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ATTACHMENT DR121-1

DR121 Request Outline Number	Item	Regulation	Response
1	Geology / Hydrogeology / Groundwater Quality	§20240. SWRCB - Classification and Siting Criteria.	The evaporation pond will be constructed using approximately 10 feet of excavated material from the site during the construction of the compensation reservoir. This fill will consist of crushed weathered rock. Groundwater has been observed at a depth of 40 feet below existing grade. The anticipated depth of the evaporation pond is approximately 5 to 10 feet below existing grade, ensuring a 5-foot separation between the highest anticipated groundwater level and the base of waste within the impoundment. There are no known Holocene faults in the vicinity. Two monitoring wells, 23E-05 and 23E-11, were sampled in August 2024. Groundwater data from the August 2024 sampling event is attached (DR121-1 Table 1).
2	Waste Characterization / Waste Classification	§20240. SWRCB - Classification and Siting Criteria.	The evaporation pond will receive discharge from up to three waste streams: 1: Maintenance Activities: estimated 250,000 gallons per year 2: Water Treatment RO Reject: 15,000 gallons per year (not typically in use) 3: Reservoir Level Management: 1,400,000 gallons per year (not typically in use) It is anticipated that the combined monthly flow to the pond will be approximately 140,000 gallons. The anticipated water quality from the three sources is as noted: - Maintenance Activities: a) water from floor drains from routine equipment washing. The water will pass through an oil/water separator prior to being discharged to the evaporation pond; and b) water from the closed-loop thermal system which may need to be collected during maintenance activities. The water from the closed loop system will consist of RO treated permeate for the initial charging plus potential chemical additives as needed during site operations. These include: ChemTreat BL 1280 (Diemethyl-hydroxidylamine and hydroquinone), ChemTreat BL 1559 (Cyclohexylamine, Methoxypropylamine), ChemTreat CL 2900 (Sodium Molybdate), and ChemTreat CL 2150 (5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one). The permeate water is expected to exhibit the following water quality characteristics: • TDS max: <1 ppm • Hardness: <0.01 dH

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			• Oil and grease free • Conductivity: -25 ▫C < 0.5 µS/cm • Chloride: 0.5 ppm • Iron: <0.005 ppm • Copper: <0.01 ppm - Reject water from the treated AVEK source water. Anticipated reject water quality is shown on DR121-1 Table 2. - Reservoir Water: Anticipated reservoir water quality is shown in DR121-1 Table 3.
3a	Waste Management Unit Detailed Surface Impoundment Design Plan	§20250. SWRCB - Class II: Waste Management Units for Designated Waste. §20330. SWRCB – Liners §20365. SWRCB - Precipitation and Drainage Controls. §20370. SWRCB - Seismic Design.	The proposed surface impoundment will consist of a double lined evaporation pond used for disposal of process wastewater described above. The liner system will be designed to be sufficient to contain the liquid wastes during active life of the surface impoundment and comply with Title 27. The surface impoundment will provide an evaporation surface of approximately 1.5 acre. Its operating capacity would be designed to accommodate an approximate discharge rate of 140,000 gallons per month. The surface impoundment will not receive stormwater, only direct precipitation. The evaporation pond parameters could be modified later based on the final flow defined during detailed engineering. If the final design flow rate is smaller, the area of the evaporation pond will be reduced accordingly. The surface impoundment, including containment structures, will have a foundation or base capable of providing support for the structures, and capable of withstanding hydraulic pressure gradients to prevent failure due to settlement, compression, or uplift and all effects of ground motions resulting from the maximum probable earthquake; and it will be designed to contain a 1,000-year, 24-hour precipitation storm event while maintaining the mandatory 2-foot freeboard requirement.
3ai	Waste Management Unit Specified liner components	§20250. SWRCB - Class II: Waste Management Units for Designated Waste. §20330. SWRCB - Liners	The proposed design of the surface impoundment, from the surface downwards, is anticipated to consist of the following: - A primary high-density polyethylene (HDPE) liner; - An interstitial leak detection and removal system (LDRS) comprising a geomembrane geonet and collection piping; - A secondary HDPE liner; and

