

DOCKETED	
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Project Title:	Elmore North Geothermal Project (ENGP)
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Description:	N/A
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Organization:	Jacobs
Submitter Role:	Applicant Consultant
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Appendix 5.1A

Operational Emissions Inventory



Elmore North Geothermal Project
Elmore North Operational Emissions
Modeled Emissions Summary
April 2023

Pollutant ^a	Emissions (lbs/hr)																				Emissions (lbs/hr)			
	Production Flow Back	Production Well Testing	Injection Flow Back	Injection Well Testing	Commissioning				Cold Start				Warm Start			Shutdown	Continuous Operation ^b			Sparger Bypass	Cooling Tower Oxidation Box Bypass	Emergency Engines and Fire Pump (All Sources)	O&M Equipment	
					PTU	RM	Sparger	CT	PTU	RM	Sparger	CT	RM	Sparger	CT		Sparger	CT	CT					Sparger
Location	PTU or MTU	MTU	PTU	MTU	PTU	RM	Sparger	CT	PTU	RM	Sparger	CT	RM	Sparger	CT	RM	Sparger	CT	Sparger	CT	Multiple Stacks	Mobile		
Duration (hrs/event)	24	240	24	240	216	336	168	168	120	74	42	42	15	5	5	36	1	1	1	1	1	1		
Events Per Year	1	1	1	1	1	1	1	1	1	1	1	1	20	20	20	5.5	1,346	1,346	200	200	--	8,760		
Hours Per Year	216	2,160	288	2,880	216	336	168	168	120	74	42	42	300	100	100	198	1,346	1,346	200	200	--	8,760		
CO ₂	1.12E+03	4.54E+03	1.12E+03	4.54E+03	2.79E+03	1.50E+04	1.50E+04	0.00E+00	2.79E+03	1.50E+04	3.65E+03	0.00E+00	1.50E+04	5.84E+03	0.00E+00	1.71E+04	1.50E+04	0.00E+00	1.50E+04	1.50E+04	2.38E+04	1.32E+03		
NOx	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E+01	3.74E+00		
ROG	3.37E-02	1.37E-01	3.37E-02	1.37E-01	8.40E-02	4.53E-01	4.53E-01	2.60E-03	8.40E-02	4.53E-01	1.10E-01	2.60E-03	4.53E-01	1.76E-01	2.60E-03	5.15E-01	4.53E-01	2.60E-03	4.56E-01	4.56E-01	7.03E+00	4.57E-01		
CO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E+02	4.17E+00		
SO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-04	1.26E-02		
PM ₁₀	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E+00	3.63E+00	3.63E+00	1.16E+00	1.43E-01		
PM _{2.5}	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E+00	2.18E+00	2.18E+00	1.16E+00	1.24E-01		
HAPs	3.38E-02	1.37E-01	3.38E-02	1.37E-01	8.43E-02	4.55E-01	4.53E-01	2.60E-03	8.43E-02	4.55E-01	1.10E-01	2.60E-03	4.55E-01	1.76E-01	2.60E-03	5.16E-01	4.53E-01	2.60E-03	4.58E-01	4.58E-01	4.88E-02	0.00E+00		
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-05	0.00E+00	0.00E+00	0.00E+00	2.04E-05	0.00E+00	0.00E+00	2.04E-05	0.00E+00	0.00E+00	2.04E-05	2.04E-05	2.04E-05	0.00E+00	0.00E+00		
H ₂ S	9.95E+00	4.04E+01	9.95E+00	4.04E+01	2.48E+01	1.34E+02	2.81E+00	2.68E+00	2.48E+01	1.34E+02	6.83E-01	2.68E+00	1.34E+02	1.09E+00	2.68E+00	1.52E+02	2.81E+00	2.68E+00	8.31E+01	5.64E+01	0.00E+00	0.00E+00		
NH ₃	1.01E-01	4.09E-01	1.01E-01	4.09E-01	2.51E-01	1.36E+00	1.36E+00	1.15E+02	2.51E-01	1.36E+00	3.29E-01	1.15E+02	1.36E+00	5.27E-01	1.15E+02	1.54E+02	1.36E+00	1.15E+02	5.64E+02	1.16E+02	1.63E+00	0.00E+00		
CH ₄	2.79E+00	1.13E+01	2.79E+00	1.13E+01	6.97E+00	3.76E+01	3.76E+01	0.00E+00	6.97E+00	3.76E+01	9.12E+00	0.00E+00	3.76E+01	1.46E+01	0.00E+00	4.27E+01	3.76E+01	0.00E+00	3.76E+01	3.76E+01	9.65E-01	4.70E-02		
As	4.24E-05	1.72E-04	4.24E-05	1.72E-04	1.06E-04	5.71E-04	0.00E+00	2.71E-04	1.06E-04	5.71E-04	0.00E+00	2.71E-04	5.71E-04	0.00E+00	2.71E-04	6.47E-04	0.00E+00	2.71E-04	2.71E-04	2.71E-04	0.00E+00	0.00E+00		
Hg	6.92E-05	2.81E-04	6.92E-05	2.81E-04	1.73E-04	9.32E-04	0.00E+00	1.54E-05	1.73E-04	9.32E-04	0.00E+00	1.54E-05	9.32E-04	0.00E+00	1.54E-05	1.06E-03	0.00E+00	1.54E-05	1.54E-05	1.54E-05	0.00E+00	0.00E+00		
Benzene	3.32E-02	1.35E-01	3.32E-02	1.35E-01	8.28E-02	4.47E-01	4.47E-01	5.20E-04	8.28E-02	4.47E-01	1.08E-01	5.20E-04	4.47E-01	1.73E-01	5.20E-04	5.07E-01	4.47E-01	5.20E-04	4.48E-01	4.48E-01	2.33E-02	0.00E+00		
Toluene	1.77E-04	7.20E-04	1.77E-04	7.20E-04	4.43E-04	2.39E-03	2.39E-03	5.20E-04	4.43E-04	2.39E-03	5.80E-04	5.20E-04	2.39E-03	9.27E-04	5.20E-04	2.71E-03	2.39E-03	5.20E-04	2.91E-03	2.91E-03	8.48E-03	0.00E+00		
Ethylbenzene	1.47E-04	5.95E-04	1.47E-04	5.95E-04	3.66E-04	1.98E-03	1.98E-03	5.20E-04	3.66E-04	1.98E-03	4.79E-04	5.20E-04	1.98E-03	7.66E-04	5.20E-04	2.24E-03	1.98E-03	5.20E-04	2.49E-03	2.49E-03	0.00E+00	0.00E+00		
Xylenes	1.47E-04	5.95E-04	1.47E-04	5.95E-04	3.66E-04	1.98E-03	1.98E-03	1.04E-03	3.66E-04	1.98E-03	4.79E-04	1.04E-03	1.98E-03	7.66E-04	1.04E-03	2.24E-03	1.98E-03	1.04E-03	3.01E-03	3.01E-03	5.83E-03	0.00E+00		
Argon	1.50E-02	6.08E-02	1.50E-02	6.08E-02	3.74E-02	2.02E-01	2.02E-01	0.00E+00	3.74E-02	2.02E-01	4.89E-02	0.00E+00	2.02E-01	7.82E-02	0.00E+00	2.29E-01	2.02E-01	0.00E+00	2.02E-01	2.02E-01	0.00E+00	0.00E+00		
N ₂	5.21E+00	2.11E+01	5.21E+00	2.11E+01	1.30E+01	7.02E+01	7.02E+01	0.00E+00	1.30E+01	7.02E+01	1.70E+01	0.00E+00	7.02E+01	2.72E+01	0.00E+00	7.97E+01	7.02E+01	0.00E+00	7.02E+01	7.02E+01	0.00E+00	0.00E+00		
H ₂	2.98E-02	1.21E-01	2.98E-02	1.21E-01	7.44E-02	4.02E-01	4.02E-01	0.00E+00	7.44E-02	4.02E-01	9.74E-02	0.00E+00	4.02E-01	1.56E-01	0.00E+00	4.56E-01	4.02E-01	0.00E+00	4.02E-01	4.02E-01	0.00E+00	0.00E+00		
Aluminum	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-05	0.00E+00	0.00E+00	0.00E+00	2.88E-05	0.00E+00	0.00E+00	2.88E-05	0.00E+00	0.00E+00	2.88E-05	2.88E-05	2.88E-05	0.00E+00	0.00E+00		
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.32E-06	0.00E+00	0.00E+00	0.00E+00	4.32E-06	0.00E+00	0.00E+00	4.32E-06	0.00E+00	0.00E+00	4.32E-06	4.32E-06	4.32E-06	0.00E+00	0.00E+00		
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-04	0.00E+00	0.00E+00	0.00E+00	1.38E-04	0.00E+00	0.00E+00	1.38E-04	0.00E+00	0.00E+00	1.38E-04	1.38E-04	1.38E-04	0.00E+00	0.00E+00		
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07	0.00E+00	0.00E+00	0.00E+00	2.88E-07	0.00E+00	0.00E+00	2.88E-07	0.00E+00	0.00E+00	2.88E-07						

First Year Annual Emissions (With Commissioning)

