

Application Type Renewal

NPDES PERMIT FACT SHEET

Application No. PA0232840

Facility Type Industrial

ADDENDUM

APS ID 1059327

Major / Minor Minor

Authorization ID 1389344

Applicant and Facility Information

Applicant Name	<u>Renovo Energy Center LLC</u>	Facility Name	<u>Renovo Energy Center LLC</u>
Applicant Address	<u>12011 Sunset Hills Road, Suite 110</u> <u>Reston, VA 20190-5919</u>	Facility Address	<u>114 Industrial Park Road</u> <u>Renovo, PA 17764</u>
Applicant Contact	<u>Rondal Tobler</u>	Facility Contact	<u>TBD (not constructed)</u>
Applicant Phone	<u>(571) 392-6721</u>	Facility Phone	<u>TBD (not constructed)</u>
Client ID	<u>322163</u>	Site ID	<u>810551</u>
NAICS Code	<u>322163</u>	Municipality	<u>Renovo Borough</u>
NAICS Description	<u>Fossil Fuel Electric Power Generation</u>	County	<u>Clinton</u>
Date Published in PA Bulletin	<u>January 14, 2023</u>	EPA Waived?	<u>No</u>
Comment Period End Date	<u>February 12, 2023</u>	If No, Reason	<u>DEP Discretion</u>

Purpose of Application Renewal of an existing NPDES permit for a proposed discharge from the proposed Renovo Energy Center; a two-unit, gas-fired power plant with expected net output of approximately 1,240 megawatts.

Internal Review and Recommendations

COMMENTS

Comments dated January 8, 2023 were received from the permittee, Renovo Energy Center LLC ("REC"). The comments and DEP's responses are as follows:

1. **Comment:** In the Fact Sheet, please change the Applicant Contact to Rondal Tobler, per the attached General Information form (the revised "Client Information" changes only affect pages 1 and 3, and are highlighted for ease of identification).

Response: DEP has made the necessary corrections to the contact information.

2. **Comment:** There are also a number of changes in the draft renewal permit from the current final permit that appear to be based on outdated information that REC inadvertently included in the renewal application. Attached is a revised application providing the correct information, which was previously submitted to the Department in our comments on the original draft permit, and which was used to develop the limits in the current final permit. The revised information is highlighted in the revised application for your convenience. REC apologizes for any confusion or inconvenience this may have caused.

Response: DEP has included the revised application with the existing renewal application's documents. The revised application will be used as the basis for developing effluent limitations and permit conditions.

Approve	Return	Deny	Signatures	Date
X			<i>Derek S. Garner</i> Derek S. Garner / Project Manager	March 8, 2023

x			<i>Nicholas W. Hartranft</i> Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	March 9, 2023
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Internal Review and Recommendations

3. **Comment:** The Mass Limits for Total Suspended Solids, Aluminum, Iron, and Copper reflect values which were in the 2017 draft permit, not the 2017 final permit. While the 2017 application and resulting draft permit were based on a design flow of 0.395 MGD, REC's comments to that draft permit included requests to increase the design flow rate to 0.454 MGD and maximum flow during production to 0.415 MGD. These requests were accepted and their resultant impacts incorporated into the final permit at that time. Similarly, our comments to the 2017 draft permit identified an increase in the discharge flow of Outfall 001 of approximately 5%, resulting in a 5% increase in the pollutant mass loadings. That increased flow was included in the final permit. Since then, we have added duct burners to the design, which results in an additional 6% increase in the discharge flow of Outfall 001. The effects of both these changes are reflected in the attached revised application. Additionally, the concentration and mass loading for phosphate was increased to 2 mg/L and 6.4 lb/day, respectively, to account for its addition to the heat recovery steam generator drums.

The revised List 4 on Pg.4 and Analysis Results Tables, starting on Pg. 15 of the attached, revised application (changes shown highlighted), reflect the changes discussed above.

Also, REC requests a model re-run to include a change in discharge flow from 0.395 MGD to 0.440 MGD and a Partial Mix Factor of 20% instead of 5%. The 20% reflects that the design discharge point is 20% into the river, rather than the 5% used, which represents a shoreline discharge.

