facility to waters of the state. The BMP Plan must particularly focus on the area and processes associated with the geothermal power plant and be developed in accordance with the requirements contained in Attachment G to this Order. The BMP Plan must be developed to prevent the introduction of chemicals or other substances into the effluent from the Facility and prevent the addition of pollutants from the other non-permitted process waters, spills, or other sources of pollutants at the Facility.

The BMP Plan must be developed and implemented as soon as possible, but no later than 120 days from the effective date of this Order. The Discharger must also submit a copy of the BMP Plan to the Executive Officer within 120 days from the effective date of this Order.

6.3.4. **Construction, Operation and Maintenance Specifications – Not Applicable**

.6.3.5. **Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**

6.3.6. **Other Special Provisions – Not Applicable**

6.3.7. **Compliance Schedules – Not Applicable**

7. COMPLIANCE DETERMINATION

7.1. **Multiple Sample Data**

When determining compliance with a maximum daily effluent limitation (MDEL) and more than one sample result is available, the Discharger must compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger must compute the median in place of the arithmetic mean in accordance with the following procedure:

7.1.1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

7.1.2. The median value of the data set must be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value must be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

7.2. **Limitation Bases**

7.2.1. **Maximum Daily Effluent Limitation (MDEL)**

If a daily discharge exceeds the MDEL for a given parameter, the Discharger will be considered out of compliance for that parameter for that one day only within the reporting period. For any one day during which no sample is taken, no compliance determination can be made for that calendar day.

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:

$$\text{Arithmetic mean } (\mu) = \frac{\Sigma x}{n}$$

where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs)
Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, and solids or waste disposal.

Bioaccumulative
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)
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.

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)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
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.

Effluent Concentration Allowance (ECA)
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 wasteload allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

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

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and

seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
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).

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
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:

$$\text{median} = \frac{X_{(n+1)}}{2}$$

If n is even, then:

$$\text{median} = \frac{X_{\frac{n}{2}} + X_{\frac{n}{2}+1}}{2}$$

(i.e., the midpoint between the (n/2 and ((n/2)+1))).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in 40 Code of Federal Regulations (C.F.R.). part 136, Attachment B.

Minimum Level (ML)
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
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.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

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

Pollutant Minimization Program (PMP)
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 Lahontan 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
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 Water Resources Control Board (State Water Board) or Lahontan Water Board.

Reporting Level (RL)
The 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, including an additional factor if applicable as discussed herein. The MLs included in this Order

correspond to approved analytical methods for reporting a sample result that are selected by the Lahontan 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.

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in a Lahontan Water Board Basin Plan.

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

$$\text{Standard Deviation } (\sigma) = \frac{\Sigma(X-\mu)^2}{(n-1)^{0.5}}$$

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)
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.)

ATTACHMENT B – MAP

Figure B-1. Wendel Geothermal Power Plant Overview Map

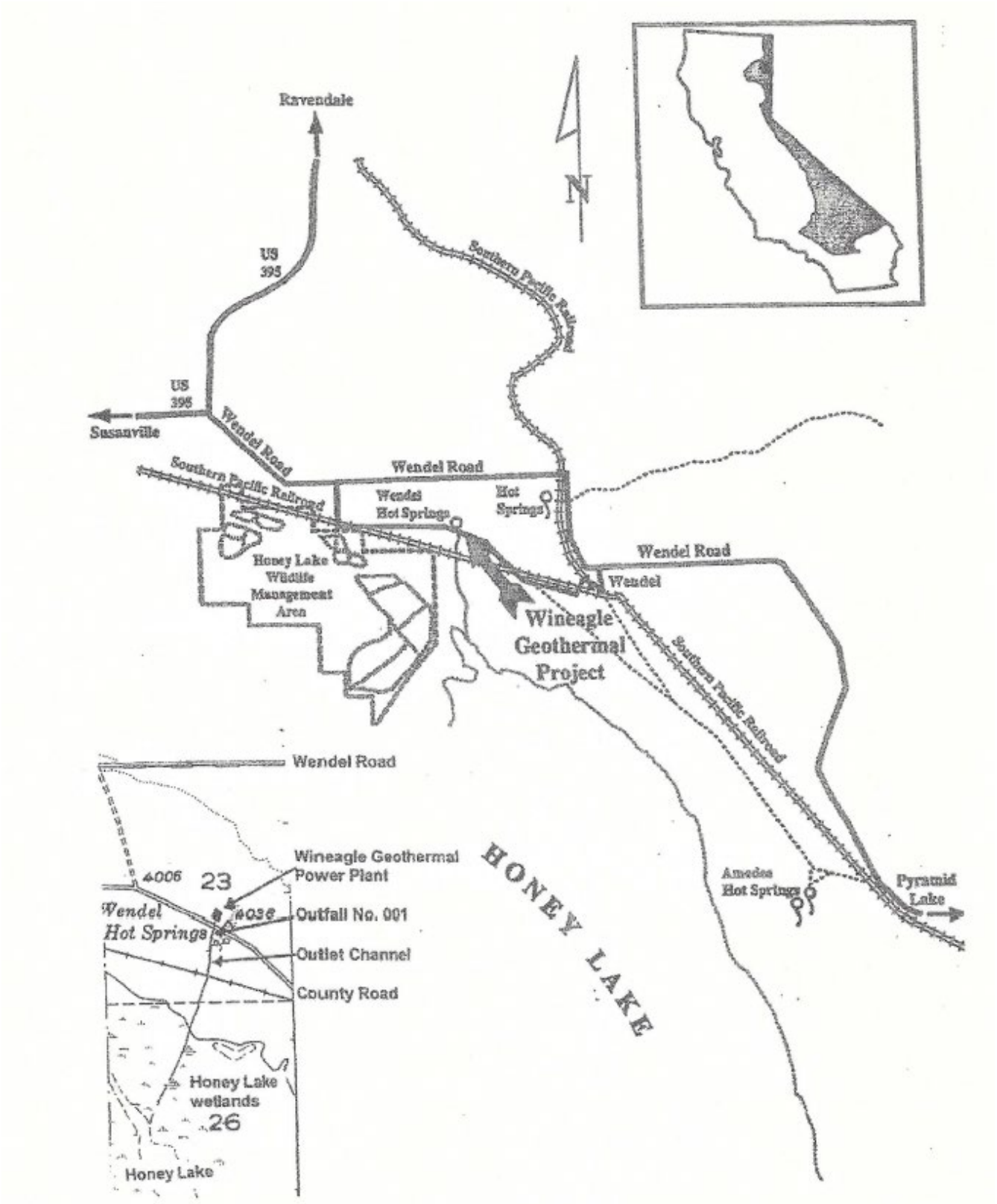
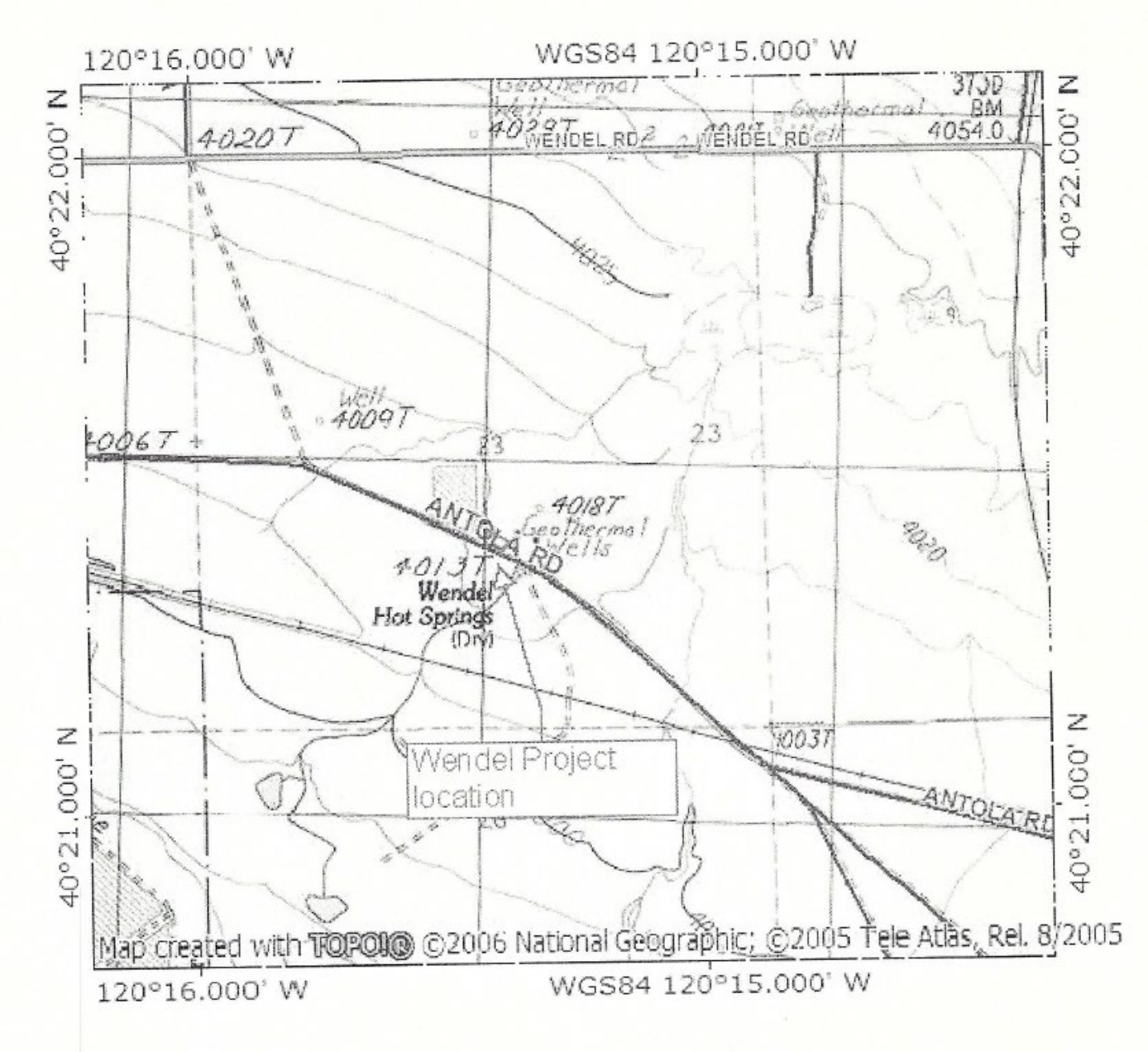


Figure B-2. Wendel Geothermal Power Plant Topographical Map


120°16.000' W
WGS84 120°15.000' W
40°22.000' N
40°21.000' N
4020T
4029T
WENDEL RD
WENDEL RD
Geothermal well
3730 BM
4054.0
4009T
4006T
23
4018T
Geothermal wells
ANTOLA RD
4013T
Wendel Hot Springs (Dry)
4020
4003T
ANTOLA RD
Wendel Project location
Map created with TOPO! ©2006 National Geographic; ©2005 Tele Atlas, Rel. 8/2005

ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Wendel Geothermal Power Plant Wastewater Flow Schematic

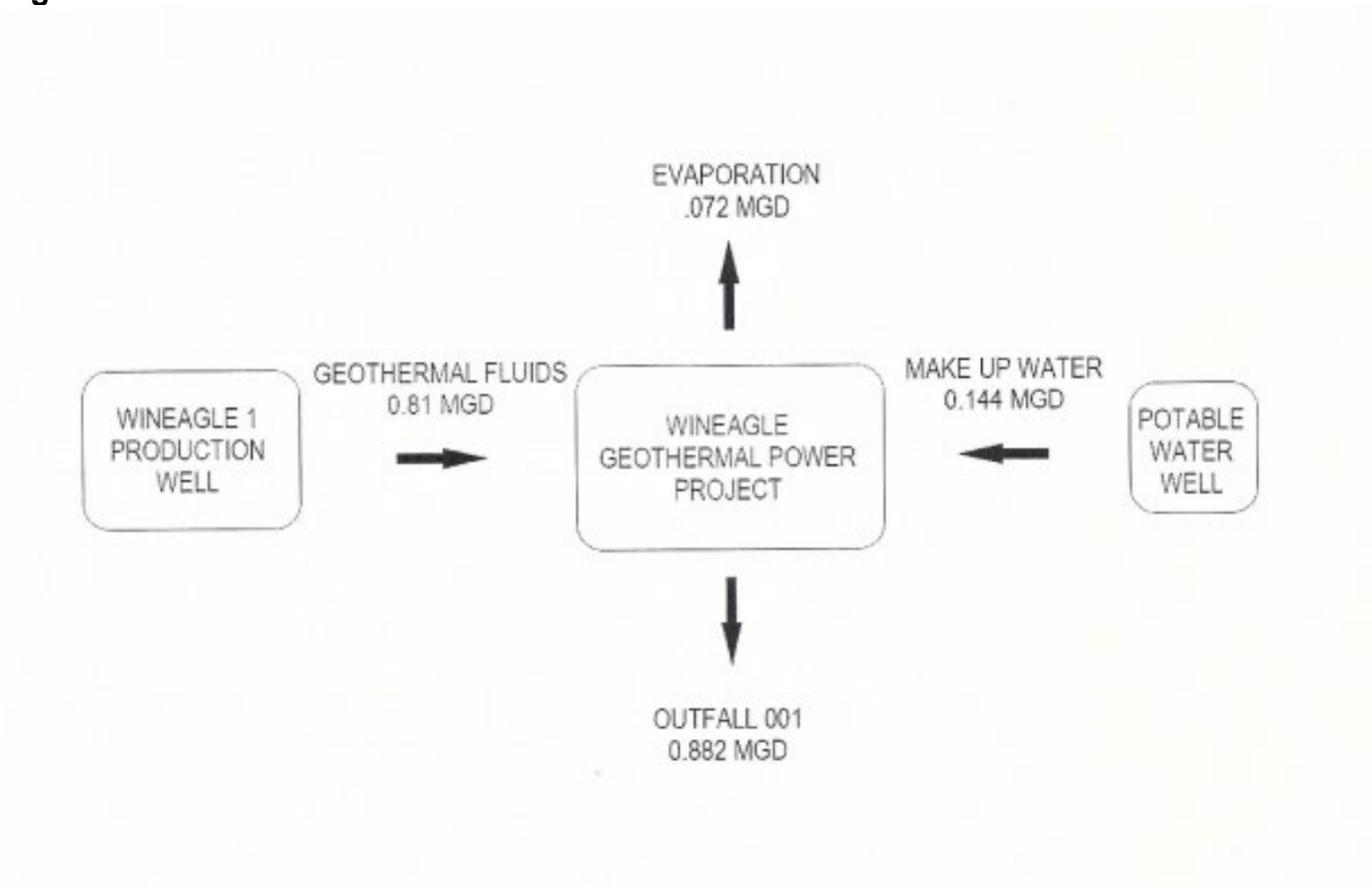
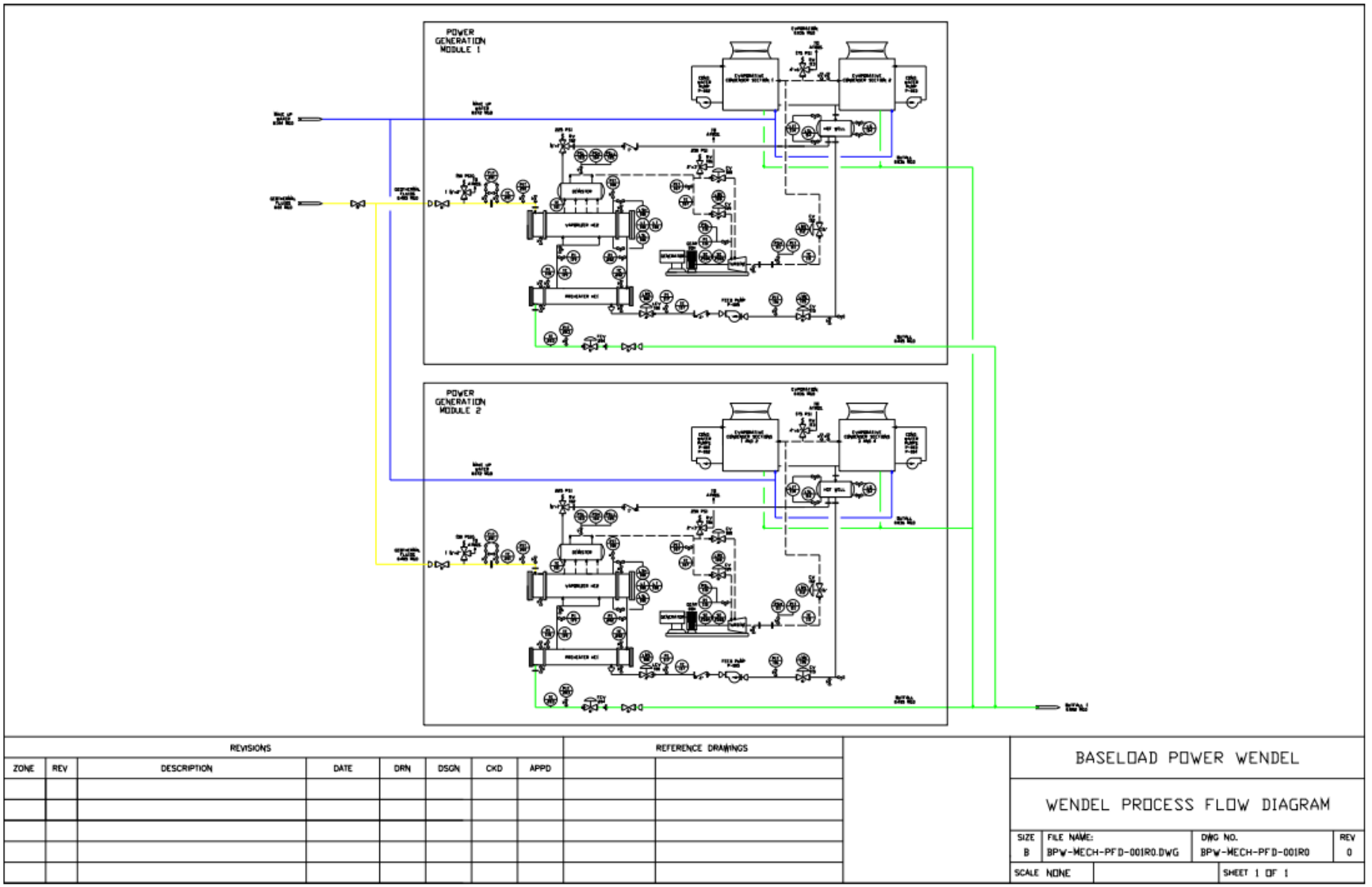


Figure C-2. Wendel Geothermal Power Plant Process Flow Diagram



ATTACHMENT D – STANDARD PROVISIONS

1. STANDARD PROVISIONS – PERMIT COMPLIANCE

1.1. Duty to Comply

1.1.1. The Discharger must comply with all of the terms, requirements, and 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; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 Code of Federal Regulations (C.F.R.) § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385)

1.1.2. The Discharger must comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants 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))

1.2. 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))

1.3. Duty to Mitigate

The Discharger must 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))

1.4. Proper Operation and Maintenance

The Discharger must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e))

1.5. Property Rights

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

1.5.2. 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))

1.6. Inspection and Entry

The Discharger must allow the Lahontan Water Board, State Water Board, U.S. EPA, 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 (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

1.6.1. 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 (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

1.6.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

1.6.3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

1.6.4. 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. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383)

1.7. Bypass

1.7.1. Definitions

1.7.1.1. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i))

1.7.1.2. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii))

1.7.2. **Bypass not exceeding limitations.** The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance 1.7.3, 1.7.4, and 1.7.5 below. (40 C.F.R. § 122.41(m)(2))

1.7.3. **Prohibition of bypass.** Bypass is prohibited, and the Lahontan Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

1.7.3.1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

1.7.3.2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

1.7.3.3. The Discharger submitted notice to the Lahontan Water Board as required under Standard Provisions – Permit Compliance 1.7.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

1.7.4. The Lahontan Water Board may approve an anticipated bypass, after considering its adverse effects, if the Lahontan Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance 1.7.3 above. (40 C.F.R. § 122.41(m)(4)(ii))

1.7.5. **Notice**

1.7.5.1. **Anticipated bypass.** If the Discharger knows in advance of the need for a bypass, it must submit prior notice, if possible, at least 10 days before the date of the bypass. The notice shall be sent to the Lahontan Water Board. As of December 21, 2023, all notices must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i))

1.7.5.2. **Unanticipated bypass.** The Discharger must submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice must be sent to the Lahontan Water Board. As of December 21, 2023, all notices must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 below. Notices must comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii))

1.8. 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))

1.8.1. **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 1.8.2 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))

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

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

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

1.8.2.3. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting 5.5.2.2 below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

1.8.2.4. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance 1.3 above. (40 C.F.R. § 122.41(n)(3)(iv))

1.8.3**. 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))

2. STANDARD PROVISIONS – PERMIT ACTION

2.1. 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))

2.2. 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))

2.3. Transfers

This Order is not transferable to any person except after notice to the Lahontan Water Board. The Lahontan 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)

3. STANDARD PROVISIONS – MONITORING

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

3.2. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. chapter 1, subchapter N. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the

analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N. For the purposes of this paragraph, a method is sufficiently sensitive when:

3.2.1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter or the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

3.2.2. The method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N for the measured pollutant or pollutant parameter. In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136, or otherwise required under 40 C.F.R. chapter 1, subchapter N, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv))

4. STANDARD PROVISIONS – RECORDS

4.1. The Discharger must 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 Lahontan Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2))

4.2. Records of monitoring information must include:

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

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

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

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

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

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

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

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

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

5. STANDARD PROVISIONS – REPORTING

5.1. Duty to Provide Information

The Discharger must furnish to the Lahontan Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Lahontan Water Board, State Water Board, or U.S. EPA 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 must also furnish to the Lahontan Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order.
(40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

5.2. Signatory and Certification Requirements

5.2.1. All applications, reports, or information submitted to the Lahontan Water Board, State Water Board, and/or U.S. EPA must be signed and certified in accordance with Standard Provisions – Reporting 5.2.2, 5.2.3, 5.2.4, 5.2.5, and 5.2.6 below. (40 C.F.R. § 122.41(k).)

5.2.2. All permit applications must be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1))

5.2.3. All reports required by this Order and other information requested by the Lahontan Water Board, State Water Board, or U.S. EPA must be signed by a person described in Standard Provisions – Reporting 5.2.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

5.2.3.1. The authorization is made in writing by a person described in Standard Provisions – Reporting 5.2.2 above (40 C.F.R. § 122.22(b)(1));

5.2.3.2. 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

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

5.2.4. If an authorization under Standard Provisions – Reporting 5.2.3 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 5.2.3 above must be submitted to the Lahontan 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))

5.2.5. Any person signing a document under Standard Provisions – Reporting 5.2.2 or 5.2.3 above must 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))

5.2.6. Any person providing the electronic signature for documents described in Standard Provisions – 5.2.1, 5.2.2, or 5.2.3 that are submitted electronically must meet all relevant requirements of Standard Provisions – Reporting 5.2, and must ensure that all relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e))

5.3. Monitoring Reports

5.3.1. Monitoring results must be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4))

5.3.2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Lahontan Water Board or State Water Board. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 and comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i))

5.3.3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. chapter 1, subchapter N, the results of such monitoring must be included in the calculation

and reporting of the data submitted in the DMR or reporting form specified by the Lahontan Water Board or State Water Board.
(40 C.F.R. § 122.41(l)(4)(ii))

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

5.4. 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, must be submitted no later than 14 days following each schedule date.
(40 C.F.R. § 122.41(l)(5))

5.5. Twenty-Four Hour Reporting

5.5.1. The Discharger must report any noncompliance which may endanger health or the environment. Any information must be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A report must also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The report must 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.

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2023, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the Lahontan Water Board and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 The reports must comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. The Lahontan Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i))

5.5.2. The following must be included as information that must be reported within 24 hours:

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

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

5.5.3. The Lahontan Water Board may waive the above required written report on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(ii)(B))

5.6. Planned Changes

The Discharger must give notice to the Lahontan 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)):

5.6.1. 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

5.6.2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels 7.1.1). (40 C.F.R. § 122.41(l)(1)(ii))

5.7. Anticipated Noncompliance

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

5.8. Other Noncompliance

The Discharger must report all instances of noncompliance not reported under Standard Provisions – Reporting 5.3, 5.4, and 5.5 above at the time monitoring reports are submitted. The reports must contain the information listed in Standard Provision – Reporting 5.5 above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must contain the information described in Standard Provision – Reporting 5.5 and the applicable required data in appendix A to 40 C.F.R. part 127. The Lahontan Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7))

5.9 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 Lahontan Water Board, State Water Board, or U.S. EPA, the Discharger must promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8))

5.10. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to

40 C.F.R. part 127 to the initial recipient defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. § 122.41(l)(9))

6. STANDARD PROVISIONS – ENFORCEMENT

6.1. The Lahontan Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13268, 13385, 13386, and 13387.

7. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

7.1. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers must notify the Lahontan Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

7.1.1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

7.1.1.1. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

7.1.1.2. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4 dinitrophenol and 2-methyl 4,6 dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

7.1.1.3. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

7.1.1.4. The level established by the Lahontan Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv))

7.1.2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 C.F.R. § 122.42(a)(2)):

7.1.2.1. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

7.1.2.2. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

7.1.2.3. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

7.1.2.4. The level established by the Lahontan Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv))

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 C.F.R.) require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Lahontan Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring, reporting, and recordkeeping requirements that implement the federal and California laws and/or regulations.

1. GENERAL MONITORING PROVISIONS

1.1. Samples and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations must not be changed without notification to and the approval from the Lahontan Water Board.

1.2. Effluent samples must be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples must be collected at such a point and in such a manner to ensure a representative sample of the discharge.

1.3. Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure accuracy and reliability for measuring discharge volumes. The flow measurement devices must be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ±10 percent from true discharge rates throughout the range of expected discharge volumes.

1.4. **Laboratory Certification**: Laboratories analyzing monitoring samples must be certified by the State Water Resources Control Board (State Water Board), in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports. In the event a certified laboratory is not available to the Discharger, analyses performed by a non-certified laboratory or using field test kits will be accepted provided that a Quality Assurance/Quality Control Program (QA/QC) is instituted by the laboratory and approved by the Executive Officer. Documentation of QA/QC protocols and adherence to the protocols must be kept in the laboratory or at the site for field test kits and must be available for inspection by Lahontan Water Board staff. The QA/QC Program must conform to U.S. EPA guidelines or to procedures approved by the Lahontan Water Board. Supplemental field testing for constituents that could be analyzed by a certified laboratory may be done in the field with test kits and meters provided:

1.4.1. Samples collected at the minimum-required monitoring frequencies are performed by a certified lab,

1.4.2. A QA/QC program approved by the Executive Officer or Designee is followed,

1.4.3. Detection limits, accuracy, and precision of the kits and meters meet U.S. EPA and Surface Water Ambient Monitoring Program (SWAMP) standards, and

1.4.4. All results for field testing must be reported to the Lahontan Water Board in semi-annual self-monitoring reports (SMRs). Supporting QA/QC data must be determined using an established program and retained onsite and reported if requested.

1.5. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program must be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices must be calibrated at least once per year to ensure continued accuracy of the devices.

1.6. Monitoring results, including noncompliance, must be reported at intervals and in a manner specified in this Monitoring and Reporting Program (MRP).

1.7. The results of all monitoring required by this Order must be reported to the Lahontan Water Board and must be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows must be reported in terms of the monthly average and the daily maximum discharge flows.

2. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	At the wellhead prior to the heat exchange process.
001	EFF-001	A location where a representative sample of the effluent from the Facility can be collected, uninfluenced by any surfacing geothermal springs; from the discharge pipe into the receiving water and prior to mixing in the receiving water channel. Latitude: 40° 21' 24" N Longitude: -120° 15' 23" W

The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

3. INFLUENT MONITORING REQUIREMENTS

3.1. Monitoring Location INF-001

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
pH	Standard units	Grab	2/Year[1]	2
Arsenic, Total Recoverable	µg/L	Grab	2/Year[1,3]	2,4
Bis (2-Ethylhexyl) Phthalate	µg/L	Grab	2/Year[1,3]	2,4,5
Copper, Total Recoverable	µg/L	Grab	2/Year[1,3]	2,4
Lead, Total Recoverable	µg/L	Grab	2/Year[1,3]	2,4
Mercury, Total Recoverable	µg/L	Grab	2/Year[1,3]	2,4
Zinc, Total Recoverable	µg/L	Grab	2/Year[1,3]	2,4
Remaining Priority Pollutants[6]	µg/L	Grab	3,7	2,4
Boron, Total Recoverable	µg/L	Grab	2/Year[1]	2
Hardness (as $CaCO_3$)	mg/L	Grab	2/Year[1,3]	2
Molybdenum, Total Recoverable	µg/L	Grab	2/Year[1]	2
Temperature	°F/°C	Grab	2/Year[1,8]	2

Table E-2 Notes:

1. Pollutants must be sampled in May and November, concurrent with effluent samples.
2. Pollutants must be analyzed using the analytical methods described in 40 C.F.R. part 136.
3. Hardness must be sampled concurrently with priority pollutants.
4. For priority pollutant constituents the reporting level (RL) must be consistent with sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP). If more

than one analytical test method is listed for a given pollutant, the Discharger must select the lowest minimum levels (MLs) specified in Appendix 4 of the SIP.

