REGION 9

SAN FRANCISCO, CA 94105

MAJOR MODIFICATION TO PERMIT NO. R9UIC-CA1-FY17-2R
ISSUED TO PANOCHE ENERGY CENTER

In accordance with 40 CFR §144.39, this Permit is hereby modified to reflect the removal of the requirement to install a monitoring well near the Silver Creek #18 well. In place of the monitoring well requirement, EPA reduced the maximum allowable injection volume and established quarterly and annual injection limits; increased the frequency of required static bottomhole pressure measurements in each of the four injection wells; added quarterly risk modeling; and required additional reporting of key monitoring elements to EPA.

Enclosed is revised Permit No. R9UIC-CA1-FY17-2R and a courtesy copy that shows where language was modified. All other permit conditions remain unchanged. This Major Modification is issued and effective on April 30, 2025.

/s/ 04/30/2025

Tomás Torres
Director, Water Division

United States Environmental Protection Agency
Underground Injection Control Program

FINAL PERMIT

Class I Non-hazardous Waste Injection Wells

Permit No. R9UIC-CA1-FY17-2R (the Permit)

Well Names: IW1, IW2, IW3, IW4, IW5, and IW6

Issued to:

Panoche Energy Center, LLC
43883 West Panoche Road
Firebaugh, CA 93622

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PART I. AUTHORIZATION TO INJECT

Pursuant to the Underground Injection Control (UIC) regulations of the U.S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations (CFR) Parts 124, 144, 145, 146, 147, and 148,

Panoche Energy Center, LLC (PEC or the Permittee)
43883 West Panoche Road
Firebaugh, CA 93622

is hereby authorized, as owner and operator, and contingent upon Permit conditions, to operate an existing injection well facility. In April 2008, EPA issued UIC Program Permit CA10600001, authorizing the
). IW1, IW2, IW3, and IW4 were installed at the PEC site in 2009. This Permit authorizes continued operation of wells IW1, IW2, IW3, and IW4. The Permit also authorizes the construction and operation of up to two (2) potential additional wells, IW5 and IW6, with no change in injection volume or maximum allowable injection pressure.

The facility is in the southwest quarter of Section 5, Township 15 South, Range 13 East, approximately 16 miles southwest of the City of Firebaugh, California.

EPA authorizes the Permittee to continue operating the four (4) Class I wells conditioned upon the Permittee meeting the Monitoring Requirements set forth in Section II.E of this Permit, and the Financial Assurance requirements set forth in Section II.G of this Permit. Injection operation of the permitted wells will continue to be limited to the maximum volume and pressure as established by the previously conducted Step-Rate Test under EPA Permit No. CA10600001, and in accordance with terms and conditions in this Permit. If potential additional wells IW5 and/or IW6 are constructed during the term of the Permit, Financial Assurance requirements must be met prior to construction. No changes to the operating conditions or total volume injected and pressure limitations will be authorized if the additional wells are constructed.

The Permittee is limited to injecting into the four (4) wells fluids that consist of cooling tower blowdown water, reverse osmosis system reject water, evaporative cooler blowdown water, combustion turbine intercooler condensate, enhanced wastewater system (EWS) water, and oil/water separator discharge water associated with operations of a simple cycle power generation plant that consists of four natural gas-fired combustion turbine generators. If authorized, the fluids authorized to be injected into IW5 and/or IW6 will be identical to those listed above.

This Permit authorizes injection by Wells IW1, IW2, IW3, IW4 and potential additional Wells IW5 and IW6 to dispose of these wastewaters into the Panoche Formation at depths ranging between approximately 7,199 to 8,897 feet below ground surface. The Panoche Formation at the location of the wells has greater than 10,000 mg/L total dissolved solids and is confined above by the approximately 1,148-foot-thick Tierra Loma Member of the Moreno Formation and the 308 foot-thick Marca Member of the Moreno Formation.

All conditions set forth herein are based on 40 CFR Parts 124, 144, 145, 146, 147 and 148, and are regulations that are in effect on the date that this Permit is effective.

This Permit consists of thirty-four (34) pages plus the appendices, and includes all items listed in the Table of Contents of the Permit. Further, the Permit is based upon representations made by PEC and on other information contained in the administrative record. It is the responsibility of the Permittee to read, understand, and comply with all terms and conditions of this Permit.

This Permit is issued for a period of ten (10) years unless the Permit is terminated under the conditions set forth in Section III.B.1 or administratively extended under the conditions set forth in Section III.E.12 of this Permit.

This Permit was issued on September 30, 2022 and became effective on October 31, 2022. This Permit includes a Major Modification, which is issued and effective on April 30, 2025.

/s/
Tomás Torres, Director
Water Division, EPA Region 9

PART II. SPECIFIC PERMIT CONDITIONS

A. REQUIREMENTS PRIOR TO DRILLING, TESTING, CONSTRUCTING, OR OPERATING

1. Financial Assurance

   The Permittee's plugging and abandonment cost estimate and chosen financial assurance mechanism for the wells authorized by this Permit meet the requirements of 40 CFR § 144.52(a)(7).

2. Field Demonstration Submittal, Notification, and Reporting

   a. Prior to each field demonstration required by and described in the following Section II.B.3.a., and the initial mechanical integrity tests required in Sections II.D.1.a., 2.a., and 2.b., the Permittee shall submit plans for procedures and specifications to the EPA Region 9 Groundwater Protection Section for approval at a minimum of sixty (60) days prior to the planned demonstration. Submittals shall be made in accordance with Section III.E.9 of this Permit. No demonstration in the Sections listed above may proceed without prior written approval from EPA.

   b. After receipt of approval of the Permittee's proposed field demonstrations in writing from EPA, the Permittee must provide notice to EPA in accordance with Section III.E.9.b. of this Permit at least thirty (30) days prior to performing any required field demonstrations.

   c. Unless otherwise specified elsewhere in this Permit, the Permittee shall submit results of each such field demonstration required by Sections II.B. through D. to EPA within sixty (60) days of completion, unless otherwise directed by EPA (Refer to Part III.E.9.b).

B. CONDITIONS FOR EXISTING WELL AND FUTURE WELL CONSTRUCTION

1. Surface Location

   The four (4) injection wells authorized by this Permit are located as follows:

   Well IW1: Located at 36° 39' 2.321" N, 120° 35' 1.777" W
   Well IW2: Located at 36° 39' 2.164" N, 120° 35' 5.637" W
   Well IW3: Located at 36° 39' 2.264" N, 120° 35' 0.170" W
   Well IW4: Located at 36° 39' 3.372" N, 120° 35' 9.076" W

   The two (2) potential additional wells authorized by this Permit are proposed to be located as follows:

Well IW5: Located at 36° 39' 0.201" N, 120° 35' 1.069" W
Well IW6: Located at 36° 39' 0.248" N, 120° 35' 8.834" W

The facility is in the southwest quarter of Section 5, Township 15 South, Range 13 East, approximately 16 miles south-southwest of the City of Firebaugh, California.

2. Well Construction Details

Well schematics for the four (4) existing wells authorized by this Permit are contained in Appendix B of this Permit. The Permittee shall at all times maintain the wells consistent with these Well Schematics.

The Permittee shall submit updated Well Schematics for the proposed additional wells, IW5 and/or IW6, and must receive EPA approval prior to commencing drilling and construction of each of the wells. Appendix B contains draft Well Schematics for these potential additional wells, for informational purposes only.

3. Injection Formation Testing

a. Pressure Fall Off Test (FOT)

A. A FOT shall be performed approximately six (6) months after the permit becomes effective, if an FOT has not been conducted within the last six (6) months under the prior permit. If an FOT has been performed within six (6) months under the prior permit, the next FOT shall be performed one year after the prior FOT.

B. The Permittee shall conduct this FOT in either Well IW1, IW2, IW3, or IW4 as proposed in procedures submitted to EPA for approval to determine and monitor formation characteristics. The Permittee shall conduct the FOT after a radial flow regime has been established at an injection rate that is representative of the wastewater contribution to the well. The other injection wells shall either be inactive, or operated at a constant rate, prior to and during the FOT, in order to obtain reliable pressure data and accurate results. The Permittee shall conduct the FOT in accordance with EPA Region 9 guidance found in Appendix E, and as follows.

C. The Permittee shall submit to EPA for review and approval a detailed plan for the FOT that is developed in accordance with EPA Region 9 guidance in Appendix E. Once EPA provides written approval of the test plan, the Permittee may schedule the FOT, providing EPA at least thirty (30) days' notice before the test is

conducted. The final FOT report shall be submitted to EPA within sixty (60) days of test completion.

D. The Permittee shall use the test results to recalculate the Zone of Endangering Influence (ZEI), consistent with procedures set forth at 40 CFR § 146.6, and to evaluate whether any corrective action will be required (refer to Section II.C.). The Permittee shall include a summary of the ZEI recalculation with the FOT report.

E. After conducting the FOT required in Section II.B.3.a above, the Permittee shall conduct a FOT within 9 to 15 months of the previous FOT thereafter following the same procedures described in Sections II.B.3.a.A and II.B.3.a.B. The Permittee may conduct the annual FOT in conjunction with the annual External Mechanical Integrity Test (MIT) demonstration, as required by Section II.D.2.a.iii.

F. The Permittee shall create a plot/graph of the latest static reservoir pressure of the injection zone and its cumulative behavior over time, the plot shall be included with the annual FOT report each year.

4. Injection Interval

Wells IW1, IW2, IW3, and IW4 are currently authorized to inject into the Panoche Formation, which has greater than 10,000 mg/L total dissolved solids. Injection by the wells is only permitted into the Panoche Formation, within the depth range as depicted in the well schematics in Appendix B (i.e., at depths ranging between 7,199 and 8,897 feet below ground surface). Potential Wells IW5 and IW6 may be authorized to inject into the Panoche Formation, within the depth range as depicted in the draft well schematics in Appendix B (i.e., at depths ranging between approximately 7,500 and 9,000 feet below ground surface).

5. Monitoring Devices

The Permittee shall maintain in good operating condition at all times during operation of Wells IW1, IW2, IW3, and IW4, and the potential additional wells IW5 and IW6, the following monitoring devices:

a. A tap on the discharge line shall be located to provide for representative sampling of all wastewaters being injected downstream of any chemical or physical water treatment and as approved in writing by the EPA Director or their delegated representative; and

b. Devices to continuously measure and record injection pressure, annulus pressure, flow rate, and injection volume, subject to the following:

i. Pressure gauges shall be of a design to provide:

(a) A full pressure range of at least fifty (50) percent greater than the anticipated operating pressure; and

(b) A certified deviation accuracy of five (5) percent or less throughout the operating pressure range.

ii. Flow meters shall measure cumulative volumes and be certified for a deviation accuracy of five (5) percent or less throughout the range of injection rates allowed by the Permit.

6. Proposed Changes and Workovers

a. The Permittee shall give advance notice to EPA, as soon as possible, pursuant to and in accordance with 40 CFR § 144.51(l), of any planned physical alterations or additions to any of the wells authorized by this Permit, including sidetracking and deepening or perforating additional intervals. Any changes in well construction, including changes in casing, tubing, packers, and/or perforations other than minor changes, require prior written approval by EPA and may require a permit modification application under the requirements of 40 CFR § 144.39 or § 144.41. Modifications that are considered routine in well construction details, such as tubing dimensions and strengths, packer models, types and setting depths, and perforation interval changes within the permitted injection zone, may be processed by EPA as minor permit modifications, consistent with 40 CFR § 144.41 and Section III.B.1 of this Permit.

b. For each well authorized by this Permit, the Permittee shall provide all records of well workovers, logging, or other subsequent test data to EPA within sixty (60) days of completion of the activity.

c. The Permittee shall submit all reports required by this Permit using the appropriate reporting forms (see Appendix C).

d. The Permittee shall perform a MIT on each well authorized by this Permit using the procedures set forth in Sections II.D.1.a. and II.D.2. within thirty (30) days of completion of workovers or alterations and prior to resuming injection activities, in accordance with Section II.D.1. The Permittee shall provide results of the MIT to EPA within sixty (60) days of completion.

C. CORRECTIVE ACTION

Prior to granting authorization to inject under this Permit, the Permittee is not required to conduct any corrective action, in accordance with 40 CFR §§144.55 and 146.7. Determination of future corrective action and implementation is discussed below:

1. Annual Zone of Endangering Influence Review

   Annually, beginning with the first FOT conducted under this Permit, the Permittee shall review the ZEI calculation based on any new data obtained from the FOT and static reservoir pressure observations required by Section II.B.3.a. The Permittee shall provide to EPA a copy of the modified ZEI calculations, along with all associated assumptions and justifications, with the next Quarterly Report, as required by Section II.E.7.c.