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			- A base layer consisting of 2 foot of onsite re-worked and re-compacted soil below the lower liner, to provide a firm compacted surface to receive liner system. - A leak detection system consisting of continuous carrier pipes installed at the sides and low point of each surface impoundment below the secondary liner.
3aii	Waste Management Unit Action Leakage Rate		The ALRs will be based on the design dimensions and design specifications of the surface impoundment and on a 1992 United States Environmental Protection Agency (USEPA) guidance document, *Action Leakage Rates for Leak Detection Systems, Supplemental Background Document for the Final Double Liners and Leak Detections Systems Rule for Hazardous Waste Landfills, Waste Piles, and Surface Impoundments*. The numerical ALRs will include requirements for monitoring and reporting leakage rates from the LCRS and the type of response actions the that are required should applicable ALRs are exceeded. The details and design of the Action Leakage Rate (ALR) for the surface impoundment will be developed during detailed design.
3b	Construction Quality Assurance (CQA) Plan for the Surface Impoundment	§20323. SWRCB CQA Plan	A CQA plan certified by an appropriately registered professional will be prepared to ensure proper construction of the surface impoundment to satisfy the requirements of §20324 (CQA Requirements) and assure the structure is constructed in accordance with the design specifications approved by the RWQCB.
4a	Detection Monitoring Program (Water Quality Monitoring) Unsaturated zone monitoring (e.g., pan lysimeter)	§20385 SWRCB - Required Programs §20400. SWRCB - Concentration Limits	The Dischargers must maintain a DMP as required in CCR, title 27, section 20420. The Dischargers must continue to conduct a DMP, as necessary, to provide the best assurance of the detection of a release from the surface impoundment.
4b	Groundwater monitoring downgradient of the pond	§20385 SWRCB - Required Programs	A detection monitoring network will be established to monitor the surface impoundment. The network is anticipated to include one upgradient background well and at least one downgradient detection monitoring well. The contaminants of concern (COC) list will be established upon a review of the waste streams reporting to the surface impoundment.

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4bi	Establishment of Water Quality Protection Standards (background water quality)	§20390 through 20410. SWRCB	A Water Quality Protection Standard (WQPS) is required to assure the earliest possible detection of a release from a waste management unit to the underlying soil and/or groundwater. The WQPS will consist of COCs, concentration limits, monitoring points, and the point of compliance for groundwater and the unsaturated zone. The monitoring program will be developed during detailed design.
5	Operations and Maintenance Plan	§20375. Special Requirements for Surface Impoundments.	An operation plan will be submitted to the RWQCB which will provide operation levels and waste input quantities permitted each month based on anticipated precipitation and on past precipitation conditions for the year.
6	Closure/Post-Closure Plan	§20950. SWRCB - General Closure and Post-Closure Maintenance Standards	A closure/post-closure plan will be prepared during detailed design. It is anticipated that the surface impoundments will be clean-closed, in accordance with CCR, title 27, sections 20950 and 21090 (f). All residual waste materials in the surface impoundments will be removed and disposed of in an approved offsite waste disposal facility. Liner system material and underlying soil will be tested for contamination. Any material not classified as inert will be removed and disposed of at an approved disposal location.
7	Known or Reasonably Foreseeable Release Plan	§20380, subdivision b	A known or reasonably foreseeable release plan will be prepared during detailed design.

DR121-1 Table 1: August 2024 Groundwater Results from Onsite Monitoring Wells

		Sample ID	23E-05A	23E-05B	23E-11A	23E-11B
Analyte	**RL**	**Units**	**8/21/2024**	**8/21/2024**	**8/21/2024**	**8/21/2024**
Bromide	0.40	mg/L	1.8	1.8	0.83	0.84
Chloride	0.40	mg/L	550	550	260	270
Fluoride	0.40	mg/L	0.45	0.49	1.0	1.1
Nitrate as N	0.40	mg/L	6.2	8.2	9.8	7.6
Nitrite as N	0.40	mg/L	ND	ND	ND	ND
Sulfate	0.40	mg/L	310	330	150	170
Mercury	0.00020	mg/L	ND	ND	ND	ND
Aluminum	0.20	mg/L	3.5	2.8	0.58	0.66
Antimony	0.050	mg/L	ND	ND	ND	ND
Arsenic	0.040	mg/L	ND	ND	ND	ND
Barium	0.080	mg/L	0.11	0.11	0.11	0.11
Beryllium	0.010	mg/L	ND	ND	ND	ND
Boron	0.16	mg/L	0.17	0.17	0.59	0.57
Cadmium	0.0050	mg/L	ND	ND	ND	ND
Calcium	0.40	mg/L	270	270	110	100
Chromium	0.010	mg/L	ND	ND	ND	ND
Cobalt	0.010	mg/L	ND	ND	ND	ND
Copper	0.020	mg/L	ND	ND	ND	ND
Iron	0.40	mg/L	3.7	3.7	0.59	0.64
Lead	0.010	mg/L	0.014	0.015	0.012	0.015
Magnesium	0.050	mg/L	54	53	28	27
Manganese	0.010	mg/L	0.18	0.25	0.11	0.12
Molybdenum	0.010	mg/L	ND	ND	ND	ND
Nickel	0.010	mg/L	ND	ND	ND	ND
Potassium	0.50	mg/L	9.3	9.4	3.4	3.2
Selenium	0.050	mg/L	ND	ND	ND	ND
Silica (SiO2)	0.80	mg/L	40	36	46	44
Silver	0.010	mg/L	ND	ND	ND	ND
Sodium	1.2	mg/L	93	93	100	99
Strontium	0.010	mg/L	2.2	2.2	0.83	0.80