5. In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger must take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

6. The Discharger must monitor for all priority pollutants that are not monitored 2/Year. A list of all 126 priority pollutants can be found in Appendix 4 of the SIP.

7. Pollutants must be sampled in May and November during the fourth year following the adoption date of this Order.

8. Temperature must be measured and recorded during any sample collection.

3.1.1. The Discharger must monitor geothermal fluid at the wellhead prior to the heat exchange process at Monitoring Location INF-001 as described above. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML.

4. EFFLUENT MONITORING REQUIREMENTS

4.1. Monitoring Location EFF-001

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	MGD	Meter	Continuous	--
pH	Standard units	Grab	2/Year[1]	[2]
Arsenic, Total Recoverable	µg/L	Grab	2/Year[1,3]	[2,4]
Bis (2-Ethylhexyl) Phthalate	µg/L	Grab	2/Year[1,3]	[2,4,5]
Copper, Total Recoverable	µg/L	Grab	2/Year[1,3]	[2,4]
Lead, Total Recoverable	µg/L	Grab	2/Year[1,3]	[2,4]
Mercury, Total Recoverable	µg/L	Grab	2/Year[1,3]	[2,4]
Zinc, Total Recoverable	µg/L	Grab	2/Year[1,3]	[2,4]
Remaining Priority Pollutants[6]	µg/L	Grab	[3,7]	[2,4]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Boron, Total Recoverable	µg/L	Grab	2/Year[1]	[2,4]
Hardness (as $CaCO_3$)	mg/L	Grab	2/Year[1]	[2]
Molybdenum, Total Recoverable	µg/L	Grab	2/Year[1]	[2]
Temperature	°F/°C	Grab	2/Year[1,8]	[2]

Table E-3 Notes:

1. Pollutants must be sampled in May and November, concurrent with influent samples.
2. Pollutants must be analyzed using the analytical methods described in 40 C.F.R. part 136.
3. Hardness must be sampled concurrently with priority pollutants.
4. For priority pollutant constituents the RL must be consistent with sections 2.4.2 and 2.4.3 of the SIP. If more than one analytical test method is listed for a given pollutant, the Discharger must select the lowest MLs specified in Appendix 4 of the SIP.
5. In order to verify if bis (2-ethylhexyl) phthalate is truly present, the Discharger must take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
6. The Discharger must monitor for all priority pollutants that are not monitored 2/Year. A list of all 126 priority pollutants can be found in Appendix 4 of the SIP.
7. Pollutants must be sampled in May and November during the fourth year following the adoption date of this Order.
8. Temperature must be measured and recorded during any sample collection.

4.1.1. The Discharger must monitor effluent from the Facility at Monitoring Location EFF-001 as described above. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding ML.

5. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS – NOT APPLICABLE

6. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

7. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

8. RECEIVING WATER MONITORING REQUIREMENTS – NOT APPLICABLE

9. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

10. REPORTING REQUIREMENTS

10.1. General Monitoring and Reporting Requirements

The Discharger must comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

10.1.1. The Discharger must submit a summary annual monitoring report. The report must contain all data collected for the year in a table, and both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

10.1.2. The Discharger must calculate and report the result of compliance with maximum daily effluent limitations, as necessary. Additional samples may be collected to demonstrate compliance.

10.1.3. The Discharger must report to the Lahontan Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

10.1.4. For each parameter with an effluent limitation listed in this Order, the Discharger must determine and report compliance with respect to the effluent limitation. The Discharger must determine and report compliance with respect to each receiving water limitation specified in the Order. For parameters with no monitoring required, the Discharger must report "Not Determined."

10.1.5. As part of the Report of Waste Discharge (ROWD) submitted in accordance with the cover page of this Order and Table E-5, below, the Discharger must provide all reported data in an Excel tabular format that can be used to evaluate compliance with interim and/or final effluent limitations and conduct a reasonable potential analysis. Electronic submittal of data is required to be uploaded into the State Water Board's California Integrated Water Quality System (CIWQS) Program. If the State Water Board's Permit Entry Tool does not allow data to be submitted, it must be provided separately.

10.2. Self-Monitoring Reports (SMRs)

10.2.1. The Discharger must electronically submit SMRs using the State Water Board's CIWQS Program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.

10.2.2. The Discharger must report in the SMR the results for all monitoring specified in this MRP under sections 3 through 9. The Discharger must submit semiannual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all

new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring must be included in the calculations and reporting of the data submitted in the SMR.

10.2.3. Monitoring periods and reporting for all required monitoring must be completed according to the following schedule:

Table E-4. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with semi-annual SMR
Semiannually	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of following year

10.2.4. **Reporting Protocols.** The Discharger must report with each sample result the applicable RL and the current Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136. The Discharger must report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

10.2.4.1. Sample results greater than or equal to the RL must be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

10.2.4.2. Sample results less than the RL, but greater than or equal to the laboratory's MDL, must be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample must also be reported. For the purposes of data collection, the laboratory must write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

10.2.4.3. Sample results less than the laboratory's MDL must be reported as "Not Detected," or ND.

10.2.4.4. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

10.2.5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants must be determined using sample reporting protocols defined above and in Attachment A. For purposes of reporting and administrative enforcement

by the Lahontan Water Board and State Water Board, the Discharger must be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.

10.2.6. **Multiple Sample Data.** When determining compliance with a maximum daily effluent limitation for priority pollutants and more than one sample result is available, the Discharger must compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger must compute the median in place of the arithmetic mean in accordance with the following procedure:

10.2.6.1. The data set must be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

10.2.6.2. The median value of the data set must be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value must be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

10.2.7. The Discharger must submit SMRs in accordance with the following requirements:

10.2.7.1. The Discharger must arrange all reported data in a tabular format. The data must be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger must electronically submit the data in a tabular format as an attachment.

10.2.7.2. The Discharger must attach a cover letter to the SMR. The information contained in the cover letter must clearly identify violations of the waste discharge requirements; 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.

10.3. Discharge Monitoring Reports (DMRs)

10.4.1. DMRs are U.S. EPA reporting requirements. The Discharger must electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal must be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at: (http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring).

10.4. Other Reports

10.4.1. The Discharger must report the results of any special studies and best management practices (BMPs) required by the Special Provisions in section 6.3 of the Order. The Discharger must submit reports with the first semiannual SMR scheduled to be submitted on or immediately following the report due date.

10.4.2. The Discharger must submit a copy of the BMP Plan, as required by Special Provision 6.3.3.1, to the Executive Officer within 120 days from the effective date of this Order.

10.4.4. **Operation and Maintenance:**

A summary of any operational problems and maintenance activities must be submitted to the Lahontan Water Board with each semiannual SMR. This summary must discuss:

10.4.4.1. Any modification to plant operations.

10.4.4.2. Any maintenance conducted on the plant.

10.4.4.3. Any problems occurring with plant operations.

10.4.4.4. The calibration of any flow measuring devices.

10.4.5. **Report of Waste Discharge (ROWD).** The Discharger must file a ROWD in accordance with title 23, California Code of Regulations, as application for re-issuance of waste discharge requirements no later than specified in Table 3 of the Order. The ROWD must include a delimited formatted file, such as Excel®, that contains all monitored data that include, for each value, constituent, measurement date, measured value, MDL/RDL, and measurement units, and analysis method (for the previous permit cycle). In addition, the ROWD will also include annual average flow at Monitoring Locations EFF-001. The data date range is from **<ORDER ADOPTION DATE>** through the month before the ROWD due date.

10.5. Summary of Reports

The following table summarizes all reports the Discharger is required to submit.

Table E-5. Summary of Reports

Report Name	Location of Requirement	Monitoring Period	Due Date
Semiannual Influent and Effluent Monitoring Report	MRP sections 3 and 4	1 January through 30 June 1 July through 31 December	1 August 1 February of following year
Intake Credit Summary Report	Order section 6.3.2	N/A	**<2 YEARS AFTER ORDER ADOPTION DATE>**

Report Name	Location of Requirement	Monitoring Period	Due Date
BMP Plan	Order section 6.3.3.1	N/A	**<120 DAYS AFTER ORDER ADOPTION DATE>**
Operation and Maintenance Summary	MRP section 10.4.4	1 January through 30 June 1 July through 31 December	Submit with semiannual SMR
Report of Waste Discharge (ROWD)	MRP section 10.4.5	N/A	180 days before expiration date

ATTACHMENT F – FACT SHEET

TABLE OF TABLES

ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the Lahontan Water Board incorporates this Fact Sheet as findings of the Lahontan Water Board supporting the issuance 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.

1. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	6A180045901
Discharger	Baseload Power Wendel, LLC
Name of Facility	Wendel Geothermal Power Plant
Facility Address	733-015 Antola Road Wendel, CA 96136 Lassen
Facility Contact, Title and Phone	Larry Bandt, Project Manager, (775) 233-3641
Authorized Person to Sign and Submit Reports	Alexander Helling, President, 46-73-772-4020
Mailing Address	Ingmar Bergmans Gata 2, 114 34 Stockholm, Sweden
Billing Address	SAME
Type of Facility	Geothermal Power Production (SIC Code 4961)
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable

Facility Permitted Flow	1.152 million gallons per day (MGD)
Facility Design Flow	1.152 MGD
Watershed	Susanville Hydrologic Unit
Receiving Water	Wendel Hot Springs
Receiving Water Type	Inland surface water

1.1. Baseload Power Wendel, LLC (hereinafter Discharger) is the owner and operator of Wendel Geothermal Power Plant (hereinafter Facility), a geothermal power production plant. Northern Cross Land and Cattle Co. owns the property at 733-015 Antola Road on which the Facility is located.

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.

1.2. The Facility discharges wastewater to a natural channel that historically drained Wendel Hot Springs, a water of the United States, within the Susanville Hydrologic Unit. The Facility was previously regulated by Order R6T-2015-0010 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0103063 adopted on March 11, 2015 and expired on April 30, 2020. Attachment B provides maps of the area around the Facility. Attachment C provides flow schematics of the Facility.

1.3. The Discharger filed a Report of Waste Discharge (ROWD) and submitted an application for issuance of its waste discharge requirements (WDRs) and NPDES permit on January 11, 2021. Supplemental information was requested on February 10, 2021 and March 30, 2021 and received on February 22, 2021, March 3, 2021, March 10, 2021, June 16, 2021, and August 18, 2021**.** The application was deemed complete on August 23, 2021**.** A site visit was conducted on May 19th, 2021, to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

1.4. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. However, pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

2. FACILITY DESCRIPTION

The Facility is located in Lassen County, California, approximately 20 miles east of the City of Susanville. The Facility lies within Section 22, T30N, R15E, MDB&M near the Wendel Hot Springs in Honey Lake Valley, as shown in Attachment B.

The Facility was placed into operation in 1986 and is currently entered in a Power Purchase Agreement with Lassen Municipal Utility District for the sale of California certified renewable energy. The Facility pumps thermally heated groundwater from the

Wendel geothermal reservoir from a depth of approximately 1,500 feet below the ground surface. A maximum flow of 800 gallons per minute (gpm) of geothermal fluid is pumped from a single production well, Wineagle #1, to a 700-kilowatt Rankine-cycle power plant. Heat is extracted through a heat exchange process and no chemicals are added to the flow by the Discharger (e.g., for scale control or to prevent pipe fouling) other than chemicals that may be scavenged from internal Facility piping or machinery. The spent geothermal fluids discharge through Discharge Point 001 to a natural channel that historically drained the Wendel Hot Springs. The discharge temperature is approximately 71°C (160°F) or less. Attachment C provides a flow schematic of the production well at the Facility.

2.1. Description of Wastewater and Biosolids Treatment and Controls

The geothermal fluid discharged from the power plant through Discharge Point 001 is not treated prior to discharge.

2.2. Discharge Points and Receiving Waters

The Facility is located near the northern margin of Honey Lake. The Honey Lake Valley Basin is a portion of the Basin and Range Geomorphic Province and is situated between the granitic Sierra Nevada mountain range to the southwest and the basaltic (volcanic) Modoc Plateau to the north. Local faults in the vicinity of the Facility reportedly trend in a north-northwest direction. Honey Lake is a relatively shallow terminal remnant of Lake Lahontan, which formerly covered vast portions of the region. Near the Facility, the granitic basement rocks are overlain by volcanic rock and sedimentary deposits. The groundwaters of Honey Lake Valley are recharged by precipitation, snowmelt, and seepage from streams and irrigation. Geothermal waters are related to the fault system and are reportedly associated with a deep aquifer underlying a non-thermal aquifer.

On June 15, 2021, the Discharger conducted a test to calculate the artesian flow from the Wineagle #1 geothermal well for comparison to the Facility's pumping rate. The flow test determined that the Facility pumps thermally heated groundwater from the Wendel geothermal reservoir at a rate (800 gpm) well below the artesian flow of the Wineagle #1 geothermal well (1,402 gpm).

The discharge point for the effluent to the receiving water channel is located at latitude 40° 21' 24" N and longitude 120° 15' 23" W (Discharge Point 001), within the Susan River Hydrologic Area (Department of Water Resources Hydrologic Unit No. 637.20).

2.3. Summary of Existing Requirements and SMR Data

Effluent limitations contained in the existing Order for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data are as follows. The Facility did not discharge during the term of the previous Order; therefore, Table F-2 includes effluent monitoring data collected by Regional Water Board staff in addition to data provided with the permit application.

Table F-2. Historic Effluent Limitations and Monitoring Data[1]

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Flow	MGD	--	--	1.152	--	--	NA
Arsenic, Total Recoverable	µg/L	--	--	270	--	--	210
Boron, Total Recoverable	µg/L	--	--	5,900	--	--	5800
Copper, Total Recoverable	µg/L	--	--	19	--	--	7
Lead, Total Recoverable	µg/L	--	--	18	--	--	ND
Mercury, Total Recoverable	µg/L	--	--	0.77	--	--	1.2
Molybdenum, Total Recoverable	µg/L	--	--	73	--	--	62

Table F-2 Notes:

NA is Not Available

ND is Not Detected

1. Table F-2 includes monitoring data collected by the Discharger on November 18, 2020 and reported in the ROWD.

2.4. Compliance Summary

The Discharger was not subject to any enforcement actions during the term of Order R6T-2015-0010.

2.5. Planned Changes – Not Applicable

3. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

3.1. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code

(commencing with section 13370). It shall serve as an NPDES permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 1 subject to the WDRs in this Order.

3.2. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from CEQA, (commencing with section 21100) of division 13 of the Public Resources Code. This action also involves the re-issuance of WDRs for an existing facility with a discharge to groundwater of the Honey Lake Valley Basin and, as such, is also exempt from CEQA as an existing facility for which no expansion of its existing use is being permitted pursuant to title 14, California Code of Regulations, section 15301.

3.3. State and Federal Laws, Regulations, Policies, and Plans

3.3.1. **Water Quality Control Plan.** The Lahontan Water Board adopted *The Water Quality Control Plan for the Lahontan Region* (hereinafter Basin Plan) on March 31, 1995 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). However, the Basin Plan does not designate municipal uses for Wendel Hot Springs based on a Use Attainability Analysis and a U.S. EPA-approved Basin Plan amendment that removed this potential surface water use after consideration of Resolution 88-63 criteria and federal water quality standards regulations.

The Basin Plan also identifies beneficial uses of groundwater that are applicable to all groundwater in the Lahontan Region. Beneficial uses of specific groundwater basins in the Lahontan Region are designated in Table 2-2 of the Basin Plan. The Facility is located within the Honey Lake Valley Basin. Unless otherwise designated by the Lahontan Water Board, all groundwaters are considered suitable, or potentially suitable, for MUN.

Thus, the beneficial uses applicable to Wendel Hot Springs in the Susanville Hydrologic Unit and groundwater in the Honey Lake Valley Basin are as follows.

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Wendel Hot Springs	Agricultural Supply (AGR); Groundwater Recharge (GWR); Freshwater Replenishment (FRSH); Hydropower Generation (POW); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Wildlife Habitat (WILD); and Water Quality Enhancement (WQE).
	Honey Lake Valley Basin	Agricultural Supply (AGR); Freshwater Replenishment (FRSH); Industrial Service Supply (IND); Municipal and Domestic Supply (MUN); Wildlife Habitat (WILD).

3.3.2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA 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, U.S. EPA 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 federal water quality criteria for priority pollutants.

3.3.3. 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 U.S. EPA through the NTR and to the priority pollutant objectives established by the Lahontan Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA 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.

3.3.4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 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 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California").

Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68 16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Lahontan 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 C.F.R. section 131.12 and State Water Board Resolution 68-16.

3.3.5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict 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.

3.3.6. **Endangered Species Act Requirements.** 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, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 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.

3.4. Impaired Water Bodies on the CWA section 303(d) List

U.S. EPA approved the State's 2014 and 2016 CWA section 303(d) list of impaired water bodies on April 6, 2018, prepared pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The Lahontan Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for applicable pollutants in impaired water bodies on the 303(d) list where it has not done so already. TMDLs establish waste load allocations (WLAs) for point sources and load allocations for non-point sources and are established to achieve the water quality standards for the impaired water bodies.

Wendel Hot Springs is not listed as an impaired water body. However, Honey Lake which ultimately receive discharges from the Facility, is listed on the 2018 CWA section 303(d) list as impaired. Honey Lake is listed as impaired for arsenic and salinity/TDS/chlorides; the sources for both impairments are unknown.

The Honey Lake Area Wetlands is listed for metals and the source of impairment is unknown. TMDLs for both Honey Lake and the Honey Lake Area Wetlands impairments are planned for completion by 2031. There are two areas along Honey Lake that are wildlife management areas that support wetlands that are fed by freshwater inputs from the west of Honey Lake and do not receive water from Wendel Hot Springs, (Honey Lake Waterfowl Management Area and Honey Lake State Wildlife Area).

The Basin Plan identifies Honey Lake as a receiving water of Wendel Hot Springs. The Basin Plan does not identify Honey Lake Wetlands as a receiving water of Wendel Hot Springs. In addition, there are wetlands created by the geothermal waters that are not connected or considered part of the Honey Lake Area Wetlands, and are not receiving waters for Wendel Hot Springs.

3.5. Other Plans, Polices and Regulations – Not Applicable

4. 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 in the Code of Federal Regulations:
40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 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.

4.1. Discharge Prohibitions

4.1.1. The discharge prohibitions established in this Order are from waste discharge prohibitions in the Basin Plan that apply to the entire Lahontan Region (section 4.1) or based on discharge prohibitions specified in the Water Code.

4.1.2. Consistent with the Region-wide prohibition established in section 4.1 of the Basin Plan, this Order prohibits the discharge of pesticides to surface or groundwaters. Exemptions may be granted by the Water Board provided that specific exemption criteria specified in section 4.1 of the Basin Plan are satisfied.

4.1.3. This maximum daily flow prohibition in section 3.1.8 of the Order is based on the design flow of the Facility. Order R6T-2015-0010 included flow as an effluent limit based on the Facility design flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order.

4.1.4. This Order prohibits the discharge of petroleum-based oil lubricants. To prevent the addition of petroleum-based chemicals into the effluent from the Facility, the Discharger is required to use non-petroleum-based pump oil lubricants. The ROWD did not identify the use or discharge of petroleum-based products from the Facility. The Discharger's planned use of a lubricant during pump operation was identified by Lahontan Water Board staff during an inspection in May 2021. In the Notice of Complete ROWD letter issued to the Discharger in August 2021, the Lahontan Water Board requested the Discharger research and utilize a non-petroleum-based pump lubricant. On February 23, 2022, the Discharger supplied

information concluding that food grade machinery oil would be a suitable alternative.

4.2. Technology-Based Effluent Limitations

4.2.1. **Scope and Authority**

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 C.F.R. section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

4.2.1.1. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

4.2.1.2. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

4.2.1.3. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including biochemical oxygen demand, total suspended solids, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.

4.2.1.4. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 C.F.R. section 125.3 authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of

concern. Where BPJ is used, the Lahontan Water Board must consider specific factors outlined in 40 C.F.R. section 125.3.

4.2.2. **Applicable Technology-Based Effluent Limitations**

There are no ELGs applicable to discharges associated with geothermal power plants. Therefore technology-based effluent limitations will be established for Discharge Point 001 based on BPJ, as described further below.

4.2.1.2. Best Management Practices Plan. Due to the lack of national ELGs for discharges from the geothermal power plant and pursuant to 40 C.F.R. section 122.44(k), the Discharger is required to develop and implement a Best Management Practices (BMP) Plan. The BMP Plan, based on BPJ, will serve as the equivalent of technology-based effluent limitations, to carry out the purposes and intent of the CWA. The Discharger is specifically required to develop and implement a BMP Plan in accordance with the requirements specified in Attachment G. The purpose of the BMP Plan will be to prevent the introduction of chemicals or other substances into the Facility and prevent the addition of pollutants from other non-permitted process waters, spills, or other potential sources of pollutants at the Facility. The BMP Plan must include site-specific plans and procedures implemented and/or to be implemented to prevent pollutants from being discharged to Wendel Hot Springs.

4.3. Water Quality-Based Effluent Limitations (WQBELs)

4.3.1. **Scope and Authority**

CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 C.F.R. requires 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) U.S. EPA 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 section 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.

4.3.2. **Applicable Beneficial Uses and Water Quality Criteria and Objectives**

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, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The federal CWA section 101(a)(2), states: *"it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983."* Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 C.F.R. sections 131.2 and 131.10, require that all waters of the State be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 C.F.R. section 131.3(e) defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal regulation, 40 C.F.R. section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

4.3.2.1. **Receiving Water and Beneficial Uses.** The Facility discharges wastewater to the Wendel Hot Springs, a water of the United States. The beneficial uses applicable to the Wendel Hot Springs are presented in Table F-3.

4.3.2.2. **Water Quality Objectives.** The water quality objectives applicable to the receiving water for this discharge are from the Basin Plan; the CTR, established by U.S. EPA at 40 C.F.R. section 131.38; and the NTR, established by U.S. EPA at 40 C.F.R. section 131.36. Some pollutants have water quality objectives established by more than one of these sources.

4.3.2.2.1 **Basin Plan.** The Basin Plan specifies numeric and narrative water quality objectives for pollutants in order to protect beneficial uses. The narrative toxicity objective states, "*All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life*." The Chemical Constituents provisions in the Basin Plan also states, "*Water designated as AGR shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes)*." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

4.3.2.2.2 **CTR.** The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and

estuaries. Human health criteria are further identified as for “water and organisms” or for “organisms only.”

4.3.2.2.3 **NTR.** The NTR establishes numeric aquatic life criteria for selenium and numeric human health criteria for 33 toxic organic pollutants.

4.3.3. **Determining the Need for WQBELs**

Assessing whether a pollutant has reasonable potential to exceed a water quality objective in the water body is the fundamental step in determining whether or not a WQBEL is required.

4.3.3.1. **Reasonable Potential Analysis Methodology**

According to SIP section 1.3, the RPA begins with identifying the observed maximum effluent concentration (MEC) for each pollutant based on effluent concentration data. There are three triggers in determining reasonable potential:

4.3.3.1.1. Trigger 1 is activated if the MEC is greater than or equal to the lowest applicable water quality objective (MEC ≥ water quality objective), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than or equal to the adjusted water quality objective, then that pollutant has reasonable potential, and a WQBEL is required.

4.3.3.1.2. Trigger 2 is activated if the observed maximum ambient background concentration (B) is greater than the adjusted water quality objective (B > water quality objective) and the pollutant is detected in any of the effluent samples.

4.3.3.1.3. Trigger 3 is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the water quality objective.

To maintain consistency in methodology for permitting discharges of various constituents, the Lahontan Water Board used the same procedures required by the SIP for CTR constituents to evaluate reasonable potential and, where necessary, develop WQBELs for non-CTR constituents. For constituents with no promulgated numeric water quality criteria or objectives, the Lahontan Water Board interpreted narrative objectives from the Basin Plan to establish the basis for reasonable potential and effluent limitation calculations.

4.3.3.2. **Data and Information Used for the RPA**

The following describes the data used to perform an RPA for discharges from Discharge Point 001.

4.3.3.2.1. **Effluent Data.** Effluent monitoring data reported in the Discharger’s ROWD, one additional sample collected on November 18, 2020, and the nature of the discharge from Discharge Point 001 were analyzed to determine if the discharge has reasonable potential.

4.3.3.2.2. **Hardness.** Some freshwater metal objectives are hardness dependent. The lower the hardness, the more stringent the resulting criterion is. Effluent

hardness data was not collected by the Discharger during the term of Order R6T-2015-0010; therefore, hardness data collected during the term of previous Order R6T-2009-0006 was used to determine water quality objectives for hardness-dependent metals for this Order. Effluent hardness data collected during the term of previous Order R6T-2009-0006 ranged from 39.9 mg/L (as CaCO3) to 47.4 mg/L (as CaCO3). The low end of the range was conservatively used to determine the objectives for this Order.

4.3.3.2.3. **Ambient Background Data.** The ambient receiving waters for the discharges are remnants of the former Wendel Hot Springs, and associated wetlands and channels on the margins of, or terminating at, Honey Lake. No upstream (i.e., ambient background) receiving water data has been collected.
Order R6T-2015-0010 required monitoring of the influent, which is considered representative of the natural geothermal fluid prior to heat exchange within the Facility. Consistent with Order R6T-2015-0010, influent data was used to represent ambient background data for the purposes of determining whether a reasonable potential exists based on Trigger 2.

4.3.3.2.4. **Assimilative Capacity/Mixing Zone.** The Discharger has not provided an approved dilution/mixing zone study that meets the requirements in section 1.4.2.2 of the SIP; therefore, the worst-case dilution is assumed to be zero to provide protection of the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that effluent limitations are applied end-of-pipe, with no allowance for dilution within the receiving water.

4.3.3.3. **Reasonable Potential Analysis.** The MECs and the most stringent applicable water quality objectives used in the RPA are presented in the following table, along with the RPA results for each pollutant. Reasonable potential was not determined for all pollutants because there are no water quality objectives for all pollutants, and monitoring data are unavailable for others. Based on a review of the influent and effluent data collected, the pollutants that exhibit reasonable potential by Trigger 1 are arsenic, bis (2-ethylhexyl) phthalate, boron, copper, mercury, and molybdenum.