Response: In light of the revised expected discharge rates and drawings showing the end of the discharge pipe extends into approximately 20% the river's width DEP has rerun the Toxics Management Spreadsheet. Using a revised discharge rate of 0.44 MGD (was 0.395 MGD) and acute partial mixing factor of 0.2 (was 0.05) results in less stringent limits for total aluminum and osmotic pressure and removal of total copper reporting requirements.

4. **Comment:** The attached revised application also includes the correct coordinates of outfalls 001, 002 and 003 (shown highlighted), consistent with the coordinates included in the final 2017 permit.

Response: DEP has included corrected coordinates for the outfalls in the permit.

5. **Comment:** In Part C. I., Other Requirements, paragraph F. of the draft permit, a limit of two hours per day is set on discharging chlorine or other biocides. This limit is likely intended for cooling tower blowdowns and is not applicable to low volume waste. We request that this limit be removed, as it was not included in the 2017 permit.

Response: DEP agrees this requirement is intended to be applied to cooling water discharges, and not low-volume waste. Accordingly, Part C.I.F. has been removed.

6. **Comment:** REC has previously commented on the PCB concentration effluent limit during the comment period of the 2017 draft permit and continues to clarify that while it is understood that the PCB concentration limit is a regulatory requirement, this facility will not be adding PCB's to the effluent. Any PCBs in the effluent would simply be a return of those present in the water withdrawn from the West Branch Susquehanna River, although likely at a higher concentration than withdrawn due to evaporative effects.

Response: DEP acknowledges REC will not be adding PCB's to the effluent, but as recognized by REC, the PCB effluent limit is a regulatory requirement and must remain in the permit.

Comments dated January 30, 2023 were received from the U.S. EPA. The comments and DEP's responses are as follows:

1. **Comment:** The permit does not appear to be consistent with Pennsylvania's Phase 3 Chesapeake Bay Watershed Implementation Plan ("Phase 3 WIP"). This is a new non-significant industrial facility discharging to the Chesapeake Bay and Part III.D of Pennsylvania's Phase 3 WIP Wastewater Supplement states that for new non-significant IW discharges, DEP will issue permits containing Cap Loads of "0" and that these facilities will be expected to purchase credits and/or apply offsets to achieve compliance. The draft permit does not appear to include Cap Loads for TN and TP which is inconsistent with the Phase 3 WIP Wastewater Supplement. Please revise the permit to include Cap Loads of "0" for TN and TP and monitoring requirements to ensure consistency with the Supplement and TMDL.

Response: Pennsylvania's Phase 3 Chesapeake Bay Watershed Implementation Plan Wastewater Supplement dictates that monitoring and reporting of total nitrogen ("TN") and total phosphorus ("TP") is required only when the

Internal Review and Recommendations

industrial facility has the potential to introduce a net TN or TP increase to the load contained within the intake water. Facilities with no addition of chemicals containing nitrogen or phosphorus do not require monitoring. The source of nitrogen and phosphorus in REC's proposed discharge is natural; meaning there will not be a net increase in nitrogen or phosphorus loading. Accordingly, it does not appear that cap loads are appropriate.

- Comment:** This facility is subject to the Steam Electric Effluent Limitation Guidelines for New Sources at 40 CFR 423.15(b) which has a requirement of "no discharge" of PCBs. The permit includes a PCB instantaneous maximum of 1.75 µg/ with a Part C condition stating there shall be no discharge of PCB compounds. The fact sheet indicates that 1.75 µg/L is the quantification limit (QL) for the method and that if PCBs are not present at concentrations higher than 1.75 µg/L, "it can be reasonably assumed that they are not present in the effluent." This statement appears to be related to the method detection level (MDL) and not the QL. The QL is the level below which a pollutant *can* be detected but not quantified, therefore, if a permittee reports a value less than 1.75 µg/L (the QL) it would mean it can't be quantified but it is able to be detected. The statement in the fact sheet should be revised to indicate that if PCBs are reported at concentrations below the 1.75 µg/L they could still be present below this concentration. In order for PCB levels to be considered non-detect, the permit will have to require the permittee to meet a discharge level that is less than the lab's MDL, not PADEP's TQL.

