ATTACHMENT J

WASTEWATER SAMPLING AND ANALYSIS PLAN

PANOCHE ENERGY CENTER

SAMPLING AND ANALYSIS PLAN FOR CLASS I INJECTION WELLS

TITLE AND APPROVAL PAGE

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PANOCHE ENERGY CENTER

SAMPLING AND ANALYSIS PLAN FOR CLASS I INJECTION WELLS

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PANOCHE ENERGY CENTER

SAMPLING AND ANALYSIS PLAN FOR CLASS I INJECTION WELLS

1. Introduction and Scope

Panoche Energy Center, LLC is the owner and operator of the proposed Class I non-hazardous Underground Injection Control (UIC) wells to be drilled at the Panoche Energy Center facility. The facility is located approximately 5 miles east of the I-5 Highway, on the Panoche Road, Fresno County, California. Four injection wells are proposed for the facility and will be regulated by the Environmental Protection Agency (EPA). 40 Code of Federal Regulations (CFR) #146.13(c) requires that Panoche Energy Center, LLC submit quarterly reports on the operations of its UIC wells to the Regional Administrator of the EPA. The following information is required to be submitted: Physical, chemical, and other relevant characteristics of injection fluids Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure This Sampling and Analysis Plan describes methods to monitor the physical, chemical, and other relevant characteristics of injection fluids generated from Panoche Energy Center, LL operations. The proposed injectate will consist primarily of cooling power blow-down from the power generating facilities' operations. Secondary sources will include water softener brine, boiler blow-down, and spent-acid cleaners. Procedures for sample collection, maintaining sample integrity, transportation, custody, analyses, and quality assurance and quality control (QA/QC) are discussed in this plan. The frequency of collecting, reporting, and recordkeeping for analytical data also are provided in this document. The Panoche Energy Center, LLC Sampling and Analysis Plan discusses monitoring for injection operations only. No groundwater monitoring wells are proposed for injection operations. This plan does not include procedures for monitoring mechanical integrity of the injection wells, which are discussed in previous sections of this UIC permit application and will be part of the final UIC permit.

2. Project Organization

Table 13-1 provides information on personnel responsible for injectate sampling at the Panoche Energy Center Company. Any updates to information in this table will be provided by Panoche Energy Center, LLC in its quarterly reports.

3. Sampling Locations

Injectate samples will be collected from the buffer storage located after the final waste treatment stage and prior to injection. A location for the storage has yet to be decided but will be within the boundaries of the PEC site.

4. Sampling Frequency

A. Initial Samples

The waste treatment system will be operational prior to the establishment of the injection wells. Accordingly, one set of samples of the injectate will be collected in the month prior to the wells becoming operational. To demonstrate the non-hazardous character of the water, one set of full CAM analyses will be done on a representative sample of this injectate. Additional discussion of the constituents to be analyzed and procedures to be followed for sampling and analysis is included in the following sections.

It should be noted that the Panoche Energy Center, LLC will have a temporary permit for a two-week period after operations begin. Analytical results of the initial samples must be reported to the Director of the EPA before the end of this two-week period.

B. Routine Sampling

Routine sampling of injectate will be done on a quarterly basis. The following sections include discussion of sampling and analysis procedures for the constituents to be tested quarterly.

5. Field Sampling Procedures

A. General Procedures

Panoche Energy Center, LLCstaff will be responsible for collecting injectate samples. Personnel responsible for collecting and handling the samples shall have proper training to ensure sample integrity. All personnel involved in sample collection will sign a form, which will be kept as part of facility records by Panoche Energy Center Company, certifying that they have read, understood, and will comply with the requirements of this Sampling and Analysis Plan. **A** copy of this form is included at the end of this document.

One set of injectate samples will be collected during each sampling period. Samples will be collected after the organic components of the injectate have been removed by physico-chemical dissolved air flotation, anaerobic digestion, and aerobic polishing but before they have reached the injection wells. If necessary, lines or equipment will be sufficiently purged to ensure that a representative injectate sample will be obtained. During purging, a field meter will be used to test injectate for pH, EC, and temperature. Sampling will be done after field measurements have stabilized, indicating that a representative sample will be collected.