Pollutant ^a	Emissions (tpy)																	Emissions (tpy)						Total Emissions (tpy)
	Production Flow Back	Production Well Testing	Injection Flow Back	Injection Well Testing	Commissioning				Cold Start				Warm Start			Shutdown	Continuous Operation ^b			Sparger Bypass	Cooling Tower Oxidation Box Bypass	Emergency Engines and Fire Pump (All Sources)	O&M Equipment	
					PTU	RM	Sparger	CT	PTU	RM	Sparger	CT	RM	Sparger	CT		RM	Sparger	CT					
Location	MTU	MTU	PTU	MTU	PTU	RM	Sparger	CT	PTU	RM	Sparger	CT	RM	Sparger	CT	RM	Sparger	CT	Sparger	CT	Multiple Stacks	Mobile		
CO ₂	1.21E+02	4.90E+03	1.61E+02	6.53E+03	3.01E+02	2.53E+03	1.26E+03	0.00E+00	1.67E+02	5.57E+02	7.66E+01	0.00E+00	2.26E+03	2.92E+02	0.00E+00	1.69E+03	1.01E+04	0.00E+00	1.50E+03	1.50E+03	5.95E+02	2.57E+02	3.48E+04	
NO _x	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.60E-01	6.57E-01	1.32E+00	
ROG	3.63E-03	1.48E-01	4.85E-03	1.97E-01	9.07E-03	7.62E-02	3.81E-02	2.18E-04	5.04E-03	1.68E-02	2.31E-03	5.46E-05	6.80E-02	8.80E-03	1.30E-04	5.09E-02	3.05E-01	1.75E-03	4.56E-02	4.56E-02	1.76E-01	8.55E-02	1.29E+00	
CO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E+00	1.14E+00	4.36E+00	
SO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-06	2.53E-03	2.53E-03	
PM ₁₀	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-02	2.65E-02	3.22E+00	
PM _{2.5}	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-02	1.95E+00		
HAPs	3.65E-03	1.48E-01	4.86E-03	1.97E-01	9.10E-03	7.64E-02	3.81E-02	3.58E-04	5.06E-03	1.68E-02	2.31E-03	8.96E-05	6.82E-02	8.80E-03	2.13E-04	5.11E-02	3.05E-01	2.87E-03	4.58E-02	4.58E-02	1.22E-03	0.00E+00	1.03E+00	
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-06	0.00E+00	0.00E+00	0.00E+00	4.29E-07	0.00E+00	0.00E+00	1.02E-06	0.00E+00	0.00E+00	1.38E-05	2.04E-06	2.04E-06	0.00E+00	0.00E+00	2.10E-05	
H ₂ S	1.07E+00	4.36E+01	1.43E+00	5.82E+01	2.68E+00	2.25E+01	2.36E+01	2.25E-01	1.49E+00	4.96E+00	1.43E-02	5.63E-02	2.01E+01	5.46E-02	1.34E-01	1.51E+01	1.89E+00	1.80E+00	8.31E+00	5.64E+00	0.00E+00	0.00E+00	1.89E+02	
NH ₃	1.09E-02	4.42E-01	1.45E-02	5.89E-01	2.72E-02	2.28E-01	1.14E-01	9.65E+00	1.51E-02	5.02E-02	6.91E-03	2.41E+00	2.04E-01	2.63E-02	5.75E+00	1.52E-01	9.13E-01	7.73E+01	5.64E+01	1.16E+01	4.07E-02	0.00E+00	1.66E+02	
CH ₄	3.02E-01	1.22E+01	4.02E-01	1.63E+01	7.53E-01	6.32E+00	3.16E+00	0.00E+00	4.18E-01	1.39E+00	1.92E-01	0.00E+00	5.64E+00	7.30E-01	0.00E+00	4.23E+00	2.53E+01	0.00E+00	3.76E+00	3.76E+00	2.41E-02	8.94E-03	8.50E+01	
As	4.57E-06	1.86E-04	6.10E-06	2.48E-04	1.14E-05	9.58E-05	0.00E+00	0.00E+00	2.28E-05	6.34E-06	2.11E-05	0.00E+00	5.69E-06	8.56E-05	0.00E+00	1.35E-05	6.41E-05	0.00E+00	1.82E-04	2.71E-05	0.00E+00	0.00E+00	1.01E-03	
Hg	7.47E-06	3.03E-04	9.96E-06	4.04E-04	1.86E-05	1.56E-04	0.00E+00	1.29E-06	1.04E-05	3.45E-05	0.00E+00	3.24E-07	1.40E-04	0.00E+00	7.71E-07	1.05E-04	0.00E+00	1.04E-05	1.54E-06	1.54E-06	0.00E+00	0.00E+00	1.20E-03	
Benzene	3.58E-03	1.45E-01	4.78E-03	1.94E-01	8.95E-03	7.51E-02	3.75E-02	4.36E-05	4.97E-03	1.65E-02	2.28E-03	1.09E-05	6.71E-02	8.67E-03	2.60E-05	5.02E-02	3.01E-01	3.50E-04	4.48E-02	4.48E-02	5.82E-04	0.00E+00	1.01E+00	
Toluene	1.92E-05	7.78E-04	2.55E-05	1.04E-03	4.78E-05	4.02E-04	2.01E-04	4.36E-05	2.66E-05	8.84E-05	1.22E-05	1.09E-05	3.69E-04	4.64E-05	2.60E-05	2.69E-04	1.61E-03	3.50E-04	2.91E-04	2.91E-04	2.12E-04	0.00E+00	6.14E-03	
Ethylbenzene	1.58E-05	6.43E-04	2.11E-05	8.57E-04	3.95E-05	3.32E-04	1.66E-04	4.36E-05	2.20E-05	7.31E-05	1.01E-05	1.09E-05	2.96E-04	3.83E-05	2.60E-05	2.22E-04	1.33E-03	3.50E-04	2.49E-04	2.49E-04	0.00E+00	0.00E+00	4.99E-03	
Xylenes	1.58E-05	6.43E-04	2.11E-05	8.57E-04	3.95E-05	3.32E-04	1.66E-04	4.36E-05	2.20E-05	7.31E-05	1.01E-05	2.18E-05	2.96E-04	3.83E-05	5.20E-05	2.22E-04	1.33E-03	6.99E-04	3.01E-04	3.01E-04	1.46E-04	0.00E+00	5.67E-03	
Argon	1.62E-03	6.56E-02	2.16E-03	8.75E-02	4.04E-03	3.39E-02	1.69E-02	0.00E+00	2.24E-03	7.46E-03	1.03E-03	0.00E+00	3.02E-02	3.91E-03	0.00E+00	2.27E-02	1.36E-01	0.00E+00	2.02E-02	2.02E-02	0.00E+00	0.00E+00	4.55E-01	
N ₂	5.63E-01	2.28E+01	7.50E-01	3.05E+01	1.40E+00	1.18E+01	5.90E+00	0.00E+00	7.80E-01	2.60E+00	3.57E-01	0.00E+00	1.05E+01	1.36E+00	0.00E+00	7.89E+00	4.72E+01	0.00E+00	7.02E+00	7.02E+00	0.00E+00	0.00E+00	1.58E+02	
H ₂	3.22E-03	1.31E-01	4.29E-03	1.74E-01	8.04E-03	6.75E-02	3.37E-02	0.00E+00	4.47E-03	1.49E-02	2.05E-03	0.00E+00	6.02E-02	7.79E-03	0.00E+00	4.51E-02	2.70E-01	0.00E+00	4.02E-02	4.02E-02	0.00E+00	0.00E+00	9.07E-01	
Aluminum	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-06	0.00E+00	0.00E+00	0.00E+00	6.05E-07	0.00E+00	0.00E+00	1.44E-06	0.00E+00	0.00E+00	1.94E-05	2.88E-06	2.88E-06	0.00E+00	0.00E+00	2.96E-05	
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-07	0.00E+00	0.00E+00	0.00E+00	9.07E-08	0.00E+00	0.00E+00	2.16E-07	0.00E+00	0.00E+00	2.91E-06	4.32E-07	4.32E-07	0.00E+00	0.00E+00	4.44E-06	
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-05	0.00E+00	0.00E+00	0.00E+00	2.90E-06	0.00E+00	0.00E+00	6.91E-06	0.00E+00	0.00E+00	9.30E-05	1.38E-05	1.38E-05	0.00E+00	0.00E+00	1.42E-04	
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-08	0.00E+00	0.00E+00	0.00E+00	6.05E-09	0.00E+00	0.00E+00	1.44E-08	0.00E+00	0.00E+00	1.94E-07	2.88E-08	2.88E-08	0.00E+00	0.00E+00	2.96E-07	
Cobalt	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-08	0.00E+00	0.00E+00	0.00E+00	6.05E-09	0.00E+00	0.00E+00	1.44E-08	0.00E+00	0.00E+00	1.94E-07	2.88E-08	2.88E-08	0.00E+00	0.00E+00	2.96E-07	
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.25E-08	0.00E+00	0.00E+00	0.00E+00	1.81E-08	0.00E+00	0.00E+00	4.32E-08	0.00E+00	0.00E+00	5.81E-07	8.64E-08	8.64E-08	0.00E+00	0.00E+00	8.88E-07	
Total Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-07	0.00E+00	0.00E+00	0.00E+00	3.02E-08	0.00E+00	0.00E+00	7.20E-08	0.00E+00	0.00E+00	9.69E-07	1.44E-07	1.44E-07	0.00E+00	0.00E+00	1.48E-06	
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-06	0.00E+00	0.00E+00	0.00E+00	2.90E-07	0.00E+00	0.00E+00	6.91E-07	0.00E+00	0.00E+00	9.30E-06	1.38E-06	1.38E-06	0.00E+00	0.00E+00	1.42E-05	
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-07	0.00E+00	0.00E+00	0.00E+00	3.02E-08	0.00E+00	0.00E+00	7.20E-08	0.00E+00	0.00E+00	9.69E-07	1.44E-07	1.44E-07	0.00E+00	0.00E+00	1.48E-06	
Lithium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-06	0.00E+00	0.00E+00	0.00E+00	6.05E-07	0.00E+00	0.00E+00	1.44E-06	0.00E+00	0.00E+00	1.94E-05	2.88E-06	2.88E-06	0.00E+00	0.00E+00	2.96E-05	
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-04	0.00E+00	0.00E+00	0.00E+00	2.78E-05	0.00E+00	0.00E+00	6.62E-05	0.00E+00	0.00E+00	8.91E-04	1.32E-04	1.32E-04	0.00E+00	0.00E+00	1.36E-03	
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-07	0.00E+00	0.00E+00	0.00E+00	7.38E-08	0.00E+00	0.00E+00	1.76E-07	0.00E+00	0.00E+00	2.36E-06	3.51E-07	3.51E-07	0.00E+00	0.00E+00	3.61E-06	
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-06	0.00E+00	0.00E+00	0.00E+00	9.55E-07	0.00E+00	0.00E+00	2.27E-06	0.00E+00	0.00E+00	3.06E-05	4.55E-06	4.55E-06	0.00E+00	0.00E+00	4.68E-05	
Total Silica	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	0.00E+00	3.02E-05	0.00E+00	0.00E+00	7.20E-05	0.00E+00	0.00E+00	9.69E-04	1.44E-04	1.44E-04	0.00E+00	0.00E+00	1.48E-03	
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-07	0.00E+00	0.00E+00	0.00E+00	3.02E-08	0.00E+00	0.00E+00	7.20E-08	0.00E+00	0.00E+00	9.69E-07	1.44E-07	1.44E-07	0.00E+00	0.00E+00	1.48E-06	
Strontium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-06	0.00E+00	0.00E+00	0.00E+00	6.05E-07	0.00E+00	0.00E+00	1.44E-06	0.00E+00	0.00E+00	1.94E-05	2.88E-06	2.88E-06	0.00E+00	0.00E+00	2.96E-05	
Zinc	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E-05	0.00E+00	0.00E+00	0.00E+00	1.72E-05	0.00E+00	0.00E+00	4.10E-05	0.00E+00	0.00E+00	5.52E-04	8.20E-05	8.20E-05	0.00E+00	0.00E+00	8.43E-04	
Diesel PM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00																	