Response: DEP's general policy is to establish the QL in the permit as a way of demonstrating non-detect sample results because the QL is the lowest concentration which can be not only detected, but also quantified with a specified degree of precision. EPA is correct in that the MDL is the theoretical lowest concentration that can be detected, but it generally is not quantifiable with acceptable precision. For practicable purposes in obtaining meaningful data, DEP believes the use of the QL is appropriate.

Comments from the public dated February 13, 2023 were received via email. As part of the comments, a link is provided to a form letter requesting DEP to reject the permit's application. The form letter contains several comments as follows:

- Comment:** The permit fails to classify the West Branch of the Susquehanna River as an impaired water and claims the project will not discharge into protected water. There are multiple other inaccuracies and lack of detail about where discharges are expected to flow. Furthermore, the proposed location is a contaminated former industrial site. Requirements should be added to the permit to control discharge over the surface soil, which contains metals and other contaminants that could be dislodged and conveyed into water bodies.

Response: The draft permit's fact sheet identifies the West Branch Susquehanna River as impaired for metals caused by abandoned mine drainage on pages 2, 3 and 4. Additionally, page 8 discusses how the West Branch Susquehanna River Watershed TMDL was considered when developing effluent limits.

DEP has proposed stormwater best management practices at Part C III.C. that include pollution prevention and exposure minimization, implementation of good housekeeping measures, erosion and sediment controls, development and implementation of spill prevention and response plans, routine site inspections, and stormwater monitoring requirements.

- Comment:** As noted in the DEP's fact sheet, the current permit includes an effluent limitation of 5.59 mg/L for aluminum, for the average monthly, the daily maximum, and the instantaneous maximum. The DEP proposes to increase this limitation to 984.0 mg/L (average monthly), 1535.0 mg/L (daily maximum), and 2460 mg/L (instantaneous maximum). The DEP has provided no valid justification for increasing this limitation by a factor of as much as 400 times. It should leave the limitation numbers where they were before.

Response: The proposed effluent limits for total aluminum are proposed be made *more* stringent. This comment incorrectly cites the proposed limits in mg/L when the permit actually identifies the proposed limits in µg/l. When using the correct units, and accounting for the revised flow data mentioned above in response to REC's comments, the limits are proposed to drop from 5,590 µg/L (average monthly, daily maximum, and instantaneous maximum) to 2,763 µg/L average monthly, 4,310 µg/L daily maximum, and 6,907 µg/L instantaneous maximum.

- Comment:** The DEP notes that the federal regulations prohibit the discharge of polychlorinated biphenyls (PCBs) from this facility, but it proceeds to set an effluent limitation of 1.75 mg/L under the rationale that this is the "recommended quantification limit." If the regulations prohibit the discharge, there should not be a number greater

Internal Review and Recommendations

than zero. The ability to prove a violation is a question for enforcement, and should not be used to effectively create an exception to the federal prohibition.

Response: As stated in the above response to EPA’s concerns regarding PCBs, DEP’s general policy is to establish the QL in the permit as a way of demonstrating non-detect sample results because the QL is the lowest concentration which can be not only detected, but also quantified with a specified degree of precision. The MDL is the theoretical lowest concentration that can be detected, but it generally is not quantifiable with acceptable precision. For practicable purposes in obtaining meaningful data, DEP believes the use of the QL is appropriate.

Prior to publication in the PA Bulletin, DEP received comments dated January 8, 2023 regarding the application and associated documents from Clean Air Council (“CAC”). Since receipt of CAC’s comments, as mentioned above, REC has submitted an updated application that appears to address several of CAC’s concerns. No comments from Clean Air Council were received during the public comment period regarding the draft permit.