Injectate samples will be transferred from the sampling point directly into the appropriate sample containers. Care will be taken not to touch the sampling tap to the sample container.

B. Sample Containers

Pre-cleaned sample containers will be provided by a state-certified analytical laboratory and will be of appropriate size and material for the analyses to be done (Table 13-2). Preservatives, if necessary, will he added by the laboratory to the sample containers (Table 13-2).

ANALYTICAL METHODS FOR QUARTERLY SAMPLING

CONSTITUENT	METHOD	FREQUENCY	PQL[1]	MDL[2]	CONTAINER	PRESERVATIVE	HOLDING TIME
General minerals:							
Carbonate alkalinity	SM 2320B	Quarterly	1.5	NA	1-qt. poly	Unpreserved	28 days
Bicarbonate alkalinity	SM 2320B	Quarterly	2.9	NA	1-qt. poly	Unpreserved	28 days
Barium	EPA 200.7	Quarterly	100	1.9	1-qt. poly	Unpreserved	28 days
Calcium	EPA 200.7	Quarterly	50	19	1-qt. poly	Unpreserved	28 days
Chloride	EPA 300.0	Quarterly	2.0	0.5	1-qt. poly	Unpreserved	28 days
Total iron	EPA 200.7	Quarterly	50	5.3	1-qt. poly	Unpreserved	28 days
Magnesium	EPA 200.7	Quarterly	50	27	1-qt. poly	Unpreserved	28 days
Sodium	EPA 200.7	Quarterly	100	50	1-qt. poly	Unpreserved	28 days
Sulfate	EPA 300.0	Quarterly	2	0.5	1-qt. poly	Unpreserved	28 days
Sulfide	EPA 376.2	Quarterly	.1	.05	1-qt. poly	Unpreserved	28 days
Total dissolved solids	EPA 160.3	Quarterly	10	5	1-qt. poly	Unpreserved	7 days
pH	EPA 150.1	Quarterly	NA	NA	1-qt. poly	Unpreserved	Immediate
Electrical conductivity	SM 2510B	Quarterly	1[3]	1[3]	1-qt. poly	Unpreserved	28 days
Specific gravity	ASTM D-1429	Quarterly	1.000	NA	1-qt. poly	Unpreserved	28 days
Volatile organics:	EPA 610/620	Quarterly	See Table 13-4		2X VOA	HCl	14 days

[1] PQL = Practical quantitation limit for water. Units of in µg/l, unless otherwise indicated. Source: BC Laboratories.

[2] MDL = Method detection limit for water. Units of in µg/l, unless otherwise indicated. Source: BC Laboratories.

[3] Units in µmho/cm.

ANALYTICAL METHODS FOR QUARTERLY SAMPLING

CONSTITUENT	METHOD	FREQUENCY	PQL[1]	MDL[2]	CONTAINER	PRESERVATIVE	HOLDING TIME
Semi-volatile organics	EPA 8270	Quarterly	See Table 13-5		2X 1-L amber glass w/ teflon lid	Unpreserved	7 days
Metals							
Antimony	EPA 6020	Quarterly	100	12	1-qt. poly	HNO_3	6 months
Arsenic	EPA 6020	Quarterly	2	1	1-qt. poly	HNO_3	6 months
Barium	EPA 6020	Quarterly	100	1.9	1-qt. poly	HNO_3	6 months
Beryllium	EPA 6020	Quarterly	10	.05	1-qt. poly	HNO_3	6 months
Cadmium	EPA 6020	Quarterly	10	4.1	1-qt. poly	HNO_3	6 months
Chromium	EPA 6020	Quarterly	10	4.0	1-qt. poly	HNO_3	6 months
Cobalt	EPA 6020	Quarterly	50	12.7	1-qt. poly	HNO_3	6 months
Copper	EPA 6020	Quarterly	10	0	1-qt. poly	HNO_3	6 months
Lead	EPA 6020	Quarterly	5	0.33	1-qt. poly	HNO_3	6 months
Mercury	EPA 6020 A	Quarterly	0.2	0.1	1-qt. poly	HNO_3	28 days
Molybdenum	EPA 6020	Quarterly	50	3.7	1-qt. poly	HNO_3	6 months
Nickel	EPA 6020	Quarterly	50	3.1	1-qt. poly	HNO_3	6 months
Selenium	EPA 6020	Quarterly	2	1	1-qt. poly	HNO_3	6 months
Silver	EPA 6020	Quarterly	10	5.0	1-qt. poly	HNO_3	6 months
Thallium	EPA 6020	Quarterly	1	0.26	1-qt. poly	HNO_3	6 months
Vanadium	EPA 6020	Quarterly	10	2.2	1-qt. poly	HNO_3	6 months
Zinc	EPA 6020	Quarterly	10	2.0	1-qt. poly	HNO_3	6 months