Classified as HAPs by the U.S. Environmental Protection Agency

^a Radon units are in unit of Curie(s) (Ci) per respective column time unit.

^b Continuous operation of the turbine system and cooling towers is assumed to occur during hours when the PTU/ MTU/Rock Muffler are not in operation.

Subsequent Year Annual Emissions (Without Commissioning)

Pollutant *	Emissions (tpy)																					Total Emissions (tpy)		
	Production Flow Back	Production Well Testing	Injection Flow Back	Injection Well Testing	Commissioning				Cold Start				Warm Start			Shutdown	Continuous Operation ^b		Sparger Bypass	Cooling Tower Oxidation Box Bypass	Emergency Engines and Fire Pump (All Sources)		O&M Equipment	
					PTU	RM	Sparger	CT	PTU	RM	Sparger	CT	RM	Sparger	CT		RM	Sparger						CT
Location	PTU	MTU	PTU	MTU	PTU	RM	Sparger	CT	PTU	RM	Sparger	CT	RM	Sparger	CT	RM	Sparger	CT	Sparger	CT	Sparger	CT	Multiple Stacks	Mobile
Duration (hrs/event)	24	0	24	0	0	0	0	0	120	74	42	42	15	5	5	36	1	1	1	1	1	1	1	1
Events Per Year	1	0	1	0	0	0	0	0	1	1	1	1	20	20	20	5.5	7,058	7,058	200	200	--	--	8,760	8,760
Hours Per Year	216	0	288	0	0	0	0	0	120	74	42	42	300	100	100	198	7,058	7,058	200	200	--	--	8,760	8,760
CO ₂	1.21E+02	0.00E+00	1.61E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E+02	5.57E+02	7.66E+01	0.00E+00	2.26E+03	2.92E+02	0.00E+00	1.69E+03	5.31E+04	0.00E+00	1.50E+03	1.50E+03	5.95E+02	2.57E+02	6.23E+04	6.23E+04
NOx	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.60E-01	6.57E-01	1.32E+00
ROG	3.63E-03	0.00E+00	4.85E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.04E-03	1.68E-02	2.31E-03	5.46E-05	6.80E-02	8.80E-03	1.30E-04	5.09E-02	1.60E+00	9.17E-03	4.56E-02	4.56E-02	1.76E-01	8.55E-02	2.12E+00	2.12E+00
CO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.22E+00	1.14E+00	4.36E+00
SO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-06	2.53E-03	2.53E-03
PM ₁₀	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E+01	3.63E-01	3.63E-01	2.90E-02	2.65E-02	1.36E+01	1.36E+01
PM _{2.5}	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.68E+00	2.18E-01	2.18E-01	2.90E-02	2.19E-02	8.17E+00	8.17E+00
HAPs	3.65E-03	0.00E+00	4.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-03	1.68E-02	2.31E-03	8.96E-05	6.82E-02	8.80E-03	2.13E-04	5.11E-02	1.60E+00	1.50E-02	4.58E-02	4.58E-02	1.22E-03	0.00E+00	1.87E+00	1.87E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-07	0.00E+00	0.00E+00	1.02E-06	0.00E+00	0.00E+00	7.21E-05	2.04E-06	2.04E-06	0.00E+00	0.00E+00	7.77E-05	7.77E-05
H ₂ S	1.07E+00	0.00E+00	1.43E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E+00	4.96E+00	1.43E-02	5.63E-02	2.01E+01	5.46E-02	1.34E-01	1.51E+01	9.93E+00	9.46E+00	8.31E+00	5.64E+00	0.00E+00	0.00E+00	7.77E+01	7.77E+01
NH ₃	1.09E-02	0.00E+00	1.45E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-02	5.02E-02	6.91E-03	2.41E+00	2.04E-01	2.63E-02	5.75E+00	1.52E-01	4.79E+00	4.06E+02	5.64E+01	1.16E+01	4.07E-02	0.00E+00	4.87E+02	4.87E+02
CH ₄	3.02E-01	0.00E+00	4.02E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-01	1.39E+00	1.92E-01	0.00E+00	5.64E+00	7.30E-01	0.00E+00	4.23E+00	1.33E+02	0.00E+00	3.76E+00	3.76E+00	2.41E-02	8.94E-03	1.54E+02	1.54E+02
As	4.57E-06	0.00E+00	6.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.34E-06	2.11E-05	0.00E+00	5.69E-06	8.56E-05	0.00E+00	1.35E-05	6.41E-05	0.00E+00	9.56E-04	2.71E-05	2.71E-05	0.00E+00	0.00E+00	1.22E-03	1.22E-03
Hg	7.47E-06	0.00E+00	9.96E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-05	3.45E-05	0.00E+00	3.24E-07	1.40E-04	0.00E+00	7.71E-07	1.05E-04	0.00E+00	5.44E-05	1.54E-06	1.54E-06	0.00E+00	0.00E+00	3.65E-04	3.65E-04
Benzene	3.58E-03	0.00E+00	4.78E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.97E-03	1.65E-02	2.28E-03	1.09E-05	6.71E-02	8.67E-03	2.60E-05	5.02E-02	1.58E+00	1.83E-03	4.48E-02	4.48E-02	5.82E-04	0.00E+00	1.83E+00	1.83E+00
Toluene	1.92E-05	0.00E+00	2.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.66E-05	8.84E-05	1.22E-05	1.09E-05	3.59E-04	4.64E-05	2.60E-05	2.69E-04	8.43E-03	1.83E-03	2.91E-04	2.91E-04	2.12E-04	0.00E+00	1.19E-02	1.19E-02
Ethylbenzene	1.58E-05	0.00E+00	2.11E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-05	7.31E-05	1.01E-05	1.09E-05	2.96E-04	3.83E-05	2.60E-05	2.22E-04	6.97E-03	1.83E-03	2.49E-04	2.49E-04	0.00E+00	0.00E+00	1.00E-02	1.00E-02
Xylenes	1.58E-05	0.00E+00	2.11E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-05	7.31E-05	1.01E-05	2.18E-05	2.96E-04	3.83E-05	5.20E-05	2.22E-04	6.97E-03	3.67E-03	3.01E-04	3.01E-04	1.46E-04	0.00E+00	1.22E-02	1.22E-02
Argon	1.62E-03	0.00E+00	2.16E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-03	7.46E-03	1.03E-03	0.00E+00	3.02E-02	3.91E-03	0.00E+00	2.27E-02	7.11E-01	0.00E+00	2.02E-02	2.02E-02	0.00E+00	0.00E+00	8.23E-01	8.23E-01
N ₂	5.63E-01	0.00E+00	7.50E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.80E-01	2.60E+00	3.57E-01	0.00E+00	1.05E+01	1.36E+00	0.00E+00	7.89E+00	2.48E+02	0.00E+00	7.02E+00	7.02E+00	0.00E+00	0.00E+00	2.87E+02	2.87E+02
H ₂	3.22E-03	0.00E+00	4.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-03	1.49E-02	2.05E-03	0.00E+00	6.02E-02	7.79E-03	0.00E+00	4.51E-02	1.42E+00	0.00E+00	4.02E-02	4.02E-02	0.00E+00	0.00E+00	1.64E+00	1.64E+00
Aluminum	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.05E-07	0.00E+00	0.00E+00	1.44E-06	0.00E+00	0.00E+00	1.02E-04	2.88E-06	2.88E-06	0.00E+00	0.00E+00	1.09E-04	1.09E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.																	