2. Implementation of Future Corrective Actions

   a. If any additional wells are found within the modified ZEI referenced above, a list of the wells along with their locations and construction data shall be provided to EPA within thirty (30) days of their identification.

   b. If required by EPA, the Permittee shall submit a plan for approval by EPA to re-enter, plug, and abandon the wells listed in Section II.B.1. above, in a way that prevents the migration of fluids into a USDW. The Permittee may submit an alternative plan to address the potential for fluid migration in any of these wells to EPA.

   c. Corrective action may be required after permit issuance to address any wells within the area of review that may allow migration of fluids into underground sources of drinking water. EPA will use the annual FOT results, annual re-calculation of the ZEI, and other enhanced modeling, as well as monitoring, recordkeeping, and reporting of results to be provided by the Permittee and described in Section E below, to determine the potential need for any future corrective action.

   d. The Permittee shall not commence corrective action activities without prior written approval from EPA.

D. WELL OPERATION

1. Required Demonstrations

   a. Mechanical Integrity

      i. Within one (1) year of the most recent mechanical integrity testing conducted under the existing EPA Permit No. CA10600001, the Permittee shall conduct an MIT to demonstrate that each well authorized by this Permit has mechanical integrity consistent with 40 CFR § 146.8 and with Section II.D.2.a. The Permittee shall demonstrate that there are not significant leaks in the casing and tubing

(internal mechanical integrity) and that there is not significant fluid movement into or between USDWs through the casing wellbore annulus or vertical channels adjacent to the injection wellbore (external mechanical integrity).

b. Injectate Hazardous Waste Determination

i. Within sixty (60) days of the effective date of this Permit, the Permittee shall certify as unchanged, the existing Injectate "Hazardous Waste Determination" of each unique waste stream source injected into each well authorized by this Permit, as listed in Section II.D.5.a, in accordance with 40 CFR § 262.11. If a change is identified, a new determination must be performed within sixty (60) days of the effective date of this Permit.

ii. Whenever there is a process change or a change in fluid chemical constituents or characteristics of the injectate at the power generating plant, the Permittee shall perform an additional "Hazardous Waste Determination" for each unique waste stream source listed in Section II.D.5.a. The Permittee should also refer to injectate testing requirements set forth in Section II.E.1., below. A letter with the results of the analyses shall be submitted to EPA within sixty (60) days of the "Hazardous Waste Determination" completion.

2. Mechanical Integrity

a. Mechanical Integrity Tests

Mechanical integrity testing shall conform to the following requirements throughout the life of each well authorized by this Permit and in accordance with the requirements set forth at 40 CFR §§ 144.51(q) and 146.8:

i. Casing/Tubing Annular Pressure (Internal MIT)

In accordance with the timing requirements defined in Section II.D.2.b., below, the Permittee shall perform a pressure test on the annular space between the tubing and long string casing to demonstrate the absence of significant leaks in the casing, tubing and/or liner. This test shall be for a minimum of thirty (30) minutes at a pressure equal to or greater than the maximum allowable surface injection pressure (MAIP). A well passes the MIT if there is less than a five (5) percent change in pressure over the thirty (30) minute period. A pressure differential of at least three hundred and fifty (350) pounds per square inch (psig) between the tubing and annular pressures shall be maintained throughout the MIT. This test shall be

performed on each well authorized by this Permit initially as described in Section II.D.1.a.

Detailed plans for conducting the Internal MIT must be submitted to EPA for review and approval. Once approved, the Permittee may schedule the Internal MIT, providing EPA at least thirty (30) days' notice before the Internal MIT is conducted. The final test report shall be submitted to EPA within sixty (60) days of test completion.

ii. Continuous Pressure Monitoring

The Permittee shall continuously monitor and record the tubing/casing annulus pressure and injection pressure by a digital instrument with a resolution of one tenth (0.1) psig. The average, maximum, and minimum monthly results shall be included in the next Quarterly Report submitted to EPA pursuant to Section II.E.7.b., along with any additional records or data requested by EPA regarding the continuous monitoring data described in this Section.

iii. Injection Profile Survey (External MIT)

In conjunction with and consistent with the deadlines for the first FOT conducted under this Permit, as required in Section II.B.3.B., the Permittee shall conduct a demonstration that the injectate is confined to the proper zone and submit the results of the demonstration to EPA for approval.

This demonstration shall consist of a radioactive tracer survey and a temperature log (as specified in Appendix D) or other diagnostic tool or procedure as approved by EPA.

Detailed plans for conducting the External MIT must be submitted to EPA for review and approval. Once approved, the Permittee may schedule the External MIT, providing EPA at least thirty (30) days' notice before the External MIT is conducted. The final test report shall be submitted to EPA within sixty (60) days of test completion.

b. Schedule for MITs

EPA may require that an Internal and/or External MIT be conducted, upon written request, at any time during the permitted life of each well authorized by this Permit. The Permittee shall also arrange and conduct MITs in each well authorized by this Permit according to the following requirements and schedule:

i. Within thirty (30) days from completion of any work-over operation where well integrity is compromised, an Internal MIT shall be conducted, and the results submitted to EPA for approval to verify that the well has mechanical integrity. Prior to this field demonstration, the Permittee shall submit testing plans to EPA, as described in Section II.A.2.

ii. At least annually, an injection profile survey External MIT shall be conducted in accordance with 40 CFR § 146.8 and Section II.D.2.a.iii., above.

iii. At least once every five (5) years, an Internal MIT shall be conducted in accordance with 40 CFR § 146.8 and Section II.D.2.a.i., above.

c. If Well IW5 and/or IW6 are constructed, the Permittee must conduct internal and external MITs in accordance with the procedures and schedules outlined in Part II.D.2, above.

d. Loss of Mechanical Integrity

Within twenty-four (24) hours from the time the Permittee becomes aware of any loss of mechanical integrity in any well authorized by this Permit, the Permittee shall notify EPA of the situation and specify which of the following circumstances apply:

i. The well fails to demonstrate mechanical integrity during a test; or

ii. A loss of mechanical integrity becomes evident during operation; or

iii. A significant change in the annulus or injection pressure occurs during normal operating conditions. See Section II.D.6.b.

In the event of a loss of mechanical integrity, the Permittee shall immediately suspend injection activities in the affected well and shall not resume operation until it has taken necessary actions to restore and confirm mechanical integrity of the affected well, and EPA has provided written approval to recommence injection into the affected well.

The Permittee may not recommence injection after a workover which has compromised well integrity (e.g., unseating the packer, etc.) until it has received written approval from EPA that the demonstration of mechanical integrity is satisfactory.

3. Injection Pressure Limitation

For each well authorized by this Permit:

a. MAIP measured at the wellhead shall not exceed the values listed below at each well for injection into the Panoche Formation.

IW1: 2,478 psi
IW2: 2,416 psi
IW3: 2,478 psi
IW4: 2,478 psi

b. In no case shall the Permittee inject at pressures that (i) initiate new fractures or propagate existing fractures in the injection zone or the confining zone, (ii) cause the movement of injection or formation fluids into or between USDWs, or (iii) allow injection fluids to migrate to oilfield production wells.

c. Step Rate Testing (SRT), in accordance with EPA guidance is required prior to final establishment of injection presssure limits for the potential additional wells IW5 and/or IW6. Initial injection pressure(s) will not be greater than those set for the existing wells (as above).

4. Injection Volume (Rate) Limitation

For each well authorized by this Permit:

a. The total daily injection rate summed across all wells shall not exceed a cumulative volume of 635,229 gallons per day, and may not exceed the individual daily values listed below per each of the four injection wells at any time. This rate will be subject to a semi-annual review based on the annual ZEI determinations performed as described in Section II.C.2. If IW5 and/or IW6 are constructed, no increase in the total volume authorized to be injected under this Permit is authorized.

IW1: 144,039 gallons
IW2: 172,041 gallons
IW3: 155,147 gallons
IW4: 164,002 gallons

b. The Permittee may request an increase in the maximum rate allowed in Section II.D.4.a. or the maximum volumes in Section II.D.4.e. Any such request shall be made in writing, along with a justification for the proposed increase, to EPA for its review and approval.

c. Should any increase in injection rate be requested, the Permittee shall demonstrate to the satisfaction of EPA that the proposed increase will not interfere with the operation of the facility, its ability to meet conditions described in this Permit, change its well classification, or cause migration of injectate or pressure buildup to occur beyond the AOR.

d. The injection rate shall not cause an exceedance of the injection pressure limitation established pursuant to Section II.D.3.a.

e. The cumulative injection volume summed across all wells on an annual basis shall not exceed a total of 120 million gallons, nor shall it exceed a cumulative total of 30 million gallons in any given quarter.

5. Injection Fluid Limitation

a. This Permit authorizes injection of the following fluids into the wells authorized by this Permit: cooling tower blowdown water, reverse osmosis system reject water, evaporative cooler blowdown water, combustion turbine intercooler condensate, enhanced wastewater system (EWS) water, and oil/water separator discharge water generated from the power generating plant.

b. The Permittee shall not inject any hazardous waste, as defined by 40 CFR § 261, at any time. See also Section II.D.1.b.

c. Injection fluids shall be limited to those authorized by this Permit, which includes those fluids produced by the Permittee as described in Section II.D.5.a., above.

d. Particulate Filters may be used upstream of any well authorized by this Permit, at the discretion of the Permittee, to prevent formation plugging or damage from particulate matter. The Permittee shall include any filter specifications in the Quarterly Report due annually in January as required in Section II.E.7.c., including proposed particle size removal with any associated justification for the selected size. For any particulate filters used, the Permittee shall follow appropriate waste analysis and disposal practices consistent with local, state, and federal law, and provide documentation to EPA.

e. Any well stimulation or treatment procedure (e.g., acidizing) performed at the discretion of the Permittee shall be proposed and submitted to EPA for approval. After approval is granted, notification to EPA is required at least thirty (30) days prior to performing the approved procedure. This requirement may be modified if the Permittee submits, within sixty (60) days after the effective date of the permit, a standard operating procedure for well stimulation or treatment for EPA approval. If the standard operating procedure plan is approved by EPA in writing, the Permittee may notify EPA within

fifteen (15) days of the proposed well stimulation or treatment procedure, provided the procedure does not deviate in any way from the EPA-approved plan.

6. Tubing/Casing Annulus Requirements

For any well authorized by this Permit:

a. The Permittee shall use and maintain corrosion-inhibiting annular fluid during well operation. See Appendix H for a complete, generic description and characterization of the annular fluid.

b. The Permittee shall maintain a minimum pressure of one hundred (100) psig at shut-in conditions on the tubing/casing annulus.

c. Any annular pressure measured outside of the established normal pressure range, as previously determined under existing EPA Permit No. CA10600001, regardless of whether it otherwise meets the requirements of this Permit, shall be reported orally to EPA within twenty-four (24) hours, followed by a written submission within five (5) days, as a potential loss of mechanical integrity. In the submission, the Permittee must describe the event and include details, such as associated injection pressures and temperatures. The Permittee shall provide any additional information regarding the reported annular pressure event requested by EPA within sixty (60) days of receipt of a written request from EPA, or such other time frame established in writing by EPA.

E. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Fluid Monitoring Program

The Permittee shall sample and analyze injection fluids to yield representative data on their physical, chemical, and other relevant characteristics. Test results shall be submitted by the Permittee to EPA on a quarterly basis (see Section II.E.7, below).

Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods described in Table I of 40 CFR § 136.3 or in EPA Publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," and as described below, unless other methods have been approved by EPA or additional approved methods or updates to the methods listed below become available.

a. Summary of Acceptable Analytic Methods

i. Inorganic Constituents – USEPA Method 300.0, Part A for Major Anions (with the exception of Fluoride, which may be analyzed by SM-4500-F), and USEPA Method 200.8 or USEPA Method 200.7 for Cations and Trace Metals.

ii. Solids – Standard Methods 2540C and 2540D for Total Dissolved Solids (TDS) and Total Suspended Solids (TSS).

iii. General and Physical Parameters – appropriate USEPA methods for Turbidity, pH, Conductivity, Hardness, Specific Gravity, Alkalinity, and Biological Oxygen Demand (BOD); and Density and Viscosity (see EPA Bulletin 712-C-96-032) under standard conditions.

iv. Volatile Organic Compounds (VOCs) – USEPA Method 8260B or the most recently-approved EPA method.

v. Semi-Volatile Organic Compounds (SVOCs) – USEPA Method 8270C or the most recently-approved EPA method.

b. Timing of Analysis of Injection Fluids

Injection fluid sampling and analyses as outlined in Section II.E.1.a. above shall be performed, at the required timing or frequency:

i) Within thirty (30) days after the effective date of this Permit. If no change in injection fluid has occurred from the prior permit, the Permittee shall certify there has been no change within the specified timeframe; and

ii) On a quarterly basis; and

iii) Whenever there is a change in injection fluids such as whenever the injection fluid is no longer representative of previous samples and measurements that have been submitted and approved.