Table F-4. Reasonable Potential Analysis Summary for Discharge Point 001

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
1	Antimony	4,300	<5	4	No Limit
2	Arsenic	150	210	210	Limit Required
3	Beryllium	No Criteria	<5	2	Undetermined
4	Cadmium	1.2	<5	Not Available	No Limit
5a	Chromium (III)	98	<5	2	No Limit

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
5b	Chromium (VI)	11	Not Available	0.2	No Limit
6	Copper	4.3	7	280 (DNQ)	Limit Required
7	Lead	0.99	<5	24 (DNQ)	No Limit, see section 4.3.3.3.2 below
8	Mercury	0.012	1.2	39	Limit Required
9	Nickel	24	5	Not Available	No Limit
10	Selenium	5	<25	Not Available	No Limit
11	Silver	0.84	<5	Not Available	No Limit
12	Thallium	6.3	<2.5	Not Available	No Limit
13	Zinc	55	<50	Not Available	No Limit
14	Cyanide	5.2	<0.005	Not Available	No Limit
15	Asbestos	No Criteria	<0.9	Not Available	Undetermined
16	2,3,7,8 TCDD	0.000000014	<0.000000368	Not Available	No Limit
17	Acrolein	780	<1	<1.9	No Limit
18	Acrylonitrile	0.66	<2.4	<4	No Limit
19	Benzene	71	8.5	0.15 (DNQ)	No Limit
20	Bromoform	360	<0.67	<0.25	No Limit
21	Carbon Tetrachloride	4.4	<0.05	<0.088	No Limit
22	Chlorobenzene	21,000	<0.05	<0.13	No Limit
23	Chlorodibromomethane	34	<0.05	<0.088	No Limit
24	Chloroethane	No Criteria	<0.057	<0.12	Undetermined
25	2-Chloroethylvinyl ether	No Criteria	<0.2	Not Available	Undetermined
26	Chloroform	No Criteria	<0.05	<0.098	Undetermined
27	Dichlorobromomethane	46	<0.05	<0.49	No Limit
28	1,1-Dichloroethane	No Criteria	<0.051	<0.086	Undetermined
29	1,2-Dichloroethane	99	<0.068	<0.11	No Limit
30	1,1-Dichloroethylene	3.2	<0.05	<0.14	No Limit
31	1,2-Dichloropropane	39	<0.05	<0.14	No Limit

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
32	1,3-Dichloropropylene	1,700	<0.05	Not Available	No Limit
33	Ethylbenzene	29,000	0.32 (DNQ)	<0.077	No Limit
34	Methyl Bromide	4,000	<0.077	<0.18	No Limit
35	Methyl Chloride	No Criteria	<0.055	<0.12	Undetermined
36	Methylene Chloride	1,600	<0.055	<0.14	No Limit
37	1,1,2,2-Tetrachloroethane	11	<0.066	<0.092	No Limit
38	Tetrachloroethylene	8.9	<0.05	<0.11	No Limit
39	Toluene	200,000	3.1	<0.11	No Limit
40	1,2-Trans-Dichloroethylene	140,000	<0.056	<0.12	No Limit
41	1,1,1-Trichloroethane	No Criteria	<0.05	<0.083	Undetermined
42	1,1,2-Trichloroethane	42	<0.05	<0.1	No Limit
43	Trichloroethylene	81	<0.081	<0.1	No Limit
44	Vinyl Chloride	525	<0.059	<0.1	No Limit
45	2-Chlorophenol	400	<0.2	Not Available	No Limit
46	2,4-Dichlorophenol	790	<0.23	Not Available	No Limit
47	2,4-Dimethylphenol	2,300	<0.2	Not Available	No Limit
48	2-methyl-4,6-Dinitrophenol	765	<0.24	Not Available	No Limit
49	2,4-Dinitrophenol	14,000	<0.2	Not Available	No Limit
50	2-Nitrophenol	No Criteria	<0.2	Not Available	Undetermined
51	4-Nitrophenol	No Criteria	<0.3	Not Available	Undetermined
52	3-Methyl-4-Chlorophenol	No Criteria	<0.2	Not Available	Undetermined
53	Pentachlorophenol	8.2	<0.4	Not Available	No Limit
54	Phenol	4,600,000	3.3	Not Available	No Limit
55	2,4,6-Trichlorophenol	6.5	<0.2	Not Available	No Limit
56	Acenaphthene	2,700	<0.2	Not Available	No Limit

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
57	Acenaphthylene	No Criteria	<0.2	Not Available	Undetermined
58	Anthracene	110,000	<0.2	Not Available	No Limit
59	Benzidine	0.00054	<1.6	Not Available	No Limit
60	Benzo(a)Anthracene	0.049	<0.21	Not Available	No Limit
61	Benzo(a)Pyrene	0.049	<0.2	Not Available	No Limit
62	Benzo(b)Fluoranthene	0.049	<0.24	Not Available	No Limit
63	Benzo(ghi)Perylene	No Criteria	<0.33	Not Available	Undetermined
64	Benzo(k)Fluoranthene	0.049	<0.3	Not Available	No Limit
65	Bis(2-Chloroethoxy)Methane	No Criteria	<0.2	Not Available	Undetermined
66	Bis(2-Chloroethyl)Ether	1.4	<0.31	Not Available	No Limit
67	Bis(2-Chloroisopropyl)Ether	170,000	<0.2	Not Available	No Limit
68	Bis(2-Ethylhexyl)Phthalate	5.9	30	Not Available	No Limit[4]
69	4-Bromophenyl Phenyl Ether	No Criteria	<0.2	Not Available	Undetermined
70	Butylbenzyl Phthalate	5,200	<0.2	Not Available	No Limit
71	2-Chloronaphthalene	4,300	<0.2	Not Available	No Limit
72	4-Chlorophenyl Phenyl Ether	No Criteria	<0.2	Not Available	Undetermined
73	Chrysene	0.049	<0.2	Not Available	No Limit
74	Dibenzo(a,h)Anthracene	0.049	<0.34	Not Available	No Limit
75	1,2-Dichlorobenzene	17,000	<0.05	<0.11	No Limit
76	1,3-Dichlorobenzene	2,600	<0.05	<0.11	No Limit
77	1,4-Dichlorobenzene	2,600	<0.05	<0.15	No Limit
78	3,3 Dichlorobenzidine	0.080	<0.53	Not Available	No Limit

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
79	Diethyl Phthalate	120,000	<0.2	Not Available	No Limit
80	Dimethyl Phthalate	2,900,000	<0.2	Not Available	No Limit
81	Di-n-Butyl Phthalate	12,000	<0.2	Not Available	No Limit
82	2,4-Dinitrotoluene	9.1	<0.4	Not Available	No Limit
83	2,6-Dinitrotoluene	No Criteria	<0.2	Not Available	Undetermined
84	Di-n-Octyl Phthalate	No Criteria	<0.21	Not Available	Undetermined
85	1,2-Diphenylhydrazine	0.54	<0.2	Not Available	No Limit
86	Fluoranthene	370	<0.28	Not Available	No Limit
87	Fluorene	14,000	<0.2	Not Available	No Limit
88	Hexachlorobenzene	0.00077	<0.25	Not Available	No Limit
89	Hexachlorobutadiene	50	<0.2	<0.36	No Limit
90	Hexachlorocyclopentadiene	17,000	<0.31	Not Available	No Limit
91	Hexachloroethane	8.9	<0.2	Not Available	No Limit
92	Indeno(1,2,3-cd)Pyrene	0.049	<0.29	Not Available	No Limit
93	Isophorone	600	<0.2	Not Available	No Limit
94	Naphthalene	No Criteria	<0.2	<0.32	Undetermined
95	Nitrobenzene	1,900	<0.2	Not Available	No Limit
96	N-Nitrosodimethylamine	8.1	<1.2	Not Available	No Limit
97	N-Nitrosodi-n-Propylamine	1.4	<0.21	Not Available	No Limit
98	N-Nitrosodiphenylamine	16	<0.2	Not Available	No Limit
99	Phenanthrene	No Criteria	<0.2	Not Available	Undetermined

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
100	Pyrene	11,000	<0.22	Not Available	No Limit
101	1,2,4-Trichlorobenzene	No Criteria	<0.2	<0.29	Undetermined
102	Aldrin	0.00014	<0.0011	Not Available	No Limit
103	alpha-BHC	0.013	<0.0016	Not Available	No Limit
104	beta-BHC	0.046	<0.0018	Not Available	No Limit
105	gamma-BHC	0.063	<0.0015	Not Available	No Limit
106	delta-BHC	No Criteria	<0.0014	Not Available	Undetermined
107	Chlordane	0.00059	<0.068	Not Available	No Limit
108	4,4'-DDT	0.00059	<0.00082	Not Available	No Limit
109	4,4'-DDE	0.00059	<0.00081	Not Available	No Limit
110	4,4'-DDD	0.00084	<0.0012	Not Available	No Limit
111	Dieldrin	0.00014	<0.00078	Not Available	No Limit
112	alpha-Endosulfan	0.056	<0.00081	Not Available	No Limit
113	beta-Endolsulfan	0.056	<0.0014	Not Available	No Limit
114	Endosulfan Sulfate	240	<0.001	Not Available	No Limit
115	Endrin	0.036	<0.00093	Not Available	No Limit
116	Endrin Aldehyde	0.81	<0.001	Not Available	No Limit
117	Heptachlor	0.00021	<0.00095	Not Available	No Limit
118	Heptachlor Epoxide	0.00011	<0.0016	Not Available	No Limit
119-125	PCBs[5]	0.00017	<0.11	Not Available	No Limit
126	Toxaphene	0.00020	<0.57	Not Available	No Limit

CTR #	Priority Pollutants	Governing Water Quality Objective (µg/L)	MEC or Minimum DL (µg/L)	Maximum Background or Minimum DL (µg/L)[1,2]	RPA Results[3]
	Ammonia, as N (mg/L)	0.37	0.2	Not Available	No Limit
	Boron	700	5,800	5,700 (DNQ)	Limit Required
	Molybdenum	10	62	68 (DNQ)	Limit Required

Table F-4 Notes:

1. The MEC and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).
2. The MEC or maximum background concentration is "Not Available" when there are no influent monitoring data for the constituent.
3. RPA Results

   = Limit Required, if MEC > WQO, B > WQO and MEC is detected, or Trigger 3;

   = No Limit, if MEC and B are < WQO or all effluent data are undetected; or

   = Undetermined (Ud), if no criteria have been promulgated or there are insufficient data.
4. See section 4.3.3.3.1, below, for a discussion of the RPA results for bis (2-ethylhexyl) phthalate.
5. Total PCBs includes the sum of the following congeners: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB1248, PCB-1254, and PCB-1260.

4.3.3.3.1. **Bis (2-Ethylhexyl) Phthalate.** Although reasonable potential for bis (2-ethylexyl) phthalate was indicted by Trigger 1 (the MEC is greater than the applicable water quality objective), effluent limitations are not being established at this time. Bis (2-ethylhexyl) phthalate is commonly used as a plasticizer and, therefore, needs to be sampled with glass containers to avoid false positive results. Neither the Discharger's ROWD nor the lab reports for the November 18, 2020 sampling event indicated whether steps were taken to assure that sample containers, sampling apparatus, and analytical equipment were not sources of the detected contaminant. Furthermore, no influent data for bis (2-ethylexyl) phthalate was available for comparison to the November 18, 2020 sample. Section 1.3, step 8 of the SIP allows the Lahontan Water Board to require additional monitoring for a pollutant in place of an effluent limitation if data are unavailable or insufficient. Instead of effluent limitations, influent and effluent monitoring for bis (2 ethylhexyl) phthalate will be required semiannually. Furthermore, this Order requires the Discharger to take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected

contaminant. Should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and modified by adding an appropriate effluent limitation.

4.3.3.3.2. **Lead.** Although influent and effluent data collected since the issuance of Order R6T-2015-0010 indicate that no reasonable potential exists for lead, this Order retains effluent limitations for total recoverable lead. The maximum observed influent concentration for lead was 24 µg/L based on a May 19, 2021 sample collected by the Lahontan Water Board. Based on ten influent samples collected prior to the adoption of Order R6T-2015-0010, the maximum observed influent concentration for lead was 5.8 µg/L. According to the laboratory reports corresponding to the May 19, 2021 influent lead sample, the influent lead result of 24 µg/L is an estimated value and due to the sample matrix, the reporting level was raised.

The single effluent lead sample collected on November 18, 2020 was non-detect; however, the reporting level (RL) was 5 µg/L, which is greater than the governing water quality objective of 0.99 µg/L. As described in section 3.2 of Attachment D to this Order (Standard Provisions), monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters. A method is sufficiently sensitive when the method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or the method ML is above the applicable water quality criterion but the amount of the pollutant in the Facility's discharge is high enough that the method detects and quantifies the level of the pollutant in the discharge. The RL for the November 18, 2020 effluent lead sample was greater than the governing water quality objective and the result was non-detect; therefore, the November 18, 2020 effluent monitoring event for lead was not conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136.

Section 1.2 of the SIP states, "*The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy*." The May 19, 2021 influent sample result for lead is an estimated value and appears to be an outlier compared to the remainder of the influent data collected since 2009. Additionally, the November 18, 2020 effluent monitoring event for lead was not conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136. Therefore, the Lahontan Water Board concludes that the influent and effluent lead samples collected on May 19, 2021 and November 18, 2020, respectively, are insufficient for use in the RPA and effluent limitations for lead have been retained in this Order.

4.3.4. **WQBEL Calculations**

4.3.4.1. **Pollutants That Did Not Demonstrate Reasonable Potential**

WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential or where it was undetermined whether WQBELs were necessary (e.g., where the reported detection levels are higher than the applicable criteria/objectives). However, monitoring during the term of this Order for those pollutants is required in accordance with section 1.3 of the SIP. If concentrations of these constituents are found to have increased significantly, the Discharger will be required to investigate the sources of the increases. Remedial measures are required if the increases pose a threat to receiving water quality.

For those constituents where the reported laboratory detection levels were higher than the applicable criteria/objectives, the analysis was not conducted according to the sufficiently sensitive methods rule. Section 3.2 of Attachment D to this Order (Standard Provisions), requires that monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters. A method is sufficiently sensitive when the method minimum level (ML), is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or the method ML is above the applicable water quality criterion but the amount of the pollutant in the Facility's discharge is high enough that the method detects and quantifies the level of the pollutant in the discharge. The Discharger is responsible for ensuring that the reported results are conducted in a manner that complies with the sufficiently sensitive methods.

4.3.4.2. **Pollutants with Reasonable Potential**

This Order includes WQBELs for arsenic, boron, copper, lead, mercury, and molybdenum for discharges from Discharge Point 001. WQBELs for these parameters were calculated based on the allowance on intake credits, as described below.

4.3.4.2.1. **SIP Intake Water Credit Requirements.** SIP section 1.4.4 provides for intake water credits under specific circumstances. When met, a discharger may discharge a mass or concentration of a pollutant that is no greater than the mass or concentration found in its intake water (e.g., the discharger may add a mass of the pollutant to its waste stream if it also removes an equal or greater mass prior to discharge, resulting in no net addition of the pollutant). This Order provides intake water credits for arsenic, boron, copper, lead, mercury, and molybdenum discharges from Discharge Point 001, which comply with the SIP requirements.

In accordance with section 1.4.4 of the SIP, the Lahontan Water Board may consider pollutants in intake water on a pollutant-by-pollutant and discharge by-discharge basis when establishing WQBELs provided that the Discharger has demonstrated to the satisfaction of the Lahontan Water Board that five

specified conditions are met. A previous discharger submitted a May 2005 report, *A Review of Arsenic Levels in Intake and Discharge Waters at the Wineagle Power Plant, Lassen County, California* (GeothermEx, Inc.), addressing the SIP conditions. Upon review of this report, the Lahontan Water Board concurred that the SIP conditions were met for intake credits for arsenic, as well as the non-CTR constituents boron and molybdenum. Previous Order R6T-2009-0006 required a previous discharger to develop and submit an Intake Water Credit Summary Report to characterize the quality of the intake water and wastewater discharge. The previous discharger submitted a January 2011 report, *Wendel Energy Operations 1, LLC "Wineagle" Intake Water Credit Summary Report* (Oski Energy, LLC), which evaluated intake and effluent water quality from four monitoring events between 2009 and 2010. After review of these reports and available data, the Lahontan Water Board concurs that the discharge meets the conditions, as outlined in the SIP, for intake credits for arsenic, boron, copper, lead, mercury, and molybdenum discharges from Discharge Point 001; specifically:

Condition 1. The observed maximum ambient background concentration, as determined in section 1.4.3.1 of the SIP, and the intake water concentration of the pollutant exceeds the most stringent applicable criterion/objective for that pollutant.

Table F-5 represents influent and effluent data collected at the Facility since Order R6T-2009-0006 was issued.

Table F-5. Comparison of Influent Pollutant Concentrations to Applicable Water Quality Objectives

Parameter	Sample Date	Reported Influent Concentration (µg/L)	Reported Effluent Concentration (µg/L)	Most Stringent Objective (µg/L)
Arsenic, Total Recoverable	5/21/2009	170	162	150
Arsenic, Total Recoverable	11/18/2009	199	177	150
Arsenic, Total Recoverable	6/3/2010	214	159	150
Arsenic, Total Recoverable	11/3/2010	200	180	150
Arsenic, Total Recoverable	5/9/2011	187	156	150
Arsenic, Total Recoverable	11/10/2011	157	170	150
Arsenic, Total Recoverable	5/9/2012	290	202	150
Arsenic, Total Recoverable	11/28/2012	249	144	150

Parameter	Sample Date	Reported Influent Concentration (µg/L)	Reported Effluent Concentration (µg/L)	Most Stringent Objective (µg/L)
Arsenic, Total Recoverable	5/1/2013	191	171	150
Arsenic, Total Recoverable	11/6/2013	160	154	150
Arsenic, Total Recoverable	5/1/2015	--	163	150
Arsenic, Total Recoverable	11/18/2020	--	210	150
Arsenic, Total Recoverable	5/19/2021	210	--	150
Boron, Total Recoverable	5/21/2009	5,400	4,900	750
Boron, Total Recoverable	11/18/2009	5,100	4,200	750
Boron, Total Recoverable	6/3/2010	5,600	4,200	750
Boron, Total Recoverable	11/3/2010	5,040	4,540	750
Boron, Total Recoverable	5/9/2011	4,400	3,900	750
Boron, Total Recoverable	11/10/2011	5,000	4,600	750
Boron, Total Recoverable	5/9/2012	4,900	4,400	750
Boron, Total Recoverable	11/28/2012	5,000	4,300	750
Boron, Total Recoverable	5/1/2013	4,800	4,200	750
Boron, Total Recoverable	11/6/2013	5,100	4,000	750
Boron, Total Recoverable	11/18/2020	--	5,800	750
Boron, Total Recoverable	5/19/2021	5,700 (DNQ)	--	750
Copper, Total Recoverable	5/21/2009	1	1	4.3
Copper, Total Recoverable	11/18/2009	2	1	4.3
Copper, Total Recoverable	6/3/2010	4	2	4.3
Copper, Total Recoverable	11/3/2010	<10	<10	4.3

Parameter	Sample Date	Reported Influent Concentration (µg/L)	Reported Effluent Concentration (µg/L)	Most Stringent Objective (µg/L)
Copper, Total Recoverable	5/9/2011	7	2	4.3
Copper, Total Recoverable	11/10/2011	10	12	4.3
Copper, Total Recoverable	5/9/2012	<10	2	4.3
Copper, Total Recoverable	11/28/2012	1.35	4	4.3
Copper, Total Recoverable	5/1/2013	2	2	4.3
Copper, Total Recoverable	11/6/2013	9	1	4.3
Copper, Total Recoverable	11/18/2020	--	7	4.3
Copper, Total Recoverable	5/19/2021	280 (DNQ)	--	4.3
Lead, Total Recoverable	5/21/2009	0.3	0.3	0.99
Lead, Total Recoverable	11/18/2009	<0.2	<0.2	0.99
Lead, Total Recoverable	6/3/2010	1.1	0.8	0.99
Lead, Total Recoverable	11/3/2010	<10	<10	0.99
Lead, Total Recoverable	5/9/2011	1.3	0.3	0.99
Lead, Total Recoverable	11/10/2011	5.8	0.9	0.99
Lead, Total Recoverable	5/9/2012	<5	0.3	0.99
Lead, Total Recoverable	11/28/2012	0.0352	1	0.99
Lead, Total Recoverable	5/1/2013	1.2	1.5	0.99
Lead, Total Recoverable	11/6/2013	0.7	<0.2	0.99
Lead, Total Recoverable	11/18/2020	--	<5	0.99
Lead, Total Recoverable	5/19/2021	24 (DNQ)	--	0.99
Mercury, Total Recoverable	5/21/2009	0.08	0.24	0.012

Parameter	Sample Date	Reported Influent Concentration (µg/L)	Reported Effluent Concentration (µg/L)	Most Stringent Objective (µg/L)
Mercury, Total Recoverable	11/18/2009	0.07	0.24	0.012
Mercury, Total Recoverable	6/3/2010	0.09	0.2	0.012
Mercury, Total Recoverable	11/3/2010	0.1	0.06	0.012
Mercury, Total Recoverable	5/9/2011	0.31	0.31	0.012
Mercury, Total Recoverable	11/10/2011	0.16	0.25	0.012
Mercury, Total Recoverable	5/9/2012	0.25	0.27	0.012
Mercury, Total Recoverable	11/28/2012	0.1	0.25	0.012
Mercury, Total Recoverable	5/1/2013	0.28	0.51	0.012
Mercury, Total Recoverable	11/6/2013	0.17	0.42	0.012
Mercury, Total Recoverable	11/18/2020	--	1.2	0.012
Mercury, Total Recoverable	5/19/2021	39	--	0.012
Molybdenum, Total Recoverable	5/21/2009	63	60	10
Molybdenum, Total Recoverable	11/18/2009	62	56	10
Molybdenum, Total Recoverable	6/3/2010	71	53	10
Molybdenum, Total Recoverable	11/3/2010	60	50	10
Molybdenum, Total Recoverable	5/9/2011	64	64	10
Molybdenum, Total Recoverable	11/10/2011	59	64	10
Molybdenum, Total Recoverable	5/9/2012	60	56	10
Molybdenum, Total Recoverable	11/28/2012	62	50	10
Molybdenum, Total Recoverable	5/1/2013	63	56	10
Molybdenum, Total Recoverable	11/18/2020	--	62	10

Parameter	Sample Date	Reported Influent Concentration (µg/L)	Reported Effluent Concentration (µg/L)	Most Stringent Objective (µg/L)
Molybdenum, Total Recoverable	5/19/2021	68 (DNQ)	--	10

Based on influent data collected at the Facility since Order R6T-2009-0006 was issued, this condition is met because the observed maximum intake water concentration for each pollutant exceeds the most stringent water quality criterion/objective.

Condition 2. The intake water credits provided are consistent with any TMDL applicable to the discharge that has been approved by the Regional Water Board, State Water Board, and U.S. EPA.

Wendel Hot Springs is not currently considered a water quality-limited segment requiring a TMDL. Honey Lake, to which Wendel Hot Springs is tributary, is listed on the CWA Section 303(d) List of Water Quality Limited Segments requiring TMDLs; however, additional studies are needed to verify whether impairment exists and whether a TMDL is needed. Arsenic in Honey Lake is known to originate from natural sources. Based on a past study contracted by the Lahontan Water Board, arsenic concentrations fluctuate based on flux from the sediments depending primarily on the ambient water levels, evaporation and dilution by runoff (*Analysis of the Effect of Arsenic, Boron, and Molybdenum in Water Discharges on Water Quality in Honey Lake*, Ruschemeyer and Tchobanoglous, UC Davis 1989).

There is no known connection with Wendel Hot Springs and the Honey Lake Area Wetlands. The Honey Lake Area Wetlands is listed on the CWA Section 303(d) List of Water Quality Limited Segments requiring TMDLs for metals. This listing also requires additional studies to verify whether impairment exists and whether a TMDL is needed as the source of the impairment is unknown.

Condition 3. The intake water is from the same water body as the receiving water body. The discharger may demonstrate this condition by showing that: a) the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge, is similar to that of the intake water; b) there is a direct hydrological connection between the intake and discharge points; c) the water quality characteristics are similar in the intake and receiving waters; and d) the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period of time and with the same effect had it not been diverted by the discharger.

As discussed under Condition 1, the ambient background concentration of each of the pollutants in the receiving water (that is, the local hot springs) is similar to that of the intake water (that is, produced water).

There is a direct and long-recognized hydrological connection between the Facility intake and natural hot springs along a fault zone near the Facility. Historically, geothermal water rose from a deep reservoir (depth greater than 3,000 feet) and then surfaced as hot springs at the land surface. Production from the Facility well diverts the upflowing geothermal water from its natural exit at the hot springs. When the well stops producing, the hot springs at Wendel reappears from the natural flow up the fault. So far as pollutant concentrations are concerned, the water quality characteristics are similar in the intake water (produced from the well) and receiving water (hot springs).

Given the very small estimated volume of the fault zone, the pollutants would have reached the vicinity of the discharge point in the receiving water (hot springs or Honey Lake) within a matter of months, and in a similar concentration, had it not been diverted by production of geothermal water for the Facility.

Condition 4. The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.

As previously discussed in this Fact Sheet, except for removal of heat from the extracted groundwater, the Facility does not alter the groundwater that is eventually discharged to the receiving water by the addition of chemicals or other pollutants.

Condition 5. The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.

The timing and location of the discharge from the Facility does not cause adverse effects on water quality and beneficial uses that would not occur if the pollutants in the intake water had been left in the intake water body, because (a) the hot springs will continue to surface geothermal water with similar pollutant concentrations and (b) there are no municipal uses of the water for either the local hot springs or Honey Lake.

Therefore, the Lahontan Water Board will allow intake water credits for arsenic, boron, copper, lead, mercury, and molybdenum. This credit is to offset elevated levels of these pollutants found in the intake water. As stated in section 1.4.4 of the SIP, the Lahontan Water Board "*may establish effluent limitations allowing the facility to discharge a mass and concentration of the intake water pollutant that is no greater than the mass and concentration in the facility's intake water ... so there is no net addition of the pollutant in the discharge compared to the intake water*."

4.3.4.2.2. **Calculation of Intake Water Credits for Discharge Point 001.** To qualify for an intake water credit, the effluent pollutant concentration must be less than or equal to the intake pollutant concentration. However, intake and effluent data collected on the same day may differ due to factors unrelated to Facility operations, such as sampling and laboratory analytical variability. Since the

residence time of geothermal water from intake to discharge is of relatively short duration, samples taken on the same day should be representative of the same water (assuming the samples are collected within a reasonably short time from each other). Concurrent influent and effluent samples were not collected during the term of Order R6T-2015-0010. However, as shown in Table F-5, variability between the influent and effluent occurred throughout the term of previous Order R6T-2009-0006; for the same pollutants, there were times when the effluent concentrations were slightly higher than the influent concentrations, as well as instances when the influent concentrations were higher than effluent concentrations.

In order to account for the variability among the influent and effluent samples collected by the Discharger, the methodology for developing effluent limitations was revised. Since the residence time of geothermal water from intake to discharge is of relatively short duration and the Discharger does not alter the waste stream except for the removal of heat, the Lahontan Water Board has assumed the influent and effluent pollutant concentration are drawn from the same distribution. Thus, the log-transformed 99th percentile concentration of the available data from both the influent and effluent monitoring locations was calculated. The resulting 99th percentile value represents the upper range of the variability between intake and effluent pollutant concentrations due to sampling and analysis variability. When used as the basis for the effluent limitation, it results in an intake credit that captures the variability between influent and effluent data and prevents the discharge of additional pollutant mass. The 99th percentile effluent limit also implies that one percent of the time a value could occur that will exceed the 99th percentile, but a higher percentile might include extreme and possibly false values, which might mask a legitimate violation; a lower percentile might result in violations due to sample variability instead of the addition of pollutants. Since limited influent and effluent data was collected over the term of Order R6T-2015-0010, influent and effluent data collected at the Facility since Order R6T-2009-0006 was also considered for determining the 99th percentile effluent limits.

The maximum observed influent concentration for copper was 280 µg/L based on a May 19, 2021 sample collected by the Lahontan Water Board. Based on ten influent samples collected prior to the adoption of Order R6T-2015-0010, the maximum observed influent concentration for copper was 10 µg/L. According to the laboratory reports corresponding to the May 19, 2021 influent copper sample, the influent copper result of 280 µg/L is an estimated value and due to the sample matrix, the reporting limit was raised. Section 1.2 of the SIP states, "*The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy*." The May 19, 2021 influent sample result for copper is an estimated value and appears to be an outlier compared to the remainder of the influent data collected since 2009. Therefore, the Lahontan Water Board has not considered the May 19, 2021 influent copper result when calculating the 99th percentile effluent limit.

The maximum observed influent concentration for mercury was 39 µg/L based on a May 19, 2021 sample collected by the Lahontan Water Board. Based on ten influent samples collected prior to the adoption of Order R6T-2015-0010, the maximum observed influent concentration for mercury was 0.31 µg/L. Section 1.2 of the SIP states, "*The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy*." The May 19, 2021 influent sample result for mercury is an appears to be an outlier compared to the remainder of the influent data collected since 2009. Therefore, the Lahontan Water Board has not considered the May 19, 2021 influent mercury result when calculating the 99th percentile effluent limit.

As described in section 4.3.3.3.2 of this Fact Sheet, the May 19, 2021 influent sample result for lead is an estimated value and appears to be an outlier compared to the remainder of the influent data collected since 2009. Additionally, the November 18, 2020 effluent monitoring event for lead was not conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136. Therefore, the Lahontan Water Board has not considered the influent and effluent results for lead collected on May 19, 2021 and November 18, 2020, respectively, when calculating the 99th percentile effluent limit.

Consistent with SIP section 1.4.4, which requires the Facility to discharge a mass and concentration of the intake water pollutant that is no greater than the mass and concentration found in the Facility's intake water. Where the 99th percentile value for a pollutant exceeds the maximum observed influent concentration, the maximum observed influent concentration is established as the effluent limitation. The final effluent limitations for arsenic, boron, copper, lead, mercury and molybdenum, which account for intake credits, are shown in the table below.

Table F-6. Final Effluent Limitations for Discharge Point 001

Parameter	Units	99th Percentile Value	Maximum Influent Concentration	Maximum Daily Effluent Limitation
Arsenic, Total Recoverable	µg/L	270	290	270
Boron, Total Recoverable	µg/L	6,200	5,700	5,700
Copper, Total Recoverable	µg/L	20	10	10
Lead, Total Recoverable	µg/L	18	5.8	5.8
Mercury, Total Recoverable	µg/L	1.1	0.31	0.31
Molybdenum, Total Recoverable	µg/L	74	71	71

The maximum daily effluent limits above were established by an intake credit analysis. If the intake geothermal water concentrations appear to be increasing, intake credit analyses in conjunction with trend analyses may be necessary to establish revised effluent limitations. 40 C.F.R. section 122.45(d) requires, unless impracticable, that effluent limitations for continuous discharges be stated as maximum daily and average monthly effluent limitations. The method for deriving effluent limitations that account for pollutant concentrations in the intake to the Facility (i.e., intake credits) is based on statistically based upper bound (99th percentile) of the influent data. As such, this upper bound estimate is used to evaluate whether the Discharger contributes pollutant mass or concentrations above those levels contained in the influent to the Facility. Therefore, compliance with a maximum daily effluent limitation is considered more appropriate for this discharge situation where intake credits are being applied.