C. Sequence of Sample Collection

Samples to be analyzed for volatile organic compounds (VOCs) will be collected first, followed by semi-volatile compounds. At each sampling location, all containers designated for a particular analysis will be filled sequentially before containers designated for a different type of analysis are filled.

Duplicate samples will be collected by alternating filling between two containers. Additional discussion of duplicate sample collection procedures is given in the "Sample Analyses" section.

D. Collection of Volatile Organic Compounds Samples

Samples for VOC analyses will be collected using an ISCO sampling device. Its pump will be used at a flow rate of approximately 50 mllsec.. Vials for VOC analysis will be filled first to minimize the effect of aeration on the water sample. The VOC vials will be filled directly from the sampling tap and capped immediately after filling. The vial then will be inverted and checked for air bubbles to ensure that no headspace is present in the container. If a bubble appears in the container, a new sample will be collected. E. Collection of Metals Samples Samples to be collected for analyses of total metals will be unfiltered. Preservatives will be provided in the containers of appropriate size and type, which will be supplied by the laboratory.

F. Sample Seals

Chain-of-custody seals will be used to ensure sample integrity. Sample containers will be sealed immediately after collection so that they cannot be opened without breaking the seal. A non-removable, self-adhesive custody seal will be used to secure the lid of each sample. If samples are to be shipped for analyses or any time that samples are to be unattended before shipping, the shipping containers in which samples are stored also will be sealed with non-removable, self-adhesive custody seals. All custody seals will be signed and dated.

G. Sample Packaging and Transportation

After collection, samples will be placed in a container cooled to a temperature of 4 "C or below. Each sample will be clearly labeled with the following information:

- Sample number
- Name and company of sample collector
- Date and time of sample collection
- Location of sampling Analysis to be done and preservation, if any.

Whenever possible, samples will be delivered to the analytical laboratory by Panoche Energy Center, personnel or its designated contractor(s) by the end of the workday in which sampling was done. If samples are to be shipped, all sample containers will be placed in a sturdy shipping container, such as a steel-belted cooler. Packaging procedures to be followed for low concentration samples, such as those expected for injectate from Panoche Energy Center operations, are given below.

1. When ice is used, pack it in zip-locked, double plastic bags. Ice should be placed on top and around the samples to chill them to the correct temperature.

2. Seal the drain plug of the cooler with fiberglass tape to prevent melting ice from leaking out of the cooler.

3. The bottom of the cooler should be lined with bubble wrap or a similar packing material to prevent breakage during shipment.

4. Check screw caps for tightness and, if not full, mark the sample volume level of liquid samples on the outside of the sample containers with indelible ink.

5. Secure container tops with clear tape and custody seal all container lids with non-removable seals.

6. Affix sample labels onto the containers with clear tape.

7. Wrap all glass sample containers in bubble wrap to prevent breakage.

8. Seal all sample containers in heavy-duty plastic, zip-lock bags. Write the sample numbers on the outside of the plastic bags with indelible ink.

9. Place samples in a sturdy cooler(s) lined with a large plastic trash bag. Enclose the appropriate chain(s)-of-custody in a zip-lock plastic bag affixed to the underside of the cooler lid.