2. Quarterly Static Bottomhole Pressure Measurement

Commencing the first quarter after April 30, 2025, the Permittee shall submit to EPA on a quarterly basis a static bottom hole pressure measurement/survey from each injection well. A bottom hole pressure measurement/survey is to be taken at each injection well on a quarterly basis and reported to EPA for the duration of this permit. These static pressure surveys shall be performed each quarter after allowing for a shut-in period in each well for a period of time sufficient to allow the pressure in its injection interval(s) to reach equilibrium, in accordance with 40 CFR 146.68(e)(l).

a. As required in Section II.B.3.a.F, the Permittee shall include these quarterly static pressures on the plot/graph of the latest static reservoir pressure of the injection zone and its cumulative behavior over time, the plot shall be included with the quarterly report required under Section II.E.7.a. and submitted by the respective due dates as listed in Section II.E.7.b.

b. The permittee shall provide quarterly demonstrations to EPA that the bottom hole pressure buildup is less than a risk-defined "target pressure" in the injection well field. The demonstration shall be based upon the results of the annual falloff test and the quarterly static bottomhole pressures as specified in this section for the injection wells after correcting for an analysis of skin effects and adjusting all pressure survey data to a common reference depth. The permittee shall submit the updated demonstrations and results to EPA with the quarterly report required under Section II.E.7.a. and submitted by the respective due dates as listed in Section II.E.7.b.

c. Measured bottomhole pressures that are less than 80% of the risk-defined target pressure represent acceptable operating conditions in the Panoche Formation Injection Interval. If the measured bottomhole pressure exceeds 80% of the risk-based target pressure in the Panoche Formation Injection Interval, EPA may require more frequent static bottom hole pressure surveys and analyses or may initiate alternative mitigating steps such as a reduced quarterly volume restriction or decreased frequency of injection operations. If the measured pressure buildup reaches 90% or greater of the risk-based target pressure, EPA may require the facility to cease injection into the Panoche Formation Injection Interval until such time that pressure return to acceptable conditions or take other appropriate mitigating actions.

3. Risk Modeling

Beginning in the first quarter after April 30, 2025, the Permittee shall perform a semi-annual assessment of risk, as outlined in sections (a) through (d) below, in order to identify potential changes within the lowermost USDW. The lowermost USDW is defined by the sandy interval in the Tumey Formation, overlying the stratigraphic contact with the Kreyenhagen Shale.

a. The Permittee shall develop a three-dimensional hydrological model of the subsurface. The three-dimensional model will be used to assess potential risks to the lowermost USDW based on current conditions in the subsurface;

    i. The model shall be based on site-specific and local data describing subsurface formations. The data shall include petrophysical properties (porosity, permeability, water saturation) and physical properties (injection zone thickness, system compressibility, formation fluid quality and fluid viscosity, formation volume factor).

ii. The permittee shall submit the database of information proposed to be used in the model to EPA for review prior to performing the modeling.

b. The permittee shall perform hydrological modeling and risk assessment using the data collected as described under (a) above and incorporating appropriate sensitivity analyses (i.e., that represent the range of site-specific and local values in the database) and submit the results to EPA with the Quarterly Reports required in Section II.E.7.a;

c. The Permittee shall revise the modeling or inputs as requested by EPA; and

d. The permittee shall update the hydrological model and risk assessment on a semi-annual basis. Model updates shall incorporate any newly collected site-specific data and appropriate sensitivity analyses. The permittee shall submit the updated modeling data and results to EPA as described in Section II.E.7 semi-annually at the end of the 2nd and 4th Quarter.

4. Monitoring Information

The Permittee shall maintain records of monitoring activity required under this Permit, including the following information and data:

a. Date, exact location, and time of sampling or measurements;

b. Name(s) of individual(s) who performed sampling or measuring;

c. Exact sampling method(s) used;

d. Date(s) laboratory analyses were performed;

e. Name(s) of individual(s) who performed laboratory analyses;

f. Types of analyses; and

g. Results of analyses.

5. Monitoring Devices

a. Continuous Monitoring Devices

During all periods of operation of any authorized well, the Permittee shall measure the following wellhead parameters: (i) injectate rate/volume, (ii) injectate temperature, (iii) annular pressure, and (iv) injection pressure. All measurements must be recorded at minimum to a resolution of one tenth (0.1)

of the unit of measure as shown in the table below (i.e., injection rate and volume must be recorded to a resolution of one tenth (0.1) of a gallon; pressure must be recorded to a resolution of one tenth (0.1) of a psig; and injection fluid temperature must be recorded to a resolution of one tenth (0.1) of a degree Fahrenheit. Exact dates and times of measurements, when taken, must be recorded and submitted. Each injection well shall have a dedicated flow meter, installed so it records all injection flow. To meet the requirements of this Section, the Permittee shall monitor the following parameters, at the prescribed frequency, and record the measurements at this required frequency, using the prescribed instruments (continuous monitoring requires a minimum frequency of at least one (1) data point every thirty (30) seconds):

Monitoring Parameter	Frequency	Instrument
Injection Rate (gallons per minute)	Continuous	Digital recorder
Daily Injection Volume (gallons)	Daily	Digital totalizer
Total Cumulative Volume (gallons)	Continuous	Digital totalizer
Well Head Injection Pressure (psig)	Continuous	Digital recorder
Annular Pressure (psig)	Continuous	Digital recorder
Injection Fluid Temperature (degrees Fahrenheit)	Continuous	Digital recorder

The Permittee must adhere to the required format below for reporting injection rate and well head injection pressure. An example of the required electronic data format:

DATE	TIME	INJ. PRESS (PSIG)	INJ. RATE (GPM)
mm/dd/yy	hh:mm:ss	XXXX.X	XXXX.X

Each data line shall include four (4) values separated by a consistent combination of spaces or tabs. The first value contains the date measurement in the format of mm/dd/yy or mm/dd/yyyy, where mm is the number of the month, dd is the number of the day and yy or yyyy is the number of the year. The second value is the time measurement, in the format of hh:mm:ss, where hh is the hour, mm are the minutes and ss are the seconds. Hours should be calculated on a twenty-four (24)-hour basis, i.e., 6 PM is entered as 18:00:00. Seconds are optional. The third value is the well head injection pressure in psig. The fourth column is injection rate in gallons per minute (gpm).

b. Calibration and Maintenance of Equipment

The Permittee shall calibrate and maintain on a regular basis all monitoring and recording equipment to ensure proper working order of all equipment.

6. Recordkeeping

a. The Permittee shall retain the following records and shall have them available at the facility at all times for inspection by EPA or other authorized personnel, in accordance with the following:

i. All monitoring information, including required observations, calibration and maintenance records, recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the permit application;

ii. Information on the physical nature and chemical composition of all injected fluids;

iii. Results of the injectate "Hazardous Waste Determination" according to 40 CFR § 262.11 (see Section II.D.1.b.). Results shall demonstrate that the injectate does not meet the definition of hazardous waste as defined in 40 CFR § 261; and

iv. Records and results of MITs, FOTs, and any other tests and logs required by EPA, and any well work and workovers completed.

b. The Permittee shall maintain copies (or originals) of all records described in Sections II.E.6.a.i. through iv., above, during the operating life of any well authorized by this Permit and shall make such records available at all times for inspection at the facility. The Permittee shall only discard the records described in Sections II.E.6.a.i. through iv., if:

i. The records are delivered to the EPA Region 9 Groundwater Protection Section; or

ii. Written approval from EPA to discard the records is obtained.

7. Reporting

a. The Permittee shall submit to EPA Quarterly Reports containing, at minimum, the following information gathered during the Reporting Period identified in Section II.E.7.b.:

i. Injection fluid characteristics for parameters specified in Section II.E.1.a.;

ii. When appropriate, Injectate Hazardous Waste Determination according to Section II.D.1.b.;

iii. The results of any additional MITs, FOTs, logging or other tests, as required by EPA;

iv. Any pressure tests, as required by Section II.D.2.a.i.;

v. Shut-in static reservoir pressure cumulative behavior plot of the injection zone, as required by Section II.B.3.a.F.;

vi. The results of the static bottom hole pressure measurement/survey and associated plots/graphs of the latest static reservoir pressure required by Section II.E.2;

vii. Updates to the hydrological model and risk assessment model performed under Section II.E.3;

viii. Hourly and daily values, submitted in electronic format, for the continuously monitored parameters specified for the injection wells in Section II.E.5.a.; and

ix. Monthly cumulative total volumes, as well as monthly average, minimum, and maximum values for the continuously monitored rate, pressure, and temperature parameters specified for the injection wells in Section II.E.5.a., unless more detailed records are requested by EPA.

b. Quarterly Reports, with the applicable Appendix C forms, shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
Jan, Feb, Mar	Apr 28
Apr, May, June	July 28
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28

c. For the Quarterly Report covering the reporting period of January, February, and March, the Permittee shall also include in that Report the following information collected during the prior year covering January through December:

i. Annual reporting summary;

ii. Annual injection profile survey results as required in Section II.D.2.a.iii.;

iii. A narrative description of all non-compliance with the Permit that occurred during the past year.

d. Semi-annually by July 28th and January 28th, the Permittee shall submit a report that updates the hydrologic conditions in the Panoche Formation Injection Interval for the six previous months (January-June and July-December). The report will summarize injectate monitoring data collected per II.E.1, and formation pressure measurements gathered per II.E.2. , including: a cumulative tabulation of the measurements/analytical results (since the commencement of monitoring activities), a description of trends in the measurements over time, and an interpretation regarding whether the data demonstrates that there is no hydraulic communication between the injection zone and the USDW via abandoned wells in the AOR and that USDWs are not endangered.

e. In addition to meeting the submittal requirements of Section III.E.9., digital e-copies of all Quarterly Reports shall also be provided to the following:

California Geologic Energy Management Division
Inland District
Attention: Supervising Oil and Gas Engineer
William.Long@conservation.ca.gov

Central Valley Regional Water Quality Control Board
Attention: Permit Section
Dale.Harvey@waterboards.ca.gov

f. By 60 days following April 30, 2025, the Permittee shall submit for EPA's review and approval an area wide database that collates available empirical hydrogeologic conditions in the subsurface and operational parameters of the facility injection wells. Permittee will submit an accompanying report that will detail sources of the database information, including a tabulation of the acquired measurements and analytical results, and an analysis of variability in hydrogeologic parameters.

g. By 60 days following EPA's approval of II.E.7.f., the Permittee shall submit for EPA's review and approval an area wide lithofacies-controlled, property-based three-dimensional static model that is a representation of the subsurface detailing the temporal and spatial distribution of hydrogeologic conditions in the facility injection wells and surrounding area. Permittee will submit an accompanying report that will detail the workflow used to create and populate the static model with available relevant hydrogeological parameters.

h. By 30 days following April 30, 2025, the Permittee shall submit for EPA's review and approval a Flow Resistance Model that employs a risk-based

assessment of potential hydrogeologic communication between the injection zone and the USDW. Permittee shall submit an accompanying report that will detail the workflow used to create the Flow Resistance Model and discuss the impacts of uncertainty on the assessment of risk.

i. By 60 days following EPA's approval of II.E.7.g., the Permittee shall submit for EPA's review and approval the results of an area wide three-dimensional dynamic model that is a representation of the subsurface system that simulates how fluid flows and pressures have changed over time and are expected to change in the future. Permittee will submit an accompanying report that will detail the workflow and assumptions used to create and run the base-case dynamic model, assessing the impact of uncertainties in reservoir properties or operational conditions via alternative model sensitivity cases, and detail the results of the simulations.

j. By 30 days following EPA's approval of II.E.7.i., the Permittee shall submit for EPA's review and approval, a proposed risk-defined "target pressure" in the injection well field. The report shall describe the data and risk modeling results that informed setting this target pressure.

F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment

The Permittee shall notify EPA no less than sixty (60) days before abandonment of any well authorized by this Permit and shall not perform the plugging and abandonment activities until the Permittee receives written notice of approval by EPA.

2. Plugging and Abandonment Plans

The Permittee shall plug and abandon the well(s) as provided by the Plugging and Abandonment Plan submitted by the Permittee (see Appendix G) and approved by EPA, consistent with CalGEM's "Onshore Well Regulations" of the California Code of Regulations, found in Title 14, Natural Resources, Division 2, Department of Conservation, Chapter 4, Article 3, Sections 1722-1723 and 40 CFR § 146.10. Upon written notice to the Permittee, EPA may change the manner in which a well will be plugged, based upon but not limited to the following reasons: (a) if the well is modified during its permitted life, (b) if the proposed Plugging and Abandonment Plan for the well is not consistent with EPA requirements for construction or mechanical integrity, or (c) otherwise at EPA's discretion. Upon written notice, EPA may periodically require the Permittee to update the estimated plugging cost. To determine the appropriate level of financial assurance for the Plugging and Abandonment Plan, the Permittee has obtained a cost estimate from an independent third-party firm in the business of plugging wells. The estimate includes the costs of

all the materials and activities necessary to pay an independent third-party contractor to completely plug and abandon the injection wells, as established in the Plugging and Abandonment Plan.