4.3.5. **Whole Effluent Toxicity (WET)**

No WET data exists for the discharge from the Facility. In light of the fact that no aquatic life designated uses apply to Wendel Hot Springs or Honey Lake, this Order does not require WET testing.

4.4. Final Effluent Limitation Considerations

4.4.1. **Anti-Backsliding Requirements**

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

4.4.1.1. **Flow.** Order R6T-2015-0010 included flow as an effluent limit based on the Facility design flow. Compliance with the effluent limits for flow in Order R6T-2015-0010 was calculated based on the maximum daily effluent flow. Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. This Order is not less stringent because compliance with flow as a discharge prohibition will be calculated the same way as the previous Order. Flow as a discharge prohibition adequately regulates the Facility, does not allow for an increase in the discharge of pollutants, and does not constitute backsliding.

4.4.2. **Antidegradation Policies**

The permitted surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16. This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable

potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

It is also acknowledged that the Facility removes heat from the geothermal fluid to produce electricity and as a result discharges from the Facility will be slightly cooler than what would occur naturally. Based on semiannual monitoring data collected during the term of previous Order R6T-2009-0006, the discharge of the cooled geothermal effluent to the Wendel Hot Springs is approximately 25 degrees Celsius cooler than the temperature of the geothermal fluid as it is extracted. Since the discharge of the cooled geothermal fluid from the Facility has occurred since 1986, no further impacts to aquatic life from the continued discharge of the cooled geothermal fluid are expected in the Wendel Hot Springs.

From a broader perspective, any degradation that could occur as a result of discharges from the Facility is considered in the best interest of the people of the state. The Facility provides energy without producing greenhouse gas emissions that contribute to climate change, and as described in section 4.3.4, the mass and concentration of any pollutant discharged are expected to occur even in the absence of the Facility. The discharge from the Facility also provides fresh water that supports wetland habitats and potentially reduces salinity in Honey Lake, where the discharge ultimately reaches.

Therefore, the issuance of this Order is consistent with the federal antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

4.4.3. **Stringency of Requirements for Individual Pollutants**

This Order contains both technology-based and water quality-based effluent limitations. Technology-based restrictions are discussed in section 4.2 of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

This Order includes WQBELs for arsenic, boron, copper, lead, mercury, and molybdenum at Discharge Point 001. WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The scientific procedures for calculating the WQBELs are based on the SIP, which was approved by U.S. EPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

4.5. Interim Effluent Limitations – Not Applicable

4.6. Land Discharge Specifications – Not Applicable

4.7. Recycling Specifications – Not Applicable

5. RATIONALE FOR RECEIVING WATER LIMITATIONS

The receiving water limitations in this Order are based upon the water quality objectives contained in the Basin Plan.

5.1. Surface Water

The Basin Plan contains numeric and narrative water quality objectives applicable to all surface waters within the Lahontan Region. Water quality objectives include an objective to maintain the high-quality waters pursuant to federal regulations (section 131.12) and State Water Board Resolution 68-16. Additionally, *Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California – Bacteria Provisions and a Water Quality Standards Variance Policy* (Statewide Bacteria Provisions) contains numeric water quality objectives for bacteria in waters with Water Contact Recreation (REC-1) beneficial use. Surface water limitations in this Order are included to ensure protection of beneficial uses of the receiving waters associated with Wendel Hot Springs.

The narrative objective for chemical constituents in the Basin Plan states that "*Waters shall not contain concentrations of chemicals that adversely affect the water beneficial uses*." The receiving waters collectively have the following beneficial uses: Agricultural Supply (AGR); Groundwater Recharge (GWR); Freshwater Replenishment (FRSH); Hydropower Generation (POW); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Wildlife Habitat (WILD); and Water Quality Enhancement (WQE).

5.2. Groundwater

The Basin Plan contains numeric and narrative water quality objectives applicable to all groundwaters within the Lahontan Region. Groundwater quality objectives include an objective to maintain the high-quality waters pursuant to State Water Board Resolution 68-16. Groundwaters in the Honey Lake Valley Basin may not meet all objectives for applicable beneficial uses due to natural factors, including natural geothermal activity. Site specific monitoring and analyses are, in general, needed to establish the local groundwater quality conditions. Groundwater limitations in this Order are included to ensure protection of background water quality and beneficial uses of groundwater that may be affected by discharges.

6. RATIONALE FOR PROVISIONS

6.1. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in

Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. 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.
Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 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).

6.2. Special Provisions

6.2.1. **Reopener Provisions**

These provisions are based on 40 C.F.R. section 122.62 and allow modification of this Order and its effluent limitations as necessary in response to updated water quality objectives, regulations, or other new relevant information that may be established in the future and other circumstances as allowed by law.

6.2.2. **Special Studies and Additional Monitoring Requirements – Not Applicable**

6.2.3. **Best Management Practices and Pollution Prevention**

6.2.3.1. **Best Management Practices Plan.** This Order requires that the Discharger develop and implement a Best Management Practices (BMP) Plan. The BMP Plan requirements are specified in Attachment G to the Order, which are consistent with the general guidance contained in the U.S. EPA *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA 833-B-93-004).

6.2.4. **Construction, Operation, and Maintenance Specifications – Not Applicable**

6.2.5. **Special Provisions for Publicly-Owned Treatment Works (POTWs) – Not Applicable**

6.2.6. **Other Special Provisions – Not Applicable**

6.2.7. **Compliance Schedules – Not Applicable**

7. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Lahontan Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

7.1. Influent Monitoring

Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (i.e., use for calculating intake credits).

7.1.1. **Monitoring Location INF-001**

7.1.1.1. Influent monitoring frequencies (2/Year) and sample type (grab) for arsenic, boron, copper, lead, mercury, and molybdenum have been retained from Order R6T-2015- 0010 to assess the levels of pollutants in the extracted groundwater for these parameters. In addition, the influent monitoring frequencies and sample type for flow, pH, hardness, and temperature have been retained from Order R6T-2015- 0010 to assess the quality of the influent for these parameters.

7.1.1.2. This Order requires semiannual influent monitoring for bis (2-ethylhexyl) phthalate to assess the quality of the influent for this parameter and requires the Discharger to take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

7.1.1.3. Monitoring data collected over the term of Order R6T-2015- 0010 for zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for zinc have not been retained from Order R6T-2015- 0010.

7.1.1.4. Due to the potential presence of priority pollutants in high concentrations in the influent over which the Discharger has no control, this Order retains the periodic monitoring requirement from Order R6T-2015- 0010 for priority pollutants. This Order requires monitoring twice (May and November) during the fourth year of the permit term, concurrent with effluent priority pollutant monitoring, to collect data for priority pollutants (including hardness) and conduct an assessment of the quality of the influent for the next permit renewal.

7.2. Effluent Monitoring

Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2), effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, and to assess the impacts of the discharge on the receiving stream and groundwater.

7.2.1. **Monitoring Location EFF-001**

7.2.1.1. Effluent monitoring frequencies (2/Year) and sample type (grab) for arsenic, boron, copper, lead, mercury, and molybdenum have been retained from Order R6T-2015- 0010 to determine compliance with effluent limitations for these parameters. In addition, the effluent monitoring frequencies and sample type for flow, pH, hardness, and temperature have been retained from Order R6T-2015- 0010 to assess the quality of the effluent for these parameters.

7.2.1.2. This Order requires semiannual effluent monitoring for bis (2-ethylhexyl) phthalate to assess the quality of the effluent for this parameter and requires the Discharger to take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.

7.2.1.3. Monitoring data collected over the term of Order R6T-2015- 0010 for zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for zinc have not been retained from Order R6T-2015- 0010.

7.2.1.3. In accordance with section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established is required. This Order requires monitoring twice (May and November) during the fourth year of the permit term, concurrent with influent priority pollutant monitoring, in order to collect data for priority pollutants (including hardness) and conduct an RPA for the next permit renewal.

7.3. Whole Effluent Toxicity Testing Requirements – Not Applicable

7.4. Receiving Water Monitoring

Due to the fact that the Facility well diverts upflowing geothermal water from its natural exit at the hot springs, there is no upstream receiving water. Further, the immediate discharge at the Facility to the Wendel Hot Springs area makes monitoring downstream of the discharge impractical. The monitoring requirements contained in this Order for the influent to the Facility (i.e., the geothermal water as it exits the well), will be used to characterize the background surface and ground water.

7.5. Other Monitoring Requirements – Not Applicable

8. PUBLIC PARTICIPATION

The Lahontan Water Board has considered the issuance of WDRs that will serve as an NPDES permit for the Wendel Geothermal Power Plant. As a step in the WDR adoption process, the Lahontan Water Board staff has developed tentative WDRs and has encouraged public participation in the WDR adoption process.

8.1. Notification of Interested Parties

The Lahontan Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following <**Describe Notification Process (e.g., newspaper name and date)**>

The public had access to the agenda and any changes in dates and locations through the Lahontan Water Board's website at https://www.waterboards.ca.gov/lahontan/

8.2. Written Comments

Interested persons were invited to submit written comments concerning tentative WDRs as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Lahontan Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Lahontan Water Board, the written comments were due at the Lahontan Water Board office by 5:00 p.m. on **<April 12, 2022>**.

8.3. Public Hearing

The Lahontan Water Board held a public hearing on the proposed WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **June, 2022**
Time: **9:00 am**
Location: **Hampton Inn and Suites,**
2710 Lenwood Road Barstow Ca 92311
Video/telephonically participation will also be available

Interested persons were invited to attend. At the public hearing, the Lahontan Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested in writing.

8.4. Review of Waste Discharge Requirements

Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100
Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a water quality petition for review, see: (http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

8.5. Information and Copying

The ROWD, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Lahontan Water Board by calling (530) 542-5400.

8.6. 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 Lahontan Water Board, reference this facility, and provide a name, address, and phone number.

8.7. Additional Information

Requests for additional information or questions regarding this order should be directed to Trevor Miller at (530) 542-5430.

ATTACHMENT G – BEST MANAGEMENT PRACTICES PLAN REQUIREMENTS

1. **Implementation.** The Discharger must develop and implement a Best Management Practices (BMP) Plan that achieves the objectives and the specific requirements listed below. The BMP Plan must be implemented as soon as possible, but no later than 120 days from the effective date of this Order. The Discharger must also submit a copy of the BMP Plan to the Executive Officer within 120 days from the effective date of this Order.
2. **Purpose.** Through implementation of the BMP Plan the Discharger must prevent or minimize the generation and the potential for the release of pollutants from the Wendel Geothermal Power Plant to the waters of the United States through normal operations and ancillary activities.
3. **Objectives.** The Discharger must develop the BMP Plan consistent with the following objectives for the control of pollutants:

3.1. The number and quantity of pollutants and the toxicity of effluent generated, discharged or potentially discharged from the Wendel Geothermal Power Plant must be reduced by the Discharger to the extent feasible by managing each influent waste stream in the most appropriate manner.

3.2. Under the BMP Plan, and any Standard Operating Procedures (SOPs) included in the Plan, the Discharger must ensure proper operation and maintenance of the Wendel Geothermal Power Plant. The Discharger must establish specific objectives for the control of pollutants by conducting the following evaluations.

3.2.1. Each facility component or system must be examined for its waste minimization opportunities and its potential for causing a release of pollutants that would violate water quality objectives for waters of the United States due to equipment failure, improper operation, and natural phenomena such as rain or snowfall, etc. The examination must include all normal operations and ancillary activities including, for example, material storage areas, plant site runoff, in-plant transfer, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage.

3.2.2. Where experience or reason indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances to release pollutants that would violate water quality objectives for waters of the United States, the program should include a prediction of the direction, rate of flow and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.

4. **Requirements.** The BMP Plan must be consistent with the objectives in Part 3 above and the general guidance contained in the publication entitled *Guidance Manual for Developing Best Management Practices (BMPs)* (U.S. EPA, 1993) or any subsequent revisions to the guidance document. The BMP Plan must:

4.1. Be documented in narrative form, must include any necessary plot plans, drawings or maps, and must be developed in accordance with good engineering practices. The BMP Plan must be organized and written with the following structure:

4.1.1. Name and location of the facility.

4.1.2. Statement of BMP policy.

4.1.3. Specific management practices and standard operating procedures to achieve the above objectives, including, but not limited to, the following:

4.1.3.1. Modification of equipment, facilities, technology, processes, and procedures;

4.1.3.2. Reformulation or redesign of products;

4.1.3.3. Substitution of materials; and

4.1.3.4. Improvement in management, inventory control, materials handling or general operational phases of the Facility.

4.1.4. Risk identification and assessment.

4.1.5. Reporting of BMP incidents.

4.1.6. Materials compatibility.

4.1.7. Good housekeeping.

4.1.8. Preventative maintenance.

4.1.9. Inspections and records.

4.1.10. Security.

4.1.11. Employee Training.

4.2. Include the following provisions concerning BMP Plan review:

4.2.1. Be reviewed by plant engineering staff and the plant manager.

4.2.2. Include a statement that the above reviews have been completed and that the BMP Plan fulfills the requirements set forth in this permit.

4.3. Establish specific BMPs to meet the objectives identified in part 3 of Attachment G, addressing each component or system capable of generating or causing a release of significant amounts of pollutants, and identifying specific preventative or remedial measures to be implemented.

4.4. Establish specific best management practices or other measures which ensure that the following specific requirements are met:

4.4.1. If applicable, ensure proper management of solid and hazardous waste in accordance with regulations promulgated under the Resource Conservation and Recovery Act (RCRA). Management practices required under RCRA regulations must be referenced in the BMP Plan.

4.4.2. If applicable, reflect requirements for Spill Prevention, Control, and Countermeasure (SPCC) plans under Section 311 of the Act and

40 C.F.R. part 112 and may incorporate any part of such plans into the BMP Plan by reference.

4.4.3. If applicable, reflect requirements for storm water control under section 402(p) of the Act and the regulations at 40 C.F.R. sections 122.26 and 122.44, and otherwise eliminate to the extent practicable, contamination of storm water runoff.

4.4.4. No discharge during or 48 hours after cleaning or maintenance dredging work performed in the spray cooling ponds that would suspend and/or dissolve arsenic and metal-laden sediments.

5. Documentation. The Discharger must maintain a copy of the BMP Plan at the facility and must make the plan available to the Lahontan Water Board upon request. All offices of the Discharger that are required to maintain a copy of the NPDES permit must also maintain a copy of the BMP Plan.

6. BMP Plan Modification. The Discharger must amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to the receiving waters. The Discharger must also amend the Plan, as appropriate, when plant operations covered by the BMP Plan change. Any such changes to the BMP Plan must be consistent with the objectives and specific requirements listed above. All changes in the BMP Plan must be reported to the Lahontan Water Board in writing.

7. Modification for Ineffectiveness. At any time, if the BMP Plan proves to be ineffective in achieving the general objective of preventing and minimizing the generation of pollutants and their release and potential release to the receiving waters and/or the specific requirements above, the permit and/or the BMP Plan must be subject to modification to incorporate revised BMP requirements.

ENCLOSURE 2

Summary of Comments and Responses

on the March 4, 2022

ORDER NO. R6T-2022-[PROPOSED]

NPDES PERMIT NO. CA0103063

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS

FOR

BASELOAD POWER WENDEL, LLC

WENDEL GEOTHERMAL POWER PLANT

Comment Deadline: at 1700 on April 12, 2022

Explanation of Categories, Summary Comments, and Summary Responses

The Water Board response to comments (RTC) are broken down by categories. Each Summary Comment summarizes comments within that category. The Summary Response is the Water Board response to the comments in that category. For further understanding on how to read or navigate this RTC, please read the following section.

Categories

Comments are sorted into 9 categories. Each category has a Category Number and Title. For example, "Category 4 – Geothermal Resource Integrity" is the fourth category, and contains comments related to the underlying geothermal resource's integrity and reinjection of the geothermal fluids. Within each category a Summary Comment, Summary Response, and table of specific comments applicable to the category are provided.

Summary Comments

Summary Comments summarize a group of individual comments with a common thread of thought. Summary Comments are unique to each category and do not reflect the views of the Water Board. The unique comments summarized by the Summary Comment are in a table below within each category, following the Summary Comments and Summary Responses.

Summary Responses

Summary Responses are the Water Board response for all comments grouped within a category.

Comment Identifier

Comments received toward the Tentative Order were received in two individual manners:

1. Mr. Johnson's April 11th, 2022 email directly to the Water Board
2. Mr. & Mrs. Butler physical hard copy of packet with 4 applicable attachments:
   a. Mr. Stewart letter to the Water Board, dated March 25, 2022
   b. Mr. Johnson letter, undated, comments submitted toward administrative draft of Order
   c. Mr. Johnson letter, dated September 8, 2021.
   d. Travis Stewart letter dated March 25, 2022

Identifiers to specific comments provided from these two manners are established below and referenced in the table of comments within each category:

Index of Letters and Commenters

Identifier	Medium
SJ.01	Mr. Johnson's April 11th, 2022 email to Water Board
SJ.02	Mr. Johnson's undated letter provided in Butler's comments
SJ.03	Mr. Johnson's September 8th, 2021 letter provided in Butler's comments
Butler	Mr. & Mrs. Butler's comment letter dated April 6th, 2022
Stewart	Mr. Stewart letter dated March 25th, 2022

Index of Late Comment

Identifier	Medium
Butler email May 16, 2022	Mr. & Mrs. Butler email dated May 16th, 2022

Category 1 – Discharge of Specific Constituents

Summary Comment

These comments allege that the proposed Order permits discharge of constituents "above the limit". Also grouped into this summary are those comments addressing discharge of specific constituents without mentioning an applicable water quality objective or "limit". Many comments were focused on arsenic, hydrocarbons/petroleum/oil, and boron. Less frequent comments addressed other constituents, including copper, lead, molybdenum, mercury, zinc, and Bis(2-ethylhexyl) phthalate (referred to as DEHP in the comments). This grouping also includes non-specific comments of constituents, including references to 'carcinogens', 'toxics', and 'hazardous'.

Summary Response

In preparing the NPDES permit the Water Board conducted a reasonable potential analysis (RPA) for 129 constituents, including arsenic, boron, molybdenum, copper, lead, hydrocarbons, and DEHP. Only 6 constituents were found to exhibit reasonable potential to exceed water quality objectives. Those same 6 constituents (arsenic, boron, copper, lead, mercury, and molybdenum) were also found in the source/receiving water (Wendel Hot Springs) at similar concentrations. As allowed by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP), the Order utilizes intake water credits for those constituents with effluent limitations set at a level comparable to those found in the source/intake water. If the Facility does not add to the constituent's concentration in the source water and the constituent is found in the background waters above the applicable water quality objective, intake water credits may be applied. Note that the effluent limitations were calculated using historic influent/source water quality data provided by the Facility's owners/operators over the prior two Orders. Governing water quality objectives compared to

actual effluent concentrations for each constituent are provided in Table F-4 in Attachment F.

For arsenic, the governing water quality objective is 150 µg/L, which is to support freshwater aquatic life. The comments compare the Facility's effluent to an "EPA acceptable level of 10 µg/L"; however, 10 µg/L is the Primary Maximum Contaminant Level (MCL). MCLs are drinking water standards adopted by the State of California pursuant to the California Safe Drinking Water Act. Water quality objectives are established for the protection of beneficial uses of a waterbody. The receiving water, Wendel Hot Springs, do not have a municipal beneficial use designation; therefore, the waste discharge is not held to drinking water standards (Table 2-1 on page 2-12, *Water Quality Control Plan for the Lahontan Region* (Basin Plan)). Likewise, Honey Lake, which may receive discharges from the Facility during wet weather events, does not have the municipal beneficial use designation. The Basin plan identifies Honey Lake as the receiving water of Wendel Hot Springs. Wendel Hot Springs is not listed as a tributary to the Honey Lake Wetlands. The Honey Lake Wetlands are supported from freshwater inputs and there are two known locations adjacent to the Honey Lake that support wildlife, Honey Lake State Wildlife Area and Honey Lake Waterfowl Management area. These two locations are not directly fed by the Wendel Hot Springs. Changes to the NPDES Permit has been modified to clarify the receiving water of Wendel Hot Springs.

Arsenic is found to be naturally occurring throughout the Honey Lake Hydrologic Unit and documented to naturally occur at levels higher than the governing water quality objective of 150 µg/L (freshwater aquatic life protection). Since the facility does not add arsenic to the background waters, Wendel Hot Springs, and the background waters have been documented to exceed the applicable water quality objective, intake water credits are applied to the Facility's waste discharge. The geothermal waters discharged by the Facility only reach Honey Lake during heavy wet weather events; under normal hydrology conditions, the tailwaters are utilized by the contiguous property owners. A 1989 study. *Analysis of the Effect of Arsenic, Boron, and Molybdenum in Water Discharges on Water Quality in Honey Lake*, was prepared for the Water Board by UC Davis' Department of Civil Engineering, researched arsenic, boron, and molybdenum in the Honey Lake watershed and concluded that the concentration levels of arsenic, boron, and molybdenum from influent sources have relatively minor effect on concentrations in Honey Lake, with the water quality being driven primarily by hydrology, evaporation and inflow, and sediment flux. Moreover, the reports concluded that the discharges from Wendel and Amedee power plants may serve to dilute the concentrations of arsenic, boron, and molybdenum in the lake.

No hydrocarbon constituents were identified above the applicable water quality objective and historic water quality samples have not shown that hydrocarbons or petroleum exhibit reasonable potential to exceed water quality objectives or adversely impact beneficial uses. Again, water quality data provided during the Report of Waste Discharge (ROWD) process and historic water quality data were used to determine reasonable potential. Therefore, no effluent

limitations have been established for these constituents. Bi-annual sampling of these constituents will remain a mandatory requirement of the Order to establish future reasonable potential. Comments received mention benzene and toluene specifically. The applicable water quality objective and maximum reported effluent concentration for benzene and toluene, respectively, were 71 µg/L compared to 8.5 µg/L, and 200 mg/L compared to 3.1 µg/L. Once again, these water quality objectives are established for inland surface water protection of fish (California toxics rule (CTR)) and the Primary MCL objectives do not apply because the receiving water and the downstream waters do not have a municipal beneficial use designation. The Primary MCL for benzene is 1 µg/L and toluene is 150 µg/L. Note that the maximum reported effluent concentration for toluene, 3.1 µg/L, is less than the Primary MCL 150 µg/L so no effluent limitation would be established even if the receiving water did have a municipal beneficial use designation. As a requirement of this Order, the Discharger is prohibited from utilizing petroleum based lubricants.

Bis(2-ethylhexyl) phthalate (referred to as DEHP in the comment letter) was reported above the water quality objective; however, this was the only instance the constituent has been identified above the limit. As detailed in section 4.3.3.3.1 in Attachment F of the Order, in lieu of an effluent limitation for DEHP, monitoring of the constituent is continued throughout the Order's term to determine if an effluent limitation is required.

Since the discharge of the geothermal fluid is not altered except for extraction of heat, and discharged in the same location as the surfacing geothermal springs, the Water Board did not require soil sample collection. The geothermal water surfaces naturally at hot temperatures and with similar concentrations of naturally occurring constituents, the Water Board did not require air or vapor sampling as a part of the Order. The tentative Order was provided to the California Air Resources Board for review and comment; no comments were received.

A discussion of the reasonable potential analysis is included in the Fact Sheet (attachment F). In addition, the data used in this analysis and in setting effluent limitation is publicly available. A pre-public comment version of the NPDES permit was available to the public and shared with the commenter that included this information. The draft NPDES permit was then released for a written public comment period, and notice was sent by email to the lyris list, Regionwide Regulation and Permitting, on March 4, 2022 and posted on the website. In addition, the public will have an opportunity to comment on the NPDES permit at a public hearing to be held at the June 8-9, 2022 board meeting.

Civil Code section 1572 and Civil Code section 1710 pertains to obligations created by contract or by operation of law, neither of which apply to this proceeding. Regardless, the commenters suggestion that any employee of the Lahontan Water Board has been intentionally withholding facts or intentionally deceiving the public is unsupported and incorrect. Staff have been available to respond to any information requests made by the commenter and to answer

questions, and the Water Board has complied with all public noticing requirements for the draft NPDES permit. Justification and support for the draft NPDES permit are described in the Fact Sheet (Attachment F) which is likewise publicly available.

Summary of Changes Made to the NPDES Permit

The commenters provided comments that concerned the Honey Lake Wetlands Area as part of wetlands created by the Wendel Hot Springs. As already explained further above, the Basin Plan identifies Honey Lake as receiving water of Wendel Hot Springs; therefore, the Wendel Hot Springs is a tributary to Honey Lake. The Basin Plan does not identify Honey Lake Wetlands as a receiving water of Wendel Hot Springs. There are wetlands created by the geothermal waters that are not connected or considered part of the Honey Lake Area Wetlands. Attachment F of the NPDES Permit has been modified to clarify information on wetlands and the Honey Lake Wildlife area.

In the section 3.4 Impaired Water Bodies on the CWA section 303(d) List of Attachment F, the following sentence has been modified from:

"Wendel Hot Springs is not listed as an impaired water body. However, both Honey Lake and the Honey Lake Area Wetlands, which both ultimately receive discharges from the Facility, are listed on the 2018 CWA section 303(d) as impaired. Honey Lake is listed as impaired for arsenic and salinity/TDS/chlorides; the courses for both impairments are unknown. The Honey Lake Areas Wetlands is listed for metals and the source of impairment is unknown. TMDLS for both Honey Lake and the Honey Lake Area Wetlands impairments are planned for completion by 2031."

To:

"Wendel Hot Springs is not listed as an impaired water body. However, Honey Lake which ultimately receive discharges from the Facility, is listed on the 2018 CWA section 303(d) list as impaired. Honey Lake is listed as impaired for arsenic and salinity/TDS/chlorides; the sources for both impairments are unknown.

The Honey Lake Area Wetlands is listed for metals and the source of impairment is unknown. TMDLs for both Honey Lake and the Honey Lake Area Wetlands impairments are planned for completion by 2031. There are two areas along Honey Lake that are wildlife management areas that support wetlands that are fed by freshwater inputs from the west of Honey Lake and do not receive water from Wendel Hot Springs, (Honey Lake Waterfowl Management Area and Honey Lake State Wildlife Area).

The Basin Plan identifies Honey Lake as a receiving water of Wendel Hot Springs. The Basin Plan does not identify Honey Lake Wetlands as a receiving water of Wendel Hot Springs. In addition, there are wetlands created by the geothermal waters that are not connected or considered part of the Honey Lake Area Wetlands, and are not receiving waters for Wendel Hot Springs."

Attachment F of the NPDES Permit was also modified in section 4.3.4.2.1 SIP Intake Water Credit Requirements to clarify information on Honey Lake Area Wetlands. The following sentence has been modified from: “The Honey Lake Area Wetlands, also tributary from Wendel Hot Springs, is listed on the CWA Section 303(d) List of Water Quality Limited Segments requiring TMDLs for metals”, to “There is no known connection with Wendel Hot Springs and the Honey Lake Area Wetlands. The Honey Lake Area Wetlands is listed on the CWA Section 303(d) List of Water Quality Limited Segments requiring TMDLs for metals”

Attachment F of the NPDES Permit was also modified in section 5.1 Surface Water to clarify surface water limitations and the applicability to wetlands. The following sentence has been modified from: “Surface water limitations in the Order are included to ensure protection of beneficial uses of the receiving waters, the minor surface waters and wetlands associated with Wendel Hot Springs” to “Surface water limitations in this Order are included to ensure protection of beneficial uses of the receiving waters associated with Wendel Hot Springs.”