10. Fill any remaining empty space in the cooler with suff~cientb ubble wrap or Styrofoam peanuts to prevent movement and breakage during shipment. An absorbent, such as vermiculite, also should be placed in the cooler to absorb potential spills.

11. Each ice chest will be taped shut securely with fiberglass strapping tape.

12. Non-removable custody seals will be affixed to all sides of the lid of each cooler.

Panoche Energy Center will maintain any records related to shipping information. For each parcel, shipping information will be documented in a field logbook by the sampler and include the following.

- Total number of parcels shipped for each sampling event
- Total number of samples shipped to each laboratory Canier, air bill, or tracking number(s), and method of shipment (priority, next day, etc.)
- Shipment date(s) and estimated date of delivery to laboratory
- Irregularities or anticipated problems associated with the samples.

H. Field Logbook

Field logbooks will be used during sampling to document where, when, how, and fiom whom any vital project information was obtained. Each sampling event will be documented in the field logbook. Logbook entries should be complete and accurate enough to permit reconstruction of field sampling activities. Pages in the field logbooks should be consecutively numbered. All entries should be legible, written in ink, and signed by the individual making the entries. At a minimum, the following information will be recorded in the field logbook during each sampling event:

- Sample location and description
- Name(s) of sampling personnel
- Date and time of sample collection
- Designation of sample, e.g., composite, grab, etc.
- Type of sample (injectate or other)
- Type of sampling equipment used
- Field instrument readings and calibration, if necessary
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Preliminary sample descriptions (e.g., color, clarity, odor, etc.)
- Analytical method(s) to be used
- Sample preservation, if any

- Lot numbers of the sample containers, sample identification numbers and any explanatory codes, and chain-of-custody form numbers
- Method of shipping, including package tracking number, if appropriate
- Name of laboratory to be used

In addition to sampling information, the following also will he recorded in the field logbook for each day of sampling:

- Team members and their responsibilities
- Time of anivauentry on site andtime of site departure
- Other personnel on site during sampling
- Summary of any meetings or discussions with contractor or regulatory personnel
- Any deviations from sampling plans, site safety plans, and *QNQC* procedures
- Levels of safety protection used during sampling event
- Calibration readings for any equipment used and equipment model and serial number Shipping information, as discussed in the preceding "Sample Packaging and Transportation" section.

I. Chain-of-Custody Procedures

Chain-of-custody procedures will be followed to document sample possession from time of collection until analyses are done. At a minimum, the chain-of-custody form will include the following information:

- Sample number
- Name, signature, and company of sample collector
- Name and telephone number of company contact
- Date and time of sample collection
- Location or address of sample collection
- Physical state of sample
- Sample type, e.g., grab, composite, etc.

- Name, signature, and company affiliation of any person having possession of the sample(s)
- Date and time of transfer for each sample possession

6. Sample Analyses

A. Initial Samples

As discussed in the "Sampling Frequency" section, the initial samples and analyses must demonstrate that the injectate from Panoche Energy Center, LLCoperations does not meet the definition of hazardous waste, as defined in 40 CFR Part 261. To demonstrate the non-hazardous character of the waste, a set of full CAM tests will be done on one initial sample of injectate. Table 13-3 shows the constituents to be analyzed for the initial samples. Other information on sample analysis, handling, and preservation methods for the full CAM tests is provided in Table 13.2

Panoche Energy Center, LLC will maintain copies of all records pertaining to the hazardous waste determination and make such records available for inspection according to requirements to be specified in the final UIC permit for the facility. Additional hazardous waste determinations should be made whenever there is a process change or change in fluid chemical constituents or characteristics.