Elmore North Geothermal Project
Elmore North Operational Emissions Emissions
Summary
April 2023

Elmore North Operational Emissions

Period	Operation	Criteria Pollutant Emissions						GHG Pollutant Emissions				H ₂ S Emissions
		CO	VOC	NO _x	SO ₂	PM ₁₀ ^d	PM _{2.5} ^d	CO ₂	N ₂ O	CH ₄	CO ₂ e ^e	H ₂ S
Daily	PTU Max Daily Emissions (lbs/day) ^a	0.00	2.02	0.00	0.00	0.00	0.00	66,938	0.00	167	71,120	596
	MTU Max Daily Emissions (lbs/day) ^a	0.00	3.28	0.00	0.00	0.00	0.00	108,841	0.00	272	115,641	969
	Rock Muffler Max Daily Emissions (lbs/day) ^a	0.00	12.35	0.00	0.00	0.00	0.00	409,934	0.00	1,024	435,544	3,651
	Cooling Tower and Sparger Max Daily Emissions (lbs/day) ^a	0.00	10.94	0.00	0.00	87.1	52.24	361,189	0.00	903	383,755	3,348
	Fire Pump Max Daily Emissions (lbs/day) ^b	0.42	0.05	1.78	0.00	0.06	0.06	130	0.00	0.01	131	0.00
	Emergency Generator Max Daily Emissions (lbs/day) ^c	257	14.0	49.2	0.00	2.20	2.20	47,316	0.38	1.92	47,478	0.00
	O&M Equipment and Vehicles Max Daily Emissions (lbs/day)	33.4	3.66	29.9	0.10	1.14	1.00	10,546	0.08	0.38	10,578	0.00
	Insulating Gas Daily Emissions (lbs/day)	--	--	--	--	--	--	--	--	--	375	--
	Non-Routine Max Daily Emissions (lbs/day) ^f	291	30.0	80.9	0.10	3.40	3.26	467,925	0.46	1,027	494,106	3,651
	Routine Max Daily Emissions (lbs/day) ^f	291	28.6	80.9	0.10	90.5	55.5	419,181	0.46	905	442,316	3,348
	ICAPCD Thresholds of Significance (lbs/day) ^g	550	137	137	150	150	550	N/A	N/A	N/A	N/A	N/A
	Exceeds Threshold (Y/N)?	N	N	N	N	N	N	N/A	N/A	N/A	N/A	N/A
Commissioning Year	PTU Annual Emission (tpy)	0.00	0.02	0.00	0.00	0.00	0.00	629	0.00	1.57	669	5.61
	MTU Annual Emissions (tpy)	0.00	0.35	0.00	0.00	0.00	0.00	11,549	0.00	28.9	12,271	103
	Rock Muffler Annual Emissions (tpy)	0.00	0.21	0.00	0.00	0.00	0.00	7,034	0.00	17.6	7,473	62.6
	Cooling Tower and Sparger Annual Emissions (tpy)	0.00	0.45	0.00	0.00	3.17	1.90	14,771	0.00	36.9	15,694	18.37
	Fire Pump Annual Emissions (tpy)	0.01	0.00	0.04	0.00	0.00	0.00	3.26	0.00	0.00	3.27	0.00
	Emergency Generator Annual Emissions (tpy)	3.2	0.17	0.62	0.00	0.03	0.03	591	0.00	0.02	593	0.00
	O&M Equipment and Vehicles Annual Emissions (tpy)	1.14	0.09	0.66	0.00	0.03	0.02	257	0.00	0.01	258	0.00
	Insulating Gas Annual Emissions (tpy)	--	--	--	--	--	--	--	--	--	68.4	--
	Annual Emissions (tpy) ^h	4.36	1.29	1.32	0.00	3.22	1.95	34,835	0.01	85.0	37,029	189
Non- Commissioning Year With Startups, Shutdowns and Emission Control Downtime	PTU Annual Emission (tpy)	0.00	0.01	0.00	0.00	0.00	0.00	449	0.00	1.12	477	4.00
	MTU Annual Emissions (tpy)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Rock Muffler Annual Emissions (tpy)	0.00	0.14	0.00	0.00	0.00	0.00	4,505	0.00	11.3	4,787	40.1
	Cooling Tower and Sparger Annual Emissions (tpy)	0.00	1.71	0.00	0.00	13.53	8.12	56,488	0.00	141	60,018	33.6
	Fire Pump Annual Emissions (tpy)	0.01	0.00	0.04	0.00	0.00	0.00	3.26	0.00	0.00	3.27	0.00
	Emergency Generator Annual Emissions (tpy)	3.2	0.17	0.62	0.00	0.03	0.03	591	0.00	0.02	593	0.00
	O&M Equipment and Vehicles Annual Emissions (tpy)	1.14	0.09	0.66	0.00	0.03	0.02	257	0.00	0.01	258	0.00
	Insulating Gas Annual Emissions (tpy)	--	--	--	--	--	--	--	--	--	68.4	--
	Annual Emissions (tpy) ^h	4.36	2.12	1.32	0.00	13.6	8.17	62,294	0.01	154	66,204	77.7
Non- Commissioning Year With no Start-ups, Shutdowns, or Emission Control Downtime	PTU Annual Emission (tpy)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MTU Annual Emissions (tpy)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Rock Muffler Annual Emissions (tpy)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cooling Tower and Sparger Annual Emissions (tpy)	0.00	2.00	0.00	0.00	15.89	9.53	65,917	0.00	165	70,035	24.1
	Fire Pump Annual Emissions (tpy)	0.010	0.00	0.04	0.00	0.00	0.00	3.26	0.00	0.00	3.27	0.00
	Emergency Generator Annual Emissions (tpy)	3.2	0.17	0.62	0.00	0.03	0.03	591	0.00	0.02	593	0.00
	O&M Equipment and Vehicles Annual Emissions (tpy)	1.14	0.09	0.66	0.00	0.03	0.02	257	0.00	0.01	258	0.00
	Insulating Gas Annual Emissions (tpy)	--	--	--	--	--	--	--	--	--	68.4	--
	Annual Emissions (tpy) ^h	4.36	2.26	1.32	0.00	15.9	9.58	66,769	0.01	165	70,958	24.1

N/A = Not applicable (i.e., no operational emission significance threshold exists for this pollutant)

lbs/day = pound(s) per day

^a Daily emissions assume the following hours of operation at the maximum hourly emission rate: 24

^b Daily emissions assume the following hours of operation at the maximum hourly emission rate: 1

^c Daily emissions assume the following hours of operation at the maximum hourly emission rate: 2

^d These estimates include both fugitive dust emissions and exhaust emissions.

^e The following global warming potentials were used to estimate CO₂ equivalent emissions, per 40 CFR Part 98, Table A-1:

CH₄ = 25

N₂O = 298

^f Non-routine and routine daily emission scenarios are summarized below:

Non-Routine: PTU/MTU/Rock Muffler/Fire Pump/Emergency Generators/Insulating Gas/O&M Equipment and Vehicles

Routine: Spargers/Cooling Towers/Emergency Generators/Fire Pump/Insulating Gas/O&M Equipment and Vehicles

^g ICAPCD Thresholds of Significance taken from Table 1 of the 2017 CEQA Air Quality Handbook (ICAPCD 2017).

^h ICAPCD does not have established annual emission significance thresholds.

Table 2.1 Brine Composition at Existing Elmore and Leathers Wellheads

Elmore North Geothermal Project

Elmore North Operational Emissions

Brine Composition

April 2023

Elmore Wells

Wellname	NCG/Steam Ratio (ppmw)	Steam Flow (kph)	CO ₂ /Steam Ratio (ppmw)	H ₂ S/Steam Ratio (ppmw)	NH ₃ /Steam Ratio (ppmw)	Argon/Steam Ratio (ppmw)	N ₂ /Steam Ratio (ppmw)	CH ₄ /Steam Ratio (ppmw)	H ₂ /Steam Ratio (ppmw)
Elmore 12	5,854	92	5,223	119	458	0.123	36.10	17	0.503
Elmore 14	3,287	143	2,750	87	438	0.054	6.65	5	0.222
Elmore 15	1,906	114	1,432	57	413	0.040	2.76	2	0.193
Elmore 16	12,190	112	11,528	171	446	0.095	15.51	28	0.565
Total		461							

ppmw = part(s) per million by weight

NCG = Non-condensable gas

kph = thousand pounds per hour

Leather Wells

Wellname	NCG/Steam Ratio (ppmw)	Steam Flow (kph)	CO ₂ /Steam Ratio (ppmw)	H ₂ S/Steam Ratio (ppmw)	NH ₃ /Steam Ratio (ppmw)	Argon/Steam Ratio (ppmw)	N ₂ /Steam Ratio (ppmw)	CH ₄ /Steam Ratio (ppmw)	H ₂ /Steam Ratio (ppmw)
River Ranch 08	18,914	44	18,258	82	401	0.288	127	46	0.209
River Ranch 09	16,990	55	16,355	87	435	0.208	86	28	0.262
River Ranch 11	16,723	55	16,023	83	420	0.312	163	34	0.214
River Ranch 14	23,640	111	23,029	81	355	0.277	102	73	0.178
River Ranch 18	16,970	120	16,377	109	399	0.167	59	37	0.280
Total		385							

ppmw = part(s) per million by weight

NCG = Non-condensable gas

kph = thousand pounds per hour

Table 2.1 Brine Composition at Existing Elmore and Leathers Wellheads

All Wells

Wellname	NCG Mass Flow Rate (lbs/hr)	Total Mass Flow CO ₂ (lbs/hr)	Total Mass Flow H ₂ S (lbs/hr)	Total Mass Flow NH ₃ (lbs/hr)	Total Mass Flow Argon (lbs/hr)	Total Mass Flow N ₂ (lbs/hr)	Total Mass Flow CH ₄ (lbs/hr)	Total Mass Flow H ₂ (lbs/hr)
Elmore 12	538	480	10.96	42.12	0.011	3.32	1.53	0.046
Elmore 14	470	393	12.48	62.64	0.008	0.95	0.65	0.032
Elmore 15	217	163	6.46	47.05	0.005	0.31	0.21	0.022
Elmore 16	1,371	1,296	19.26	50.11	0.011	1.74	3.20	0.063
River Ranch 08	829	801	3.58	17.59	0.013	5.59	2.00	0.009
River Ranch 09	933	898	4.77	23.87	0.011	4.69	1.54	0.014
River Ranch 11	927	888	4.58	23.28	0.017	9.04	1.90	0.012
River Ranch 14	2,631	2,563	9.02	39.53	0.031	11.30	8.13	0.020
River Ranch 18	2,036	1,965	13.03	47.91	0.020	7.11	4.45	0.034
Totals	9,952	9,448	84.13	354.11	0.127	44.06	23.61	0.252