Comment Table 1 – Comments Specific to Category 1

Comment Identifier	Comment
Butler	We are whistleblowers who are steadfast in stopping any further damage of contamination by Arsenic, hydrocarbons (petroleum) and other carcinogenics by way of open discharge by companies that disregard the environment, intentionally pollute, and damage the water aquifer, geothermal and the petroleum resources of Wendel.
Butler	**A. THE OPEN DISCHARGE CONTAINS POLLUTANTS INCLUDING BUT NOT LIMITED TO OVER THE LIMITS OF ARSENIC, TOXIC SUBSTANCES, HYDROCARBONS (PETROLEUM) AND CARCINOGENICS WHICH ARE HAZARDOUS TO HEALTH AND LIFE.** All of these contained elements are many times greater than what is allowed to be discharged. 1. ARSENIC-RICH GEOTHERMAL FLUIDS AS ENVIRONMENTALLY HAZARDOUS MATERIALS. – In a Science Direct article Geothermal arsenic (GAs) was globally assessed in 6 types of geothermal reservoirs and found that GAs produces hazardous materials -naturally or as a result of geothermal applications. GAs can contaminate drinking/irrigation water, food, and environment. Also noted GAs analysis and monitoring is vital for geothermal exploration/exploitation/use and safe management and disposal of all GAs containing waste is essential. Arsenic-rich geothermal fluids are hazardous materials of global impact, affecting different environments (groundwater, surface water, seawater, sediments, soils, atmosphere) and human and animal health. They can be released naturally or through human activities. For the first time, a

Comment Identifier	Comment
	systematic global assessment of geothermal arsenic (As) in fluids of the six principal types of geothermal reservoirs and their environmental impact (e.g., freshwater sources used for drinking and irrigation), distinguishing between different uses (if any), was performed based on research of the geochemical characteristics and geotectonic setting of the formation of natural geothermal reservoirs worldwide. This will assist to further improve the sustainability of geothermal energy use, which can be an excellent environmentally friendly renewable energy resource for electric power production and direct heat use. Arsenic in geothermal fluids (up to several tens of mg/L) originates especially in deep seated (several kilometers) reservoirs. Proper management of geothermal fluids during exploration, exploitation, use and disposal of resulting waste products through sustainable As mitigation strategies are essential. However, more research about As speciation and volatile As is necessary to fulfil this aim. Therefore As (and its principal species) needs to be included as parameter for standard analysis and monitoring program in any project using geothermal fluids from exploration to management of resulting wastes as base to define appropriate mitigation actions. (Science of The Total Environment Volume 817, to be released 15 April 2022, 152669 **A. Arsenic in the Water: Baseload Wendel Geothermal Well ,and Open Discharge:** The 1990 U.S. Geological Survey Water-Resources Investigations Report 90-4050 on the "Ground-Water Resources of Honey Lake Valley, Lassen County, California, and Washoe County, Nevada speaking on water quality certifies "Water from thermal springs at Amedee and Wendel, and from several wells near Standish and else, where in Honey Lake Valley, contain elevated concentrations of arsenic." Toxicity of arsenic to humans has been recognized as a human poison since ancient times and ingestion of as little as 100 milligrams (mg) can result in severe poisoning and death. Swallowing arsenic has also been reported to increase the risk of cancer. Cancerous effects: Non-cancerous effects: skin, bladder, lung, kidney, nasal passages, liver, and prostate cancer cardiovascular, pulmonary, immunological neurological, and endocrine disruption effects. The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the Environmental Protection Agency (EPA) have all determined that arsenic is known to be a human carcinogen (a chemical that causes cancer) and has classified arsenic as a known human carcinogen. Although there is no strong evidence that arsenic can affect pregnant women or their fetuses, studies in animals show that doses of arsenic that are large enough to cause illness in pregnant females may cause low birth weight, fetal malformations, or even fetal death.

Comment Identifier	Comment
	In 2001 the Environmental Protection Agency lowered the maximum containment level of arsenic allowed in water supplies from 50 part per billion (ppb) to 10 ppb.
Butler	Testing of the fluids of the Wineagle 1 well on February 5, 2008, by Pediment Gold LLC identified as Water Sample WB014, shows an Arsenic Level of **200.00 ppb** with the EPA's acceptable level of 10 ppb. This exceeded the acceptable limit of Arsenic by 20 times.
Butler	Testing of the fluids from the Wineagle 1 well with the test taken at Discharge point 001 (a culvert outlet utilized for open discharge from the Wineagle 1 well) taken on 11/18/2020 by Baseloads Frank Misseldine and reported by BC Laboratories, Report # 20110906, shows an arsenic level of 290 ugl which equates to 290 ppb. This exceeds the acceptable limit of arsenic in water by 29 times.
Butler	It is also noted that the 2008 sample was taken at the discharge flow of the Wineagle 1 well as the Wendel Hot Springs did not flow due to the over drafting of 1400 gpm via the Wineagle 1 well and the sample taken by Mr. Misseldine of Baseload some 12 years later taken at the discharge point was 9 times higher than the previous sample from 2008. This establishes that the arsenic percentage is increasing. In July 2021, the State of California took a sample from the Wendel Hot Springs, which was flowing due to the non-pumping of the Wineagle 1 well. The States test confirmed the 200 ppb plus arsenic content.
Butler	Baseload will be utilizing water from a "fresh water well"to "mix" with geothermal fluids being discharged. A water sample of the "ground water well" was taken on February 17, 2021, by Frank Misseldine of Baseload and reported by Silver State Laboratories as work order 21020935, shows an arsenic level of .059 which equates to 59 ppb which is almost 6 times the acceptable limit of arsenic in water.
Butler	Testing of the fluids of the Wen 2 well, the source well of HL Power that pumps 600 gpm from their well for geothermal preheat for a 35MW cogeneration plant located in Wendel, on February 5, 2008, by Pediment Gold LLC identified as Water Sample WB011, shows an Arsenic Level of 200.00 ppb with the EPA' s acceptable level of I0 ppb. This exceeded the acceptable limit of Arsenic by 20 times The difference here is that HL Power even though they are pumping less gallons per minute of geothermal fluids, are REQUIRED TO REINJECT THE SPENT GEOTHERMAL FLUIDS. The Wen 2 is located on the Butler property and is contiguous and in the same area as the Wineagle 1 well.
Butler	The same information regarding the elevated arsenic level in the water from thermal springs at Amedee and Wendel is again quantified in the "North Lahontan Hydrologic Region (6), Honey Lake Valley Groundwater

Comment Identifier	Comment
	Basin, California's Groundwater Bulletin 118, last updated 2/27/04. Arsenic is found in groundwater predominantly due to natural sources. It may also be present in localized environments in high concentrations as a result of specific releases, such as open discharge. (State Water Resources Control Board Division of Water Quality GAMA Program Revised October 2017, Water Quality's GROUNDWATER INFORMATION SHEET).
Butler	In the State Water Resources Control Board Division of Water Quality GAMA Program Revised October 2017, Water Quality's GROUNDWATER INFORMATION SHEET on Arsenic warns under health effect information that ''Arsenic is a known human carcinogen, and ingestion of arsenic has been reported to increase the risk of cancer in the liver, bladder, kidney, lungs, and skin. Arsenic is known to the State of California to cause cancer for purposes of the Safe Drinking Water and Toxic Enforcement Act of 1986 (''Proposition 65") and was added to the list of carcinogens in 1987. In November 2008, the California MCL for arsenic was revised from 50 mg/L to 10 mg/L. The National Academy of Sciences estimated that the lifetime risk of developing bladder or lung cancer from arsenic in tap water (assuming 2 liters consumption per day) is greater than 3 in 1,000 for an arsenic level of 10 mg/L. The US EPA MCL of 10 mg/L has been in effect in California since January 2006".
Butler	Lahontan Water Quality, with the knowledge that arsenic is a carcinogen and is deadly to both humans and animals; knowing that numerous scientific studies have confirmed elevated arsenic levels in the water from thermal springs at Wendel and testing verifies the arsenic level in the proposed open discharge of 1.5 million gallons per day from the Baseload Wendel power plant is 29 times over the limit of 10 ppb set by the EPA and acknowledged in Water Qualities own writings, Lahontan water quality is still pursuing an open discharge permit in violation of laws and statutes. Water Quality has stated in writing that since the contaminants were in the Wendel Hot Springs, they would not be concerned in the open discharge since they are the Wineagle 1 well is associated with the Wendel Hot Springs. This ludicrous position has no merit since the Wendel Hot Springs is flowing NOW at 80 gpm and Baseload requests 800 to 1,000 gpm discharge with no control for over pumping above that amount by water quality. Noted: In this correspondence the pumping of geothermal fluid increases the percentage of arsenic above the natural spring. The logic employed here by water quality does not make any sense. The result is 10 to 15 times the amount of arsenic being discharged by human cause.
Butler	Our springs, 1 mile plus above the Wendel Hot Springs do not contain the elevated arsenic and hydrocarbons of the Wineagle 1 well or the Wendel Hot Springs.

Comment Identifier	Comment
Butler	The open discharge from the Wineagle 1 power plant, now identified as the Baseload Wendel Power Plant, has been discharged upon the ground, into other water bodies for the past 30 years at a flow rate according to Lahontan of 1.5 million gallons per day of geothermal fluids. As previously discussed, the waters being discharged in the past and proposed continuation of discharge in the future contain, on average, 29 times over the allowable limit of arsenic as set by the Environmental Protection Agency.
Butler	Arsenic occurs naturally in soil and minerals, and it therefore may enter the air windblown dust. Volcanic eruption are another source of arsenic. Small amounts of arsenic also may be released into the atmosphere from power plants because waste products often contain some Arsenic. In this instance the geothermal fluids that are used for generation of electricity contain toxic limits of arsenic and hydrocarbons (petroleum) which are released into the atmosphere through the power plant process.
Butler	Arsenic cannot be destroyed in the environment. It can only change its form or become attached to or separated from particles. It may change its form by reacting with oxygen or other molecules present in air. Since arsenic is found naturally in the environment, you will be exposed to some arsenic by breathing air. Levels of arsenic in the air generally depend on location, weather conditions, and the level of industrial activity in the area. Arsenic released from power plants and other combustion processes is usually attached to very small particles. Arsenic that is attached to very small particles may stay in the air for many days and travel long distances. (Agency for Toxic Substances and Disease Registry- Public Health Statement for Arsenic- CAS#: 7440-38-2, March 12, 2015). The 1.5 millions of gallons per day of open discharge proposed by Lahontan ultimately flow into Honey Lake. Many common arsenic compounds can dissolve in water. Thus, arsenic can get into lakes, rivers, or underground water by dissolving in rain or snow or through the discharge of industrial wastes. Some of the arsenic will stick to particles in the water or sediment on the bottom of lakes or rivers, and some will be carried along by the water.
Butler	The 1.5 millions of gallons per day of open discharge proposed by Lahontan ultimately flow into Honey Lake. Many common arsenic compounds can dissolve in water. Thus, arsenic can get into lakes, rivers, or underground water by dissolving in rain or snow or through the discharge of industrial wastes. Some of the arsenic will stick to particles in the water or sediment on the bottom of lakes or rivers, and some will be carried along by the water.

Comment Identifier	Comment
Butler	Honey Lake, as known is a playa lake that cycles from a dry lake to containing water in approximately 5-year cycles. The sediments and constituents from the open discharge build up on the floor of the lake body and as witnessed dust clouds blow across the valley when the lake is dry. These air-borne particles contain the carcinogenic elements discharged by the open discharge of the Wineagle 1 power plant. When the water evaporates, the arsenic is separated from the water and deposited onto the soil of the lake. When the wind blows across the dry lakebed, the arsenic in the soil becomes airborne. Arsenic contained in wind-borne soil may stay in the air for many days and travel long distances. The normal wind pattern across Honey Lake is towards Wendel, Herlong and Doyle. This would explain the higher-than-normal amounts of cancer in these geographic areas.
Butler	The employees of Lahontan pursuing this open discharge permit with the knowledge of the elevated arsenic and hydrocarbon (petroleum) levels are putting themselves, their department, Lassen County and the State of California in a position of liability for allowing the open discharge to flow upon the surface of the ground, into surface and subsurface water bodies, becoming airborne thereby causing severe health issues and death to plants, animals and humans…. This deliberate withholding of facts could be a cause of action for Fraudulent Misrepresentation under California Law. Two statutes create the boundaries of fraudulent misrepresentation law in California. Under Civil Code § 1572 actual fraud consists of but is not limited to: “The suppression of that ·which is true, by one having knowledge or belief of the fact; and/or Any other act fitted to deceive”…Under Civil Code § 1710: A deceit, within the meaning of the last section, consists of, but is not limited to, “The suppression of a fact, by one who is bound to disclose it, or who gives information of other facts which are likely to mislead for want of communication of that fact.”
Butler	In testing results, provided to us under protest by Water quality, it showed the analysis submitted by Frank Misseldine contained a wide range of aromatic hydrocarbons. Test results of the fluids of the Wineagle 1 well by Baseload show hydrocarbons, and multiple carcinogenic elements are in the geothermal fluid with benzene and toluene many times above the permissible levels for human, wildlife, and water safety yet alone for open discharge. The presence of multiple aromatic hydrocarbons including benzene and toluene in Baseload’s test demonstrate there is petroleum in Wendel as does the extraction and testing of those petroleum’s. As previously stated, Bald Mountain (Frank Misseldine) pumped 9,000 barrels out of the 31-24 well in a 24-hour period. The presence of aromatic hydrocarbons in the open discharge have been released in the atmosphere for years increasing the ozone levels in this area.1

Comment Identifier	Comment
Butler	This heavily laden arsenic polluting discharge is illegally being discharged contaminating the ground, other water bodies and, due to the breach in the Wineagle 1 well casing, these same pollutants have been mixed with the freshwater aquifer as has been evidenced by the contamination of the Wendel Hot Springs as well as other springs and wells on adjacent lands.
SJ.01	1. Existing data demonstrates that the concentrations of various constituents in the geothermal portion of the disposal stream including boron, arsenic, molybdenum, copper, lead, various hydrocarbons and DEHP (found in industrial plasticizers) exceed the acceptable regulatory defined levels of concentration for disposal into the environment.
SJ.01	7. Downstream effects of the point discharge of effluent surface disposal has not been evaluated in terms of long term cumulative effects to the environment.
Butler	Arsenic is widely distributed throughout the earth's crust, most often as arsenic sulfide or as metal arsenates and arsenide's. The primary source of arsenic in the environment is from the weathering of arsenic-containing rocks. Naturally occurring arsenic is found in a variety of solid phases, including a component of volcanic glass in volcanic rocks, adsorbed to and coprecipitated with metal oxides (especially iron oxides), adsorbed to clay-mineral surfaces, and associated with sulfide minerals and organic carbon. The concentrations of arsenic in soil (0.1 to 40 ppm) and sedimentary rocks (13 ppm) are generally higher than the average (2 ppm) in the earth's crust due to movement and accumulation of the arsenic through weathering. The artificial drafting of the Wineagle 1 geothermal well pulls the geothermal fluid through the arsenic bearing subterranean areas causing a washing effect of the contained arsenic as exemplified by the increasing amounts of arsenic in the Wineagle 1 well. This increase will continue to elevate the arsenic component. Reinjection is the only resolve to place the arsenic and contained hydrocarbon (petroleum) back into the formation they came from.
Butler	Arsenic occurs naturally in soil and minerals, and it therefore may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching. Arsenic is associated with ores containing metals, such as copper, lead, and gold. Arsenic may enter the environment during the mining and smelting of these ores. Arsenic also may be released into the atmosphere from power plants and incinerators because waste products often contain some arsenic. One estimate of the residence time for arsenic in soil is **9000** years. Arsenic cannot be destroyed in the environment. It can only change its form or become attached to or separated from particles. It may change its form by reacting with oxygen or other molecules present in air, water, or soil, or by

Comment Identifier	Comment
	the action of bacteria that live in soil or sediment. Arsenic released from power plants are usually attached to ve1y small particles. Arsenic contained in wind-borne soil is generally found in larger particles. These particles settle to the ground or are washed out of the air by rain. Arsenic that is attached to very small particles may stay in the air for many days and travel long distances. Many common arsenic compounds can dissolve in water. Thus, arsenic can get into lakes, rivers, or underground water by dissolving in rain or snow or through the discharge of industrial wastes. Some of the arsenic will stick to particles in the water or sediment on the bottom of lakes or rivers, and some will be carried along by the water. Ultimately, most arsenic ends up in the soil or sediment. Children are exposed to arsenic in many of the same ways that adults are. Since children often play in the soil and put their hands in their mouths and sometimes intentionally eat soil, ingestion of contaminated soil may be a more important source of arsenic exposure for children than for adults. In areas of the United States where natural levels of arsenic in the soil and water are high, or in areas in and around contaminated waste sites, exposure of children to arsenic through ingestion of soil and water may be significant. (Agency for Toxic Substances and Disease Registry- Public Health Statement for Arsenic- CAS#: 7440-38-2, March 12, 2015)
Butler	Lahontan water quality has never required the testing of the soils which have been exposed to toxic levels of arsenic from the 1.5 million of gallons per day of geothermal fluids open discharged onto the ground over the past 30 years. This is more than neglect, it is criminal.
SJ.02	6. Failure on the part of applicant and on the part of the California Regional Water Control Board (WQB) to present an analysis of the loading effect of boron to the California State Wildlife Wetland Area. This includes both short term and long term effects since boron is known to be detrimental to survival of many plant species. 7. Failure on the part of applicant and on the part of the WQB to present an analysis directed toward the source of metal species including Pb, Cu Zn and Mo in the effluent flow and as with boron, the failure to address the loading effect of these metal species on both short term and long term effects to the California State Wildlife Wetlands Area.
SJ.02	Hydrocarbons in the form of tar balls are observed in hot spring deposits at Wineagle and hydrocarbons have been observed as sheens on seeps and hot springs along the Wendel fault. Shows of hydrocarbons have also been reported at Wendel Hot Springs proper. Oil has been coproduced with geothermal fluids at the 31-24 well and the Western 1 well to the NE of Wineagle. Analysis of the liquid phase from the Wineagle 1 flow test show traces of benzene and toluene. Despite these shows of hydrocarbon, there

Comment Identifier	Comment
	has been no systematic sampling program executed to quantify the levels of hydrocarbons in the Wineagle flow. As part of this WQB order, an evaluation of hydrocarbons in the total flow of the Wineagle well should be conducted.
SJ.02	The lubrication oil for the line shaft production pump has been cited by the applicant as the source of oil sheens in effluent to the plant. There is no characterization of the lube oil in terms of hydrocarbon make up including hydrocarbon structure or additives. This information should be available from the supplier of this product. A sample collection of the oil sheen could then be collected, analyzed and settle the question as to the oil sheen source as either lube oil or natural hydrocarbon. This should be a first step in the WQB Order for investigation of the lube oil and possible alternatives. Lube oils are frequently formulated to include molybdenum disulfide as an anti-wear additive. This may be the case for the lube string oil and if so would point to the source of Mo observed in the Wineagle plant waste discharge flow.
SJ.02	4. In various manners, there has been a denial on the part of applicant that hydrocarbons are produced from the Wendel geothermal system and specifically that hydrocarbons are produced from the Wineagle 1 well There is ample evidence that includes oil sheens on fluids produced from the Wineagle well and disposed of for more than 30 years into the course of the Wendel Hot Springs discharge. These oil sheens were continued to have been observed subsequent to the Wendel Hot Springs cessation of flow. These sheens were from Wineagle #1 production. There are tar balls found in tufa mounds formed at the Wineagle site prior to Wineagle #1 drilling indicating a long history of hydrocarbon discharge from the Wendel geothermal reservoir at this site. There are recently deposited tar balls found along the course of Wineagle #1 discharge that correlate with flow levels in the water course during the time period Wineagle #1 discharged to the channel. Again, this verifies production of hydrocarbons from this well.
SJ.02	The WQB should extensively investigate the actual boron loading proposed by the applicant and assess the degrading impact of this loading in terms of actual potential toxic effect of boron on the environment as opposed to the arbitrary effluent concentration limit now in the draft order that is in fact no limit on boron loading to the California State Wildlife Wetlands on the part of the applicant. This summary has documented numerous sources of contaminants that are sourced in the operation of the power plant and these sources should suffice to deny and approval by WQB for surface disposal
SJ.01	2. Disposal of produced geothermal fluids containing natural occurring petroleum residues as well as potentially harmful dissolved solids into the

Comment Identifier	Comment
	California State managed Honey Lake Wildlife Area constitutes environmental harm to these public lands.
SJ.02	The Wendel Geothermal Resource occurs within a geologic environment that is known to contain sedimentary zones of petroleum accumulations. This is evidenced by the number of oil and gas exploration wells that have been drilled in the Honey Lake Basin. Hydrocarbon shows were also found in the drilling of the OSKI 31-24 geothermal well and were prevalent to the extent that the contents in the drilling sump for this well contained sufficient hydrocarbons that the contents of the sump had to be removed and disposed at a hazardous waste site. The association of hydrocarbons with the Wendel Fault Zone is also evidenced by tar balls incorporated in the tufa towers that have formed along the discharge zones on the Wendel Fault. Analysis of the Wineagle #1 production fluids have identified aromatic hydrocarbons including benzene and toluene that under the proposed Wineagle operations plan would be disposed to the Honey Lake Wildlife Area. The conclusion that hazardous petroleum products are present in geothermal fluids at Wendel mandates that spent geothermal fluids should be injected back to the reservoir system and not be disposed to public lands at the Honey Lake Wildlife area where they would pose an environmental risk to the public lands.
SJ.02	These metals are not typically found in low temperature geothermal systems and are typically sourced in higher temperature mesa-thermal geologic settings. There is no evidence of such mineralization in the Wendel area. Analyses of thermal waters that predate the Wineagle plant did not include all of these species but Cu was included in some analyses and was reported as not detected. As discussed earlier, Mo is likely sourced from the lubricant used in the line shaft pump system. The source of the other metals (Cu, Pb, and Zn) is more likely process originated in the Wineagle production system. The most likely source would be in the bearings utilized with the line shaft. These bearings in geothermal wells are typically bronze that contains this suite of metals. Comparison of analyses of production effluent with Wendel Hot Spring effluent using samples taken with proper protocol for metal preservation and sample techniques should be made part of the WQB order prior to operation of the plant.
SJ.02	The determination of surface disposal of plant effluent from the Wineagle plant should be based not only on the concentrations found at the point source of disposal but should also take into account the short term and long term effects of loading into the downstream environment.

Comment Identifier	Comment
Butler	The selection by WQB of allowing up to 5.7 ppm boron in the effluent to the point disposal at the Wendel Hot Springs site does not take into account the effects of this fluid entering the wetlands where the boron levels in fluids become more concentrated during dry periods of the year. There has been no examination of the long term effects of this level of boron loading in the wetland environment. The acceptable limits of concentration of boron in fluid at the discharge point into the hot spring site is arbitrary in nature and does not take into account the downstream effects of this discharge. Similar arguments can be made for the arbitrary concentration limits of copper, molybdenum and lead that are deemed acceptable for discharge into the drainage.
SJ.02	6. An issue was side stepped by the order to continue to analyze the effluent for bis (2-ethylhexyl)phthalate (DEHP). DEHP does not occur in geothermal fluids and as was discussed earlier for Mo, Zn, Cu, and Pb, this organic compound undoubtedly has an origin in the plant operating system. DEHP is found in a multitude of processed industrial chemicals often as a plasticizer. DEHP causes endocrine disruption and is soluble in oils. DEHP is not soluble in water but is soluble in oils. The source of DEHP at Wineagle is likely to be found again in the lube system at Wineagle. DEHP can be leached from plastics into oil, so storage for the lube oil, feed lines for the oil or the manufacture and transport of the oil are suspect sources of DEPH. DEHP should be eliminated from the plant process stream.
Butler	Not only are there potentially harmful environmental damage to the surface waters of the Honey Lake Basin and the wildlife thereat: the vapors from the hot water from the Wineagle 1 well which does not have a vapor recovery unit in their planned operation, would result in harm to our planet, the atmosphere, and the ozone from the obvious release of the aromatic hydrocarbons into the atmosphere. Hopefully, CalGem will not state that is not their concern or duty. All parties must be aware and protect not just the surface of the land and the ground waters thereof, but the atmosphere that we live and breathe in.
Butler	Regarding the carcinogenic substances which have been identified by analysis in the fluids of the Wineagle 1 well. Under no circumstances should any of these substances be allowed to be open discharged, build up and concentrate in the waters of Honey Lake and the ground waters. To do so is ludicrous and beyond reason.
Butler	Just in the last 10 years since hydrocarbons and carcinogens were discovered in the discharge of the Wineagle Plant, it is estimated that 5.475 billion gallons of pollutants, hydrocarbons and carcinogens have been discharged upon the ground, into other water bodies and, due to the breach in the Wineagle 1 well casing, these same pollutants have been

Comment Identifier	Comment
	mixed with the fresh water aquifer as has been evidenced by the contamination of the Wendel Hot Springs as well as the newly drilled fresh water well drilled by Baseload that is approximately 300 feet northeast of the Wineagle 1 well establishing that contaminants and toxins are spreading into the found waters of the area.
Butler	Baseload under the direction of Frank Misseldine and Larry Brandt are well aware of the hydrocarbons contained in the discharge from the Wineagle 1 Power Plant yet continue to deceive and provide fraudulent information to the Department of Water Quality and Calgem to renew the open discharge permit. The hydrocarbon reservoir was discovered in 2010 when Oski Energy aka Bald Mountain operated on our property in Wendel, Lassen County, California well drilling a geothermal well identified as the 31-24 and were also the owners and operators of the Wineagle 1 power plant, approximately one miles southwest of the 31-24 well…It has previously brought to the attention of Water Quality and CDOGGR now CalGem that we found out and witnessed the pumping of 9,000 barrels of oil from the 31-24 well via a 12-inch pipe pumping. Oski assembled 12-inch pipe fluids from the 31-24 well on our property for a distance of approximately one ½ miles, into the discharge ditch of the Wineagle 1 power plant followed by 210F geothermal fluid at 1,000 gpm pumped into the open discharge ditch to disperse the fluids into Honey Lake when it was dry. When we complained to Oski, the management of Oski, now the managers of Baseload in particular Frank Misseldine and Larry Brandt and additional managers of Oski, told us they knew how to get around agencies and fool them. This was in the later part of 2010. Oski also filled non-lined sumps with the subject crude oil. We reported the incident to Water Quality and Calgem. They threatened to put a $3 million dollar fine on us, the whistleblower unless we got it cleaned up. Water quality and DOG advised that they would not keep any records of the fluids being pumped into Honey Lake as it was not in the super fund. However, water quality and DOG wanted the three sumps cleaned up and signed off by the State. After a year and a half of litigation we forced Oski to clean up the sumps. The State participated in this and signed off our property with a clean bill of health. The cleanup required the mixing of sand with the crude oil and distillates which was hauled to Lockwood disposal site in Reno, Nevada at the approximate cost of $400,000. The cleanup work was performed by H20 environmental who stated to us it was the worst petroleum cleanup in which they were ever involved. We were told by both water quality and DOG after the clean-up that we would be punished in the event we sought to drill any additional wells and advised us not to discuss or bring up the issue of the fluid that was pumped to Honey Lake.

Comment Identifier	Comment
Butler	We cannot fathom why Baseload would jeopardize their industry position by knowingly discharge carcinogenic substances into a lake body and degrade the geothermal cell, the Wendel Hot Springs, our springs, ground water of the Honey Lake Basin and the water drive petroleum system in Wendel. It makes no sense. We also cannot fathom why the State of California, in particular Water Quality and CalGem would allow this continuing scenario. We welcome the development of geothermal in Wendel and Amedee, however we are steadfast against any further damage of contamination by companies that disregard the environment, intentionally pollute, and damage the resources of geothermal and the petroleum resources of Wendel. Baseload must be stopped from open discharge.
SJ.02	The boron loading of drainage to the wetlands would essentially be the production flow of the Wineagle well or 1.15 million gallons per day of fluids containing 54.5 pounds of boron. It should be noted that the use of geothermal liquid in the greenhouse operations formerly located at the Wineagle site was toxic and detrimental to the health of the cultivated plants grown in the greenhouse and in part lead to the demise of the operation (Campbell, 1973). There has been no assessment of the continued long term loading of boron down drainage to the wetlands and the potential toxic effects to plants in this environment.
SJ.02	Based on the known historic flow of Wendel Hot springs in the past, the proposed discharge rate is significantly higher than historic flow and hence down steam loading of the species of concern is at a minimum several times the load due to natural spring discharge flow. Considering the current flow rate of only 20 gpm for Wendel Hot Springs, the proposed discharge is 40 times the current natural loading due to these species.
SJ.03	Develop a geochemical monitoring program to demonstrate that Wineagle operations do not present an environmental hazard to off-set Honey Lake Wildlife Area.

Category 2 - NPDES Order Requirements

Summary Comment

These comments allege the requirements and laws of National Pollutant Discharge Elimination System (NPDES) Orders were not followed. Many of the comments surround the lack of a public commenting period and the noticing requirements of the commenting period. Specifically, comments allege the Water Board did not fulfill the public noticing and public comment requirements. Additionally, comments allege the Order is a renewal without applying new/updated water quality objectives, beneficial uses, or impaired water body regulations.

Comments received also conflate historic flowrate estimations of the Wendel Hot Springs with the effluent limitation prohibition of the Facility.