ANALYSES FOR INITIAL SAMPLE, FULL CAM TEST

CONSTITUENT	METHOD
17 total threshold limit concentration (TTLC) metals	See Table 13-2
pH	EPA 150.1
Flashpoint	EPA 1010
Reactivity	
Reactive Cyanide	SW-846 Section 7.3.3.2
Reactive Sulfide	SW-846 Section 7.3.4.2
Aquatic Toxicity	LC50 96-Hour Fish Bioassay
Soluble threshold limit concentrations (STLC), as needed	Various

B. Routine Sampling

Injectate from Panoche Energy Center will be analyzed quarterly for the constituents shown in Table 13-2. Analytical methods, frequency of sampling, method detection limits, types of sample containers, preservatives, and sample holding times are included in Table 13-2 and Table 13-4. Data on detection limits for each constituent analyzed will be included on the analytical report prepared by the laboratory. Analyses will be done at a third-party, California-certified laboratory. QA/QC procedures for the laboratory and sampling are discussed in the following section.

Each sample will be accompanied by a sample analysis sheet, which may be part of the chain-of-custody form. In addition to the information on the chain-of-custody form discussed in the previous section, the sample analysis sheet will include the name(s) and method(s) of analysis for each sample.

7. Quality Assurance/Quality Control Procedures

A. Laboratory

A state-certified laboratory will be selected to analyze the injectate samples from the Panoche Energy Center injection wells. Part of the laboratory selection process will include a review of the laboratory's standard operating procedures, calibration procedures, quality assurance acceptance criteria, corrective actions, and data review reporting procedures to ensure that the project's objectives will be met. The information used in selecting the laboratory will be kept on file at the Panoche Energy Center, and made available to EPA inspectors upon request. As part of the quarterly reports submitted by the Panoche Energy Center, LLC, the name and phone number of the laboratory and its contact person will be provided.

B. Trip Blanks

Trip blanks typically are used to evaluate if the shipping and handling procedures are introducing contaminants into the samples and if VOC cross-contamination has occurred between the collected samples. If VOC contamination is a concern for the injectate analyses, one trip blank will be submitted for laboratory analysis with every shipment of samples. The trip blank will be analyzed only for VOCs using EPA Method 6101620.

Trip blanks will be prepared by the laboratory and consist of 40-ml vials filled with HPLC-grade water purged so that it is VOC-free. The trip blanks will be sealed by the laboratory and not opened until ready to be analyzed. All trip blanks will accompany the empty sampling containers to the sampling locale and will be shipped to the labo&tory in the same cooler as the samples to be analyzed for VOCs. The methods used for QA/QC, possession, and transportation will be the same for the trip blanks as those used for the injectate samples. A separate sample number will be assigned to each trip sample, which will be submitted as a blind sample to the laboratory.

C. Temperature Blanks

For each cooler that is shipped or transported to an analytical laboratory, a 40-ml VOA vial will be included as a temperature blank. This blank will be used by the sample custodian to check the temperature of samples upon their delivery. No other analyses will be done on the temperature blanks.

D. Duplicate Samples

Duplicate samples will be collected to assess: 1) laboratory performance through comparison of the results, and **2)** degree of heterogeneity in injectate samples. Field duplicate samples will be collected simultaneously with a standard sample from the same source under similar conditions in two separate sample containers. **A** duplicate sample will be treated independently of its counterpart and assigned its own sample number so that it will be a blind sample to the laboratory.

One set of duplicate samples will be collected during the first sampling event at the facility and subsequently for every ten sampling events. The duplicate samples will be analyzed for the same constituents **as** the routine samples.

When collecting duplicate water samples, containers with the two different sample identification numbers will alternate in the filling sequence. Containers for one type of analysis will be filled before filling containers for the next analysis and will be done in the standard order of sample collection, i.e., VOCs filled frst, semi-volatiles second, etc. Duplicate samples will have the same QAIQC procedures as the standard samples.

8. Action Levels

Panoche Energy Center is proposing to inject only Class I non-hazardous wastewater. Analyses will demonstrate that the injectate does not meet the definition of hazardous waste, as defined in 40 CFR Part 261. Action levels are reached when injectate can be classified as a hazardous waste, at which point injection should be ceased immediately and reported to the appropriate regulatory agencies. Reporting requirements are discussed in the following section.