		Sample ID	23E-05A	23E-05B	23E-11A	23E-11B
Analyte	**RL**	**Units**	**8/21/2024**	**8/21/2024**	**8/21/2024**	**8/21/2024**
Thallium	0.020	mg/L	ND	ND	ND	ND
Vanadium	0.050	mg/L	ND	ND	ND	ND
Zinc	0.050	mg/L	ND	ND	ND	ND
Hardness as CaC03	0.21	mg/L	900	900	390	370
pH @ 25 C	0.10	pH Units	7.74	7.64	7.91	7.64
Specific Conductance (EC) @ 25 C	2.0	uhmhos/cm	2300	2300	1300	1300
Total Alkalinity, CaCO3	20	mg/L	75	73	83	80
Bicarbonate, CaCO3	20	mg/L	75	73	83	80
Carbonate, CaC03	20	mg/L	ND	ND	ND	ND
Hydroxide, CaCO3	20	mg/L	ND	ND	ND	ND
Ammonia as N	0.14	mg/L	ND	ND	ND	ND
Chemical Oxygen Demand	20	mg/L	140	150	29	31
Ferrous Iron	50.0	ug/L	149	ND	ND	117
Total Organic Carbon	0.50	mg/L	ND	ND	ND	ND
Orthophosphate as P	0.025	mg/L	0.84	0.92	0.24	0.30
Phosphorus-Total as P	0.025	mg/L	ND	ND	0.29	0.34
Turbidity	0.10	NTU	450	550	75	60
Total Dissolved Solids	10	mg/L	1800	1800	900	800
Total Suspended Solids	10	mg/L	1000	380	120	87
Notes: RL = reporting limit; mg/L = milligrams per Liter						

DR121-1 Table 2: Anticipate Reject Water Quality based on AVEK Source Water

STREAM DESCRIPTION				AVEK PIPELINE		RO PERMEATE		RO REJECT	
	CONSTITUENT	CONVERT	UNITS	AS SUCH	AS CaCO3	AS SUCH	AS CaCO3	AS SUCH	AS CaCO3
CATIONS	CALCIUM, Ca	2.50	ppm	63.0	157.3	0.6	1.6	231.4	577.9
CATIONS	MAGNESIUM, Mg	4.12	ppm	9.7	39.9	0.1	0.4	35.6	146.7
CATIONS	SODIUM, Na	2.18	ppm	46.0	100.1	0.5	1.0	169.0	367.8
CATIONS	POTASSIUM, K	1.28	ppm						
CATIONS	TOTAL		ppm		297.4		3.0		1,092.4
ANIONS	M-ALKALINITY, M-ALK		ppm		114.8		1.1		421.7
ANIONS	BICARBONATE, HCO3	0.82	ppm	140.0	114.8	1.4	1.1	514.2	421.7
ANIONS	CARBONATE, CO3	1.67	ppm						
ANIONS	HYDROXIDE, OH	2.94	ppm						
ANIONS	P-ALK		ppm						
ANIONS	SULFATES, SO4	1.04	ppm	60.0	62.5	0.6	0.6	220.4	229.6
ANIONS	CHLORIDES, Cl	1.41	ppm	78.2	110.4	0.8	1.1	287.3	405.5
ANIONS	NITRATES, NO3	0.81	ppm	11.1	8.9	0.1	0.1	40.7	32.8
ANIONS	PHOSPHATE, PO4	1.58	ppm						
ANIONS	FLUORIDE, F	2.63	ppm	0.3	0.7	0.0	0.0	1.0	2.7
ANIONS	TOTAL		ppm		297.4		3.0		1,092.4
	CARBON DIOXIDE, CO2	1.14	ppm						
	SILICA, SiO2	0.83	ppm						
	TOTAL HARDNESS		ppm		197.3		2.0		724.6
	Mg (ppm) x SiO2 (ppm)								
pH				7.6		4.2		8.6	
SPECIFIC CONDUCTIVITY			µS/cm	518.7		5.2		1,905.2	
TOTAL DISSOLVED SOLIDS, TDS			ppm	337.2		3.4		1,238.4	
OIL / GREASE			ppm						
TOTAL SUSPENDED SOLIDS, TSS			ppm						
TURBIDITY			NTU	0.1		0.0		0.2	
AMMONIA, NH3			ppm						
NITRITE, NO2			ppm						
TOTAL KJELDAHL NITROGEN, N			ppm						
PHOSPHORUS, P			ppm						
CYANIDE, CN			ppm						
SULFIDE, S			ppm						
MBAS			ppm						
TOTAL ORGANIC CARBON, TOC			ppm						
BIOLOGICAL OXYGEN DEMAND, BOD			ppm						
CHEMICAL OXYGEN DEMAND, COD			ppm						