NCG = Non-condensable gas

lbs/hr = pound(s) per hour

Weighted Average Concentration of Constituents in Steam

Avg. NCG/Steam Ratio (ppmw)	Avg. CO ₂ /Steam Ratio (ppmw)	Avg. H ₂ S/Steam Ratio (ppmw)	Avg. NH ₃ /Steam Ratio (ppmw)	Avg. Argon/Steam Ratio (ppmw)	Avg. N ₂ /Steam Ratio (ppmw)	Avg. CH ₄ /Steam Ratio (ppmw)	Avg. H ₂ /Steam Ratio (ppmw)
11,753	11,156	99.35	418.16	0.15	52.03	27.88	0.30

ppmw = part(s) per million by weight

NCG = Non-condensable gas

Table 2.2 Arsenic, Mercury, Ammonia and Radon Test Results in NCG Stream at the Existing Units

Elmore North Geothermal Project

Elmore North Operational Emissions

Arsenic, Mercury, Ammonia and Radon Analytical Data

April 2023

Arsenic, Mercury and Ammonia Analytical Data

Location	Measured As Flux in NCG (lbs/hr) *	Measured Hg Flux in NCG (lbs/hr) *	Measured NH ₃ Flux in NCG (lbs/hr) *
Elmore NCG Sparger	3.68E-04	1.63E-04	1.42E-01
Leathers NCG + Heat Recovery	7.73E-04	1.70E-03	2.57E+00
Totals	5.71E-04	9.32E-04	1.36E+00
NCG Flowrate	15,854	lbs/hr	

* Measured values from 2022 Source Tests; totals represent the average of analytical data, based on what the Applicant felt to be most representative.

NCG = Non-condensable gas

lbs/hr = pound(s) per hour

Radon Analytical Data

Location	Measured NCG Rn-222 Activity-Concentrations (pCi/l) *	Corrected Mass Flux Rn- 222 (lbs/hr) *	Rn-222 Specific Activity (Ci/g) *	Corrected Calculated Rn-222 Activity Flux (Ci/hr) *
Elmore NCG Sparger *	2,515	2.91E-06	1.54E+05	9.87E-04
Leathers NCG + Heat Recovery *	1,041	4.75E-06	1.54E+05	1.61E-03
Totals	1,778	3.83E-06	1.54E+05	1.30E-03

* Measured values from 2022 Source Tests; totals represent the average of analytical data, based on what the Applicant felt to be most representative.

NCG = Non-condensable gas

pCi/l = pico Curie(s) per liter

lbs/hr = pound(s) per hour

Ci/g = Curie(s) per gram

Ci/hr = Curie(s) per hour

Table 2.3 BTEX Test Results in NCG Stream at the Existing Units

Elmore North Geothermal Project

Elmore North Operational Emissions

BTEX Analytical Data

April 2023

BTEX Analytical Sampling Results

Location	Measured Benzene Flux (lbs/hr) *	Measured Toluene Flux (lbs/hr) **	Measured Ethylbenzene Flux (lbs/hr) **	Measured Xylenes Flux (lbs/hr) **
Elmore NCG Sparger	0.05	2.00E-03	5.60E-04	5.60E-04
Leathers NCG + Heat Recovery	0.40	2.78E-03	3.39E-03	3.39E-03
Totals	0.45	2.39E-03	1.98E-03	1.98E-03

* Measured values from 2022 Source Tests; totals represent the sum of analytical data, based on what the Applicant felt to be most representative.

** Measured values from 2022 Source Tests; totals represent the average of analytical data, based on what the Applicant felt to be most representative.

NCG = Non-condensable gas

lbs/hr = pound(s) per hour

Table 2.4 Emissions During Production Well Flow Back and Testing

Elmore North Geothermal Project

Elmore North Operational Emissions

Production Flow Back and Well Testing Emission Calculations

April 2023

Production Flow Back

Brine Flow Rate through Production or Mobile Testing Unit (PTU/MTU) *	96,000	gallons/hr
Density of Brine at 260°C and TDS>20% **	1	g/cm ³
Brine Flow Rate through PTU/MTU	801,145	lbs/hr
Flash %	25%	
Steam Flow Rate through PTU/MTU	200,286	lbs/hr
Duration of Well Flowback	24	hr/well
Number of Wells Flowed Back	9	wells/event
Number of Events per Year	1	event/year

Production Well Testing

Brine Flow Rate through MTU ***	1,626,000	lbs/hr
Flash %	25%	
Steam Flow Rate through MTU	406,500	lbs/hr
Duration of Well Testing	240	hr/well
Number of Wells Tested	9	wells/event
Number of Events per Year	1	event/year
Average NCG:Steam Ratio	11,753	ppmw
NCG Mass Flow Rate to PTU/MTU during Flow Back	1,177	lbs/hr
NCG Mass Flow Rate to MTU during Testing	4,777	lbs/hr
NCG Correction to Account for Flow Restrictions, etc.	50%	As provided by Applicant; only applicable to flow back

* Brine flows through the MTU during commissioning flow back and through the PTU during maintenance flow back.

** Reference: Alan E Williams and Michael A McKibben, Aug 1989, A brine interface in the Salton Sea Geothermal System, California: Fluid geochemical and isotopic characteristics, Geochimica et Cosmochimica Acta Volume 53, Issue 8, Pages 1905-1920.

*** Well testing is considered a commissioning activity with brine flowing through the MTU.

Table 2.4 Emissions During Production Well Flow Back and Testing

Production Flow Back and Well Testing Emissions Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Component Mass Flowrate through PTU/MTU during Production Flow Back	Total Production Flow Back Emissions	Component Mass Flowrate through MTU during Production Well Testing	Total Production Well Testing Emissions
GHG & Volatile/Non-Volatile Compound Calculations						
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(lbs/event)	(lbs/hr)	(lbs/event)
CO ₂	1.12E+04	9.49E-01	1.12E+03	2.41E+05	4.54E+03	9.80E+06
H ₂ S	9.94E+01	8.45E-03	9.95E+00	2.15E+03	4.04E+01	8.72E+04
NH ₃	1.01E+00	8.56E-05	1.01E-01	2.18E+01	4.09E-01	8.83E+02
N ₂	5.20E+01	4.43E-03	5.21E+00	1.13E+03	2.11E+01	4.57E+04
CH ₄	2.79E+01	2.37E-03	2.79E+00	6.03E+02	1.13E+01	2.45E+04
H ₂	2.98E-01	2.53E-05	2.98E-02	6.44E+00	1.21E-01	2.61E+02
As	4.23E-04	3.60E-08	4.24E-05	9.15E-03	1.72E-04	3.71E-01
Hg	6.91E-04	5.88E-08	6.92E-05	1.49E-02	2.81E-04	6.06E-01
Benzene	3.31E-01	2.82E-05	3.32E-02	7.17E+00	1.35E-01	2.91E+02
Toluene	1.77E-03	1.51E-07	1.77E-04	3.83E-02	7.20E-04	1.56E+00
Ethylbenzene	1.46E-03	1.25E-07	1.47E-04	3.17E-02	5.95E-04	1.29E+00
Xylenes	1.46E-03	1.25E-07	1.47E-04	3.17E-02	5.95E-04	1.29E+00
Argon	1.49E-01	1.27E-05	1.50E-02	3.23E+00	6.08E-02	1.31E+02
Radon Calculations						
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(Ci/event)	(Ci/hr)	(Ci/event)
Radon	9.64E-04	8.20E-08	9.65E-05	2.08E-02	3.92E-04	8.46E-01

ppmw = part(s) per million by weight

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

Table 2.4 Emissions During Production Well Flow Back and Testing

Elmore North Geothermal Project

Elmore North Operational Emissions

Injection Flow Back and Well Testing Emission Calculations

April 2023

Injection Flow Back

Brine Flow Rate through PTU	96,000	gallons/hr
Density of Brine at 260°C and TDS>20% *	1	g/cm ³
Brine Flow Rate through PTU	801,145	lbs/hr
Flash %	25%	
Steam Flow Rate through PTU	200,286	lbs/hr
Duration of Well Flowback	24	hr/well
Number of Wells Flowed Back	12	wells/event
Number of Events per Year	1	event/year

Injection Well Testing

Brine Flow Rate through MTU **	1,626,000	lbs/hr
Flash %	25%	
Steam Flow Rate through MTU	406,500	lbs/hr
Duration of Well Testing	240	hr/well
Number of Wells Tested	12	wells/event
Number of Events per Year	1	event/year
Average NCG:Steam Ratio	11,753	ppmw
NCG Mass Flow Rate to PTU during Injection Flow Back	1,177	lbs/hr
NCG Mass Flow Rate to PTU during Testing	4,777	lbs/hr
NCG Correction to Account for Flow Restrictions, etc.	50%	As provided by Applicant; only applicable to flow back

* Reference: Alan E Williams and Michael A McKibben, Aug 1989, A brine interface in the Salton Sea Geothermal System, California: Fluid geochemical and isotopic characteristics, Geochimica et Cosmochimica Acta Volume 53, Issue 8, Pages 1905-1920.