9. Reporting Requirements

The results from the initial samples will be reported to the Director of the EPA no later than two weeks after facility becomes operational because the facility will have only a temporary permit during this time. At a minimum, the initial report will contain a summary of the analytical results, laboratory reports, chain-of-custody forms, and any information on the physical, chemical, or other relevant characteristics of the injectate. Other information required in the initial report will include items discussed in the final UIC permit for the facility.

Subsequent sampling results will be reported to the Director of the EPA on a quarterly basis. The due dates for submission of quarterly reports are as follows:

REPORTING PERIOD	REPORT DUE DATE
January, February, and March	April 28
April, May, and June	July 28
July, August, and September	October 28
October, November, and December	January 28

At a minimum, the quarterly reports will contain a summary of the laboratory analytical results, laboratory reports, and chain-of-custody forms. Other information to be submitted in the quarterly reports will be as required by the final UIC permit for the facility.

All monitoring reports will be submitted to:

U. S. Environmental Protection Agency
Water Division Ground Water Office (WTR-9)
75 Hawthorne Street
San Francisco, California 94105-3901

Oral reporting within 24 hours is required if: 1) any monitoring or other information indicates that a contaminant may cause an endangerment to an underground source of drinking water (USDW), or 2) any non-compliance with a permit condition may cause fluid migration into or between USDWs. A written submission about the non-compliance incident also shall be provided to the Director within five days ftom the time that Panoche Energy Center, LLCis aware of the circumstances.

10. Recordkeeping Requirements

Panoche Energy Center, LLC will retain records on the volume and composition of all injected fluids for a period of three years after the wells have been abandoned. All pertinent observation records shall be available for inspection at the facility.

ANALYSIS REFERENCE CHART

GENERAL INORGANIC CHEMISTRY

Analysis	Container	Preservative	Holding Time
	(Water Sample)	(Water Sample)	(Water Sample)
Alkalinity	Pt. PE	Unpreserved	14 days
Ammonia (NH_3)	Pt. PE	H_2SO_4	28 days
BOD	Qt. PE (headspace free)	Unpreserved	24 hrs.
Boron	Pt. PE	Unpreserved	28 days
Bromide	Pt. PE	Unpreserved	28 days
Chloride	Pt. PE	Unpreserved	28 days
COD	Pt. PE	H_2SO_4	28 days
Color	Pt. amber glass	Unpreserved	48 hrs.
Cyanide	Pt. PE	NaOH	14 days
EC	Pt. PE	Unpreserved	28 days
Flashpoint	Pt. amber glass, glass only	Unpreserved	28 days
Fluoride	Pt. PE	Unpreserved	28 days
Standard Minerals	Qt. PE	Unpreserved	--
Uranium	Qt. PE	Unpreserved	6 mos.
Gross Alpha/Beta	1-L. plastic	Unpreserved	6 mos.
Uranium	1-L. plastic	Unpreserved	6 mos.
Hardness	Pt. PE	Unpreserved	28 days
Hexavalent Chromium	Pt. PE	Unpreserved	24 hrs.
Iodide	Pt. PE	Unpreserved	24 hrs.
Nitrate/Nitrite (NO^2/NO^3)	2-oz. PE	H_2SO_4	28 days
Nitrite/NO_2	Pt. PE	Unpreserved	48 hrs.
NO_3 as NO_3	Qt. PE	Unpreserved	48 hrs.
Odor	Pt. amber	Unpreserved	24 hrs.
Oil & Grease	1-l. amber glass, glass only	HCl	28 days
418.1 (TPH by IR)	1-l. amber glass, glass only	HCl	28 days
pH	Pt. PE	Unpreserved	Immediately
Phenolics	4-oz. amber glass, glass only	H_2SO_4	28 days
Phosphorus, Total P	Pt. PE	H_2SO_4	28 days
Phosphorus, Ortho PO_4	Pt. PE	Unpreserved	48 hrs.
Silica	Pt. PE (plastic only)	Unpreserved	28 days
TDS	Qt. PE	Unpreserved	7 days
TSS	Qt. PE	Unpreserved	7 days
SS	Qt. PE	Unpreserved	48 hrs.
Total Solids	Qt. PE	Unpreserved	7 days