3. Cessation of Injection Activities

   After a cessation of injection operations for two (2) years for any wells authorized by this Permit, a well is considered inactive. In this case, the Permittee shall plug and abandon the inactive well in accordance with the approved Plugging and Abandonment Plans, contained in Appendix G, unless the Permittee:

   a. Provides notice to EPA of an intent to re-activate the well(s);

   b. Has demonstrated that the well(s) will be used in the future;

   c. Has described actions or procedures, satisfactory to EPA and approved in writing by EPA, which will be taken to ensure that the well(s) will not endanger USDWs during the period of inactivity, including annually demonstrating external mechanical integrity of the well(s); and

   d. Conducts an initial, Internal MIT on the inactive well(s) and subsequent Internal MITs every two (2) years thereafter while the well(s) remains inactive, demonstrating no loss of mechanical integrity. Note that the Permittee must restore mechanical integrity of the inactive well(s) or plug and abandon the well(s) if it fails the MIT.

4. Plugging and Abandonment Report

   Within sixty (60) days after plugging any well authorized by this Permit, or at the time of the next Quarterly Report (whichever is sooner), the Permittee shall submit a report on Form 7520-19 (see Appendix C), as well as the detailed procedural activity of engineer's log and daily rig log to EPA. The report shall be certified as accurate by the person who performed the plugging operation and shall consist of either:

   a. A statement that the well was plugged in accordance with the approved Plugging and Abandonment Plan contained in Appendix G; or

   b. Where actual plugging differed from the Plugging and Abandonment Plan contained in Appendix G, a statement specifying and justifying the different procedures followed.

G. FINANCIAL ASSURANCE REQUIREMENTS

1. Demonstration of Financial Assurance

   The Permittee is required to demonstrate and maintain financial assurance and resources sufficient to close, plug, and abandon any authorized underground injection operations by this Permit, as provided in the Plugging and Abandonment Plan contained in Appendix G and consistent with 40 CFR § 144 Subpart D.

   In addition, the Permittee shall meet the following specific financial assurance requirements:

   a. Prior to the issuance of this Permit, the Permittee provided, and EPA approved in writing, a financial assurance instrument, consistent with Section II.A.1 of this Permit, to guarantee closure of the wells authorized by this Permit, as follows, in the amount of:

      Well IW1: $302,627
      Well IW2: $348,156
      Well IW3: $273,787
      Well IW4: $270,431

      These values were determined by the Permittee and have factored in the cost for an independent third party to plug and abandon the wells, plus a 20% contingency.

      If the Permittee requests to construct IW5 and/or IW6, the Permittee is required to provide for EPA approval adequate financial assurance to guarantee closure of the well(s) before construction may be authorized.

   b. For each well authorized by this Permit, the Permittee shall review and update, if needed, the financial assurance mechanism annually; a description of that review and any updates shall be set forth in the Quarterly Report due on January 28 of each year. At its discretion, and upon written request, EPA may require the Permittee to change to an alternate method of financial assurance. Any such change must be approved in writing by EPA prior to the change.

   c. EPA may periodically require the Permittee to update the estimated Plugging and Abandonment Plan (see Appendix G) and/or the cost associated with it, and the Permittee shall make such an adjustment within sixty (60) days of notice from EPA. Alternately, EPA may independently adjust the required financial assurance amount, as warranted.

2. Failure of Financial Assurance

The Permittee must notify EPA of the insolvency of a financial institution supporting the financial assurance as soon as possible, but no later than ten (10) days after the Permittee becomes aware of the insolvency. The Permittee shall submit to EPA a revised and/or new instrument of financial assurance, consistent with the terms of this Permit, within sixty (60) days after any of the following events occur:

a. The institution issuing the bond or other financial instrument files for bankruptcy;

b. The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked; or

c. The institution issuing the financial instrument lets it lapse or decides not to extend it.

Failure to submit acceptable financial assurance may result in the termination of this Permit pursuant to 40 CFR § 144.40(a)(1).

3. Insolvency of Owner or Operator

An owner or operator must notify EPA by certified mail of the commencement of voluntary or involuntary proceedings under U.S. Code Title 11 (Bankruptcy), naming the owner or operator as debtor, within ten (10) business days after such an event occurs. A guarantor of a corporate guarantee must make such a notification if he/she is named as debtor, as required under the terms of the guarantee.

H. DURATION OF PERMIT

This Permit and the authorization to inject are issued for a period of ten (10) years unless terminated under the conditions set forth in Section III.B.1 or administratively extended under the conditions set forth in Section III.E.12.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The Permittee is allowed to engage in underground injection well construction and operation in accordance with the conditions of this Permit. The Permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any injection activity not otherwise allowed by this Permit, as such activities may allow the movement of fluid containing any contaminant into USDWs (as defined by 40 CFR §§ 144.3 and 146.3).

No injection fluids are allowed to migrate to any nearby oilfield production wells. Further, this Permit requires systematic and predictive documentation over the facility's operational life to ensure that no injection fluids, either presently or in the future, will migrate to oilfield operation or geothermal production wells.

Any underground injection activity not specifically authorized in this Permit is prohibited (40 CFR § 144.11). The Permittee must comply with all applicable provisions of the Safe Drinking Water Act (SDWA) and 40 CFR Parts 124, 144, 145, 146, 147 and 148. Such compliance does not constitute a defense to any action brought under Section 1431 of the SDWA, 42 U.S.C. § 300(i), or any other common law, statute, or regulation other than Part C of the SDWA. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this Permit shall be construed to relieve the Permittee of any duties under all applicable, including future, laws or regulations.

B. PERMIT ACTIONS

1. Modification, Revocation and Reissuance, or Termination

   EPA may, for cause or upon request from the Permittee, modify, revoke and reissue, or terminate this Permit in accordance with 40 CFR §§ 124.5, 144.12, 144.39, 144.40, and 144.51(f). The Permit is also subject to minor modifications for cause as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated non-compliance by the Permittee, does not stay the applicability or enforceability of any permit condition. EPA may also modify, revoke and reissue, or terminate this Permit in accordance with any amendments to the SDWA if the amendments have applicability to this Permit.

2. Transfers

   This Permit is not transferable to any person unless notice is first provided to EPA and the Permittee complies with requirements of 40 CFR § 144.38. *See also* 40 CFR § 144.51(l)(3). EPA may require modification or revocation and reissuance of the Permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the SDWA.

C. SEVERABILITY

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

D. CONFIDENTIALITY

In accordance with 40 CFR §§ 2 and 144.5, any information submitted to EPA pursuant to this Permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures contained in 40 CFR § 2 (Public Information). Claims of confidentiality for the following information will be denied:

1. Name and address of the Permittee; or

2. Information dealing with the existence, absence, or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

The provisions of 40 CFR § 144.51 are incorporated by reference into this Permit, except as modified by specific provisions in this Permit. In addition, the following general duties and requirements apply to this Permit and the Permittee.

1. Duty to Comply

   The Permittee shall comply with all applicable UIC Program regulations and all conditions of this Permit, except to the extent and for the duration such non-compliance is authorized by an emergency permit issued in accordance with 40 CFR § 144.34. Any permit non-compliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification, or denial of a permit renewal application. Such non-compliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).

2. Penalties for Violations of Permit Conditions

   Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may also be subject to enforcement actions pursuant to RCRA or other actionable authorities. Any person who willfully violates a permit condition may be subject to criminal prosecution.

3. Need to Halt or Reduce Activity Not a Defense

   It shall not be a defense for the Permittee 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 Permit.

4. Duty to Mitigate

   The Permittee shall take all reasonable steps to minimize and correct any adverse impact on the environment resulting from non-compliance with this Permit.

5. Proper Operation and Maintenance

   The Permittee shall 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 Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

6. Property Rights

   This Permit does not convey any property rights of any sort, or any exclusive privilege.

7. Duty to Provide Information

   The Permittee shall furnish to EPA, within a time specified, any information which EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to EPA, upon request, copies of records required to be kept by this Permit.

8. Inspection and Entry

   The Permittee shall allow EPA, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Permit;

b. Have access to and copy, at reasonable times, any records that are kept under the conditions of this Permit;

c. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.

9. Submittal Requirements

The Permittee shall follow the procedures set forth below for all submittals made to EPA under this Permit, including all notices and reports:

a. All submittals to EPA shall be signed and certified by a responsible corporate officer or duly authorized representative consistent with the requirements of 40 CFR §§ 122.22, 144.32, and 144.51(k).

b. Unless otherwise required by this Permit or rule, all submissions (including correspondence, reports, records and notifications) required under this Permit shall be in writing and mailed first class mail to the following address:

U.S. Environmental Protection Agency, Region 9
Water Division
UIC Program
Groundwater Protection Section (WTR-4-2)
75 Hawthorne St.
San Francisco, CA 94105-3901

and by e-mail to: albright.david@epa.gov.

c. The compliance date for submittal of a report is the day it is mailed.

10. Additional Reporting Requirements

a. Planned Changes

The Permittee shall give notice to EPA as soon as possible of any planned physical alterations or additions to the permitted facility.

b. Anticipated Non-compliance

The Permittee shall give advance notice to EPA of any planned changes in the permitted facility or activity which may result in non-compliance with permit requirements.

c. Compliance Schedules

Reports of compliance or non-compliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted to EPA no later than thirty (30) days following each schedule date.

d. Monitoring Reports

Monitoring results shall be reported at the intervals specified elsewhere in this Permit.

e. Twenty-four Hour Reporting

i. The Permittee shall report to EPA any non-compliance which may endanger health or the environment, including:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW; or

(b) Any non-compliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs.

ii. Any information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. A written submission of all non-compliance as described in Section III.E.10.e.i., above, shall also be provided to EPA within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain: a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times; if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps

taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.

f. Other Non-compliance

At the time monitoring reports are submitted, the Permittee shall report in writing all other instances of non-compliance not otherwise reported pursuant to other reporting requirements outlined in this Permit. The Permittee shall submit the information listed in Section III.E.10.d.

g. Other Information

If the Permittee becomes aware that it failed to submit all relevant facts in the permit application, or submitted incorrect information in the permit application or in any report to EPA, the Permittee shall submit such facts or information within two (2) weeks of the time such facts or information becomes known.

11. Requirements Prior to Commencing Injection, Plugging and Abandonment Report, Duty to Establish and Maintain Mechanical Integrity

The Permittee shall comply with all applicable requirements set forth at 40 CFR §§ 144.51(m)-(q) and as outlined throughout this Permit.

12. Continuation of Expiring Permit

a. Duty to Re-apply

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee must submit a complete application to EPA for a new permit at least three hundred and sixty five (365) days before this Permit expires.

d. Permit Extensions

The conditions and requirements of an expired permit continue in force and effect in accordance with 5 U.S.C. § 558(c) until the effective date of a new permit, if:

i. The Permittee has submitted a timely and complete application for a new permit; and

ii. EPA, through no fault of the Permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

13. Records of Permit Application

The Permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted with the permit application.

14. Availability of Reports

Except for information determined to be confidential under 40 C.F.R. Part 2, Subpart B, all permit applications, permits, reports, and well operation data prepared in accordance with the conditions of this Permit shall be available for public inspection at appropriate offices of the EPA.

United States Environmental Protection Agency
Underground Injection Control Program

FINAL PERMIT

Class I Non-hazardous Waste Injection Wells

Permit No. R9UIC-CA1-FY17-2R (the Permit)

Well Names: IW1, IW2, IW3, IW4, IW5, and IW6

Issued to:

Panoche Energy Center, LLC
43883 West Panoche Road
Firebaugh, CA 93622

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PART I. AUTHORIZATION TO INJECT

Pursuant to the Underground Injection Control (UIC) regulations of the U.S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations (CFR) Parts 124, 144, 145, 146, 147, and 148,

Panoche Energy Center, LLC (PEC or the Permittee)
43883 West Panoche Road
Firebaugh, CA 93622

is hereby authorized, as owner and operator, and contingent upon Permit conditions, to operate an existing injection well facility. In April 2008, EPA issued UIC Program Permit CA10600001, authorizing the construction and operation of up to six (6) injection wells (IW1, IW2, IW3, IW4, IW5, and IW6). IW1, IW2, IW3, and IW4 were installed at the PEC site in 2009. This Permit authorizes continued operation of wells IW1, IW2, IW3, and IW4. The Permit also authorizes the construction and operation of up to two (2) potential additional wells, IW5 and IW6, with no change in injection volume or maximum allowable injection pressure.

The facility is in the southwest quarter of Section 5, Township 15 South, Range 13 East, approximately 16 miles southwest of the City of Firebaugh, California.

EPA authorizes the Permittee to continue operating the four (4) Class I wells conditioned upon the Permittee meeting the Monitoring Requirements set forth in Section II.E.~~2~~ of this Permit, and the Financial Assurance requirements set forth in Section II.G of this Permit. Injection operation of the permitted wells will continue to be limited to the maximum volume and pressure as established by the previously conducted Step-Rate Test under EPA Permit No. CA10600001, and in accordance with terms and conditions in this Permit. If potential additional wells IW5 and/or IW6 are constructed during the term of the Permit, Financial Assurance requirements must be met prior to construction. No changes to the operating conditions or total volume injected and pressure limitations will be authorized if the additional wells are constructed.