** Well testing is considered a commissioning activity with brine flowing through the MTU.

Table 2.4 Emissions During Production Well Flow Back and Testing

Injection Flow Back and Well Testing Emissions Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Component Mass Flowrate through PTU during Injection Flow Back	Total Injection Flow Back Emissions	Component Mass Flowrate through MTU during Injection Well Testing	Total Injection Well Testing Emissions
GHG & Volatile/Non-Volatile Compound Calculations						
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(lbs/event)	(lbs/hr)	(lbs/event)
CO ₂	1.12E+04	9.49E-01	1.12E+03	3.22E+05	4.54E+03	1.31E+07
H ₂ S	9.94E+01	8.45E-03	9.95E+00	2.87E+03	4.04E+01	1.16E+05
NH ₃	1.01E+00	8.56E-05	1.01E-01	2.90E+01	4.09E-01	1.18E+03
N ₂	5.20E+01	4.43E-03	5.21E+00	1.50E+03	2.11E+01	6.09E+04
CH ₄	2.79E+01	2.37E-03	2.79E+00	8.04E+02	1.13E+01	3.26E+04
H ₂	2.98E-01	2.53E-05	2.98E-02	8.59E+00	1.21E-01	3.49E+02
As	4.23E-04	3.60E-08	4.24E-05	1.22E-02	1.72E-04	4.95E-01
Hg	6.91E-04	5.88E-08	6.92E-05	1.99E-02	2.81E-04	8.08E-01
Benzene	3.31E-01	2.82E-05	3.32E-02	9.56E+00	1.35E-01	3.88E+02
Toluene	1.77E-03	1.51E-07	1.77E-04	5.11E-02	7.20E-04	2.07E+00
Ethylbenzene	1.46E-03	1.25E-07	1.47E-04	4.22E-02	5.95E-04	1.71E+00
Xylenes	1.46E-03	1.25E-07	1.47E-04	4.22E-02	5.95E-04	1.71E+00
Argon	1.49E-01	1.27E-05	1.50E-02	4.31E+00	6.08E-02	1.75E+02
Radon Calculations						
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(Ci/event)	(Ci/hr)	(Ci/event)
Radon	9.64E-04	8.20E-08	9.65E-05	2.78E-02	3.92E-04	1.13E+00

ppmw = part(s) per million by weight

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

Table 2.6 NCG Emissions During Commissioning Events

Elmore North Geothermal Project
Elmore North Operational Emissions
Commissioning Emission Calculations
April 2023

Average NCG:Steam Ratio	11,753	ppmw
Well Warm-up at PTU		
Steam Flow Rate	250,000	lbs/hr
Duration of Well Warm-up	24	hr for first well/event
Duration of Well Warm-up	192	hr for 8 wells/event
Number of Events per Year	1	One time event during first year of operation
NCG @ Steam Flow = 250,000 lbs/hr	2,938	lbs/hr
NCG @ Steam Flow = 450,000 lbs/hr	5,289	lbs/hr
NCG @ Steam Flow = 674,391 lbs/hr	7,926	lbs/hr
Production Line and Equipment Warm-up @ Rock Muffler (RM)		
Steam Flow Rate	674,391	lbs/hr
Duration	48	hr/event
Number of Events per Year	1	One time event during first year of operation
NCG Flow Rate to RM	7,926	lbs/hr
Steam Blow @ RM		
Steam Flow Rate	2,296,528	lbs/hr
Duration	240	hr/event
Number of Events per Year	1	One time event during first year of operation
NCG Flow Rate to RM ^a	15,854	lbs/hr
Turbine Preheat and Auxiliary Loops		
Total Steam Flow Rate	674,391	lbs/hr
Steam Flow to RM	450,000	lbs/hr
Steam Flow to Turbine	224,391	lbs/hr
Duration	48	hr/event
Number of Events per Year	1	One time event during first year of operation
NCG Flow Rate to RM	5,289	lbs/hr
NCG Flow Rate to Sparger	2,637	lbs/hr
Turbine Load Test		
Total Steam Flow Rate	2,296,528	lbs/hr
Duration	72	hr/event
Number of Events per Year	1	One time event during first year of operation
NCG Flow Rate to Sparger ^a	15,854	lbs/hr
Turbine Performance Test		
Total Steam Flow Rate	2,296,528	lbs/hr
Duration	48	hr/event
Number of Events per Year	1	One time event during first year of operation
NCG Flow Rate to Sparger ^a	15,854	lbs/hr

Table 2.6 NCG Emissions During Commissioning Events

Commissioning Emissions Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Component Flowrate @ Steam Flow = 250,000	Component Flowrate @ Steam Flow = 450,000	Component Flowrate @ Steam Flow = 674,391	Component Flowrate @ Steam Flow = 2,296,528 a	Well Warm-up Emissions	Emissions during Production Line and Equipment Warm-up @ RM	Emissions through RM during Steam Blow	Emissions through RM during Turbine Preheat
GHG & Volatile/Non-Volatile Compound Calculations										
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)
CO ₂	1.12E+04	9.49E-01	2.79E+03	5.02E+03	7.52E+03	1.50E+04	6.02E+05	3.61E+05	3.61E+06	2.41E+05
H ₂ S	9.94E+01	8.45E-03	2.48E+01	4.47E+01	6.70E+01	1.34E+02	5.36E+03	3.22E+03	3.22E+04	2.15E+03
NH ₃	1.01E+00	8.56E-05	2.51E-01	4.53E-01	6.78E-01	1.36E+00	5.43E+01	3.26E+01	3.26E+02	2.17E+01
N ₂	5.20E+01	4.43E-03	1.30E+01	2.34E+01	3.51E+01	7.02E+01	2.81E+03	1.68E+03	1.68E+04	1.12E+03
CH ₄	2.79E+01	2.37E-03	6.97E+00	1.25E+01	1.88E+01	3.76E+01	1.51E+03	9.02E+02	9.03E+03	6.02E+02
H ₂	2.98E-01	2.53E-05	7.44E-02	1.34E-01	2.01E-01	4.02E-01	1.61E+01	9.64E+00	9.64E+01	6.43E+00
As	4.23E-04	3.60E-08	1.06E-04	1.90E-04	2.85E-04	5.71E-04	2.28E-02	1.37E-02	1.37E-01	9.13E-03
Hg	6.91E-04	5.88E-08	1.73E-04	3.11E-04	4.66E-04	9.32E-04	3.73E-02	2.24E-02	2.24E-01	1.49E-02
Benzene	3.31E-01	2.82E-05	8.28E-02	1.49E-01	2.23E-01	4.47E-01	1.79E+01	1.07E+01	1.07E+02	7.16E+00
Toluene	1.77E-03	1.51E-07	4.43E-04	7.97E-04	1.19E-03	2.39E-03	9.57E-02	5.74E-02	5.74E-01	3.83E-02
Ethylbenzene	1.46E-03	1.25E-07	3.66E-04	6.59E-04	9.87E-04	1.98E-03	7.91E-02	4.74E-02	4.74E-01	3.16E-02
Xylenes	1.46E-03	1.25E-07	3.66E-04	6.59E-04	9.87E-04	1.98E-03	7.91E-02	4.74E-02	4.74E-01	3.16E-02
Argon	1.49E-01	1.27E-05	3.74E-02	6.73E-02	1.01E-01	2.02E-01	8.07E+00	4.84E+00	4.84E+01	3.23E+00
Radon Calculations										
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)
Radon	9.64E-04	8.20E-08	2.41E-04	4.34E-04	6.50E-04	1.30E-03	5.20E-02	3.12E-02	3.12E-01	2.08E-02

ppmw = part(s) per million by weight

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

^a Steam flows greater than the sum of the high pressure and standard pressure steam flows assume the following NCG correction factor, based on the low pressure steam flow being comprised of only a fraction of the NCG concentration as the high and standard pressure steam flows:

59%

Table 2.6 NCG Emissions During Commissioning Events

NCG Component	Sparger Burner	Emissions through Sparger during Turbine Preheat ^a	Emissions through Sparger during Turbine Load Test	Emissions through Sparger during Turbine Performance Test	Stack Emissions through Sparger during Turbine Preheat	Stack Emissions through Sparger during Turbine Load Test	Stack Emissions through Sparger during Turbine Performance Test
Criteria Pollutant, GHG & Volatile/Non-Volatile Compound Calculations							
Pollutant	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/event)	(lbs/event)	(lbs/event)
NOx	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ROG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM ₁₀	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM _{2.5}	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H ₂ S	0.00E+00	5.34E-01	2.81E+00	2.81E+00	2.56E+01	2.03E+02	1.35E+02
NH ₃	0.00E+00	2.57E-01	1.36E+00	1.36E+00	1.23E+01	9.77E+01	6.51E+01
N ₂	0.00E+00	1.33E+01	7.02E+01	7.02E+01	6.39E+02	5.05E+03	3.37E+03
CH ₄	0.00E+00	7.13E+00	3.76E+01	3.76E+01	3.42E+02	2.71E+03	1.81E+03
H ₂	0.00E+00	7.61E-02	4.02E-01	4.02E-01	3.65E+00	2.89E+01	1.93E+01
As	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	8.47E-02	4.47E-01	4.47E-01	4.07E+00	3.22E+01	2.15E+01
Toluene	0.00E+00	4.53E-04	2.39E-03	2.39E-03	2.17E-02	1.72E-01	1.15E-01
Ethylbenzene	0.00E+00	3.74E-04	1.98E-03	1.98E-03	1.80E-02	1.42E-01	9.48E-02
Xylenes	0.00E+00	3.74E-04	1.98E-03	1.98E-03	1.80E-02	1.42E-01	9.48E-02
Argon	0.00E+00	3.82E-02	2.02E-01	2.02E-01	1.83E+00	1.45E+01	9.68E+00
CO ₂	0.00E+00	2.85E+03	1.50E+04	1.50E+04	1.37E+05	1.08E+06	7.22E+05
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PAH's (excluding naphthalene)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon Calculations							
Pollutant	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/event)	(Ci/event)	(Ci/event)
Radon	0.00E+00	2.46E-04	1.30E-03	1.30E-03	1.18E-02	9.36E-02	6.24E-02

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

^a Assumes all steam supplied to turbine is high-pressure steam.