Summary Response

At the request of the commenters, the Water Board has continued to provide all pertinent communique during this Order development, including providing a pre-public comment administrative draft version of the Order. While the pre-public comment administrative draft version of the Order was made available to the public upon request, the Water Board did not announce nor accept formal written comments on the pre-public comment administrative draft version of the Order, and the Water Board is not required to respond to any letters submitted on that version. However, Water Board staff reviewed any letters or other information submitted by the public in preparation of the Order, including but not limited to the September 8, 2021 letter submitted by Stuart Johnson and the September 21, 2021 letter submitted by the Butlers. Additionally, the Water Board has provided all requested information regarding external communications, meetings, and water quality data related to the preparation of this Order. The draft NPDES was released for public comment and the commenters submitted comments. This Response to Comment document responds to the comments on the draft NPDES that were timely submitted during the public comment period. The Water Board has complied with all noticing and public comment requirements on the NPDES permit.

Prior to a point source discharge of pollutants to waters of the United States, a discharger must obtain an NPDES permit that includes requirements to address those pollutants. The term "pollutant" is defined in the Clean Water Act to include chemical wastes and industrial wastes discharged into water. The Water Board has determined that the discharge contains "pollutants" as the term is defined in the Clean Water Act, and is a "waste" for purposes of state law. Therefore, the draft Order serves as waste discharge requirements pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). The draft Order would also be issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370).

Pursuant to 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limitations that control all pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." As further explained in response category 1 and in the draft NDPES and Fact Sheet (Attachment F), the draft NPDES includes requirements to control the discharge of pollutants, including arsenic, boron, copper, lead, mercury, molybdenum, petroleum, and hydrocarbons that were detected in the report of waste discharge.

Board Order No. 6-84-44 issued in 1984 for Wineagle Developers Geothermal Project had an

effluent limitation for flow detailed as follows: "*The maximum rate of wastewater discharge shall not exceed the design flow rate of 1.15 mgd (4360 m^3/day).*" The Facility had an initial design flowrate of 1.15 MGD and the effluent limitation was set at that design level and not the flowrate of the surfacing springs. Note that the flow limitation is in the proposed Order is still the same as the initial 1984 Order. The Water Board has not received any notification from the Discharger that they intend to expand the Facility past the current design flow. Any significant modification or expansion of the Facility would require a revised Order.

The Order does not indicate that flow from the production well is equal to the flow of the Wendel Hot Springs. Additionally, the Discharger did not indicate the production rate is set comparable to any metric. The Wendel Hot Springs have been shown to have fluctuating surface flow over the years. There is no information available to indicate that the historic flow rate of the Wendel Hot Spring was reported at 1200 gpm; the Water Board believes this to be a miscalculation as articles circa 1973 through 1984 estimate the surfacing flowrate at 1,200 liters per minute (lpm) at 96°C, which is roughly equivalent to 317 gpm.

Monitoring locations in the Order have been established to be representative of the influent and effluent for the Facility. Influent is monitored at the geothermal production wellhead prior to any of the Facility's processes. Effluent is monitored at the end of the culvert discharge pipe into Wendel Hot Springs. This effluent monitoring location is different than the prior Orders, which allowed collection of effluent from the receiving water channel. While developing this effluent monitoring location, the Water Board and the Discharger explored the possibility of collecting the effluent sample after all Facility processes and before end of pipe discharge; however, a location that was representative of discharge conditions was not found.

Generally, NPDES Orders expire every 5 years. NPDES permits can be administratively continued when a report of waste discharge is submitted prior to the expiration of the NPDES Order and in accordance with the schedule specified in the NPDES permit or approved by the Executive Officer. A report of waste discharge was not submitted by the previous owner or the new owner, prior to the expiration of the 2015 Order on April 30, 2020. Therefore, the expired permit did not administratively continue. Between November 2020 and August 2021, the new owner/operator submitted all the required information to fulfill the application process requirements and begin evaluation of a new NPDES Order. While the draft NPDES permit is being issued to a different discharger than the 2015 Order, the Facility's operations are similar to that of the operations under the previous owners and therefore historic water quality data and information was utilized and deemed representative of expected effluent and receiving water conditions. As demonstrated in Response to Category 1 and in Attachment F to the Order, a reasonable potential analysis (RPA) was required and completed on each constituent to determine if the Facility has reasonable potential to discharge constituents at concentrations exceeding water quality objectives. Table F-4 of Attachment F in the Order provides the results of that analysis.

The action to adopt an NPDES permit is statutorily exempt from the provisions of the California Environmental Quality Act (CEQA, Public Resources Code sections 21000, et seq.), pursuant to section 13389 of the Water Code. The Water Board is not required to prepare a CEQA document.

Comment Table 2 – Comments Specific to Category 2

Comment Identifier	Comment
Butler	For 30 of those years we have been attempting to stop the open discharge. This is the first time, although required by law to do so, that Lahontan notified us of the open discharge permitting process.
Butler	This opposition contains multiple issues and concerns the biggest being the above limits of Arsenic being open discharged, which was previously presented to Water Quality, Conservation Department, CalGem, the EPA, attorney General's Office and other government agencies on November 28, 2021 prior to the issuance of the Draft Discharge Order. No consideration of these concerns brought forth in our November 28, 2021 opposition have been given, adequately addressed or were totally ignored and apparently in vain as the new version of the draft order is almost identical to the first draft for allowing open discharge of this toxic substance as part of the planned operation for the production and disposal of geothermal fluids associated with the Wendel Wineagle (Baseload) project.
Butler	The Water Quality Control Board's mission is "To preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." To effectively accomplish their mission water quality should not be issuing NPDES permits which allow for pollutant discharges, especially since the standard industry practice of injecting the fluids from the geothermal plant, that only utilizes the heat from the fluid and there is no constituent change, would obviate the necessity for the requirement of this order concerning surface disposal of the geothermal fluids. In fact, this open discharge is not only in violation of the NPDES requirements but also the discharge permit/order which states at 3.3 "The discharge must not cause pollution as defined in section 13050 of the Water Code, or a threatened pollution.
Butler	The NPDES requirements state: "The Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. The permit will contain limits on what you can discharge, monitoring and reporting

Comment Identifier	Comment
	requirements, and other provisions to ensure that the discharge does not hurt water quality or people's health." The Environmental Protection Agency NPDES program requires permits for the discharge of "pollutants" from any "point source" into "waters of the United States."[5]There is no justification for an NPDES permit as the pollutants, arsenic, petroleum and other carcinogenic are not under the definition given for that category. *Pollutant* means dredged soil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 20 11 *et seq.)),* heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.(40 CFR § 122.2 - Definitions). The geothermal fluids being discharged do not fall into these categories and therefore should not be allowed under the NPDES permit. The proposed discharge does not meet the qualification of "wastewater" There has been no addition of chemicals, elements or petroleum to the proposed discharge fluid, The subject water has not been altered in any manner, excepting the utilization of the heat. In agricultural runoff: in some instances, it has been categorized as wastewater only because pesticides, herbicides and chemicals including fertilizer have entered the subject water. This is not the case of natural subterranean geothermal water. Water Quality has erred in the categorization and is attempting to assist Baseload in their project by allowing open discharge to the detriment of the environment, health, and human life.
Butler	NPDES No. CA0103063 (discharge permit) was initially issued in 1986 for an open discharge not to exceed the natural flow of the Wendel Hot Springs which was misrepresented to be 1,200 gpm. Historical data confirms that the Wendel Hot Springs natural flow never exceeded 250 gpm. Over the years the original discharger, Carson Development Company, provided the necessary reports to keep the discharge permit active, albeit without notification to or concurrence with the adjoining landowners whose geothermal reservoir was put in jeopardy by the open discharge. Moving fast forward, the last open discharge permit for Carson development was issued on January 14, 2009, and expired January 14, 2014. Carson Development (aka Wineagle Developers - Johann Otto) cancelled their corporation on December 13, 2010, when the Wineagle Power Plant was sold to Oski Energy (Bald Mountain Geothermal) on December 13, 2010. Bald Mountain Geothermal (Frank Misseldine) operated the Wineagle 1 plant under the name of Wendel Energy Operations operating under the Carson Development Permit, without notification to Water Quality of the change of ownership and without

Comment Identifier	Comment
	filing the necessary discharge reports as required under the permit and the law, until December 19, 2012, when Bald Mountain Geothermal LLC was cancelled through the California Secretary of State's office.
Butler	According to Water Quality reports, Order R6T-2015-0010, Wendel Energy Operations, under the direction of Frank Misseldine, filed one report of waste discharge and submitted an application for reissuance of the NP DES permit on July 5, 2013, with supplemental information provided on May 16, 2014. Once again none of the information regarding the reissuance of the discharge permit was advanced to the contiguous landowners as is required under the law and particularly in the face of numerous complaints and requests by the contiguous landowners to be kept informed of the discharge whose properties and resources were affected by the open discharge
Butler	According to Water Quality as stated in the Board Draft Order, Peter Blood, Cycle Power Partners, LLC (which was never registered with the State of California Secretary of State's office) took possession of the Wineagle 1 power plant in 2014 effective December 14, 2014. During Mr. Blood's ownership of the 30-year-old Barber-Nichols organic Rm1kine cycle equipment operations were sporadic at best, as the equipment was outdated requiring high operating and maintenance costs with reducing energy production efficiency. Also, during this time frame, there were no reports of discharge filed with the Department of Water Quality as required under the permit. The permit should have been revoked at that juncture and the discharger fined. NPDES Permit No. CA0103063: I. STANDARD PROVISIONS - PERMIT COMPLIANCE A. Duty to Comply 1. The Discharger must comply with all the terms, requirements, and 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; permit termination, revocation and reissuance. or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)
Butler	In a conversation with Robert Tucker, Senior Water Resource Control Engineer at Lahanton Regional Water Quality Board, he advised that he had not even looked at the 2015 application and just "passed it through" without any consideration, advising that the next time it came up for renewal the adjacent landowners would be “kept in the loop". Such has not been the case. This is a clear violation of the Clean Water Act Section 402(b)(3) which states the necessity and requirement, "To ensure that the public, and any other State the waters of which may be affected,

Comment Identifier	Comment
	receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application.
Butler	The Wineagle Geothermal Power Plant was previously permitted to discharge wastewater under WDRs, Order No. R6T-2015-0010 (NPDES permit No. CA0103063), which was issued to Cycle Power Partners, LLC and expired on April 30, 2020. By their own admittance and Lassen County Records, Baseload (Frank Misseldine once again) took over the Wineagle 1 plant in October 2020 some 6 months after the Discharge Permit had expired. Transfer of the previous Order to Baseload could have been permissible (40 C.F.R.§§122.41(1)(3) and 122.6); however, a Notice of Transfer was not received by the Water Board in accordance with Attachment D §II.C of the Order. Therefore, as required by 40 C.F.R. §122.21, a complete ROWD and application is required to receive a new NPDES Order. Pursuant to 40CFR§122.41(b) Duty to Reapply. "If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit."
Butler	With such being the case, the permittee would also have to rely on latest information regarding, water flow, discharge effluents, reinjection requirements, etc. and not be able to rely on 35-year-old information to gain a discharge permit as both the conditions and regulations for obtaining an open discharge have changed significantly. The new requirements are required to be met especially because the discharge is substantially more than the Wendel Hot Springs which after three years of no open discharge the flow of the spring has returned and is now measured at 80 gpm up from 14 gpm last November. Water Quality admits that the historic discharge from the Wendel Hot Springs ceased sometime after pumping from the geothermal aquifer commenced, providing evidence of a hydrological connection. Due to this hydrological connection, the discharge as recently tested contains known pollutants including, but not limited to above limits of ARSENIC, hydrocarbons (petroleum) and carcinogens causing more pollution and degradation of fresh water sources as they are being discharged upon the surface of the ground and into other water bodies, including the California Fish & Wildlife Honey Lake Wildlife area. Under the Clean Water Act ''all pollution is to be stopped no later than 2023."
Butler	Even though a new permit was required under 40 C.F.R. §122.21, Lahanton is still processing the proposed draft order for open discharge as a "Reissuance" of the previous Permit. See Lahontan Regional Water Quality Board August 23, 2021, WDID 6A180045901 NPDES No. CA0103063 Notice of Complete National Pollutant Discharge Elimination

Comment Identifier	Comment
	System Permit Reissuance Application and Report of Waste Discharge for Wineagle Geothermal Power Plant, Lassen County.
Butler	The EPA states 'The NPDES administrative procedures require that the public be notified and allowed to comment on NPDES permit applications. When EPA authorizes a state to issue NPDES permits, EPA requires that the state provide the public with this same access. By failing to notify the adjacent landowners and other interested groups of the pending unwarranted renewal of the NPDES permit. Water Quality a State Agency which regulates the NPDES permits violated the very law they are entrusted to regulate.
Butler	The following Geology and hydrology of the Wendel geothermal system was forwarded on June 8, 2021, by Stuart Johnson, geologist, to Water Quality, CalGem, EPA and numerous governmental offices who should have concern regarding the pollution and degradation of geothermal resource in the Wendel area. We received the attached correspondence from Stuart Johnson, geologist and are including it in our opposition to the open discharge because once again, none of the contained information was reviewed or included for purposes of the open discharge permit for the Wineagle 1 power plant. Stuart Johnson is above reproach and has been in the geothermal industry for many decades. There is no higher rated geothermal geologist/hydrologist in the industry. He bears the test of time
Butler quoting Stewart Johnson	Various assertions have been made that surface disposal of fluids from the Wineagle #1 well at the Wineagle power plant site constitutes the Wendel Hot Springs flow. The following comments are directed to refute any such claim as being valid. My qualifications include the development and operation of multiple geothermal systems within the Basin and Range Province through my career. These include projects in Nevada and Utah. Additionally, I have conducted exploration on dozens of geothermal systems both within this region and throughout the western US and in other countries. Much of this work has focused on the hydrology and sustainability of geothermal systems. At Wendel, I have evaluated the geothermal reservoir system for more than 12 years and have a very broad understanding of how this system is distributed in a geologic sense and how it has performed over the years. Specifically, at the Wineagle site, l entered into an investigation to purchase this plant in 2010 and declined in part because of the problems of surface disposal of geothermal fluids which was an environmentally unsound practice and because failure to inject spent fluids back into the reservoir was a potential degrading factor in the sustainability of the

Comment Identifier	Comment
	operation. My work has included producing a report on this resource which defines the resource as being contained within the Wendel fault system. The geothermal waters have flowed to the surface in past centuries and have produced a series of tufa mounds of hot spring deposits extending northeastward from the vicinity of the Wineagle plant for a distance of more than a mile. These deposits have been forming for at least 10,000 years as there is evidence that some of the deposition was taking place under water at the time of high water-maximum extent of Lake Lahontan. The hot springs become sealed with time due to the precipitation of hot spring deposits. The hot springs are reactivated periodically due to earthquake activity, which is well documented by the December 21, 1931, earthquake which activated hot springs along the entire length of the fault. Photos of the area and accounts from those living in the area attest to vigorous flows in subsequent decades. The operation of the Wineagle plant beginning in 1986 did not inject cooled fluids exiting the plant but instead surface disposed these fluids to Honey Lake. This is attendant with all the trace metals and trace hydrocarbons produced by the well and as well any hydrocarbons introduced via the lube string to operate the production pump.
Butler quoting Stewart Johnson	This flow from this well has varied over time but has averaged near 1200 gpm. Clearly a source of pollution to Honey Lake; aromatic carcinogenic hydrocarbons are included in the flow as the producing well brings these materials to the surface.
Butler quoting Stewart Johnson	The Wendel Hot Springs were reported to have a flow of 1200 gpm at 95 °C in 1973.
Butler	On September 8, 2021, prior to Water Quality's draft order allowing open discharge, Stuart Johnson, Geologist forwarded an email to California Regulatory Agencies considering approval for the planned geothermal operation at the Wineagle Geothermal Project to be operated by Baseload Capital in the Wendel Geothermal area, Wendel, California. (See Attachment B). In that document Mr. Johnson addresses numerous issues which all governmental agencies should take into consideration but have blatantly ignored and continue to rubber stamp permits without any consideration for the environment, resources or. Those issues include but are not limited to: (1) Resource wasting and Degradation of Geothermal Resources; (2) Environmental Degradation of the California State Honey Lake Wildlife Area, (3) Wineagle # 1 Well Construction and Operations, and (4) Discussion of Baseload Capital Justification that injection well costs are prohibitive to the commercial success of the project.

Comment Identifier	Comment
Butler	On September 2021, along with Johnson's above references remarks, we also forwarded to numerous California Regulatory Agencies our concurrence to Mr. Johnson's comments further addressing his concerns with our own. (See Attachment C). As with all correspondence sent to governmental agencies, even though requested, no response has ever been received only retaliation from individuals within CalGem and water quality who overstep the authority of their positions."
Butler quoting Stewart Johnson	"The applicant, either through negligence or through deliberate action has failed to provide sufficient data and analysis to adequately address the impact of surface disposal of geothermal effluent at the Wineagle geothermal project within the Wendel KGRA."
Butler	Attachment E, page E-3 at# 2 (Monitoring Locations) on the Tentative Discharge Order dated 3/4/2022, The Discharger must establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order: The discharger is required to monitor "at the wellhead prior to the heat exchange process". Frank Misseldine for Baseload in his December 6, 2021, email to Trevor Miller (Lahontan) advised the discharge sample point (monitoring) can only be at the end of the culvert as "there is no place upstream for taking a sample." NOT TRUE. The valve assembly has a side discharge port with a wheel valve which allows for the open flow of Geothermal fluids from the well whether the motor assembly is running or not. The black tank into the right of the well the photo is utilized to introduce fluids to the well and receive fluids from the well. All that is required is to open the wheel valve, the well is artesian, and a trapped sample can be taken at wellhead.
Butler	Stating that 800 gpm is the current artesian flow of the well and that this is in fact simply substituting for the natural flow potential of the hot springs is a total misrepresentation of fact. There is no artesian flow that is taking place. It is hydraulic lift due to pumping or hydraulic lift due to an expansion of the fluid volume as it boils. The restriction of the hot spring fracture or of the wellbore diameter and length of well bore is what controls the rate of flow in these two cases. The applicant confuses artesian flow which is flow due to the potentiometric surface being above the land surface as opposed to a self discharging geothermal well which has a potentiometric surface at depth in the well and flow is induced by boiling. Self-discharge is not artesian flow. (comments of Stuart Johnson, renowned Geothermal Geologist, dated November 3, 2021- Attachment A)
SJ.01	This entire discussion would be avoided if the applicant, Baseload Capital, simply adhered to current geothermal industry best standard practices

Comment Identifier	Comment
	and disposed of the fluids by injection back into the geothermal reservoir. Injection of this flow stream eliminates the environmental concerns of cumulative effects of surface disposal that ultimately affects public lands comprising the California State Wildlife Wetland Area. The current proposal to surface dispose of fluids by attempting to disguise the fluids as simply natural hot spring flow is not valid and, in my opinion, the proposed plan should be subject to CEQA regulatory examination of the proposed action.
Butler quoting Stewart Johnson	Any argument that the waste flow from the power plant constitutes Hot Spring flow is absurd. Envision that the plant is expanded to twice the current planned capacity. The flow from the plant would then be twice the historical flow of the hot springs. What would the operators rational be then? If the regulators allow the present plant to continue, what position would regulators take at that point?
Butler	If for some unknown reason Water Quality wants to avoid industry standards of reinjection, they then are compelled to abide by all the regulations of proper testing of the effluent discharge as outlined in the Clean Water Act.
SJ.02	Specifically, the discharge flow rate at Wendel Hot Spring is reported by several sources during sampling in the decade prior to start-up of the Wineagle Plant in 1986, The reported flows were Hobo Wells Hydroponics, 250 gpm (1973; US Bureau of Reclamation, 317 gpm (1976); and GeothermEx, 350 gpm (Mcnitt, 1980). These values are far lower than the flow from the Wineagle Geothermal Plant (1300 gpm) or from the proposed flow from the Wineagle Repower Plant {800 gpm ?). The conclusion from this summary of flow is that production flow of the repowering exceeds natural flow by a factor of at least 2X. Given that the current flow of Wendel Hot Springs is estimated at only 20 gpm due to drawdown of the reservoir from previous production of Wineagle, it is misleading to state that the new flow is equivalent or even similar in magnitude to the native discharge flow rates at Wendel Hot Springs.
Butler	Lahontan has deliberately withheld any and all information on the extremely toxic levels of Arsenic and hydrocarbon (petroleum) contained and distributed by the open discharge of the Baseload Wendel power plant. No information was included in their tentative draft or the tentative permit, nor provided to any other agencies for their consideration so they would not be able to make an informed decision prior to commenting on the proposed order for open discharge.
Butler	As a result of the information provided by William and Peggy Butler, as whistleblowers, we believe that the grand jury in Lassen County is required to investigate the wrongdoing by Baseload, water quality and

Comment Identifier	Comment
	prior owners and operators of the Wineagle Power Plant and after that investigation submit their findings to the Lassen County District Attorney's office, the California Attorney General and the United States Environmental Protection Agency for federal prosecution.
SJ.02	Wendel Hot springs became extinct due to surface disposal associated with past geothermal production at the Wineagle site. It is only in mid-2021 that Wendel Hot Springs again began to flow at a rate near 20 gpm. The natural discharge from Wendel Hot Springs would be expected to again cease with startup of Wineagle using the proposed surface discharge of flow from the plant.

Category 3 - Opposition to Utilizing Wendel Power Plant

Summary Comment

These comments address opposition to the Wendel geothermal power plant (Facility) and its infrastructure, appurtenances, or components. Of particular interest in these comments is the geothermal production well named 'Wineagle 1 well'. Allegations are that construction of the well is inferior and breaches in the casing are contributing to petroleum pollution.

Summary Response

The Water Board has implemented a Best Management Practices (BMP) plan requirement (due within 120 days of Order adoption) to prevent both the generation and potential release of pollutants from the Facility and its appurtenances, components and infrastructure. Each component of the Facility should be evaluated for a possible pollutant discharge under both routine and emergency scenarios. During the creation of the BMP Plan, the geothermal production well should be evaluated for its structural and casing integrity to prevent release of pollutants to the receiving waters.

The Water Board does not have any evidence of integrity problems or casing breaches of the Wineagle 1 well. Likewise, the Water Board has no information regarding the well to suggest that it has been improperly designed or maintained. Additionally, the Water Board does not have sufficient information to determine whether the well at depth is intruding upon any setbacks. In any case, setbacks do not impact to the quality of the discharge or the protection of beneficial uses in receiving water. Staff have verified that CalGEM has received the commenters allegation of well casing integrity and the legal setback requirements.

Comment Table 3 – Comments Specific to Category 3

Comment Identifier	Comment
Butler	This letter also includes our opposition to the operations of the Wineagle 1 power plant utilizing the Wineagle 1 well unless and until: the breaches in the casing are corrected; there is proper unbiased third party integrity testing of the well; a modern day directional survey of the well is completed and found the bottom hole of the well is not in violation of setback regulations and; most importantly, when it is confirmed the Wineagle 1 well is in non-compliance with any of these situations and cannot be corrected, the Wineagle 1 well should be plugged by cementing to surface with the requirement of a new geothermal well drilled to today's specifications and regulations along with an injection well to ensure no more contamination to the environment, water, animal or public health due to an improper open discharge.
Butler	The breach in the Wineagle 1 well casing, as known, as contaminated the Wendel Hot Springs with the 1301 feet length of this compromised casing allowing the aforementioned elements to enter the hot springs flow. The only corrected is to cement full length and abandon this well location.
Butler	These comments also include our opposition to the operations of the Wineagle 1 power plant utilizing the Wineagle 1 well unless and until: the breaches in the casing are corrected; there is proper unbiased third party integrity testing of the well; a modern day directional survey of the well is completed and found the bottom hole of the well is not in violation of setback regulations and; most importantly, when it is confirmed the Wineagle 1 well is in non-compliance with any of these situations and cannot be corrected, the Wineagle 1 well should be plugged by cementing to surface with the requirement of a new geothermal well drilled to today’s specifications and regulations along with an injection well to ensure no more contamination to the environment, water, animal or public health due to an improper open discharge.”
Butler	A further concern is the use of the existing Wineagle #1 well for production. The well has an extremely poor completion that allows communication with overlying ground waters that are pulled into the production flow of the well. It is surprising that the well is allowed to operate in this fashion in that such communication can be a two-way street in that geothermal fluids could produce into ground waters when the well is shut in.”
Butler	Both water quality and Cal Gem were notified of the proximity of the Wineagle 1 well to our property boundary. There are surface setback requirements as well as subterranean intrusion setbacks. It is our assertion that the Wineagle 1 well during its drilling drifted northwest crossed our property line and the well bore at TD is on our property.