The Permittee is limited to injecting into the four (4) wells fluids that consist of cooling tower blowdown water, reverse osmosis system reject water, evaporative cooler blowdown water, combustion turbine intercooler condensate, enhanced wastewater system (EWS) water, and oil/water separator discharge water associated with operations of a simple cycle power generation plant that consists of four natural gas-fired combustion turbine generators. If authorized, the fluids authorized to be injected into IW5 and/or IW6 will be identical to those listed above.

This Permit authorizes injection by Wells IW1, IW2, IW3, IW4 and potential additional Wells IW5 and IW6 to dispose of these wastewaters into the Panoche Formation at depths ranging between approximately 7,199 to 8,897 feet below ground surface. The Panoche Formation at the location of the wells has greater than 10,000 mg/L total dissolved solids and is confined above by the approximately 1,148-foot-thick Tierra Loma Member of the Moreno Formation and the 308 foot-thick Marca Member of the Moreno Formation.

All conditions set forth herein are based on 40 CFR Parts 124, 144, 145, 146, 147 and 148, and are regulations that are in effect on the date that this Permit is effective.

This Permit consists of thirty-~~three~~ **four (~~33~~34)** pages plus the appendices, and includes all items listed in the Table of Contents of the Permit. Further, the Permit is based upon representations made by PEC and on other information contained in the administrative record. It is the responsibility of the Permittee to read, understand, and comply with all terms and conditions of this Permit.

This Permit is issued for a period of ten (10) years unless the Permit is terminated under the conditions set forth in Section III.B.1 or administratively extended under the conditions set forth in Section III.E.12 of this Permit.

This Permit ~~is~~ **was** issued on _____ **September 30, 2022** and ~~becomes~~ **became** effective on _____ **October 31, 2022. This Permit includes a Major Modification, which is issued and effective on April 30, 2025.**

/s/
Tomás Torres, Director
Water Division, EPA Region 9

PART II. SPECIFIC PERMIT CONDITIONS

A. REQUIREMENTS PRIOR TO DRILLING, TESTING, CONSTRUCTING, OR OPERATING

1. Financial Assurance

   The Permittee's plugging and abandonment cost estimate and chosen financial assurance mechanism for the wells authorized by this Permit meet the requirements of 40 CFR § 144.52(a)(7).

2. Field Demonstration Submittal, Notification, and Reporting

   a. Prior to each field demonstration required by and described in the following Section II.B.3.a., and the initial mechanical integrity tests required in Sections II.D.1.a., 2.a., and 2.b., the Permittee shall submit plans for procedures and specifications to the EPA Region 9 Groundwater Protection Section for approval at a minimum of sixty (60) days prior to the planned demonstration. Submittals shall be made in accordance with Section III.E.9 of this Permit. No demonstration in the Sections listed above may proceed without prior written approval from EPA.

   b. After receipt of approval of the Permittee's proposed field demonstrations in writing from EPA, the Permittee must provide notice to EPA in accordance with Section **III.**E.9.b. of this Permit at least thirty (30) days prior to performing any required field demonstrations.

   c. Unless otherwise specified elsewhere in this Permit, the Permittee shall submit results of each such field demonstration required by Sections II.B. through D. to EPA within sixty (60) days of completion, unless otherwise directed by EPA (Refer to Part III.E.9.b).

B. CONDITIONS FOR EXISTING WELL AND FUTURE WELL CONSTRUCTION

1. Surface Location

   The four (4) injection wells authorized by this Permit are located as follows:

   Well IW1: Located at 36° 39' 2.321" N, 120° 35' 1.777" W
   Well IW2: Located at 36° 39' 2.164" N, 120° 35' 5.637" W
   Well IW3: Located at 36° 39' 2.264" N, 120° 35' 0.170" W
   Well IW4: Located at 36° 39' 3.372" N, 120° 35' 9.076" W

   The two (2) potential additional wells authorized by this Permit are proposed to be located as follows:

Well IW5: Located at 36° 39' 0.201" N, 120° 35' 1.069" W
Well IW6: Located at 36° 39' 0.248" N, 120° 35' 8.834" W

The facility is in the southwest quarter of Section 5, Township 15 South, Range 13 East, approximately 16 miles south-southwest of the City of Firebaugh, California.

2. Well Construction Details

Well schematics for the four (4) existing wells authorized by this Permit are contained in Appendix B of this Permit. The Permittee shall at all times maintain the wells consistent with these Well Schematics.

The Permittee shall submit updated Well Schematics for the proposed additional wells, IW5 and/or IW6, and must receive EPA approval prior to commencing drilling and construction of each of the wells. Appendix B contains draft Well Schematics for these potential additional wells, for informational purposes only.

3. Injection Formation Testing

a. Pressure Fall Off Test (FOT)

A. A FOT shall be performed approximately six (6) months after the permit becomes effective, if an FOT has not been conducted within the last six (6) months under the prior permit. If an FOT has been performed within six (6) months under the prior permit, the next FOT shall be performed one year after the prior FOT.

B. The Permittee shall conduct this FOT in either Well IW1, IW2, IW3, or IW4 as proposed in procedures submitted to EPA for approval to determine and monitor formation characteristics. The Permittee shall conduct the FOT after a radial flow regime has been established at an injection rate that is representative of the wastewater contribution to the well. The other injection wells shall either be inactive, or operated at a constant rate, prior to and during the FOT, in order to obtain reliable pressure data and accurate results. The Permittee shall conduct the FOT in accordance with EPA Region 9 guidance found in Appendix E, and as follows.

C. The Permittee shall submit to EPA for review and approval a detailed plan for the FOT that is developed in accordance with EPA Region 9 guidance in Appendix E. Once EPA provides written approval of the test plan, the Permittee may schedule the FOT, providing EPA at least thirty (30) days' notice before the test is

conducted. The final FOT report shall be submitted to EPA within sixty (60) days of test completion.

D. The Permittee shall use the test results to recalculate the Zone of Endangering Influence (ZEI), consistent with procedures set forth at 40 CFR § 146.6, and to evaluate whether any corrective action will be required (refer to Section II.C.). The Permittee shall include a summary of the ZEI recalculation with the FOT report.

E. After conducting the FOT required in Section **II.B.3.a** above, the Permittee shall conduct a FOT within 9 to 15 months of the previous FOT thereafter following the same procedures described in Sections **II.B.3.a.A** and **II.B.3.a.B**. The Permittee may conduct the annual FOT in conjunction with the annual External Mechanical Integrity Test (MIT) demonstration, as required by Section II.D.2.a.iii.

F. The Permittee shall create a plot/graph of the latest static reservoir pressure of the injection zone and its cumulative behavior over time, the plot shall be included with the annual FOT report each year.

4. Injection Interval

Wells IW1, IW2, IW3, and IW4 are currently authorized to inject into the Panoche Formation, which has greater than 10,000 mg/L total dissolved solids. Injection by the wells is only permitted into the Panoche Formation, within the depth range as depicted in the well schematics in Appendix B (i.e., at depths ranging between 7,199 and 8,897 feet below ground surface). Potential Wells IW5 and IW6 may be authorized to inject into the Panoche Formation, within the depth range as depicted in the draft well schematics in Appendix B (i.e., at depths ranging between approximately 7,500 and 9,000 feet below ground surface).

5. Monitoring Devices

The Permittee shall maintain in good operating condition at all times during operation of Wells IW1, IW2, IW3, and IW4, and the potential additional wells IW5 and IW6, the following monitoring devices:

a. A tap on the discharge ~~**line**~~ line shall be located to provide for representative sampling of all wastewaters being injected downstream of any chemical or physical water treatment and as approved in writing by the EPA Director or their delegated representative; and

b. Devices to continuously measure and record injection pressure, annulus pressure, flow rate, and injection volume, subject to the following:

i. Pressure gauges shall be of a design to provide:

(a) A full pressure range of at least fifty (50) percent greater than the anticipated operating pressure; and

(b) A certified deviation accuracy of five (5) percent or less throughout the operating pressure range.

ii. Flow meters shall measure cumulative volumes and be certified for a deviation accuracy of five (5) percent or less throughout the range of injection rates allowed by the Permit.

6. Proposed Changes and Workovers

a. The Permittee shall give advance notice to EPA, as soon as possible, pursuant to and in accordance with 40 CFR § 144.51(l), of any planned physical alterations or additions to any of the wells authorized by this Permit, including sidetracking and deepening or perforating additional intervals. Any changes in well construction, including changes in casing, tubing, packers, and/or perforations other than minor changes, require prior written approval by EPA and may require a permit modification application under the requirements of 40 CFR § 144.39 or § 144.41. Modifications that are considered routine in well construction details, such as tubing dimensions and strengths, packer models, types and setting depths, and perforation interval changes within the permitted injection zone, may be processed by EPA as minor permit modifications, consistent with 40 CFR § 144.41 and Section III.B.1 of this Permit.

b. For each well authorized by this Permit, the Permittee shall provide all records of well workovers, logging, or other subsequent test data to EPA within sixty (60) days of completion of the activity.

c. The Permittee shall submit all reports required by this Permit using the appropriate reporting forms (see Appendix C).

d. The Permittee shall perform a MIT on each well authorized by this Permit using the procedures set forth in Sections II.D.1.a. and II.D.2. within thirty (30) days of completion of workovers or alterations and prior to resuming injection activities, in accordance with Section II.D.1. The Permittee shall provide results of the MIT to EPA within sixty (60) days of completion.

C. CORRECTIVE ACTION

Prior to granting authorization to inject under this Permit, the Permittee is not required to conduct any corrective action, in accordance with 40 CFR §§144.55 and 146.7. Determination of future corrective action and implementation is discussed below:

1. Annual Zone of Endangering Influence Review

   Annually, beginning with the first FOT conducted under this Permit, the Permittee shall review the ZEI calculation based on any new data obtained from the FOT and static reservoir pressure observations required by Section II.B.3.a. The Permittee shall provide to EPA a copy of the modified ZEI calculations, along with all associated assumptions and justifications, with the next Quarterly Report, as required by Section II.E.**6 7**.c. ~~**This review shall address the Permittee's interpretation of the pressure and specific conductance monitoring and chemical analyses in the report required in Section II.E.6 7.c.**~~

2. Implementation of Future Corrective Actions

   a. If any additional wells are found within the modified ZEI referenced above, a list of the wells along with their locations and construction data shall be provided to EPA within thirty (30) days of their identification.

   b. If required by EPA, the Permittee shall submit a plan for approval by EPA to re-enter, plug, and abandon the wells listed in Section II.B.1.~~,~~ above, in a way that prevents the migration of fluids into a USDW. The Permittee may submit an alternative plan to address the potential for fluid migration in any of these wells to EPA.

   c. Corrective action may be required after permit issuance to address any wells within the area of review that may allow migration of fluids into underground sources of drinking water. EPA will use the annual FOT results**, annual** re-calculation of the ZEI, **and other enhanced modeling, as well as monitoring, recordkeeping, and reporting of results to be provided by the Permittee and** ~~**along with USDW monitoring results from the monitoring well**, as described in Section V. Monitoring, Recordkeeping, and Reporting of Results~~ **described in Section E** below, to determine the potential need for any future corrective action.

   d. The Permittee shall not commence corrective action activities without prior written approval from EPA.

D. WELL OPERATION

1. Required Demonstrations

   a. Mechanical Integrity

      i. Within one (1) year of the most recent mechanical integrity testing conducted under the existing EPA Permit No. CA10600001, the Permittee shall conduct an MIT to demonstrate that each well

authorized by this Permit has mechanical integrity consistent with 40 CFR § 146.8 and with Section II.D.2.a. The Permittee shall demonstrate that there are not significant leaks in the casing and tubing (internal mechanical integrity) and that there is not significant fluid movement into or between USDWs through the casing wellbore annulus or vertical channels adjacent to the injection wellbore (external mechanical integrity).

b. Injectate Hazardous Waste Determination

i. Within sixty (60) days of the effective date of this Permit, the Permittee shall certify as unchanged, the existing Injectate "Hazardous Waste Determination" of each unique waste stream source injected into each well authorized by this Permit, as listed in Section II.D.5.a, in accordance with 40 CFR § 262.11. If a change is identified, a new determination must be performed within sixty (60) days of the effective date of this Permit.

ii. Whenever there is a process change or a change in fluid chemical constituents or characteristics of the injectate at the power generating plant, the Permittee shall perform an additional "Hazardous Waste Determination" for each unique waste stream source listed in Section II.D.5.a. The Permittee should also refer to injectate testing requirements set forth in Section II.E.1., below. A letter with the results of the analyses shall be submitted to EPA within sixty (60) days of the "Hazardous Waste Determination" completion.

2. Mechanical Integrity

a. Mechanical Integrity Tests

Mechanical integrity testing shall conform to the following requirements throughout the life of each well authorized by this Permit and in accordance with the requirements set forth at 40 CFR §§ 144.51(q) and 146.8:

i. Casing/Tubing Annular Pressure (Internal MIT)

In accordance with the timing requirements defined in Section II.D.2.b., below, the Permittee shall perform a pressure test on the annular space between the tubing and long string casing to demonstrate the absence of significant leaks in the casing, tubing and/or liner. This test shall be for a minimum of thirty (30) minutes at a pressure equal to or greater than the maximum allowable surface injection pressure (MAIP). A well passes the MIT if there is less than a five (5) percent change in pressure over the thirty (30) minute period. A pressure differential of at least three hundred and fifty (350)

pounds per square inch (psig) between the tubing and annular pressures shall be maintained throughout the MIT. This test shall be performed on each well authorized by this Permit initially as described in Section II.D.1.a.