Table 2.7 NCG Emissions During Cold Start-up

Elmore North Geothermal Project
Elmore North Operational Emissions
Cold Startup Emission Calculations
April 2023

Average NCG:Steam Ratio	11,753	ppmw
Well Warm-up @ PTU		
Steam Flow Rate	250,000	lbs/hr
Duration of Well Warm-up	24	hr for first well/event
Duration of Well Warm-up	96	hr for 8 wells/event
Number of Events per Year	1	event/year
NCG @ Steam Flow = 250,000 lbs/hr	2,938	lbs/hr
NCG @ Steam Flow = 450,000 lbs/hr	5,289	lbs/hr
NCG @ Steam Flow = 674,391 lbs/hr	7,926	lbs/hr
Production Line and Equipment Warm-up @ RM		
Steam Flow Rate	674,391	lbs/hr
Duration	32	hr/event
Number of Events per Year	1	event/year
NCG Flow Rate to RM	7,926	lbs/hr
Turbine Preheat and Auxiliary Loops		
Total Steam Flow Rate	674,391	lbs/hr
Steam Flow to RM	450,000	lbs/hr
Steam Flow to Turbine	224,391	lbs/hr
Duration	24	hr/event
Number of Events per Year	1	event/year
NCG Flow Rate to RM	5,289	lbs/hr
NCG Flow Rate to Sparger	2,637	lbs/hr
Auxiliary Equipment Start-up		
Total Steam Flow Rate	674,391	lbs/hr
Steam Flow to RM	470,000	lbs/hr
Steam Flow to Turbine	204,391	lbs/hr
Duration	12	hr/event
Number of Events per Year	1	event/year
NCG Flow Rate to RM	5,524	lbs/hr
NCG Flow Rate to Sparger	2,402	lbs/hr
Functional Trip Test		
Total Steam Flow Rate	674,391	lbs/hr
Duration	6	hr/event
Number of Events per Year	1	event/year
NCG Flow Rate to RM	7,926	lbs/hr
Gradual Steam Delivery to Turbine		
Initial Steam Flow Rate	0	lbs/hr
Final Steam Flow Rate	2,296,528	lbs/hr
Duration	6	hr/event
Number of Events per Year	1	event/year
Average Steam Flow Rate to Sparger	287,066	lbs/hr

Table 2.7 NCG Emissions During Cold Start-up

Cold Startup Emissions Data

NCG Component	Average Component/Steam Ratio	Average Component/NC G Mass Fraction	Component Flowrate @ Steam Flow = 250,000	Component Flowrate @ Steam Flow = 450,000	Component Flowrate @ Steam Flow = 674,391	Component Flowrate @ Steam Flow = 2,296,528 a	Well Warm-up Emissions	Emissions during Equipment Warm-up @ RM	Emissions through RM during Turbine Preheat	Emissions through RM during Auxiliary Equipment Start-up	Emissions through RM during Trip Test
GHG & Volatile/Non-Volatile Compound Calculations											
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)
CO ₂	1.12E+04	9.49E-01	2.79E+03	5.02E+03	7.52E+03	1.50E+04	3.35E+05	2.41E+05	1.20E+05	6.29E+04	4.51E+04
H ₂ S	9.94E+01	8.45E-03	2.48E+01	4.47E+01	6.70E+01	1.34E+02	2.98E+03	2.14E+03	1.07E+03	5.60E+02	4.02E+02
NH ₃	1.01E+00	8.56E-05	2.51E-01	4.53E-01	6.78E-01	1.36E+00	3.02E+01	2.17E+01	1.09E+01	5.67E+00	4.07E+00
N ₂	5.20E+01	4.43E-03	1.30E+01	2.34E+01	3.51E+01	7.02E+01	1.56E+03	1.12E+03	5.62E+02	2.93E+02	2.11E+02
CH ₄	2.79E+01	2.37E-03	6.97E+00	1.25E+01	1.88E+01	3.76E+01	8.36E+02	6.02E+02	3.01E+02	1.57E+02	1.13E+02
H ₂	2.98E-01	2.53E-05	7.44E-02	1.34E-01	2.01E-01	4.02E-01	8.93E+00	6.43E+00	3.22E+00	1.68E+00	1.20E+00
As	4.23E-04	3.60E-08	1.06E-04	1.90E-04	2.85E-04	5.71E-04	1.27E-02	9.13E-03	4.57E-03	2.39E-03	1.71E-03
Hg	6.91E-04	5.88E-08	1.73E-04	3.11E-04	4.66E-04	9.32E-04	2.07E-02	1.49E-02	7.46E-03	3.89E-03	2.79E-03
Benzene	3.31E-01	2.82E-05	8.28E-02	1.49E-01	2.23E-01	4.47E-01	9.94E+00	7.15E+00	3.58E+00	1.87E+00	1.34E+00
Toluene	1.77E-03	1.51E-07	4.43E-04	7.97E-04	1.19E-03	2.39E-03	5.32E-02	3.82E-02	1.91E-02	9.99E-03	7.17E-03
Ethylbenzene	1.46E-03	1.25E-07	3.66E-04	6.59E-04	9.87E-04	1.98E-03	4.39E-02	3.16E-02	1.58E-02	8.26E-03	5.92E-03
Xylenes	1.46E-03	1.25E-07	3.66E-04	6.59E-04	9.87E-04	1.98E-03	4.39E-02	3.16E-02	1.58E-02	8.26E-03	5.92E-03
Argon	1.49E-01	1.27E-05	3.74E-02	6.73E-02	1.01E-01	2.02E-01	4.48E+00	3.23E+00	1.61E+00	8.43E-01	6.05E-01
Radon Calculations											
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)
Radon	9.64E-04	8.20E-08	2.41E-04	4.34E-04	6.50E-04	1.30E-03	2.89E-02	2.08E-02	1.04E-02	5.44E-03	3.90E-03

ppmw = part(s) per million by weight

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

^a Steam flows greater than the sum of the high pressure and standard pressure steam flows assume the following NCG correction factor, based on the low pressure steam flow being comprised of only a fraction of the NCG concentration as the high and standard pressure steam flows:

59%

Table 2.7 NCG Emissions During Cold Start-up

Cold Startup Sparger Emissions Data

NCG Component	Sparger Burner	Emissions through Sparger during Turbine Preheat ^a	Emissions through Sparger during Auxiliary Equipment Start-up ^a	Emissions through Sparger during Gradual Steam Delivery to Turbine ^a	Stack Emissions through Sparger during Turbine Preheat	Stack Emissions through Sparger during Auxiliary Equipment Start-up	Stack Emissions through Sparger during Gradual Steam Delivery to Turbine
Criteria Pollutant, GHG & Volatile/Non-Volatile Compound Calculations							
Pollutant	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/event)	(lbs/event)	(lbs/event)
NOx	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ROG	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CO	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SO ₂	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PM ₁₀	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PM _{2.5}	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
H ₂ S	0.0E+00	5.3E-01	4.9E-01	6.8E-01	1.3E+01	5.8E+00	4.1E+00
NH ₃	0.0E+00	2.6E-01	2.3E-01	3.3E-01	6.2E+00	2.8E+00	2.0E+00
N ₂	0.0E+00	1.3E+01	1.2E+01	1.7E+01	3.2E+02	1.5E+02	1.0E+02
CH ₄	0.0E+00	7.1E+00	6.5E+00	9.1E+00	1.7E+02	7.8E+01	5.5E+01
H ₂	0.0E+00	7.6E-02	6.9E-02	9.7E-02	1.8E+00	8.3E-01	5.8E-01
As	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Benzene	0.0E+00	8.5E-02	7.7E-02	1.1E-01	2.0E+00	9.3E-01	6.5E-01
Toluene	0.0E+00	4.5E-04	4.1E-04	5.8E-04	1.1E-02	5.0E-03	3.5E-03
Ethylbenzene	0.0E+00	3.7E-04	3.4E-04	4.8E-04	9.0E-03	4.1E-03	2.9E-03
Xylenes	0.0E+00	3.7E-04	3.4E-04	4.8E-04	9.0E-03	4.1E-03	2.9E-03
Argon	0.0E+00	3.8E-02	3.5E-02	4.9E-02	9.2E-01	4.2E-01	2.9E-01
CO ₂	0.0E+00	2.9E+03	2.6E+03	3.6E+03	6.8E+04	3.1E+04	2.2E+04
Formaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PAH's (excluding naphthalene)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Naphthalene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acetaldehyde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Acrolein	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Propylene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Hexane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Radon Calculations							
Pollutant	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/event)	(Ci/event)	(Ci/event)
Radon	0.0E+00	2.5E-04	2.2E-04	3.2E-04	5.9E-03	2.7E-03	1.9E-03

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

^a Assumes all steam supplied to turbine is high-pressure steam.