Comment Identifier	Comment
	If and when the well is in idle position or is requested to be deepened, we require, due to the proximity of the well to our boundary line, that the well is surveyed establishing the location of the TD of the well as it relates to our boundary. Both Water Quality and CalGem have ignored the proximity of the Wineagle 1 well to our property boundary. There are surface setback requirements as well as subterranean intrusion setbacks. It is our assertion that the Wineagle 1 well during its drilling drifted northwest crossed our property line and the well bore at TD is on our property. If and when the well is in idle position or is requested to be deepened, we require, due to the proximity of the well to our boundary line, that the well is surveyed establishing the location of the TD of the well as it relates to our boundary. Water Quality states this is not their field, it is CalGem. CalGem avoids the issue, yet it should be considered in the permitting of operations of the Wineagle 1 Baseload Power Plant. We have been asking that the departments work together to improve both Water Quality and Calgems efficiency and eliminate confusion. We have offered to assist any way we can.
Butler	The condition of the Wineagle well, as was earlier reported to Calgem, is very questionable in terms of well integrity. This allows multiple pathways for entry of hydrocarbon to the well. Specifically, there are two issues: 1) There was damage to the surface casing which has a wall thickness of only 0.25 inches during the construction of the well. A significant hole in the casing is present at a depth of 176 feet. As witnessed by California Division of Oil and Gas, three attempts were made to repair this damage and none were successful. California Division of Oil and Gas allowed the operator to utilize the well in this condition. 2) There was great difficulty in cementing the production casing which has a 0.31 inch wall thickness and has never been logged to verify neither the seal nor the cement integrity. Both of these well construction issues can allow entry of cooler waters and any shallow accumulation of hydrocarbons into the well under conditions of high pump rates reducing pressure in the production casing. Entry of fluid can take place either at the site of casing damage or at the questionable seal at the top of the production casing (240 foot depth). This well is in fact open to communication for fluids to enter or exit the well bore at multiple depths in the well as a function of flow conditions. The well is capable of discharging a flow stream to shallow depths in the environment as well as producing any shallow formation waters including contained hydrocarbon accumulations into the geothermal production flow stream. In terms of protecting shallow ground water quality or

Comment Identifier	Comment
	protecting the environmental quality of the surface discharge zone, there are issues with this well.
SJ.03	Inadequacy of construction and maintenance of the Wineagle #1 production well to safely produce geothermal fluids in a manner that protects shallow groundwater resources from contamination. The Wineagle well presents a high potential for loss of well control that would result in extensive release of geothermal fluids to the surface and shallow sub-surface in a manner that would waste and degrade the entire Wendel Resource and cause significant release of hazardous fluids to the Honey Lake Wildlife Area.
SJ.03	The Wineagle well was drilled with a water well rig and drilling operations as well as materials selection reflect low quality construction of the well. The well has at this point pushed the life-cycle of the well for useful and safe operational status. The following items address some of the issues with the well. 1. The 8 5/8"production string was apparently set on bottom and the lower zone of interest was gravel packed. The string was then cemented using a squeeze on the lap between the 8 5/8" liner and the 12 ¾" surface casing (liner top at 240'). The first squeeze did not seal the lap. The second squeeze did. The cement volumes were adequate to cover the annular space between the 8 5/8" liner and an in-gauge well bore, however; there has been no attempt to assess where the cement went and if it covered the entire annulus interval down to the gravel pack. 2. The production casing was planned as 22.36 lb/ft (the lightest grade available then and no longer produced). The wall thickness on this casing is less than 5/16" so there was little room for an acceptable level of corrosion over this long life of 36 years and still maintain integrity of the casing. The condition of this casing is not known as this casing has never been inspected. 3.The 12 ¾' 33# surface casing has a wall thickness of only 0.25 inch. A major leak in this casing at a depth of 176' was reported during initial plant start-up operations conducted in 1985. A significant effort was made to seal this leak using 3 cement squeeze jobs but these efforts were not entirely successful. Despite this incomplete repair of the leak in the casing The California Division of Oil and Gas gave approval to run a pump in the well and place the well into production despite known leaks in the shallow production casing. There are no records in CalGem that suggest that any additional repairs were ever made to the damaged casing. 4. There are verbal communications from original operators that at high pump rates (1400 gpm) the production temperature of the well is 210 ° F and at low pump rates (1000 gpm) the production temperature of the well is 220 °F. This verifies communication of the well with shallow

Comment Identifier	Comment
	ground water resources through the damage zone at 176' to account for the temperature variations. 5.There are no reports in CalGem of any surveys on the well that verify the current condition of these light weight casing strings or of the cement behind these casing strings. Prudent operations would require at least minimal casing inspections to preclude the possibility of imminent casing failure, potential loss of well control and subsequent uncontrolled flow of geothermal fluids to the surface. This well was poorly constructed and there are no surveys reported that can establish that the well can continue to be safely operated. As a condition of an operating permit, the mechanical integrity of this well must be established. Lacking demonstration of integrity, a replacement well is required prior to commencing operations. The completion of the Wineagle #1 well and current condition of the well are summarized in attached Figure 1.
Butler	Inadequacy of Construction of Wineagle 1 well. Statute, without quoting all of them, does not allow for a well to be in production status when it does not meet the requirements and standards of the regulatory agency. In the case of the Wineagle 1 well, obviously in 1984 at the inception of the permitting of the Wineagle 1 power plant, the Department of Oil and Gas geothermal division turned their heads, put blinders on and allowed this well to go into production against regulations which have harmed all resources (water, geothermal, petroleum and the natural environment) in Wendel. The weight of damage and wasted resources sets squarely on the shoulders of prior operators, the State of California, DOG and CalGem. Recently, in correspondence, against all evidence and files of CalGem, Charlene Wardlow stated, for some unknown reason, that the Wineagle 1 well is in compliance. This is in direct opposition to the file and condition of the subject well.
Butler	To our knowledge the well has never had an integrity test for casing integrity (it is only ¼" thick casing) in almost 30 years of operation in a corrosive environment. Nor has there been any inspection or test of the failed areas of the well which are known to exist. For some unknown reason, CalGem has not required this. However, it is known and is public record, that Chevron Oil has partnered with Baseload Capital paying $25 million dollars to Baseload for said interest. We have presented this information to CalGem prior to this correspondence to no avail.
Butler	We have brought to the attention of CalGem it is our belief that the Wineagle 1 well has crossed onto our adjacent property in its subterranean depth and has been extracting geothermal fluids on our

Comment Identifier	Comment
	property from those subterranean depths. With the drifting of the well to the northeast from its surface location it is approximately 30 feet easterly of our boundary line. Only a well survey will establish this. We request as a requirement that this survey be conducted by an independent company that is not related in any form to any employee of Baseload Capital. We cannot pursue legal remedy for our financial loss which we have incurred from the extraction of the geothermal fluids from our property unless a survey of the Wineagle 1 well has been completed establishing the location of the TD of the well as it relates to our property. We request that a survey be conducted as a requirement of the permiittee.
Butler	Our springs, 1 mile plus above the Wendel Hot Springs do not contain the elevated arsenic and hydrocarbons of the Wineagle 1 well or the Wendel Hot Springs. The breach in the Wineagle 1 well casing, as known, as contaminated the Wendel Hot Springs with the 1301 feet length of this compromised casing allowing the aforementioned elements to enter the hot springs flow. The only corrected is to cement full length and abandon this well location.
SJ.02	3. The amount of hydrocarbons found in any of the wells at Wendel is to a degree, a function of depth from which fluids are drawn. It is highly probable that the casing failure at depth in the Wineagle well is not only a source of cold water when the well is operated at higher rate but is also an access port for influx of hydrocarbons.
SJ.03	Inadequacy of Construction of Wineagle 1 well. Statute, without quoting all of them, does not allow for a well to be in production status when it does not meet the requirements and standards of the regulatory agency. In the case of the Wineagle 1 well, obviously in 1984 at the inception of the permitting of the Wineagle 1 power plant, the Department of Oil and Gas geothermal division turned their heads, put blinders on and allowed this well to go into production against regulations which have harmed all resources (water, geothermal, petroleum and the natural environment) in Wendel. The weight of damage and wasted resources sets squarely on the shoulders of prior operators, the State of California, DOG and Cal Gem.
Butler quoting Stewart Johnson	The operators of the new plant at the Wineagle site have applied to again surface dispose of produced fluids to Honey Lake stating that the disposal is Hot Springs flow. This is clearly not the case since the Hot Springs flow is insignificant at 14 gpm
Butler	The Wineagle 1 well was known at the time of going online for the first time, to have integrity issues. A very important point that is stated in the History of the Wineagle #1 Well is the fact that Dick Thomas of California Division of Oil and Gas approved running the production pump into the

Comment Identifier	Comment
	well knowing that the hole in the casing at 176' had not been completely sealed with cement. For some unknown reason, Charlene Wardlow Northern District Director of CalGem submitted correspondence to all parties in Water Quality, geothermal, oil and gas and Calgem of the excellent condition and cement bonding of the Wineagle 1 well assuring those parties that the well was of high integrity and sound in structure. This statement of the Wineagle 1 well, being in compliance with drilling requirements and well condition is not correct contradicting the records of Cal Gem. I personally know that this is false. I was there during the drilling of that well by Waldrop drilling that did not have a blowout preventor. They were a water well drilling company with a 20-foot-high rig. One of their employees, John Cox was badly scalded and had to jump off the elevated portion of the rig when the well blew to surface. This puts any liability, when this well fails and results in a blow out, that CalGem now holds complete responsibility for this casing failure not to have been completely repaired. With this knowledge CalGem should require the well to be certified as having complete integrity before the well goes back into production. Any and all operations of the Wineagle 1 Baseload power plant, should be suspended and rescinded until the breaches in the casing are corrected; there is proper unbiased third party integrity testing of the well; a modern day directional survey of the well is completed and found the bottom hole of the well is not in violation of setback regulations and; most importantly, when it is confirmed the Wineagle 1 well is in noncompliance with any of these situations and cannot be corrected, the Wineagle 1 well should be plugged by cementing to surface with the requirement of a new geothermal well drilled to today's specifications and regulations along with an injection well to ensure no more contamination to the environment, water, animal or public health due to an improper open discharge of pollutants, hydrocarbons and carcinogens. The condition of the Wineagle well, as was earlier reported to Calgem, is very questionable in terms of well integrity. The well has multiple breaches in the well bore with cold water refraction effecting the geothermal temperature if the well is high volume pumped. Reduction of the pumping rate increases the geothermal discharge temperature. Increasing of the pumping rate the geothermal temperature drops. This is witnessed when Bald Mountain (Frank Misseldine) reduced the extraction of 1400 gpm to 1,000 gpm, the temperature went from 210F to 220F. The two areas of compromise pulling cold water becomes common with the geothermal fluid. We have geological information and well structure information which has been provided to CalGem and should be in their records which contradict

Comment Identifier	Comment
	their statements. Waldrop Well Drilling, the driller of the Wineagle 1 well, told me they had two breaches in the well bore. These breaches allow multiple pathways for entry of hydrocarbon to the well. Specifically, there are two issues: 1) There was damage to the surface casing which has a wall thickness of only 0.25 inches during the construction of the well. A significant hole in the casing is present at a depth of 176 feet. As witnessed by California Division of Oil and Gas, three attempts were made to repair this damage, and none were successful. California Division of Oil and Gas allowed the operator to utilize the well in this condition. 2) There was great difficulty in cementing the production casing which has a 0.31-inch wall thickness and has never been logged to verify neither the seal nor the cement integrity. Both of these well construction issues can allow entry of cooler waters and any shallow accumulation of hydrocarbons into the well under conditions of high pump rates reducing pressure in the production casing. Entry of fluid can take place either at the site of casing damage or at the questionable seal at the top of the production casing (240- foot depth). (See paragraph 4, page 6, Comments on Regional Water Control Draft Order by Stuart Johnson Dated November 3, 2021.
SJ.03	Prior to any decisions to approve operations of the Wineagle Power Project the following tasks should be made a part of the conditions for operation: 1. Conduct a casing inspection survey of the Wineagle #1 well and assess the condition of the casing string including casing thickness, evaluation of know zones of casing damage, and documentation of cement placement behind casing. This work to be independently evaluated to assure casing integrity. Lacking demonstration of a competent and safe condition for Wineagle #1, a replacement well should be drilled…

Category 4—– Geothermal Resource Integrity

Summary Comment

A major topic of these comments is the geothermal resource's long-term integrity and viability. The overarching concern is that surface discharge of the geothermal fluid is adversely impacting the geothermal source, and reinjection of the geothermal fluid should be required. Surrounding property owners claim their properties are beginning to see surfacing geothermal fluid and the proposed Order allowing surface discharge without reinjection will stop these surfacing springs.

Summary Response

The California Geologic Energy Management Division (CalGEM) regulates the operation, maintenance, and permanent closure of production and injection wells used for the discovery

and extraction of geothermal resources on state and private land. The legislature "found and determined that the people of the State of California have a direct and primary interest in the development of geothermal resources, and that the State of California, through the authority vested in the State Oil and Gas Supervisor, should exercise its power and jurisdiction to require that wells for the discovery and production of geothermal resources be drilled, operated, maintained and abandoned in such manner as to safeguard life, health, property, and the public welfare, and to encourage maximum economic recovery." (Cal. Public Resource Code 3700). The Regional Board has consulted with CalGEM and has not been presented with any information that the wells are operated and maintained in a manner that would affect the quality of groundwater or surface waters to a degree that would impact designated beneficial uses. As further explained in Response to Category 1 and Response to Category 3, the Regional Board has included requirements in the permit that will protect surface waters. And as explained in Response to Category 7, groundwater quantity is not expected to be impacted by the proposed discharge.

Comment Table 4 – Comments Specific to Category 4

Comment Identifier	Comment
Butler	Baseload must be stopped from open discharge and required to reinject the geothermal fluids back into the geothermal cell they were drafted out of to maintain the sustainability of the geothermal resource. We are the land and resource owner'' of 1500 acres surrounding the proposed Wendel Geothermal Project of sixty-two acres to be operated by Baseload in Wendel, Califomia. Historically, the proposed project has been identified as Wineagle 1 Power Plant which utilized a 1340TD geothermal well known as Wineagle 1 which began operation in 1986, some 35 years ago utilizing wasteful open discharge.
Butler	The Wendel hot springs flow, after three years of no open discharge from the Wineagle 1 well, has returned and is now measured at approx. 50 gpm as of 2/20/22. There are five separate geothermal venting areas in the area of the photo. The volume as of 3/21/22 now is estimated at 80 gpm, an increase of 30 gpm from a month ago.
Butler	The flow of the Wendel Hot Springs has increased in the last 30 days and is estimated to now be at approximately 80 gpm. It is obvious, based upon the now rapid increase of flow of the Wendel Hot Springs in the area of the Wineagle (Baseload Wendel) Power Plant and the now witnessed occurrence of venting of the geothermal cell to the northeast, we believe within two years or less the Wendel Hot Springs will be discharging 200 gpm and we will once again have hot springs as witnessed in the mid-1950s full length of our property along the strike line of the Tufa.

Comment Identifier	Comment
Butler	C. GEOTHERMAL FLUIDS AND STEAM FROM THE WENDEL FAULT ARE REAPPEARING ON OTHER PROPERTIES WITH THE GEOTHERMAL CELL NATURALLY RECHARGING SINCE THAT RESOURCE IS NO LONGER BEING DEGRAGATED BY OPEN DISCHARGE With the 3 year cessation of the open discharge from the Wineagle 1 well, the hot water from the Wendel Fault in the Wendel KGRA area is beginning to once again appear upstream (northeast) from the Wineagle 1 well as evidenced by rainbow sheens of vapor and steam vents reappearing in the tufa.2 Historically the geothermal venting and discharge I, Bill Butler, witnessed in the mid-1950s is from the northern side of the tuf''s, You can see the rainbow sheen from the hot vapors. Viewing down into the base of the Tufa there is moss, seepage, and steam. Given time, probably another year there will once again be boiling springs along the base of the tufa through our property.
Butler	Wendel Hot springs became extinct due to surface disposal associated with past geothermal production at the Wineagle site (over drafting of the Wineagle 1 well which eliminated the natural flow of the Wendel Hot Spring). It is only in mid-2021 that Wendel Hot Springs again began to flow at a rate near 20 gpm. The natural discharge from Wendel Hot Springs would be expected to again cease with startup of Wineagle using the proposed surface discharge of flow from the plant without recharging the geothermal cell by reinjection. Water Quality admits that the historic discharge from the Wendel Hot Springs ceased sometime after pumping from the geothermal aquifer commenced, providing evidence of a hydrological connection.
Butler	The proposal by the applicant to proceed with surface discharge from the Wineagle Power Plant repowering should be denied as the very premise put forth by the applicant that such discharge is equivalent to the Wendel Hot Springs flow is misleading at best and appears to be deceptive in nature. Surface discharge is merely an attempt to avoid the cost of standard industry practice of disposal via an injection well. The use of an injection well to dispose of the effluent obviates any concern for damage to the environment and also contributes to the sustainability of the geothermal resource.
SJ.02	The proposal by the applicant to proceed with surface discharge from the Wineagle Power Plant repowering should be denied as the very premise put forth by the applicant that such discharge is equivalent to the Wendel Hot Springs flow is misleading at best and appears to be deceptive in nature. Surface discharge is merely an attempt to avoid the cost of standard industry practice of disposal via an injection well. The use of an injection well to dispose of the effluent obviates any concern for damage

Comment Identifier	Comment
	to the environment and also contributes to the sustainability of the resource.
Butler	<u>D. INCREASE OF WARM WATER SPRINGS AND INCREASE IN AQUIFER LEVEL ON ADJACENT PROPERTIES:</u> The warm water springs on our property, which provide a water source for livestock and wildlife has also increased in its flow from nearly no flow, now, after almost 3 years of no open discharge from the Wineagle I power plant, allowing for the natural ponds on our property to fill once again providing lifesaving water to maintain a viable habitat for all creatures. In the upper pond area when this photo was taken (3/21/22), there were two geese that were nesting. It has been some time since we have seen this. With no water, waterfowl will have no habitat. Frank Misseldine of Baseloa''s main thrust to water quality is the benefit from open discharge. We now have a natural hot spring that is supplying the same habitat that Frank Misseldine is relying upon without pumping high extraction that eliminates the springs and ponds on not only our property but other neighboring properties. The springs on our property enable a large habitat for wildlife for over a mile in length on our property as well as the ability of increased cattle grazing area and a natural setting for the endangered wandering skipper. None of the occurrences of open spring discharge on our property was before last fall. The individual that has grazed our property with cattle for the past 18 years witnessed that the only spring discharge was pencil size until last fall. He had to excavate with a backhoe into the ground water for water for his cattle. The photos and the witnessing by us and the cattle man that leases our property for cattle grazing bears witness to the return of the Wendel Hot Springs, elevated ground water and spring occurrences through the length of our property in the area of the tufa/Wendel Fault. The meadow area has increased in size and when you walk through it, it is marshy.
Butler	The increased level in artesian flow to surface of the Western # 1 well demonstrates that the open discharge by Baseload of the Wineagle 1 power plant causes compromise and damage to: not only the Wendel Hot Springs, but springs on neighboring properties that landowners rely on for livestock and wildlife habitat; the aquifer fluid levels on neighboring fresh water (domestic) and irrigation wells necessary for the production of crops and feed and; geothermal cell in the known KORA geothermal field in Wendel. Our springs and ponds do not contain the same constituents as the Wendel Hot Springs and the Wineagle 1 well. As contained herein the breaches in the Wineagle 1 well have contaminated the Wendel Hot Springs.

Comment Identifier	Comment
Butler	Hydrocarbon content in the upper area of the Western # 1 well and the 31-24 well 1s increasing in the percentage of contained petroleum. What is encouraging is the greater flow in our spring; and the hydrocarbons that are being water driven to the well bore of the Western # 1 well. The Western# 1 well is artesian from 80 feet prior to last fall but is not allowed to flow on the ground as it has a 3,000 psi valve head assembly. The 31-24 well has elevated from 80 feet to 57 feet. It also has a 3,000 psi valve head assembly. Open discharge, if allowed will compromise and damage the extraction of the subject petroleum.
Butler	CalGems records provide that out of the 40 geothermal power plants located in the State of California, only 2, Baseload Wendel Power LLC and Amedee (both located in the Wendel area), have open discharge and do not reinject. This wastes not only the precious sustainable resource of geothermal fluids, but also the waste of life sustaining water being dumped onto the ground instead of reinjecting the geothermal fluids and water to sustain and recharge the geothermal cell and stop the further degradation to the freshwater aquifer. Not only does injection disposal remove the considerations for impact to surface waters and shallow ground waters but injection is also a standard industry practice to provide sustainability of the geothermal resource. An injection well ensures no more contamination to the environment, water, animal, or public health due to an improper open discharge. By allowing surface disposal through the issuance of this order, it provides precedence for further expansion of the resource utilizing surface disposal at a reduced cost to the project but achieving this reduced cost at the expense of increased degradation of both surface waters and as well reducing the sustainability of the resource and the demise of a "Known Geothermal Resource Area."
Butler	The 30 plus years of open discharge has degraded the geothermal resource in the known Wendel KGRA area as well as the adjacent neighbors' geothermal resources, and most importantly the discharge as recently tested contains known pollutants including, but not limited to, above limits of ARSENIC, hydrocarbons (petroleum) and carcinogens causing more pollution and degradation of fresh water sources as they are being discharged upon the surface of the ground and into other water bodies, including the California Fish & Wildlife Honey Lake Wildlife area. Under the Clean Water Act "all pollution is to be stopped no later than 2023." In the event Baseload Capital is permitted for open discharge, which cannot be monitored or controlled by water quality regarding the extraction, our properties warm water, that substantially feeds our meadow area of 40 acres (that will increase to 400 acres in the next two

Comment Identifier	Comment
	years) will disappear including the damage that will occur to the geothermal cell. The increase in the geothermal cell enhances the possibility of a viable company that will develop the geothermal resource and not lay waste to it
Butler quoting Stuart Johnson	The natural flow of the various springs along the Wendel fault has declined since the Wineagle plant came online and by the time the Wineagle #1 well was finally shut in (approximately in 2019), the springs had essentially stopped flowing because the reservoir had been drawn down in the vicinity of the plant. The main Wendel Hot Springs now flows at only 14 gpm at a temperature of 60 °C. Clearly the operation of the power plant has degraded the resource over the past years and recovery is not occurring at a significant rate.
Butler quoting Stuart Johnson	Surface disposal from the production wells is clearly an unsound practice form the perspective of current environmental sound reservoir management. More importantly, by not injecting, resumption of production continues to degrade the resource by pressure drawdown. This drainage of the geothermal reservoir extends off the existing lease at the Wineagle site and is impacting resource owned by adjacent landowners
Butler quoting Stuart Johnson	The intended production and disposal plan for the new power plant constitutes both a source of pollution that should be prevented and mitigated and it constitutes a wasteful practice in the long-term sustainability of the resource
Butler quoting Stuart Johnson	I am a strong proponent for geothermal development, but this development plan is a source of pollution and is a wasteful practice via degrading the resource
Stewart	At the request of William and Peggy Butler l am submitting this letter to you regarding the increase in ground water, spring water and ponds on the Butler property which I have leased for cattle grazing for 15 years. Water is an essential part of the cattle grazing along with the vegetation that is produced from the abundance of water. Up until last fall a spring existed on the Butler property that had a pencil size open flow. In order to have water for the cattle that graze on the Butler property. I had to excavate with a backhoe into the ground to obtain seepage of water. In the fall of 2021 multiple springs appeared on the Butler property causing large ponds to form. Also, large seepage areas occurred along the course of the Butler property for approximately 1 mile which is now increasing. The vegetation is increasing and is now approximately 40 acres of meadow. I am familiar with grazing and project that the meadow area, if

Comment Identifier	Comment
	the water continues to flow, will increase to 400 acres. The land in prior years, supported 40 head of cattle all year round. In the alternate, 150 head have been placed on the on the Butler land for a short period of time. With now, the large amount of water on the property and the increased expansion of the ground water coming up to surface, the springs and ponds and the increased expansion of the meadow area, it is prudent to project that the annual ability of the property would be 200 to 400 cattle all year around. This is an increase of 5 to 1O times the prior grazing ability. Also, geese and waterfowl are now present on the property.
SJ.02	1. Failure to apply standard reservoir management principals and understanding of geothermal reservoir concepts in discussing proposed surface disposal of geothermal fluids. Specifically the differences between the qualities and quantity of natural reservoir discharge and quality and quantity of drilling induced flow from geothermal wells should be addressed.
SJ.02	An overriding impact of surface disposal is the wasting of the geothermal resource that impairs the sustainability of the Wendel geothermal resource. This wasting of the resource causes negative impact to adjoining owners of resource at Wendel and financial loss for these owners by reducing the ability to sustainably develop the main resource area within the Wendel KGRA. The existing Wineagle #1 well has never been adequately surveyed for bottom hole location but appears to be located very near the boundary with adjacent property and could in fact encroach across this boundary (This bottom hole location in fact appears to be in violation of Calgem regulations for drilling a geothermal well). The drawdown created by the operation of Wineagle #1 coupled with surface disposal degrades the resource of the adjoining land owner. A decision to allow surface disposal is detrimental not only to the sustainability of the Wendel resource but also to the credibility of the industry as responsible developers of a valuable clean energy resource available to California and to the nation.
SJ.03	1. Resource wasting and degradation of geothermal resources that will occur along the 1.5 mile strike of the Wendel Fault Zone during proposed operations. This includes resource area occurring outside the proposed Wineagle project operations leasehold.
Butler	1. Resource wasting. For approximately three (3) years now the Wineagle 1 well has ceased open discharge fluids from the subject well. Recently, as a result the warm water springs on our property coursing along the Wendel Fault, have sufficiently increased in their flow even though we are in a drought condition. Our freshwater wells on our contiguous

Comment Identifier	Comment
	property to the Wineagle 1 well, have aa static water rise of two (2) feet. The Western #1 well, that only had a show of petroleum, now has a five percent petroleum content of high gravity oil in the fluids of that well. The static water level has always been 80 feet, now the well flows 5 gpm artesian when the valve of the well is open. Now and only now, the well can change its category from an Idle well to a production well These changes establish that the pressure build up, due to the non-flow and open discharge of the Wineagle 1 well, is causing elevation rise in the freshwater wells, the springs on our property and a water-drive petroleum system. The waste of resources of geothermal, fresh water and petroleum would result from the open discharge of the Wineagle 1 well. Reinjecting the fluids from the Wineagle I well would maintain the water drive of the petroleum system, which is an exceptionally large petroleum reservoir, and the viability of the geothermal and freshwater system of our property and other properties in the area. (See attached Geology and Hydrology of Wendel Geothermal System from Stuart Johnson)
SJ.01	The disposal of these fluids by means of surface disposal rather than by the industry good practice of injecting these fluids back into the geothermal reservoir is the crux of the issue. The agent for Baseload Capital has not performed in a responsible manner in presenting the required quality data for RWQ to make an informed decision as to the environmental impact of surface disposal of these fluids.
Butler	The Wendel hot springs which after three years of no open discharge, the flow of the spring has returned and is now measured at 14 gpm. The warm water spring on our property has also increased in its flow from nearly no flow. The increased level in artesian flow to surface of the Western# 1 well demonstrates that the open discharge by Baseload of the Wineagle 1 power plant causes compromise and damage to not only the Wendel Hot Springs, but our spring and the fluid levels and geothermal cell in the known KGRA geothermal field in Wendel. What is encouraging is the greater flow in our spring and the hydrocarbons that are being water driven to the well bore of the Western# 1 well.
SJ.02	Poor operating practices on the part of the applicant have caused confusion and unfounded statements on reservoir performance in conjunction with these practices impacts decisions by WQB and causes financial harm to adjacent landowners that share the Wendel geothermal resources. Several of these issues are listed: 1. The flow of fluids in the geothermal well is not artesian. The flow is caused by the operator reducing the pressure head on confined reservoir fluids and inducing hydraulic lift assisted by pumping. If the wells are not

Comment Identifier	Comment
	pumped, flow is induced by hydraulic lift due to boiling of the reservoir fluid. Changes in flow rate of hot springs and of wells that are not being pumped reflect depth to the surface of the reservoir fluids. When this surface is drawn down due to surface disposal, flow rates decline. When surface disposal ceases, the reservoir level rises and the hydraulic lift becomes more efficient; it has a lesser elevation of lift required to flow.
SJ.02	Surface disposal lowers the reservoir surface throughout the reservoir. This will increase lift costs for off-set wells (and in fact will cause increase in lifting efficiency and costs in Wineagle 1). This effect harms adjoining landowners in the near term by decreased productivity and increased cost of operating production wells. In the longer term, surface disposal results in a loss of sustainability for the entire resource.
SJ.03	There are multiple lines of evidence that demonstrate that the small Wineagle project area is part of the much larger resource area that is controlled by the Wendel Fault Zone that extends for at least 1.5 miles to the NE from the Wineagle area. These include: 1. The line of tufa hot spring deposits with age up to 10,000 years before present and that extend along the Wendel Fault from Wineagle and across the adjoining private leaseholds to the NE. The documented eruption of hot spring activity along the entire length of tufa mounds as a result of a 1931 earthquake. This spring activity continued through the decades prior to Wineagle development and included Wendel Hot Springs. 3. Production at Wineagle accompanied by surface disposal resulted in pressure decline of the resource and all springs along the Wendel Fault trend, including the main spring that adjoins the Wineagle project. Natural thermal features along the Wendel Fault stopped flowing as the plant continued operations from 1985 through early 2018. 4. Subsequent to Wineagle plant retirement in April 2018, the Wineagle well was allowed to flow at a reduced rate with artesian flow (wasting resource) and was not completely shut in until September 2020. During this period of reduced flow and eventual shut-in of Wineagle 1, natural recharge began to rebuild pressure in the reservoir. This demonstrates that the reservoir was drawn down by surface disposal and that in recent months the reservoir pressure is increasing due to natural recharge. 5. Western 1 well on adjoining private property and drilled near the Wendel Fault has been evaluated with a hang down string isolated with packers to observe zone below 202'' depth. This hang down string has had no surface pressure until recent weeks when it now shows a small artesian head. This again demonstrates pressure recharge along the Wendel Fault subsequent to the encl of surface disposal operations at Wineagle.

Comment Identifier	Comment
	The five points outlined demonstrate that surface disposal at Wineagle degrades the Wendel Resource by depleting fluid levels in the resource area within adjoining private leaseholds.
SJ.03	3. Develop a pressure monitoring program to evaluate reservoir stability during future operations and document that the Wendel resource is not affected by Wineagle operations. This should include multiple slim hole wells equipped to record pressure in the sub-surface and subject to periodic chemical sampling and analysis. 5. Develop a realistic reporting protocol for production parameters and include bubble tube data to assess reservoir drawdown in the Wineagle production well. This will allow assessment of the potential impact of the Wineagle project on adjacent lands.
Butler	We have been harmed and will be harmed further by the open discharge and non- injection of the fluids from the Wineagle 1 well. Additionally, there is no other recourse by CalGem than to demand the cementing and closure of the Wineagle l well due to its inadequate integrity. Additionally, as known there is fresh water common to the geothermal fluids in the well bore of the Wineagle well. This has resulted in the degradation of both resources including the petroleum resources of the area. Even though the Wineagle 1 has been closed and non-discharging for three years a large volume of the geothermal resource, due to the non- flowing of the well, is being dispersed into the fresh waters and lost from the geothermal cell. Cementing of the entire structure of the Wineagle 1 well and would eliminate this loss and cause pressure build up in the geothermal well that would result in higher geothermal resource utilization and a greater hydraulic drive to the petroleum system which is now known to exist in Wendel.
SJ.02	While it is not in the direct purview of the WQB, the standard industry practice of injecting the processed effluent from the geothermal plant would obviate the necessity for the requirement of this order concerning surface disposal of the effluent. Not only does injection disposal remove the considerations for impact to surface waters and shallow ground waters but injection is also a standard industry practice to provide sustainability of the geothermal resource. By allowing surface disposal through the issuance of this order, it provides precedence for future expansion of the resource utilizing surface disposal as a reduced cost to the project but achieving this reduced cost at the expense of increased degradation of both surface waters and as well reducing the sustainability of the resource.

Category 5 – Sampling of Geothermal Fluid

Summary Comment

These comments address the water quality samples taken in late 2020 by the new owner/operator and their consultant and supplied as part of the Report of Waste Discharge (ROWD)/application for an NPDES Order. Allegations of misconduct, improper sampling protocol, sampling equipment, and the Water Board's use of these samples are grouped into this category. Comments also claim an incomplete characterization of the effluent due to unknown characterization of cooling water.

Summary Response

Samples were taken and analyzed for priority pollutants consistent with 40 CFR part 136, as required by all NPDES permits. All sampling equipment was provided by Silver State Laboratory (a California ELAP certified laboratory) and no sample preparation or collection errors (i.e., errors with preservatives, sampling equipment, air bubbles, temperatures, etc.) were identified on the laboratory reports for any sampling event. The sampling requirement in the Order and historic requirements for the Facility are sufficient to determine compliance with the terms of the Order. Special provisions were not required to capture phases that do not affect the receiving water.