Detailed plans for conducting the Internal MIT must be submitted to EPA for review and approval. Once approved, the Permittee may schedule the Internal MIT, providing EPA at least thirty (30) days' notice before the Internal MIT is conducted. The final test report shall be submitted to EPA within sixty (60) days of test completion.

ii. Continuous Pressure Monitoring

The Permittee shall continuously monitor and record the tubing/casing annulus pressure and injection pressure by a digital instrument with a resolution of one tenth (0.1) psig. The average, maximum, and minimum monthly results shall be included in the next Quarterly Report submitted to EPA pursuant to Section II.E.~~6~~7.b., along with any additional records or data requested by EPA regarding the continuous monitoring data described in this Section.

iii. Injection Profile Survey (External MIT)

In conjunction with and consistent with the deadlines for the first FOT conducted under this Permit, as required in Section II.B.3.B~~4b~~., the Permittee shall conduct a demonstration that the injectate is confined to the proper zone and submit the results of the demonstration to EPA for approval.

This demonstration shall consist of a radioactive tracer survey and a temperature log (as specified in Appendix D) or other diagnostic tool or procedure as approved by EPA.

Detailed plans for conducting the External MIT must be submitted to EPA for review and approval. Once approved, the Permittee may schedule the External MIT, providing EPA at least thirty (30) days' notice before the External MIT is conducted. The final test report shall be submitted to EPA within sixty (60) days of test completion.

b. Schedule for MITs

EPA may require that an Internal and/or External MIT be conducted, upon written request, at any time during the permitted life of each well authorized by this Permit. The Permittee shall also arrange and conduct MITs in each well authorized by this Permit according to the following requirements and schedule:

i. Within thirty (30) days from completion of any work-over operation where well integrity is compromised, an Internal MIT shall be conducted, and the results submitted to EPA for approval to verify that the well has mechanical integrity. Prior to this field demonstration, the Permittee shall submit testing plans to EPA, as described in Section II.A.2.

ii. At least annually, an injection profile survey External MIT shall be conducted in accordance with 40 CFR § 146.8 and Section II.D.2.a.iii., above.

iii. At least once every five (5) years, an Internal MIT shall be conducted in accordance with 40 CFR § 146.8 and Section II.D.2.a.i., above.

c. If Well IW5 and/or IW6 are constructed, the Permittee must conduct internal and exter~~m~~nal MITs in accordance with the procedures and schedules outlined in Part II.D.2, above.

d. Loss of Mechanical Integrity

Within twenty-four (24) hours from the time the Permittee becomes aware of any loss of mechanical integrity in any well authorized by this Permit, the Permittee shall notify EPA of the situation and specify which of the following circumstances apply:

i. The well fails to demonstrate mechanical integrity during a test; or

ii. A loss of mechanical integrity becomes evident during operation; or

iii. A significant change in the annulus or injection pressure occurs during normal operating conditions. See Section II.D.6.b.

In the event of a loss of mechanical integrity, the Permittee shall immediately suspend injection activities in the affected well and shall not resume operation until it has taken necessary actions to restore and confirm mechanical integrity of the affected well, and EPA has provided written approval to recommence injection into the affected well.

The Permittee may not recommence injection after a workover which has compromised well integrity (e.g., unseating the packer, etc.) until it has received written approval from EPA that the demonstration of mechanical integrity is satisfactory.

3. Injection Pressure Limitation

For each well authorized by this Permit:

a. MAIP measured at the wellhead shall not exceed the values listed below at each well for injection into the Panoche Formation.

IW1: 2,478 psi
IW2: 2,416 psi
IW3: 2,478 psi
IW4: 2,478 psi

b. In no case shall the Permittee inject at pressures that (i) initiate new fractures or propagate existing fractures in the injection zone or the confining zone, (ii) cause the movement of injection or formation fluids into or between USDWs, or (iii) allow injection fluids to migrate to oilfield production wells.

c. Step Rate Testing (SRT), in accordance with EPA guidance is required prior to final establishment of injection presssure limits for the potential additional wells IW5 and/or IW6. Initial injection pressure(s) will not be greater than those set for the existing wells (as above).

4. Injection Volume (Rate) Limitation

For each well authorized by this Permit:

a. The **total** daily injection rate **summed across all** ~~**at each**~~ well**s** shall not exceed **a cumulative volume of 635,229 gallons per day, and may not exceed** the **individual daily** values listed below **per each of the four injection wells** at any time. This rate will be subject to a~~**n**~~ **semi-**annual review based on the annual ZEI determinations performed as described in Section II.C.2. If IW5 and/or IW6 are constructed, no increase in the total volume authorized to be injected under this Permit is authorized.

IW1: 144,039 gallons
IW2: 172,041 gallons
IW3: 155,147 gallons
IW4: 164,002 gallons

b. The Permittee may request an increase in the maximum rate allowed in Section II.D.4.a. **or the maximum volumes in Section II.D.4.c**~~**, above**~~. Any such request shall be made in writing, along with a justification for the proposed increase, to EPA for its review and approval.

c. Should any increase in injection rate be requested, the Permittee shall demonstrate to the satisfaction of EPA that the proposed increase will not interfere with the operation of the facility, its ability to meet conditions described in this Permit, change its well classification, or cause migration of injectate or pressure buildup to occur beyond the AOR.

d. The injection rate shall not cause an exceedance of the injection pressure limitation established pursuant to Section II.D.3.a.

e. **The cumulative injection volume summed across all wells on an annual basis shall not exceed a total of 120 million gallons, nor shall it exceed a cumulative total of 30 million gallons in any given quarter.**

5. Injection Fluid Limitation

a. This Permit authorizes injection of the following fluids into the wells authorized by this Permit: cooling tower blowdown water, reverse osmosis system reject water, evaporative cooler blowdown water, combustion turbine intercooler condensate, enhanced wastewater system (EWS) water, and oil/water separator discharge water generated from the power generating plant.

b. The Permittee shall not inject any hazardous waste, as defined by 40 CFR § 261, at any time. See also Section II.D.1.b.

c. Injection fluids shall be limited to those authorized by this Permit, which includes those fluids produced by the Permittee as described in Section II.D.5.a., above.

d. Particulate Filters may be used upstream of any well authorized by this Permit, at the discretion of the Permittee, to prevent formation plugging or damage from particulate matter. The Permittee shall include any filter specifications in the Quarterly Report due annually in January as required in Section II.E.~~6~~7.c., including proposed particle size removal with any associated justification for the selected size. For any particulate filters used, the Permittee shall follow appropriate waste analysis and disposal practices consistent with local, state, and federal law, and provide documentation to EPA.

e. Any well stimulation or treatment procedure (e.g., acidizing) performed at the discretion of the Permittee shall be proposed and submitted to EPA for approval. After approval is granted, notification to EPA is required at least thirty (30) days prior to performing the approved procedure. This requirement may be modified if the Permittee submits, within sixty (60) days after the effective date of the permit, a standard operating procedure for well

stimulation or treatment for EPA approval. If the standard operating procedure plan is approved by EPA in writing, the Permittee may notify EPA within fifteen (15) days of the proposed well stimulation or treatment procedure, provided the procedure does not deviate in any way from the EPA-approved plan.

6. Tubing/Casing Annulus Requirements

For any well authorized by this Permit:

a. The Permittee shall use and maintain corrosion-inhibiting annular fluid during well operation. See Appendix H for a complete, generic description and characterization of the annular fluid.

b. The Permittee shall maintain a minimum pressure of one hundred (100) psig at shut-in conditions on the tubing/casing annulus.

c. Any annular pressure measured outside of the established normal pressure range, as previously determined under existing EPA Permit No. CA10600001, regardless of whether it otherwise meets the requirements of this Permit, shall be reported orally to EPA within twenty-four (24) hours, followed by a written submission within five (5) days, as a potential loss of mechanical integrity. In the submission, the Permittee must describe the event and include details, such as associated injection pressures and temperatures. The Permittee shall provide any additional information regarding the reported annular pressure event requested by EPA within sixty (60) days of receipt of a written request from EPA, or such other time frame established in writing by EPA.

E. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Fluid Monitoring Program

The Permittee shall sample and analyze injection fluids to yield representative data on their physical, chemical, and other relevant characteristics. Test results shall be submitted by the Permittee to EPA on a quarterly basis (see Section II.E.~~6~~7, below).

Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods described in Table I of 40 CFR § 136.3 or in EPA Publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," and as described below, unless other methods have been approved by EPA or additional approved methods or updates to the methods listed below become available.

a. Summary of Acceptable Analytic Methods

i. Inorganic Constituents – USEPA Method 300.0, Part A for Major Anions (with the exception of Fluoride, which may be analyzed by SM-4500-F), and USEPA Method 200.8 or USEPA Method 200.7 for Cations and Trace Metals.

ii. Solids – Standard Methods 2540C and 2540D for Total Dissolved Solids (TDS) and Total Suspended Solids (TSS).

iii. General and Physical Parameters – appropriate USEPA methods for Turbidity, pH, Conductivity, Hardness, Specific Gravity, Alkalinity, and Biological Oxygen Demand (BOD); and Density and Viscosity (see EPA Bulletin 712-C-96-032) under standard conditions.

iv. Volatile Organic Compounds (VOCs) – USEPA Method 8260B or the most recently-approved EPA method.

v. Semi-Volatile Organic Compounds (SVOCs) – USEPA Method 8270C or the most recently-approved EPA method.

b. Timing of Analysis of Injection Fluids

Injection fluid sampling and analyses as outlined in Section II.E.1.a. above shall be performed, at the required timing or frequency:

i) Within thirty (30) days after the effective date of this Permit. If no change in injection fluid has occurred from the prior permit, the Permittee shall certify there has been no change within the specified timeframe; and

ii) On a quarterly basis; and

iii) Whenever there is a change in injection fluids such as whenever the injection fluid is no longer representative of previous samples and measurements that have been submitted and approved.

2. **Quarterly Static Bottomhole Pressure Measurement**

Commencing the first quarter after April 30, 2025, the Permittee shall submit to EPA on a quarterly basis a static bottom hole pressure measurement/survey from each injection well. A bottom hole pressure measurement/survey is to be taken at each injection well on a quarterly basis and reported to EPA for the duration of this permit. These static pressure surveys shall be performed each quarter after allowing for a shut-in period in each well for a period of time sufficient to allow the pressure in its injection interval(s) to reach equilibrium, in accordance with 40 CFR 146.68(e)(l).

a. As required in Section II.B.3.a.F, the Permittee shall include these quarterly static pressures on the plot/graph of the latest static reservoir pressure of the injection zone and its cumulative behavior over time, the plot shall be included with the quarterly report required under Section II.E.7.a. and submitted by the respective due dates as listed in Section II.E.7.b.

b. The permittee shall provide quarterly demonstrations to EPA that the bottom hole pressure buildup is less than a risk-defined "target pressure" in the injection well field. The demonstration shall be based upon the results of the annual falloff test and the quarterly static bottomhole pressures as specified in this section for the injection wells after correcting for an analysis of skin effects and adjusting all pressure survey data to a common reference depth. The permittee shall submit the updated demonstrations and results to EPA with the quarterly report required under Section II.E.7.a. and submitted by the respective due dates as listed in Section II.E.7.b.

c. Measured bottomhole pressures that are less than 80% of the risk-defined target pressure represent acceptable operating conditions in the Panoche Formation Injection Interval. If the measured bottomhole pressure exceeds 80% of the risk-based target pressure in the Panoche Formation Injection Interval, EPA may require more frequent static bottom hole pressure surveys and analyses or may initiate alternative mitigating steps such as a reduced quarterly volume restriction or decreased frequency of injection operations. If the measured pressure buildup reaches 90% or greater of the risk-based target pressure, EPA may require the facility to cease injection into the Panoche Formation Injection Interval until such time that pressure return to acceptable conditions or take other appropriate mitigating actions.