ANALYSIS REFERENCE CHART

Analysis	Container	Preservative	Holding Time
	(Water Sample)	(Water Sample)	(Water Sample)
Specific Gravity	Pt. PE	Unpreserved	28 days
Sulfate	Pt. PE	Unpreserved	28 days
Sulfide, Total	Pt. PE	Zn acetate	7 days
Surfactants (MBAs)	Qt. PE	Unpreserved	48 hrs.
Total Coliform	8-oz. Glass or nalgene (sterilized)	Sodium thiosulfate	24 hrs.
TKN (Kjeldahl nitrogen)	Pt. PE	H_2SO_4	28 days
Total organic carbon	4-oz. amber glass, glass only	H_2SO_4	28 days
Total organic halide	Qt. amber	H_2SO_4	7 days
Turbidity	Pt. amber glass	Unpreserved	48 hrs.

ORGANIC CHEMISTRY

Analysis	Container	Preservative	Holding Time
	Water	Water	Water
8010/8020	2X VOA (headspace free)	HCl	14 days
8010, 502.1, 601	2X VOA (headspace free)	HCl	14 days
8020, 503.1, 602	2X VOA (headspace free)	HCl	14 days
BTXE	2X VOA (headspace free)	HCl	14 days
Gasoline range TPH	2X VOA (headspace free)	HCl	14 days
Diesel range TPH	1-l. amber glass w/teflon lid	In lab	7 days
8240, 524.2, 624	2X VOA (headspace free)	HCl	14 days
504	1-pt. amber glass w/teflon lid	Unpreserved	28 days
531.1	4-oz. amber glass	Monochloroacetic acid buffer	Frozen in lab, 28 days
547	4-oz. amber glass	Sodium thiosulfate	14 days
548	Qt. amber glass	None	7 days
549	Qt. amber plastic	None	7 days
8080, 608, 508	1-l. amber glass w/teflon lid	Unpreserved	7 days
8140	1-l. amber glass w/teflon lid	Unpreserved	7 days
8150, 615, 515.1	1-l. amber glass w/teflon lid	Unpreserved	7 days
525, 625, 8270	2X 1-l. amber glass w/teflon lid	Unpreserved	7 days
Modified 632	1-l. amber glass w/teflon lid	Unpreserved	7 days
TCLP Volatiles (zero headspace extraction)	2X VOA (headspace free)	HCl	14 days
Non-volatiles	1-l. amber glass (each test)	None	7 days

ANALYSIS REFERENCE CHART

METALS

Analysis	Container	Preservative	Holding Time
WATER			
Metals (1 or more metals), Total	Qt. PE	HNO_3	6 mos. (Hg: 28 days)
Dissolved, filtered in field	Pt. PE	HNO_3	6 mos. (Hg: 28 days)
Dissolved, not filtered	Qt. PE	Unpreserved	6 mos. (Hg: 28 days)
Organic lead	Pt. PE	Chill to 4° C	14 days until analysis
Hexavalent chromium	Pt. PE	Unpreserved	24 hrs.
SOIL			
Metals (1 or more metals), Total	8-oz. jar	Chill to 4° C	6 mos. (Hg: 6 mos.)
Soluble	8-oz. jar	Chill to 4° C	6 mos. (Hg: 6 mos.)
EP Toxicity	8-oz. jar	Chill to 4° C	6 mos. (Hg: 6 mos.)
WET	8-oz. jar	Chill to 4° C	6 mos. (Hg: 6 mos.)
TCLP	8-oz. jar	Chill to 4° C	6 mos. (Hg: 6 mos.)
Hexavalent chromium	8-oz. jar	Chill to 4° C	
Organic lead	8-oz. jar	Chill to 4° C	14 days until analysis

NOTES
Fill all containers as much as possible. Consult laboratory for minimum required amount.
Holding time = the samples must be analyzed within the required time.
Most tests require samples to remain chilled at 4° C after sampling.
TCLP & STLC extractions cannot be done on acid-treated containers.