PROPOSED CHANGES

1. The TMS was rerun to include the proposed increase in the expected discharge, from 0.395 MGD to 0.440 MGD, and an increase in the acute partial mixing factor from 0.05 to 0.2 to account for end-of-pipe discharge extending approximately 20% into the West Branch Susquehanna River’s width rather than a side bank discharge. The TMS recommendations now are as follows:

Pollutants	Mass Limits		Concentration Limits			Units	Governing WQBEL	WQBEL Basis
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX			
Total Aluminum	10.1	15.8	2,763	4,310	6,907	µg/l	2,763	AFC
Osmotic Pressure	XXX	XXX	1,981	3,091	4,953	mOs/kg	1,981	AFC

2. Outfall coordinates have been corrected per the revised figures provided by REC.
3. The condition at Part C I.F. has been removed since it is not applicable to REC’s discharge.

RECOMMENDATION

Based on the abovementioned proposed changes to the permit, DEP recommends that the permit is redrafted and published in the PA Bulletin for an additional thirty day commenting period.

Discharge Information

Instructions

Discharge

Stream

Facility: Renovo Energy Center

NPDES Permit No.: PA0232840

Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: Industrial Waste

Discharge Characteristics

Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
0.44	215	7	0.2					

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank		1 if left blank		
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	1040		127						
	Chloride (PWS)	mg/L	103		8.5						
	Bromide	mg/L									
	Sulfate (PWS)	mg/L	760		48						
	Fluoride (PWS)	mg/L	0.4								
Group 2	Total Aluminum	µg/L	3100		702						
	Total Antimony	µg/L									
	Total Arsenic	µg/L	2								
	Total Barium	µg/L	100		32						
	Total Beryllium	µg/L									
	Total Boron	µg/L									
	Total Cadmium	µg/L									
	Total Chromium (III)	µg/L	30								
	Hexavalent Chromium	µg/L									
	Total Cobalt	µg/L									
	Total Copper	µg/L	50								
	Free Cyanide	µg/L									
	Total Cyanide	µg/L									
	Dissolved Iron	µg/L	800								
	Total Iron	µg/L	2000		1271						
	Total Lead	µg/L									
	Total Manganese	µg/L	800								
	Total Mercury	µg/L									
	Total Nickel	µg/L									
	Total Phenols (Phenolics) (PWS)	µg/L									
Total Selenium	µg/L										
Total Silver	µg/L										
Total Thallium	µg/L										
Total Zinc	µg/L	100		26							
Total Molybdenum	µg/L										
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									

Benzene	µg/L	<											
Bromoform	µg/L	<											

Group 3

Carbon Tetrachloride	µg/L	<											
Chlorobenzene	µg/L	<											
Chlorodibromomethane	µg/L	<											
Chloroethane	µg/L	<											
2-Chloroethyl Vinyl Ether	µg/L	<											
Chloroform	µg/L	<											
Dichlorobromomethane	µg/L	<											
1,1-Dichloroethane	µg/L	<											
1,2-Dichloroethane	µg/L	<											
1,1-Dichloroethylene	µg/L	<											
1,2-Dichloropropane	µg/L	<											
1,3-Dichloropropylene	µg/L	<											
1,4-Dioxane	µg/L	<											
Ethylbenzene	µg/L	<											
Methyl Bromide	µg/L	<											
Methyl Chloride	µg/L	<											
Methylene Chloride	µg/L	<											
1,1,1,2-Tetrachloroethane	µg/L	<											
Tetrachloroethylene	µg/L	<											
Toluene	µg/L	<											
1,2-trans-Dichloroethylene	µg/L	<											
1,1,1-Trichloroethane	µg/L	<											
1,1,2-Trichloroethane	µg/L	<											
Trichloroethylene	µg/L	<											
Vinyl Chloride	µg/L	<											

Group 4

2-Chlorophenol	µg/L	<											
2,4-Dichlorophenol	µg/L	<											
2,4-Dimethylphenol	µg/L	<											
4,6-Dinitro-o-Cresol	µg/L	<											
2,4-Dinitrophenol	µg/L	<											
2-Nitrophenol	µg/L	<											
4-Nitrophenol	µg/L	<											
p-Chloro-m-Cresol	µg/L	<											
Pentachlorophenol	µg/L	<											
Phenol	µg/L	<											
2,4,6-Trichlorophenol	µg/L	<											