~~**USDW Monitoring**~~

~~**Monitoring Well Installation – pursuant to 40 CFR §§ 146.13 (b) and (d) :**~~

~~**a. The Permittee shall install one (1) monitoring well to perform chemical analysis and measure specific conductance and formation pressure in order to identify potential changes in the USDW in the vicinity of one (1) nearby abandoned well, as described below in Monitoring Requirements. The one (1) monitoring well shall be located within 100 feet to the south-southwest of the Silver Creek 18 Well.**~~

~~**b. Within 60 days of the effective date of this Permit, and prior to drilling the monitoring well, the Permittee shall submit to EPA, for review and approval, a detailed construction plan and procedures, including the proposed field coordinates (Section, Township, Range, with latitude/longitude) for the**~~

surface location of the proposed monitoring well. The plans and procedures must describe how the Permittee will:

i. Drill the wellbore to the base of the USDW, located at the stratigraphic contact between the Kreyenhagen Shale and the sandy interval in the overlying Tumey Formation;

ii. Equip the well with a transducer to monitor pressure and specific conductance within the USDW, and with water quality monitoring equipment to allow sampling of the USDW; and

iii. Perform baseline characterization of ground water chemistry, to meet the analytical requirements in Part II.E.2., below.

c. Drilling for the installation of the monitoring well must commence within 120 days of the approval of the construction plans and procedures as described in (b) above. Proposed financial assurance for the plugging and abandonment of the monitoring well must also be provided to EPA within 60 days of the effective date of the Permit. Financial assurance is described in Part II.G. 1, below.

d. The Permittee must submit a final well construction report, including logging, and other results, with a schematic diagram and detailed description of construction, including geophysical logs, driller's log, materials used (i.e., tubing tally), and cement (and other) volumes to EPA within sixty (60) days after completion of the monitoring well.

e. The Permittee must also submit a notice of completion of construction to EPA (using EPA Form 7520-18; see Appendix C) within sixty (60) days after completion of the well.

Monitoring Requirements

The Permittee shall perform the following chemical analysis and measure specific conductance and formation pressure in the monitoring well to be installed as described in Part II.E.2.a, in order to identify potential changes within the lowest USDW. The lowest USDW is defined by the sandy interval in the Tumey Formation, overlying the stratigraphic contact with the Kreyenhagen Shale:

a. Record pressure and specific conductance measurements via transducers daily;

b. Sample and perform chemical analysis for the following parameters using the Analytical Methods in Section E.1.a: TDS, alkalinity, anions and cations, trace metals, hardness, pH, specific gravity, total sulfide, oil and

~~grease, and total metals. This analysis shall be performed monthly for the first year of monitoring, and quarterly thereafter; and~~

~~c. Report the results to EPA as described in Section II.E.6.~~

3. **Risk Modeling**

Beginning in the first quarter after April 30, 2025, the Permittee shall perform a semi-annual assessment of risk, as outlined in sections (a) through (d) below, in order to identify potential changes within the lowermost USDW. The lowermost USDW is defined by the sandy interval in the Tumey Formation, overlying the stratigraphic contact with the Kreyenhagen Shale.

a. The Permittee shall develop a three-dimensional hydrological model of the subsurface. The three-dimensional model will be used to assess potential risks to the lowermost USDW based on current conditions in the subsurface.

i. The model shall be based on site-specific and local data describing subsurface formations. The data shall include petrophysical properties (porosity, permeability, water saturation) and physical properties (injection zone thickness, system compressibility, formation fluid quality and fluid viscosity, formation volume factor).

ii. The permittee shall submit the database of information proposed to be used in the model to EPA for review prior to performing the modeling.

b. The permittee shall perform hydrological modeling and risk assessment using the data collected as described under (a) above and incorporating appropriate sensitivity analyses (i.e., that represent the range of site-specific and local values in the database) and submit the results to EPA with the Quarterly Reports required in Section II.E.7.a.;

c. The Permittee shall revise the modeling or inputs as requested by EPA; and

d. The permittee shall update the hydrological model and risk assessment on a semi-annual basis. Model updates shall incorporate any newly collected site-specific data and appropriate sensitivity analyses. The permittee shall submit the updated modeling data and results to EPA as described in Section II.E.7 semi-annually at the end of the 2nd and 4th Quarter.

4. Monitoring Information

The Permittee shall maintain records of monitoring activity required under this Permit, including the following information and data:

a. Date, exact location, and time of sampling or measurements;

b. Name(s) of individual(s) who performed sampling or measuring;

c. Exact sampling method(s) used;

d. Date(s) laboratory analyses were performed;

e. Name(s) of individual(s) who performed laboratory analyses;

f. Types of analyses; and

g. Results of analyses.

~~3.~~ 5. Monitoring Devices

a. Continuous Monitoring Devices

During all periods of operation of any authorized well, the Permittee shall measure the following wellhead parameters: (i) injectate rate/volume, (ii) injectate temperature, (iii) annular pressure, and (iv) injection pressure. **~~The Permittee shall also measure pressure and specific conductance as described in Section II.E.2 at the monitoring well to be installed pursuant to Section II.E.2.a.~~** All measurements must be recorded at minimum to a resolution of one tenth (0.1) of the unit of measure as shown in the table below (i.e., injection rate and volume must be recorded to a resolution of one tenth (0.1) of a gallon; pressure must be recorded to a resolution of one tenth (0.1) of a psig; **and** injection fluid temperature must be recorded to a resolution of one tenth (0.1) of a degree Fahrenheit**~~; and specific conductance must be recorded to a resolution of one tenth (0.1) of a micromhos/cm)~~**. Exact dates and times of measurements, when taken, must be recorded and submitted. Each injection well shall have a dedicated flow meter, installed so it records all injection flow. To meet the requirements of this Section, the Permittee shall monitor the following parameters, at the prescribed frequency, and record the measurements at this required frequency, using the prescribed instruments (continuous monitoring requires a minimum frequency of at least one (1) data point every thirty (30) seconds):

Monitoring Parameter	Frequency	Instrument
Injection Rate (gallons per minute)	Continuous	Digital recorder
Daily Injection Volume (gallons)	Daily	Digital totalizer
Total Cumulative Volume (gallons)	Continuous	Digital totalizer
Well Head Injection Pressure (psig)	Continuous	Digital recorder
Annular Pressure (psig)	Continuous	Digital recorder
Injection Fluid Temperature (degrees Fahrenheit)	Continuous	Digital recorder
~~Pressure in USDW (psig)~~	~~Daily~~	~~Digital recorder~~
~~Specific conductance in the USDW (micromhos/cm)~~	~~Daily~~	~~Digital recorder~~

The Permittee must adhere to the required format below for reporting injection rate and well head injection pressure. An example of the required electronic data format:

DATE	TIME	INJ. PRESS (PSIG)	INJ. RATE (GPM)
mm/dd/yy	hh:mm:ss	XXXX.X	XXXX.X

Each data line shall include four (4) values separated by a consistent combination of spaces or tabs. The first value contains the date measurement in the format of mm/dd/yy or mm/dd/yyyy, where mm is the number of the month, dd is the number of the day and yy or yyyy is the number of the year. The second value is the time measurement, in the format of hh:mm:ss, where hh is the hour, mm are the minutes and ss are the seconds. Hours should be calculated on a twenty-four (24)-hour basis, i.e., 6 PM is entered as 18:00:00. Seconds are optional. The third value is the well head injection pressure in psig. The fourth column is injection rate in gallons per minute (gpm).

b. Calibration and Maintenance of Equipment

The Permittee shall calibrate and maintain on a regular basis all monitoring and recording equipment to ensure proper working order of all equipment.

~~5.~~ 6. Recordkeeping

a. The Permittee shall retain the following records and shall have them available at the facility at all times for inspection by EPA or other authorized personnel, in accordance with the following:

i. All monitoring information, including required observations, calibration and maintenance records, recordings for continuous

monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the permit application;

ii. Information on the physical nature and chemical composition of all injected fluids;

iii. Results of the injectate "Hazardous Waste Determination" according to 40 CFR § 262.11 (see Section II.D.1.b.). Results shall demonstrate that the injectate does not meet the definition of hazardous waste as defined in 40 CFR § 261; **and**

iv. Records and results of MITs, FOTs, and any other tests and logs required by EPA, and any well work and workovers completed.

b. The Permittee shall maintain copies (or originals) of all records described in Sections II.E.~~5~~**6**.a.i. through ~~vi~~**iv**., above, during the operating life of any well authorized by this Permit and shall make such records available at all times for inspection at the facility. The Permittee shall only discard the records described in Sections II.E.~~5~~**6**.a.i. through ~~vi~~**iv**., if:

i. The records are delivered to the EPA Region 9 Groundwater Protection Section; or

ii. Written approval from EPA to discard the records is obtained.

~~4.~~ **7. Reporting**

a. The Permittee shall submit to EPA Quarterly Reports containing, at minimum, the following information gathered during the Reporting Period identified in Section II.E.~~6~~**7**.b.:

i. Injection fluid characteristics for parameters specified in Section II.E.1.a.;

~~ii. The results of pressure and specific conductance monitoring and chemical analyses required in Section II.E.6.d.ii;~~

ii. When appropriate, Injectate Hazardous Waste Determination according to Section II.D.1.b.;

iii. The results of any additional MITs, FOTs, logging or other tests, as required by EPA;

iv. Any pressure tests, as required by Section II.D.2.a.i.;

v. Shut-in static reservoir pressure cumulative behavior plot of the injection zone, as required by Section II.B.3.a.F.;

vi. The results of the static bottom hole pressure measurement/survey and associated plots/graphs of the latest static reservoir pressure required by Section II.E.2;

vii. Updates to the hydrological model and risk assessment model performed under Section II.E.3;

viii. Hourly and daily values, submitted in electronic format, for the continuously monitored parameters specified for the injection wells in Section II.E.**45**.a.; and

ix. Monthly cumulative total volumes, as well as monthly average, minimum, and maximum values for the continuously monitored rate, pressure, and temperature parameters specified for the injection wells in Section II.E.**~~4~~ 5**.a., unless more detailed records are requested by EPA.

b. Quarterly Reports, with the applicable Appendix C forms, shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
Jan, Feb, Mar	Apr 28
Apr, May, June	July 28
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28

c. For the Quarterly Report covering the reporting period of January, February, and March, the Permittee shall also include in that Report the following information collected during the prior year covering January through December:

i. Annual reporting summary;

ii. Annual injection profile survey results as required in Section II.D.2.a.iii.;

iii. **~~The report on the results of pressure and specific conductance monitoring and chemical analyses required in Section II.E.6.e; and~~**

iv. **iii.** A narrative description of all non-compliance with the Permit that occurred during the past year.

~~d. The Permittee shall also submit to EPA reports of the results of formation pressure and specific conductance monitoring and chemical~~

~~analyses performed pursuant to Section II.E.2. The reports shall include pressure and specific conductance measurements and the results of chemical analyses, and means and standard deviations of these values in a tabular (i.e., spreadsheet) format, along with graphical representations of the data, and be submitted as follows:~~

~~i. For the first year following the commencement of monitoring activities required under this Permit, the Permittee shall submit this information to EPA monthly, on the 15th day of the month.~~

~~ii. Following one (1) year of monthly monitoring reporting, the Permittee shall submit this information to EPA with the quarterly reports required in Section II.E.6.a.~~

d. **Semi-annually by July 28th and January 28th** ~~At the end of each year~~, the Permittee shall submit a report that **updates the hydrologic conditions in the Panoche Formation Injection Interval for the six previous months (January-June and July-December). The report will summarize injectate monitoring data collected per II.E.1, and formation pressure measurements gathered per II.E.2. , including:** a cumulative tabulation of the measurements/analytical results (since the commencement of monitoring activities), a description of trends in the measurements over time, and an interpretation regarding whether the data demonstrate**s** that there is no hydraulic communication between the injection zone and the USDW via abandoned wells in the AOR and that USDWs are not endangered.

e. In addition to meeting the submittal requirements of Section III.E.9., digital e-copies of all Quarterly Reports shall also be provided to the following:

California Geologic Energy Management Division
Inland District
Attention: Supervising Oil and Gas Engineer
William.Long@conservation.ca.gov

Central Valley Regional Water Quality Control Board
Attention: Permit Section
Dale.Harvey@waterboards.ca.gov

f. By 60 days following April 30, 2025, the Permittee shall submit for EPA's review and approval an area wide database that collates available empirical hydrogeologic conditions in the subsurface and operational parameters of the facility injection wells. Permittee will submit an accompanying report that will detail sources of the database information, including a tabulation of the acquired measurements and analytical results, and an analysis of variability in hydrogeologic parameters.

g. By 60 days following EPA's approval of II.E.7.f., the Permittee shall submit for EPA's review and approval an area wide lithofacies-controlled, property-based three-dimensional static model that is a representation of the subsurface detailing the temporal and spatial distribution of hydrogeologic conditions in the facility injection wells and surrounding area. Permittee will submit an accompanying report that will detail the workflow used to create and populate the static model with available relevant hydrogeological parameters.

h. By 30 days following April 30, 2025, the Permittee shall submit for EPA's review and approval a Flow Resistance Model that employs a risk-based assessment of potential hydrogeologic communication between the injection zone and the USDW. Permittee shall submit an accompanying report that will detail the workflow used to create the Flow Resistance Model and discuss the impacts of uncertainty on the assessment of risk.

i. By 60 days following EPA's approval of II.E.7.g., the Permittee shall submit for EPA's review and approval the results of an area wide three-dimensional dynamic model that is a representation of the subsurface system that simulates how fluid flows and pressures have changed over time and are expected to change in the future. Permittee will submit an accompanying report that will detail the workflow and assumptions used to create and run the base-case dynamic model, assessing the impact of uncertainties in reservoir properties or operational conditions via alternative model sensitivity cases, and detail the results of the simulations.

j. By 30 days following EPA's approval of II.E.7.i., the Permittee shall submit for EPA's review and approval, a proposed risk-defined "target pressure" in the injection well field. The report shall describe the data and risk modeling results that informed setting this target pressure.

F. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment

   The Permittee shall notify EPA no less than sixty (60) days before abandonment of any well authorized by this Permit and shall not perform the plugging and abandonment activities until the Permittee receives written notice of approval by EPA.

2. Plugging and Abandonment Plans

The Permittee shall plug and abandon the well(s) as provided by the Plugging and Abandonment Plan submitted by the Permittee (see Appendix G) and approved by EPA, consistent with CalGEM's "Onshore Well Regulations" of the California Code of Regulations, found in Title 14, Natural Resources, Division 2, Department of Conservation, Chapter 4, Article 3, Sections 1722-1723 and 40 CFR § 146.10. Upon written notice to the Permittee, EPA may change the manner in which a well will be plugged, based upon but not limited to the following reasons: (a) if the well is modified during its permitted life, (b) if the proposed Plugging and Abandonment Plan for the well is not consistent with EPA requirements for construction or mechanical integrity, or (c) otherwise at EPA's discretion. Upon written notice, EPA may periodically require the Permittee to update the estimated plugging cost. To determine the appropriate level of financial assurance for the Plugging and Abandonment Plan, the Permittee has obtained a cost estimate from an independent third-party firm in the business of plugging wells. The estimate includes the costs of all the materials and activities necessary to pay an independent third-party contractor to completely plug and abandon the injection ~~and monitoring~~ wells, as established in the Plugging and Abandonment Plan.

3. Cessation of Injection Activities

After a cessation of injection operations for two (2) years for any wells authorized by this Permit, a well is considered inactive. In this case, the Permittee shall plug and abandon the inactive well in accordance with the approved Plugging and Abandonment Plans, contained in Appendix G, unless the Permittee:

a. Provides notice to EPA of an intent to re-activate the well(s);

b. Has demonstrated that the well(s) will be used in the future;

c. Has described actions or procedures, satisfactory to EPA and approved in writing by EPA, which will be taken to ensure that the well(s) will not endanger USDWs during the period of inactivity, including annually demonstrating external mechanical integrity of the well(s); and

d. Conducts an initial, Internal MIT on the inactive well(s) and subsequent Internal MITs every two (2) years thereafter while the well(s) remains inactive, demonstrating no loss of mechanical integrity. Note that the Permittee must restore mechanical integrity of the inactive well(s) or plug and abandon the well(s) if it fails the MIT.

4. Plugging and Abandonment Report

Within sixty (60) days after plugging any well authorized by this Permit, or at the time of the next Quarterly Report (whichever is sooner), the Permittee shall submit a report on Form 7520-19 (see Appendix C), as well as the detailed procedural activity

of engineer's log and daily rig log to EPA. The report shall be certified as accurate by the person who performed the plugging operation and shall consist of either:

a. A statement that the well was plugged in accordance with the approved Plugging and Abandonment Plan contained in Appendix G; or

b. Where actual plugging differed from the Plugging and Abandonment Plan contained in Appendix G, a statement specifying and justifying the different procedures followed.

G. FINANCIAL ASSURANCE REQUIREMENTS

1. Demonstration of Financial Assurance

The Permittee is required to demonstrate and maintain financial assurance and resources sufficient to close, plug, and abandon any authorized underground injection operations by this Permit, as provided in the Plugging and Abandonment Plan contained in Appendix G and consistent with 40 CFR § 144 Subpart D.

In addition, the Permittee shall meet the following specific financial assurance requirements:

a. Prior to the issuance of this Permit, the Permittee provided, and EPA approved in writing, a financial assurance instrument, consistent with Section II.A.1 of this Permit, to guarantee closure of the wells authorized by this Permit, as follows, in the amount of:

Well IW1: $302,627
Well IW2: $348,156
Well IW3: $273,787
Well IW4: $270,431

These values were determined by the Permittee and have factored in the cost for an independent third party to plug and abandon the wells, plus a 20% contingency.

~~**Prior to the installation of the monitoring well described in Part II.E.2.a, financial assurance must also be provided, for EPA approval, consistent with the schedule set forth in Part II.C.1 (c).**~~

If the Permittee requests to construct IW5 and/or IW6, the Permittee is required to provide for EPA approval adequate financial assurance to guarantee closure of the well(s) before construction may be authorized.

b. For each well authorized by this Permit, the Permittee shall review and update, if needed, the financial assurance mechanism annually; a description

of that review and any updates shall be set forth in the Quarterly Report due on January 28 of each year. At its discretion, and upon written request, EPA may require the Permittee to change to an alternate method of financial assurance. Any such change must be approved in writing by EPA prior to the change.

c. EPA may periodically require the Permittee to update the estimated Plugging and Abandonment Plan (see Appendix G) and/or the cost associated with it, and the Permittee shall make such an adjustment within sixty (60) days of notice from EPA. Alternately, EPA may independently adjust the required financial assurance amount, as warranted.

2. Failure of Financial Assurance

The Permittee must notify EPA of the insolvency of a financial institution supporting the financial assurance as soon as possible, but no later than ten (10) days after the Permittee becomes aware of the insolvency. The Permittee shall submit to EPA a revised and/or new instrument of financial assurance, consistent with the terms of this Permit, within sixty (60) days after any of the following events occur:

a. The institution issuing the bond or other financial instrument files for bankruptcy;

b. The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked; or

c. The institution issuing the financial instrument lets it lapse or decides not to extend it.

Failure to submit acceptable financial assurance may result in the termination of this Permit pursuant to 40 CFR § 144.40(a)(1).

3. Insolvency of Owner or Operator

An owner or operator must notify EPA by certified mail of the commencement of voluntary or involuntary proceedings under U.S. Code Title 11 (Bankruptcy), naming the owner or operator as debtor, within ten (10) business days after such an event occurs. A guarantor of a corporate guarantee must make such a notification if he/she is named as debtor, as required under the terms of the guarantee.

H. DURATION OF PERMIT

This Permit and the authorization to inject are issued for a period of ten (10) years unless terminated under the conditions set forth in Section III.B.1 or administratively extended under the conditions set forth in Section III.E.12.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The Permittee is allowed to engage in underground injection well construction and operation in accordance with the conditions of this Permit. The Permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any injection activity not otherwise allowed by this Permit, as such activities may allow the movement of fluid containing any contaminant into USDWs (as defined by 40 CFR §§ 144.3 and 146.3).

No injection fluids are allowed to migrate to any nearby oilfield production wells. Further, this Permit requires systematic and predictive documentation over the facility's operational life to ensure that no injection fluids, either presently or in the future, will migrate to oilfield operation or geothermal production wells.

Any underground injection activity not specifically authorized in this Permit is prohibited (40 CFR § 144.11). The Permittee must comply with all applicable provisions of the Safe Drinking Water Act (SDWA) and 40 CFR Parts 124, 144, 145, 146, 147 and 148. Such compliance does not constitute a defense to any action brought under Section 1431 of the SDWA, 42 U.S.C. § 300(i), or any other common law, statute, or regulation other than Part C of the SDWA. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this Permit shall be construed to relieve the Permittee of any duties under all applicable, including future, laws or regulations.

B. PERMIT ACTIONS

1. Modification, Revocation and Reissuance, or Termination

   EPA may, for cause or upon request from the Permittee, modify, revoke and reissue, or terminate this Permit in accordance with 40 CFR §§ 124.5, 144.12, 144.39, 144.40, and 144.51(f). The Permit is also subject to minor modifications for cause as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated non-compliance by the Permittee, does not stay the applicability or enforceability of any permit condition. EPA may also modify, revoke and reissue, or terminate this Permit in accordance with any amendments to the SDWA if the amendments have applicability to this Permit.

2. Transfers

This Permit is not transferable to any person unless notice is first provided to EPA and the Permittee complies with requirements of 40 CFR § 144.38. *See also* 40 CFR § 144.51(l)(3). EPA may require modification or revocation and reissuance of the Permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the SDWA.

C. SEVERABILITY

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

D. CONFIDENTIALITY

In accordance with 40 CFR §§ 2 and 144.5, any information submitted to EPA pursuant to this Permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures contained in 40 CFR § 2 (Public Information). Claims of confidentiality for the following information will be denied:

1. Name and address of the Permittee; or

2. Information dealing with the existence, absence, or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

The provisions of 40 CFR § 144.51 are incorporated by reference into this Permit, except as modified by specific provisions in this Permit. In addition, the following general duties and requirements apply to this Permit and the Permittee.

1. Duty to Comply

The Permittee shall comply with all applicable UIC Program regulations and all conditions of this Permit, except to the extent and for the duration such non-compliance is authorized by an emergency permit issued in accordance with 40 CFR § 144.34. Any permit non-compliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification, or denial of a permit renewal application. Such non-compliance may

also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).

2. Penalties for Violations of Permit Conditions

   Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may also be subject to enforcement actions pursuant to RCRA or other actionable authorities. Any person who willfully violates a permit condition may be subject to criminal prosecution.

3. Need to Halt or Reduce Activity Not a Defense

   It shall not be a defense for the Permittee 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 Permit.

4. Duty to Mitigate

   The Permittee shall take all reasonable steps to minimize and correct any adverse impact on the environment resulting from non-compliance with this Permit.

5. Proper Operation and Maintenance

   The Permittee shall 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 Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

6. Property Rights

   This Permit does not convey any property rights of any sort, or any exclusive privilege.

7. Duty to Provide Information

   The Permittee shall furnish to EPA, within a time specified, any information which EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to EPA, upon request, copies of records required to be kept by this Permit.

8. Inspection and Entry

The Permittee shall allow EPA, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Permit;

b. Have access to and copy, at reasonable times, any records that are kept under the conditions of this Permit;

c. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.

9. Submittal Requirements

The Permittee shall follow the procedures set forth below for all submittals made to EPA under this Permit, including all notices and reports:

a. All submittals to EPA shall be signed and certified by a responsible corporate officer or duly authorized representative consistent with the requirements of 40 CFR §§ 122.22, 144.32, and 144.51(k).

b. Unless otherwise required by this Permit or rule, all submissions (including correspondence, reports, records and notifications) required under this Permit shall be in writing and mailed first class mail to the following address:

U.S. Environmental Protection Agency, Region 9
Water Division
UIC Program
Groundwater Protection Section (WTR-4-2)
75 Hawthorne St.
San Francisco, CA 94105-3901

and by e-mail to: albright.david@epa.gov.

c. The compliance date for submittal of a report is the day it is mailed.

10. Additional Reporting Requirements

a. Planned Changes

The Permittee shall give notice to EPA as soon as possible of any planned physical alterations or additions to the permitted facility.

b. Anticipated Non-compliance

The Permittee shall give advance notice to EPA of any planned changes in the permitted facility or activity which may result in non-compliance with permit requirements.

c. Compliance Schedules

Reports of compliance or non-compliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted to EPA no later than thirty (30) days following each schedule date.

d. Monitoring Reports

Monitoring results shall be reported at the intervals specified elsewhere in this Permit.

e. Twenty-four Hour Reporting

i. The Permittee shall report to EPA any non-compliance which may endanger health or the environment, including:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW; or

(b) Any non-compliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs.

ii. Any information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. A written submission of all non-compliance as described in Section III.E.10.e.i., above, shall also be provided to EPA within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain: a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times; if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps

taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.

f. Other Non-compliance

At the time monitoring reports are submitted, the Permittee shall report in writing all other instances of non-compliance not otherwise reported pursuant to other reporting requirements outlined in this Permit. The Permittee shall submit the information listed in Section III.E.10.d.

g. Other Information

If the Permittee becomes aware that it failed to submit all relevant facts in the permit application, or submitted incorrect information in the permit application or in any report to EPA, the Permittee shall submit such facts or information within two (2) weeks of the time such facts or information becomes known.

11. Requirements Prior to Commencing Injection, Plugging and Abandonment Report, Duty to Establish and Maintain Mechanical Integrity

The Permittee shall comply with all applicable requirements set forth at 40 CFR §§ 144.51(m)-(q) and as outlined throughout this Permit.

12. Continuation of Expiring Permit

a. Duty to Re-apply

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee must submit a complete application to EPA for a new permit at least three hundred and sixty five (365) days before this Permit expires.

e. Permit Extensions

The conditions and requirements of an expired permit continue in force and effect in accordance with 5 U.S.C. § 558(c) until the effective date of a new permit, if:

i. The Permittee has submitted a timely and complete application for a new permit; and

ii. EPA, through no fault of the Permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

13. Records of Permit Application

The Permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted with the permit application.

14. Availability of Reports

Except for information determined to be confidential under 40 C.F.R. Part 2, Subpart B, all permit applications, permits, reports, and well operation data prepared in accordance with the conditions of this Permit shall be available for public inspection at appropriate offices of the EPA.