ANALYSIS REFERENCE CHART

GC/MS Semi Volatiles

Constituent	PQLw	PQLs	Constituent	PQLw	PQLs
N-nitrosodimethlylamine	2	0.1	Diethylphthalate	2	0.1
Pyridine	10	0.5	Fluorene	2	0.1
Phenol	2	0.1	4-chlorophenyl-phenyl ether	2	0.1
Aniline	5	0.2	4-nitroaniline	5	0.2
Bis(2-chloroethyl)ether	2	0.1	4,6-dinitro-2-methylphenol	10	0.5
2-chlorophenol	2	0.1	N-nitrosodiphenylamine	2	0.1
1,3-dichlorobenzene	2	0.1	Alpha-BHC	2	0.1
1,4-dichlorobenzene	2	0.1	Beta-BHC	2	0.1
1,2-dichlorobenzene	2	0.1	Gamma-BHC	2	0.1
Benzyl alcohol	2	0.1	Delta-BHC	2	0.1
2-methlyphenol	2	0.1	Heptachlor	2	0.1
Bis(2-chloroisopropyl)ether	2	0.1	Aldrin	2	0.1
4-methylphenol	2	0.1	Heptachlor epoxide	2	0.1
N-nitroso-di-n-propylamine	2	0.1	Endosulfan I	10	0.2
Hexachloroethane	2	0.1	PP-DDE	3	0.1
Nitrobenzene	2	0.1	Dieldrin	3	0.1
Isophorone	2	0.1	Endrin	2	0.2
2-nitrophenol	2	0.1	Endosulfan II	10	0.2
2,4-dimethylphenol	2	0.1	PP-DDD	2	0.1
Bis(2-chloroethoxy)methane	2	0.1	Endrin aldehyde	10	0.5
2-4-dichlorophenol	2	0.1	Endosulfan sulfate	3	0.1
Benzoic acid	100	0.5	PP-DDT	2	0.1
1,2,4-trichlorobenzene	2	0.1	4-bromophenylphenyl ether	2	0.1
Naphthalene	2	0.1	Hexachlorobenzene	2	0.1
4-chloroaniline	2	0.1	Pentachlorophenol	10	0.2
Hexachlorobutadiene	2	0.1	Phenanthrene	2	0.1
4-chloro-3-methlyphenol	5	0.2	Anthracene	2	0.1
2-methylnaphthalene	2	0.1	Di-n-butylphthalate	2	0.1
Hexachlorocyclopentadiene	2	0.1	Fluoranthene	2	0.1
2,4,6-trichlorophenol	5	0.2	Benzidine	50	3
2,4,5-trichlorophenol	5	0.2	Pyrene	2	0.1

ANALYSIS REFERENCE CHART

Constituent	PQLw	PQLs	Constituent	PQLw	PQLs
2-chloronaphthalene	2	0.1	Butylbenzylphthalate	2	0.1
2-nitroaniline	2	0.1	Benzo(a)anthracene	2	0.1
Dimethyphthalate	2	0.1	3,3-dichlorobenzidine	5	0.2
2,6-Dinitrololuene	2	0.1	Chrysene	2	0.1
Anenaphthylene	2	0.1	Bis(2-ethylhexyl)phthalate	5	0.2
3-nitroaniline	2	0.1	Di-n-octylphthalate	2	0.1
Acenaphthene	2	0.1	Benzo(b)fluoranthene	2	0.1
2,4-dinitrophenol	20	0.5	Benzo(k)fluoranthene	2	0.1
4-nitrophenol	10	0.2	Benzo(a)pyrene	2	0.1
Dibenzofuran	2	0.1	Indeno(1,2,3-cd)pyrene	2	0.1
2,4-dinitrotoluene	2	0.1	Dibenz(a,h)anthracene	3	0.1
2-naphthylamine	20	3	Benzo(g,h,i)perylene	2	0.1

Agreement to Follow Sampling Procedures for Class I UIC Injection Wells

I have read, understood, and will comply with the requirements of the Panoche Energy Center, LLC Sampling and Analysis Plan for proper collection, handling, transportation, and custody of samples from Panoche Energy Center injection wells.

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