STREAM DESCRIPTION			AVEK PIPELINE		RO PERMEATE		RO REJECT	
CONSTITUENT	CONVERT	UNITS	AS SUCH	AS CaCO3	AS SUCH	AS CaCO3	AS SUCH	AS CaCO3
FAT / OIL / GREASE, FOG		ppm						
TRACE METALS								
ALUMINUM, Al		ppb	140.0		1.4		514.2	
ANTINOMY, Sb		ppb						
ARSENIC, As		ppb	3.6		0.0		13.2	
BARIUM, Ba		ppb	58.0		0.6		213.0	
BERYLLIUM, Be		ppb						
BORON, B		ppb						
CADMIUM, Cd		ppb						
CHROMIUM, Cr		ppb	5.1		0.1		18.7	
CHROMIUM (HEX), Cr(+6)		ppb	5.8		0.1		21.3	
COBALT, Co		ppb						
COPPER, Cu		ppb						
IRON, Fe		ppb						
LEAD, Pb		ppb						
LITHIUM, Li		ppb						
MANGANESE, Mn		ppb						
MERCURY, Hg		ppb						
MOLYBDENUM, Mo		ppb						
NICKEL, Ni		ppb						
SELENIUM, Se		ppb						
SILVER, Ag		ppb						
STRONTIUM, Sr		ppb						
THALLIUM, Tl		ppb						
TIN, Sn		ppb						
TITANIUM, Ti		ppb						
VANADIUM, V		ppb						
ZINC, Zn		ppb	450.0		4.5		1,652.9	
AVAILABLE CHLORINE, FREE		ppm						
RESIDUAL CHLORINE, TOTAL		ppm						
LANGELIER-SATURATION INDEX (LSI)								
RYZNER STABILITY INDEX (RSI)								
PUCKORIUS SCALING INDEX (PSI)								

NOTES

1. WATER QUALITY IS SUBJECT TO CHANGE BASED ON ADDITIONAL SOURCE WATER QUALITY ANALYSES.
2. CHEMICAL ADDITIONS MAY IMPACT THE CONSTITUENT CONCENTRATIONS BUT THIS HAS NOT BEEN FACTORED IN.
3. ION BALANCE FOR AVEK PIPELINE IS ACHIEVED BY ADDING 24.2 PPM CHLORIDE (AS SUCH) AND FOR THE RESERVOIR BY ADDING 31.5 PPM SODIUM (AS SUCH).
4. RO REJECT QUALITY ASSUMES AVEK PIPELINE FLOW RATE OF 500 GPM FOR INITIAL FILL.

DR121-1 Table 3: Estimated Reservoir Water Quality based on AVEK Source Water

Constituent	Result (ND = Not Detected)
General Chemistry	
Calcium	26 mg/L
Magnesium	3600 ug/L
Sodium	87 mg/L
Bicarbonate Alkalinity as CaCO3	170 mg/L
Carbonate Alkalinity as CaCO3	21 mg/L
Chlorides	55 mg/L
Flouride	0.51 mg/L
Nitrate	ND
Sulfate	65 mg/L
pH	8.9
TDS @180 C	410 mg/L
MBAS	0.16 mg/L
Total Cyanide	0.0017 mg/L
Nitrite as N	0.0079 mg/L
Perchlorate	ND
Metals	
Hexavalent Chromium	0.00026 mg/L
Total Recoverable Aluminum	130 ug/L
Total Recoverable Antimony	ND
Total Recoverable Arsenic	ND
Total Recoverable Beryllium	ND
Total Recoverable Boron	150 ug/L
Total Recoverable Cadmium	ND
Total Recoverable Chromium	17 ug/L
Total Recoverable Copper	6.0 ug/L
Total Recoverable Iron	3800 ug/L
Total Recoverable Manganese	190 ug/L
Total Recoverable Mercury	ND
Total Recoverable Nickel	5.9 ug/L
Total Recoverable Selenium	ND
Total Recoverable Silver	ND
Total Recoverable Thallium	ND
Total Recoverable Zinc	1400 ug/L