Group 5

Acenaphthene	µg/L	<											
Acenaphthylene	µg/L	<											
Anthracene	µg/L	<											
Benzidine	µg/L	<											
Benzo(a)Anthracene	µg/L	<											
Benzo(a)Pyrene	µg/L	<											
3,4-Benzofluoranthene	µg/L	<											
Benzo(ghi)Perylene	µg/L	<											
Benzo(k)Fluoranthene	µg/L	<											
Bis(2-Chloroethoxy)Methane	µg/L	<											
Bis(2-Chloroethyl)Ether	µg/L	<											
Bis(2-Chloroisopropyl)Ether	µg/L	<											
Bis(2-Ethylhexyl)Phthalate	µg/L	<											
4-Bromophenyl Phenyl Ether	µg/L	<											
Butyl Benzyl Phthalate	µg/L	<											
2-Chloronaphthalene	µg/L	<											
4-Chlorophenyl Phenyl Ether	µg/L	<											
Chrysene	µg/L	<											
Dibenzo(a,h)Anthracene	µg/L	<											
1,2-Dichlorobenzene	µg/L	<											
1,3-Dichlorobenzene	µg/L	<											
1,4-Dichlorobenzene	µg/L	<											
3,3-Dichlorobenzidine	µg/L	<											
Diethyl Phthalate	µg/L	<											
Dimethyl Phthalate	µg/L	<											
Di-n-Butyl Phthalate	µg/L	<											

	2,4-Dinitrotoluene	µg/L	<												
	2,6-Dinitrotoluene	µg/L	<												
	Di-n-Octyl Phthalate	µg/L	<												
	1,2-Diphenylhydrazine	µg/L	<												
	Fluoranthene	µg/L	<												
	Fluorene	µg/L	<												
	Hexachlorobenzene	µg/L	<												
	Hexachlorobutadiene	µg/L	<												
	Hexachlorocyclopentadiene	µg/L	<												
	Hexachloroethane	µg/L	<												
	Indeno(1,2,3-cd)Pyrene	µg/L	<												
	Isophorone	µg/L	<												
	Naphthalene	µg/L	<												
	Nitrobenzene	µg/L	<												
	n-Nitrosodimethylamine	µg/L	<												
	n-Nitrosodi-n-Propylamine	µg/L	<												
	n-Nitrosodiphenylamine	µg/L	<												
	Phenanthrene	µg/L	<												
	Pyrene	µg/L	<												
	1,2,4-Trichlorobenzene	µg/L	<												
Group 6	Aldrin	µg/L	<												
	alpha-BHC	µg/L	<												
	beta-BHC	µg/L	<												
	gamma-BHC	µg/L	<												
	delta BHC	µg/L	<												
	Chlordane	µg/L	<												
	4,4-DDT	µg/L	<												
	4,4-DDE	µg/L	<												
	4,4-DDD	µg/L	<												
	Dieldrin	µg/L	<												
	alpha-Endosulfan	µg/L	<												
	beta-Endosulfan	µg/L	<												
	Endosulfan Sulfate	µg/L	<												
	Endrin	µg/L	<												
	Endrin Aldehyde	µg/L	<												
	Heptachlor	µg/L	<												
	Heptachlor Epoxide	µg/L	<												
	PCB-1016	µg/L	<												
	PCB-1221	µg/L	<												
	PCB-1232	µg/L	<												
PCB-1242	µg/L	<													
PCB-1248	µg/L	<													
PCB-1254	µg/L	<													
PCB-1260	µg/L	<													
PCBs, Total	µg/L	<													
Toxaphene	µg/L	<													
2,3,7,8-TCDD	ng/L	<													
Group 7	Gross Alpha	pCi/L													
	Total Beta	pCi/L	<												
	Radium 226/228	pCi/L	<												
	Total Strontium	µg/L				400			95						
	Total Uranium	µg/L	<												
	Osmotic Pressure	mOs/kg				1800			9						