The Water Board has no evidence that the Discharger altered the samples or engaged in misconduct during sample collection and transportation. Moreover, the laboratory analysis of the samples did not identify any foul play and no preparation or collection errors were reported on the laboratory reports. In characterizing the effluent, determining reasonable potential and calculating effluent limitations, the Water Board utilized the Facility's historic water quality data. This historic data was collected and sampled by third-party professionals. The samples provided by the Discharger during the ROWD are comparable to those historic samples collected by third parties. The Order does not require that the Discharger hire a third-party to collect or transport samples, but does require a certified laboratory to complete analysis and reporting. The Water Board does retain ability to sample the waste stream at any time to verify compliance with effluent limitations or other requirements.

The Water Board did not require the capture/analysis of an air sample as a requirement of the ROWD process.

In a letter dated February 10, 2021, the Water Board requested characterization of the cooling water which was provided by the Discharger on March 4, 2021. Moreover, historic effluent water quality data for the Facility captures the combined discharge (i.e., both the cooling water constituents and geothermal fluid constituents were captured).

Comment Table 5 – Comments Specific to Category 5

Comment Identifier	Comment
Butler	It is unknown if Frank Misseldine of Baseload diluted said sample. Basically, in this instance, the applicant is being allowed to take a sample and be the custodian of the sample without any oversight by the State or County
Butler	The Clean Water Act provides that “any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (NPDES No. CA 0103063), including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both". We have requested that the attorney general and the security and exchange commission become involved and an investigation as to the fraudulent and unlawful activities are fully investigated to the letter of the law. It is unlawful for anyone to present false information to a state and federal agency .18 U.S. Code§ 1001.
Butler	The following comments pertain to multiple issues which have not been adequately addressed in the planned operation for the production and disposal of geothermal fluids associated with the Wendel Wineagle project. These include fraudulent presentations to CalGem and the public. We have requested that the attorney general and the security and exchange commission become involved and an investigation as to lhe fraudulent and unlawful activities are fully investigated to the letter of the law. It is unlawful for anyone, for financial gain, to present false information to a state and federal agency.
Butler	PROPER TESTING PROTOCOLS ARE OUTLINED IN NPDES NO. CA0103063, ATTACHMENT D. 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. § 122.41U)(1).) B. Monitoring results must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. subchapters N or 0. In the case of pollutants for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. subchapters N or 0, monitoring must be conducted according to a test procedure specified in this Order for such pollutants. (40 C.F.R. §§ 122.410)(4), 122.44(i)(l)(iv).”" 1. VIOLATION OF PROPER TESTING PROTOCOLS: As stated, we concur with Stuart Johnson's concerns and analysis of November 3, 2021, and further address his concerns herein.

Comment Identifier	Comment
Butler	Incorporated herein are the comments from Stuart Johnson on September 18, 2021, regarding sampling which have previously been sent to water quality and Calgem but are being reincorporated since they were not included in the open discharge draft permit.
Butler	Previously brought to the attention of Water Quality and CalGem by Stuart Johnson, Geologist is the fact that the applicant has not documented flowing conditions for the well in terms of temperature, pressure, or flow rate. The method of taking samples is not discussed. Was the sample taken at pressures greater than the breakout pressure for dissolved gasses? If the flow was two phase, was a mini separator used to sample both phases and was the temperature and pressure of sample conditions recorded? Were samples adequately quenched to preserve dissolved solids? Was the vapor phase collected in gas sample bombs and the preserved gasses quantified and analyzed using approved analytic methods such as gas chromatograph? Were fluid samples properly preserved for analysis of mercury? Were fluids preserved with acid to prevent metal precipitation prior to analysis?...Even so, the proper protocol for taking the samples by Baseload was not followed. Unless the sample taken was in a closed trapped environment and extremely substantial percentage of the aromatic hydrocarbons would have escaped into the atmosphere increasing the ozone levels. The containers holding the subject fluid required an acid agent to inhibit bacteria from degrading the subject hydrocarbons and the containers are required to be filled to the top and tightly sealed. In this instance the samples were taken by a non-licensed and inadequately experienced individual (Frank Misseldine) which has obvious bias and any sample taken by a biased person which is in the employment of a company while is seeking permitting should not have been allowed to take the subject samples.
Butler	The air sample taken by Frank Misseldine, fits into the same category, Frank Misseldine had his daughter Jenifer (Jeni) McMahon take custody of an air sample that Frank Misseldine collected. It is unknown where the air sample was collected from. Since now she has a different last name, Frank Misseldine thought he would get away with it. Regarding the subject air sample submitted, it is not stated where the sample was taken. The sample should have been taken at and over the vaporing off area of the subject fluids from the Wineagle 1 well. It is unknown if the samples were taken 1,000 feet away from the Wineagle 1 power plant. Obviously, now that Frank Misseldine is questioned, we believe that he would falsify where and how the samples were taken. Air sampling and fluid sampling can only be taken and proper chain of custody, by a certified third party. Water from somewhere else can be added to the sample and the air sample can be taken anywhere. It does

Comment Identifier	Comment
	not make sense for a company employee to be allowed to take sampling and not require third party involvement in the sample taking. A third party non-interested entity would be the only viable person or entity to take the samples and custody
Butler	Based upon Stuart Johnsons letter of September 18, 2021, at 8:58pm along with our concurrence and further assertions and information, the water and air sample submitted by Frank Misseldine to CalGem and Water Quality on the Wineagle 1 project should be invalidated and rejected. The same sampling should be taken by a third party with the proper protocol and method of sample taking be employed as outlined above. Once again it is the same scenario of the fox in the hen house.
SJ.02	2. Failure on the part of applicant to properly conduct sampling of the induced flow from the geothermal well using acceptable geothermal industry protocol. This includes inadequate sampling techniques to address sampling of a two phase flow system, failure to document well flow conditions and as well, the sample conditions and failure to implement and discuss sample preservation techniques. 3. Failure to design and discuss protocol for sampling known hydrocarbon species co-produced with geothermal fluids in this geothermal field. 4. Failure on the part of the applicant to provide specific characteristics of the chemical formulation of the lubricant and formulation of any additives present in the lubricant and to characterize the chemistry of any degradation compounds that may result from use of this lubricant in the line shaft pump system. 5. Failure to provide a discussion of the chemical and physical characteristics of the cooling water flow that is a significant component of proposed surface disposal. This discussion should address the use of biocides, anti-fouling chemicals and any water treatment procedures that might include anti-scaling measures in the cooling water process system.
SJ.02	The applicant has not documented flowing conditions for the well in terms of temperature, pressure or flow rate. The method of taking sample is not discussed. Was the sample taken at pressures greater than the breakout pressure for dissolved gasses? If the flow was two phase, was a mini-separator used to sample both phases and was the temperature and pressure of sample conditions recorded? Were samples adequately quenched to preserve dissolved solids? Was the vapor phase collected in gas sample bombs and the preserved gasses quantified and analyzed using approved analytic methods such as gas chromatograph? Were fluid samples properly preserved for analysis of mercury? Were fluids preserved with acid to prevent metal precipitation prior to analysis?

Comment Identifier	Comment
SJ.02	The applicant has identified a cooling water waste stream that is to be co-mingled with the geothermal effluent from the plant. There are no characteristics presented for this waste stream. Shallow ground waters in the area of the Wineagle plant have a geothermal component which potentially consists of hot direct overflow from the geothermal system as well as volatile transport of species such as ammonia, nitrates derived from ammonia, boric acid and hydrocarbons. Furthermore, cooling water systems are typically treated with various biocides, dispersants and anti-fouling agents. At a minimum, a chemical analysis and a description of the cooling water source as well as the effluent composition should be provided to WQB for evaluation along with a discussion of any proposed additives to the cooling water system.
SJ.02	5. As mentioned earlier, there was no sampling protocol for the fluid sampled from Wineagle 1 by the applicant agent, Mr. Misseldine. Sample containers should have been specified and prepared specifically for sampling hydrocarbons to eliminate loss of hydrocarbon subsequent to sampling. This assumption is in error since the composition of a Nalgene sample bottle does not contain any hydrocarbon resembling natural hydrocarbon.
SJ.01	2. While a less than stellar approach on the part of the applicant provides some characterization of the intended effluent to be surface disposed, the entire proposed flow stream has not been characterized. The process waters that would be blended with the geothermal flow have not been sampled and characterized as to chemical contents and are simply noted as cooling process waters. This is a significant input to the disposal stream and needs to be evaluated. 3. The samples that were submitted by Baseload Capital as representing the fluid intended for surface disposal were not taken under defined well flow conditions and may or may not represent the actual planned effluent. No flow rate of the well, temperature and pressure conditions of sampling nor duration of well flow prior to sampling were submitted for consideration. There is no means to determine if the samples represent stabilized and representative geothermal effluent under production conditions. 4. There was no submission of sampling protocol for the fluids submitted for laboratory analysis. The method of sampling can significantly bias the representative nature of the sample submitted in terms of actually characterizing the fluid stream proposed for surface disposal. For example, phase separation during sampling of hot fluids would preclude capture of volatile constituents that would be stabilized in the cooled effluent proposed for disposal. 5. There was no submission of the methods used to preserve the samples

Comment Identifier	Comment
	to be submitted for analysis; specifically, there is no description of methods to prevent precipitation of trace metals or absorption of these trace metals by sample containers. There are similar questions on the preservation of hydrocarbon volatiles and volatile mercury. 6. There was no discussion of the chain of custody for the samples relative to maintaining the samples within acceptable temperature storage during transport nor of the timely delivery of the samples to the laboratory as is required to prevent degradation of the samples prior to analysis.
Butler	A trapped sample directly from the wellhead is required to ensure that the contained arsenic, hydrocarbons, (petroleum) do not become air borne from the approximately 100 feet plus culvert chambered area. The trap sample is easily obtained at the Wineagle 1 well head via an existing valve side port as the Wineagle 1 well artesian flows.
Butler quoting Stuart Johnson	The sample, despite the chain of command procedure, is totally invalid for any evaluation of the chemistry of the flow from the well…Having spent considerable time in my life san1pling geothermal wells, this sampling has not followed any normal protocol for obtaining a representative sample of the well flow. Procedures for sampling a geothermal well are outlined by numerous professional groups including the USGS, ASTM and various standards committees within the geothermal industry. The first step in this procedure should have been to define the objectives of the sampling and then develop a sampling protocol and a sample preservation protocol with Silver State. A normal procedure would include: First and foremost, select the correct sampling point. This should be in a zone of if the turbulent flow that will assure that flow is two phase that the phases will be sampled proportionately, no steam bias, no brine bias. Since we do not know the enthalpy of the fluid if entering the well, we do not know the flow that reaches the surface is boiling or not. Hence, this first step should be verified. We know it was not. The sampling should be taken at the best location on the flow line and utilize a mini separator. These are small, with a volume capacity of perhaps two liters. The separator is adjusted so that the steam outlet is not showing brine carry over (it is all gas including steam). Sampling is then done by flowing each phase (brine and steam) through separate stainless steel one-fourth”" tubing that flows through a boiling bath and then an ice bath to give a good, cooled sample. The sampling temperature and pressure and the flow line pressure need to be recorded so that the sample phases can be combined to a total flow sample when done. The cooled brine sample is then preserved as per the protocol set forth by the analytic service (Silver State in this case). here may be multiple samples for the various constituents.

Comment Identifier	Comment
	The steam sample is more difficult as when it is cooled it is now two phases, condensed steam, and the volatiles. Since most of the volatiles are usually carbon dioxide, the sample is flowed into a one- or two-liter evacuated glass sampler that contains a known (weighed) amount of sodium hydroxide solution. The sodium hydroxide absorbs the carbon dioxide and keeps the sampler from getting too much pressure. The sample is flowed into this sampler for several minutes to get sufficient condensed steam but not flowed to the point of over pressuring the sampler. The valve to the sampler is then closed. The amount of steam is determined by weighing the flask. The amount of carbon dioxide and hydrogen sulfide is determined by analysis of the steam condensate (the sampler often contains a cadmium salt that will precipitate the sulfide for analysis). The volatiles are determined by sampling the pressurized gas head space and using gas chromatograph or other procedures. Again, Silver State should provide protocols for preserving the samples they need for their determinations. Obviously, none of these normal procedures were followed. The samples analyzed are useless for determining what came out of the well. On the basis of poor sampling procedure, the results of this testing should be rejected. Stuart D. Johnson
Butler	Now we have the same individuals in management positions at Baseload. These are the same individuals who water quality is allowing to perform all testing required under the permitting process for an open discharge. We have brought to numerous State, Federal and other governmental agencies the continued falsehoods and maneuvers of these individuals.
Butler	A trapped sample directly from the wellhead is required to ensure that the contained arsenic, hydrocarbons, (petroleum) do not become air borne from the approximately 100 feet plus culvert chambered area. The trap sample is easily obtained at the Wineagle 1 well head via an existing valve side port as the Wineagle 1 well artesian flows.
SJ.02	The applicant, either through negligence or through deliberate action has failed to provide sufficient data and analysis to adequately address the impact of surface disposal of geothermal effluent at the Wineagle geothermal project within the Wendel KGRA.

Category 6 – Injection Well Quote

Summary Comment

Comments received allege the cost estimate for a reinjection well for the Wendel Geothermal Project were massaged to produce an unrealistically high number. Moreover, the comments

allege the Water Board relied on the cost estimate to justify the applicability of a surface discharge (NPDES) Order.

Summary Response

No requirements or discharge specifications were amended based on the reinjection quote total provided. The NPDES permit includes protective measures that would ensure that applicable water quality objectives are not exceeded and that beneficial uses are protected, regardless of reinjection estimations. Reinjection and geothermal resource integrity are the primary responsibility of CalGEM.

Comment Table 6 – Comments Specific to Category 6

Comment Identifier	Comment
Butler	Water Quality forwarded to us a quote provided to Baseload by a drilling company (Layne) quoting $2.2 million dollars and required 120-day 24/7 drilling period for an injection well. The erroneous and fraudulent cost of an injection well and the design thereof submitted by Frank Misseldine of Baseload should have no validity. We brought to the attention of both Water Quality and CalGem that Frank Misseldine orchestrated and gave the information to his son-in-law Perry McMahon for the erroneous and fraudulent injection well quote which was put on a Layne Drilling quote form. On September 9, 2021, we spoke with Perry McMahon of Layne Drilling the company that gave the quote of $2.2 million dollars for a sixteen" 1600-foot TD injection well. The 8 5/8" Wineagle 1 well with a TD of 1340 feet does not require a sixteen" 1600-foot injection well and furthermore a well of that size and structure would not take 120 days drilling 24 hours per day. Logic applies heavy here. An 8 5/8" inch well should only require and 8 5/8" injection well of similar TD. Currently, a drilling company is preparing a price quote for our contiguous property that is parallel to the Wineagle 1 well property for an 8 5/8" well and a separate quote for a sixteen" injection well, both to a depth of 1600 feet. Verbally, the drilling company that drills geothermal wells said that the quote will be less than $500,000 for the sixteen inch well and shy of $200,000 for the 8 5/8" inch well. Mr. McMahon, Frank Misseldine's son-in-law stated Layne had never drilled a geothermal injection or source well. The price quote was based on the information furnished by Frank Misseldine. When questioned as to why a well of this configuration would take 120 days drilling 24 hours per day, he had no justification for it and kept saying the information was from Frank Misseldine and the quote was based entirely on Frank Misseldine's information on the lithography and the drilling requirements that Frank came up with. Frank Misseldine is not an engineer, a geologist or a

Comment Identifier	Comment
	geothermal well driller. Frank Misseldine is licensed to practice as an accountant in Idaho under the license number CP-2362.
Butler	Water Quality and CalGem relied upon this ludicrous quote that Baseload would be financially harmed if they were required to reinject. Why should the State of California be concerned about the financial requirements of a private company and circumvent requirements of a project? When information was provided to Water Quality, specifically Robert Tucker and Trevor Miller regarding the fallacious information in the Layne injection well quote, we were advised that an injection well is not within the expertise of water quality. Inasmuch as the only other option to an open discharge is an injection well, especially in this case where billions of gallons of pollutants have been open discharged for years, one would hope that if someone in that department does not have the expertise, they would be required to either gain the expertise or find someone in that agency or a cooperating agency who does have the expertise. Anything short of that would be a dereliction of duty in the least and a wanton violation of duty by a state employee.
SJ.02	Approval of surface disposal as opposed to injection back to the reservoir system on the basis of cost of an injection well is not a valid approach. An injection well is simply one of the capital expenses that define a commercial geothermal project. A well capitalized company such as applicant Baseload Capital is capable of recognizing this cost and dealing with it in a responsible manner. Furthermore, the applicant has submitted cost estimates for drilling such an injection well using a grossly inflated budget that should be rejected and not be considered in any aspect for allowing surface disposal for the project. This action in itself is a basis for denying surface disposal of the geothermal fluids.
SJ.03	4. Documentation provided to the State grossly overstates the required effort, the timeline and the cost for drilling an adequate injection well for the Wineagle project; this in an apparent effort by Baseload Capital to justify a request for surface disposal.
SJ.03	As part of the discussion to justify surface disposal for the Wineagle project, excessive costs for drilling an injection well were cited by the applicant. The injection well was quoted as a 16" well completion to a depth of 1600'. The requirements to drill this well were stated as 120 days of 24/7 drilling. Total cost for the well was estimated at $2.2 million. There are several flaws related to this justification and are outlined as follows. 1. The geothermal fluids are produced though 8 5/8" casing from a depth of 1341 feet and flow is approximately 1400 gpm. For this amount of fluid injection, a 16" completion is complete over kill. An adequate injection well

Comment Identifier	Comment
	could be obtained with a 12 ½ inch open hole or if a liner is required a 9 5/8" string could be run. 2. The drilling time for this new injection well is grossly overstated. The off-set 31-24 well at Wendel drilled a 26" hole to 525' and cemented 518' of 20' casing to 518'; and drilled a 17 ½" hole to 1760' in nine days. The off-set Wen 2 well drilled a 26" hole to 309' and cemented 20" casing; drilled a 17 ½" hole to 1510' and cemented 1499' of 13 3/8" casing in ten days. Clearly, neither of these quality drilling operations required 120 days of operation to attain acceptable depths in the comparable Wineagle setting. The concept that drilling an injection well for the Wineagle Project presents an unreasonable timeline and capital outlay is not supported in fact.
Butler	Documentation provided to the State grossly overstates the effort , timeline, and cost for drilling an adequate injection well for the Wineagle project…A submittal by Frank Misseldine, Manager of the Baseload Power Wendel LLC to CalGem for the cost and requirements for·an injection well for approximately 1,000 gpm of fluids from the Wineagle 1 well was fraudulent at best, to convince CalGem that it was economically feasible to require an injection well… The price quote for this well on its letter head is from Layne and presented by Perry McMahon, project manager. We personally contacted Perry McMahon and questioned him on the bid proposal for the subject well. Mr. McMahon is not employed by Layne Drilling; he is employed by Granite construction and is a project manager for Granite Construction. Layne Drilling is a subsidiary of Granite. Perry McMahon obtained a letterhead from Layne Drilling. Mr. McMahon admitted that he knew nothing of water well drilling nor geothermal drilling. Mr. McMahon further stated that he believed Layne Drilling only drilled water wells and not geothermal wells. When further questioned as to the bid and the information contained therein, Mr. McMahon told us that Frank Misseldine gave him all the information as to the drilling requirements and the information on the bid. It is our understanding that Perry McMahon is the son-in-law of Frank Misseldine.
Butler	If this is not a concern to Cal Gem, then nothing is. There is no well that is projected to take 120 days, 24 hours per day to reach a depth of 1600 feet, which is grossly 8 times oversized to the source well. When we questioned the ludicrous well bid to Robert Tucker and Trevor Miller in water quality, they stated they were not drilling contractors. Then why didn't CalGem contact an independent drilling company and a competent geological geothermal company as to the requirements and viability of cost of an injection well for the requirements of the Wineagle 1 well. When and why is it the duty or concern of CalGem if something which is required for the issuance of a permit, that it is too expensive for the company which is requesting the permit. The financial duties and cost to a company should

Comment Identifier	Comment
	not be of any concern to CaiGem. That is the cost of doing business. If it is cost limiting than don't do the project. This scenario of a fraudulent and false bid for an injection well and the requirements thereof is more than a fox in the hen house. To our knowledge Frank Misseldine is not a drilling contractor and does not have the expertise or certification which would allow him to prepare and present a bid for a well that is for the company he is working for and have someone else than do nothing more than to present the bid as if it came from them and them only. In this case Perry McMahon. This has been brought to CalGem's attention as well as the photoshopping of lands other than Wendel on Baseload Power Wendel LLC's webpage superimposing the Wineagle l power plant on that land. Additionally, the false posting on their webpage that they are permitted and ready for operation. Once again, we believe CalGem will state it is not their duty to expose these matters. We request that CalGem looks deep into the possibility that there are external forces at play here which are affecting the internal decisions of CalGem and further there is kinship, whether financial or otherwise, to companies and individuals of the Baseload Capital LLC project which are affecting the decisions being made by CalGem.
SJ.02	Present a realistic drilling program including line item costs to implement an injection program for spent Wineagle production fluids. This injection well should be made a condition for approval of operations as the well will prevent wasting of reservoir fluids and provide sustainability to the resource and as well will prevent environmental degradation to the Honey Lake Wildlife Area.

Category 7 - Waste of Groundwater Supply

Summary Comment

The comment cites California Executive Order B-37-16 and claims that the surface discharge of the geothermal fluid and cooling water is a wasteful practice.

Summary Response

The Water Board encourages, wherever practicable, water conservation and/or re-use of wastewater. The Executive Order B-37-16 signed by Governor Jerry Brown, titled “Making Water Conservation a California Way of Life” and AB 1668 are ongoing efforts for long-term improvements in water conservation and drought planning. The Order and bill focuses on building resiliency against drought conditions by promoting efficient water use by urban retail water suppliers and agricultural water suppliers. The facility and discharger are not water

suppliers.

The Water Board does not have evidence that the groundwater supply for Honey Lake Valley groundwater basin has been adversely impacted as a result of the Facility's operations. The Honey Lake Valley groundwater basin prioritization is low under the Sustainable Groundwater Management Act (SGMA). Additionally, the discharge to the receiving water, Wendel Hot Springs, has a potential of incidental recharge of the groundwater supplies than would not otherwise occur with reinjection to the geothermal source.

Furthermore, the use of geothermal waters does not create a waste of potable water or agricultural water, as the geothermal water has a naturally high concentration of arsenic that would not make the water suitable for drinking.

Comment Table 7 – Comments Specific to Category 7

Comment Identifier	Comment
Butler	E. OPEN DISCHARGE IS A WASTE OF WATER AND DEMISE TO THE GEOTHERMAL CELL IN A KNOWN GEOTHERMAL RESOUCE AREA AND ADVERSE TO THE INDUSTRY STANDARD OF REINJECTING IN ORDER TO MAINTAIN GEOTHERMAL AS A SUSTAINABLE RESOURCE 1. WASTE OF WATER. California is in a continuing extreme and persistent drought with warmer weather and an announced 37% snowpack expected for the state this year. There will not be enough water to allow farming in most of the state along with reduced available water for both urban and rural usage. Effective 5/31/2018 the Governor signed into law AB 1668 in conjunction with B-37-16 which addresses water conservation and drought resilience across the state. B-37-16 "Making Water Conservation a California Way of Life" is an executive order that builds on temporary statewide emergency water restrictions set forth by Governor Brown and the State Water Resources Control Board in 2015, to establish longer-term water conservation measures for California which directs permanent changes to use water more wisely, eliminate water waste, strengthen local drought resistance, and improve agricultural water use efficiency and drought planning. To help eliminate water waste, the Water Board was ordered by the Governor to prohibit wasteful water practices.
Butler	The fluid levels in all 10 of our wells (fresh water, geothermal and oil) over our 1500 acres of land that surrounds the Wineagle 1 Power Plant, are increasing. The freshwater wells on our property have elevated static and have risen between 5 and 6 feet to surface. The increase in the fluid levels of the wells also demonstrate an increase in the level of the freshwater aquifer.

Comment Identifier	Comment
	Our properties warm water, subterrainially feeds our meadow area of clover, wild alfalfa, native brush, and grasses that provide feed for livestock and numerous species of wildlife including, but not limited to mammal, avian and aquatic life.3. The meadow area is currently 40 acres however we believe it will increase to 400 acres in the next two years., but only if the discharge is stopped and Baseload is required to reinject. As aforementioned the freshwater water wells, ponds and springs are above the known breached Wineagle 1 well that has contaminated the Wendel Hot Springs and the aquifer around and below that well. This increase of water and geothermal fluid not only protects and preserves the geothermal cell for development but enhances wildlife habitat and the ability to graze not 40 cattle but 400 cattle. This projection of cattle grazing is supported by the individual that uses our land for cattle grazing. (See Exhibit "A" Letter from Travis Stewart attached hereto and made a part hereof).
Butler quoting Stuart Johnson	Though perhaps trivial in the overall picture, the well constitutes a consumptive use of shallower ground waters.

Category 8 – Hot Springs Cleanup and Animal Contact

Summary Comment

The comment alleges the hot springs and discharge have caused contamination so severe that 'clean up' is not feasible. The comment also alleges that the hot springs needs to be protected from potential cattle grazing and animal contact so that these animals are not consumed by humans due to the potential to bioaccumulated metals.

Summary Response

Wendel Hot Springs is a naturally occurring geothermal surface water body and the Facility does not chemically alter the geothermal fluid prior to discharge (as further explained in the Summary Response to Category 1). Additionally, the Order establishes prohibitions to protect the beneficial uses of Wendel Hot Springs and Honey Lake. The Water Board does not recognize the naturally occurring geothermal surface water body and the discharge as a site requiring cleanup.

The geothermal fluid is discharged to Wendel Hot Springs. Where Wendel Hot Springs surface and where the discharge occurs, the property has a perimeter fence with posted warning signs of hot geothermal discharge.

Comment Table 8 – Comments Specific to Category 8

Comment Identifier	Comment
Butler	Historic discharge of elevated arsenic, benzene, and toluene (petroleum) has flowed through grazing areas of cattle. The arsenic and carcinogenic elements become affixed to the tissue of these cattle and is marketed and sold to the general public. The applicant, Baseload, states there is beneficial use of the open discharge water when in fact there is no benefit for humans to consume arsenics and aromatic hydrocarbons (Petroleum) into their body. Arsenic is an accumulative poison.
Butler	There is no way known to clean up the contamination, even it is placed in a super fund program. However, there is no reasoning to allow the continuing harm to the environment and human life. The natural Hot Spring flow needs to be fenced off from cattle grazing or any area that has animal contact to ensure that these consumption products are not marketed.

Category 9 – Late Comment - Facility Address Change

Summary Comment

After the end of the written comment period, Mr. and Mrs. Butler sent an email on May 16, 2022, notifying the Water Board that the Facility's address listed on the Order is incorrect. Moreover, the erroneous address is the address for the Butler's neighboring property and the Order should be stopped so the public is aware that the Butlers are not associated with the Facility.

Summary Response

The Butler's property and the Facility used to be located on the same assessor's parcel number where the address in question was assigned. In 1992, the parcel was subdivided and the address number was assigned to the Butler's property, while the parcel where the Facility is located was not assigned an address number. The Water Board were unaware of this error. After the Butler's identified the error, the Discharger was able to acquire a new address number: 733-015 Antola Road, Wendel, California 96136, Lassen County. To reflect the new address number, the Order was updated in three locations: the cover sheet, and in Attachment F, Table F-1, and in Attachment F, section 1.1. of the Order. This change does not require the written public comment period to be reopened or extended. The location of the discharge is described by GPS coordinates in the permit as is the receiving water. The address change does not raise substantial new questions concerning the permit. (40 C.F.R. § 124.14.)

Comment Table 9– Comments Specific to Category 9

Comment Identifier	Comment
Butler Email May 16, 2022	As we have informed you the property leased by Baseload Wendel LLC is us and has used our address for their application for open discharge. See attached letter from Don Willis, Lassen County Address Administrator. It is yet another example of their blatant disregard for unlawful activities. We have brought to your departments attention of the numerous transgressions of law by Baseload to no avail. Our business and business activities use the address of 732-725 Antola Rd. Wendel, CA as is posted on our gate entry. This same address has been posted at that location for 29 years. The endeavor by Baseload to open discharge carginogenics and arsenic elements into the ground water and Honey Lake and the breach in the casing of the Wineagle 1 well including their business activities harm us and place us in jeopardy by Baseload using our address. We and our business of Western Energy Resources are negatively affected by the unlawful use of our address. This is not a trivial matter. It has come to our attention that the application for open discharge using our address requires that the subject permit start all over again, if that is the desire of water quality that has openingly and aggressively assisted Baseload in their endeavor.