Stream / Surface Water Information

Renovo Energy Center, NPDES Permit No. PA0232840, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: West Branch Susquehanna River

No. Reaches to Model: 1

- Statewide Criteria
 Great Lakes Criteria
 ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	018668	97.14	636	2970			Yes
End of Reach 1	018668	95.68	634	3000			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	97.14	0.085										100	7		
End of Reach 1	95.68	0.085													

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	97.14														
End of Reach 1	95.68														

Model Results

Renovo Energy Center, NPDES Permit No. PA0232840, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All

Inputs

Results

Limits

Hydrodynamics

Q₇₋₁₀

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
97.14	252.45		252.45	0.681	0.00026	1.217	305.339	250.994	0.681	0.131	5881.015
95.68	255.00		255								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
97.14	934.31		934.31	0.681	0.00026	2.162	305.339	141.247	1.417	0.063	2492.493
95.68	942.551		942.55								

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	127000	0		0	N/A	N/A	N/A	
Chloride (PWS)	8500	0		0	N/A	N/A	N/A	
Sulfate (PWS)	48000	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	702	0		0	750	750	4,310	
Total Arsenic	0	0		0	340	340	25,560	Chem Translator of 1 applied
Total Barium	32	0		0	21,000	21,000	1,576,319	
Total Chromium (III)	0	0		0	576.892	1,826	137,242	Chem Translator of 0.316 applied
Total Copper	0	0		0	13.633	14.2	1,068	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	1271	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	26	0		0	118.698	121	7,195	Chem Translator of 0.978 applied

Total Strontium	95	0		0	N/A	N/A	N/A	
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Osmotic Pressure	9	0		0	50	50.0	3,091	
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CFC CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	127000	0		0	N/A	N/A	N/A	
Chloride (PWS)	8500	0		0	N/A	N/A	N/A	
Sulfate (PWS)	48000	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	702	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	150	150	19,615	Chem Translator of 1 applied
Total Barium	32	0		0	4,100	4,100	532,002	
Total Chromium (III)	0	0		0	74.648	86.8	11,351	Chem Translator of 0.86 applied
Total Copper	0	0		0	9.023	9.4	1,229	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	1271	0		0	1,500	1,500	86,431	WQC = 30 day average; PMF = 1
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	26	0		0	119.019	121	12,411	Chem Translator of 0.986 applied
Total Strontium	95	0		0	N/A	N/A	N/A	
Osmotic Pressure	9	0		0	N/A	N/A	N/A	

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	127000	0		0	500,000	500,000	N/A	
Chloride (PWS)	8500	0		0	250,000	250,000	N/A	
Sulfate (PWS)	48000	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	702	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	10	10.0	1,308	
Total Barium	32	0		0	2,400	2,400	309,694	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	39,231	
Total Iron	1271	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	130,769	
Total Zinc	26	0		0	N/A	N/A	N/A	
Total Strontium	95	0		0	4,000	4,000	510,750	
Osmotic Pressure	9	0		0	N/A	N/A	N/A	

CRL CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	127000	0		0	N/A	N/A	N/A	
Chloride (PWS)	8500	0		0	N/A	N/A	N/A	
Sulfate (PWS)	48000	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	702	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	32	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	1271	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	26	0		0	N/A	N/A	N/A	
Total Strontium	95	0		0	N/A	N/A	N/A	
Osmotic Pressure	9	0		0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Aluminum	10.1	15.8	2,763	4,310	6,907	µg/L	2,763	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Osmotic Pressure	XXX	XXX	1,981	3,091	4,953	mOs/kg	1,981	AFC	Discharge Conc ≥ 50% WQBEL (RP)

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., ≤ Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Arsenic	1,308	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	309,694	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	11,351	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	684	µg/L	Discharge Conc ≤ 10% WQBEL

Dissolved Iron	39,231	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	86,431	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	130,769	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	4,612	µg/L	Discharge Conc ≤ 10% WQBEL

Total Strontium	510,750	µg/L	Discharge Conc ≤ 10% WQBEL
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