Table 2.8 NCG Emissions During Warm Startup

Elmore North Geothermal Project

Elmore North Operational Emissions

Warm Startup Emission Calculations

April 2023

Assumptions

1. During trips, steam is diverted from turbine to RM for 10 hours.
2. Steam is gradually diverted back from RM to Turbine in 10 hours.

Average NCG:Steam Ratio		11,753	ppmw
Step 1 @ Rock Mufler			
Steam Flow Rate	2,296,528	lbs/hr	
Duration	10	hr/event	
Number of Events per Year	20	event/year	
NCG Fow Rate to RM ^a	15,854	lbs/hr	
Step 2			
Total Steam Flow Rate	2,296,528	lbs/hr	
Initial Steam Flow to RM	2,296,528	lbs/hr	
Final Steam Flow to RM	0	lbs/hr	
Initial Steam Flow to Turbine	0	lbs/hr	
Final Steam Flow to Turbine	2,296,528	lbs/hr	
Duration	5	hr/event/source	
Number of Events per Year	20	event/year	
Average Steam Flow Rate to RM	459,306	lbs/hr	
Average Steam Flow Rate to Turbine	459,306	lbs/hr	

Table 2.8 NCG Emissions During Warm Startup

Warm Startup Emissions Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Component Flowrate @ Steam Flow = 2,296,528 a	Emissions through RM during Step 1	Emissions through RM during Step 2
GHG & Volatile/Non-Volatile Compound Calculations					
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(lbs/event)	(lbs/event)
CO ₂	1.12E+04	9.49E-01	1.50E+04	1.50E+05	1.50E+04
H ₂ S	9.94E+01	8.45E-03	1.34E+02	1.34E+03	1.34E+02
NH ₃	1.01E+00	8.56E-05	1.36E+00	1.36E+01	1.36E+00
N ₂	5.20E+01	4.43E-03	7.02E+01	7.02E+02	7.02E+01
CH ₄	2.79E+01	2.37E-03	3.76E+01	3.76E+02	3.76E+01
H ₂	2.98E-01	2.53E-05	4.02E-01	4.02E+00	4.02E-01
As	4.23E-04	3.60E-08	5.71E-04	5.71E-03	5.71E-04
Hg	6.91E-04	5.88E-08	9.32E-04	9.32E-03	9.32E-04
Benzene	3.31E-01	2.82E-05	4.47E-01	4.47E+00	4.47E-01
Toluene	1.77E-03	1.51E-07	2.39E-03	2.39E-02	2.39E-03
Ethylbenzene	1.46E-03	1.25E-07	1.98E-03	1.98E-02	1.98E-03
Xylenes	1.46E-03	1.25E-07	1.98E-03	1.98E-02	1.98E-03
Argon	1.49E-01	1.27E-05	2.02E-01	2.02E+00	2.02E-01
Radon Calculations					
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(Ci/event)	(Ci/event)
Radon	9.64E-04	8.20E-08	1.30E-03	1.30E-02	1.30E-03

ppmw = part(s) per million by weight

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

^a Steam flows greater than the sum of the high pressure and standard pressure steam flows assume the following NCG correction factor, based on the low pressure steam flow being comprised of only a fraction of the NCG concentration as the high and standard pressure steam flows:

59%

Table 2.8 NCG Emissions During Warm Startup

Warm Startup Sparger Emissions Data

NCG Component	Sparger Burner	Emissions through Sparger during Gradual Steam Delivery to Turbine ^a	Stack Emissions through Sparger during Gradual Steam Delivery to Turbine
Criteria Pollutant, GHG & Volatile/Non-Volatile Compound Calculations			
Pollutant	(lbs/hr)	(lbs/hr)	(lbs/event)
NO _x	0.00E+00	0.00E+00	0.00E+00
ROG	0.00E+00	0.00E+00	0.00E+00
CO	0.00E+00	0.00E+00	0.00E+00
SO ₂	0.00E+00	0.00E+00	0.00E+00
PM ₁₀	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00
PM _{2.5}	0.00E+00	0.00E+00	0.00E+00
H ₂ S	0.00E+00	1.09E+00	5.46E+00
NH ₃	0.00E+00	5.27E-01	2.63E+00
N ₂	0.00E+00	2.72E+01	1.36E+02
CH ₄	0.00E+00	1.46E+01	7.30E+01
H ₂	0.00E+00	1.56E-01	7.79E-01
As	0.00E+00	0.00E+00	0.00E+00
Hg	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	1.73E-01	8.67E-01
Toluene	0.00E+00	9.27E-04	4.64E-03
Ethylbenzene	0.00E+00	7.66E-04	3.83E-03
Xylenes	0.00E+00	7.66E-04	3.83E-03
Argon	0.00E+00	7.82E-02	3.91E-01
CO ₂	0.00E+00	5.84E+03	2.92E+04
Formaldehyde	0.00E+00	0.00E+00	0.00E+00
PAH's (excluding naphthalene)	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00
Hexane	0.00E+00	0.00E+00	0.00E+00
Radon Calculations			
Pollutant	(Ci/hr)	(Ci/hr)	(Ci/event)
Radon	0.00E+00	5.05E-04	2.52E-03

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

^a Assumes all steam supplied to turbine is high-pressure steam.

Table 2.9 NCG Emissions During Shutdown

Elmore North Geothermal Project
Elmore North Operational Emissions Shutdown
Emission Calculations
April 2023

Average NCG:Steam Ratio	11,753	ppmw
Steam Vented through RM		
Total Duration	36	hr/event
Duration for One Well	4	hr/event
Initial Steam Flow Rate	2,296,528	lbs/hr
Steam Flow Rate after 4 hours	2,041,358	lbs/hr
Steam Flow Rate after 8 hours	1,786,188	lbs/hr
Steam Flow Rate after 12 hours	1,531,019	lbs/hr
Steam Flow Rate after 16 hours	1,275,849	lbs/hr
Steam Flow Rate after 20 hours	1,020,679	
Steam Flow Rate after 24 hours	765,509	
Steam Flow Rate after 28 hours	510,340	
Steam Flow Rate after 32 hours	255,170	
Final Steam Flow Rate after 36 hours	0	lbs/hr
Number of events per year	5.5	event/year

Shutdown Emissions Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Component Flowrate @ Steam Flow = 255,170	Component Flowrate @ Steam Flow = 510,340	Component Flowrate @ Steam Flow = 765,509	Component Flowrate @ Steam Flow = 1,020,679	Component Flowrate @ Steam Flow = 1,275,849	Component Flowrate @ Steam Flow = 1,531,019	Component Flowrate @ Steam Flow = 1,786,188 a	Component Flowrate @ Steam Flow = 2,041,358 a	Component Flowrate @ Steam Flow = 2,296,528 a	Emissions when One Well is Taken Offline	Emissions when Two Wells are Taken Offline	Emissions when Three Wells are Taken Offline	Emissions when Four Wells are Taken Offline	Emissions when Five Wells are Taken Offline	Emissions when Six Wells are Taken Offline	Emissions when Seven Wells are Taken Offline	Emissions when Eight Wells are Taken Offline	Total Emissions through RM during Shutdown
GHG & Volatile/Non-Volatile Compound Calculations																				
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/hr)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)	(lbs/event)
CO ₂	1.12E+04	9.49E-01	2.85E+03	5.69E+03	8.54E+03	1.14E+04	1.42E+04	1.71E+04	1.17E+04	1.34E+04	1.50E+04	5.35E+04	4.68E+04	6.83E+04	5.69E+04	4.55E+04	3.42E+04	2.28E+04	1.14E+04	3.39E+05
H ₂ S	9.94E+01	8.45E-03	2.54E+01	5.07E+01	7.61E+01	1.01E+02	1.27E+02	1.52E+02	1.04E+02	1.19E+02	1.34E+02	4.77E+02	4.17E+02	6.08E+02	5.07E+02	4.06E+02	3.04E+02	2.03E+02	1.01E+02	3.02E+03
NH ₃	1.01E+00	8.56E-05	2.57E-01	5.13E-01	7.70E-01	1.03E+00	1.28E+00	1.54E+00	1.06E+00	1.21E+00	1.36E+00	4.82E+00	4.22E+00	6.16E+00	5.13E+00	4.11E+00	3.08E+00	2.05E+00	1.03E+00	3.06E+01
N ₂	5.20E+01	4.43E-03	1.33E+01	2.66E+01	3.98E+01	5.31E+01	6.64E+01	7.97E+01	5.46E+01	6.24E+01	7.02E+01	2.50E+02	2.18E+02	3.19E+02	2.66E+02	2.12E+02	1.59E+02	1.06E+02	5.31E+01	1.58E+03
CH ₄	2.79E+01	2.37E-03	7.11E+00	1.42E+01	2.13E+01	2.85E+01	3.56E+01	4.27E+01	2.93E+01	3.34E+01	3.76E+01	1.34E+02	1.17E+02	1.71E+02	1.42E+02	1.14E+02	8.54E+01	5.69E+01	2.85E+01	8.48E+02
H ₂	2.98E-01	2.53E-05	7.60E-02	1.52E-01	2.28E-01	3.04E-01	3.80E-01	4.56E-01	3.12E-01	3.57E-01	4.02E-01	1.43E+00	1.25E+00	1.82E+00	1.52E+00	1.22E+00	9.12E-01	6.08E-01	3.04E-01	9.06E+00
As	4.23E-04	3.60E-08	1.08E-04	2.16E-04	3.24E-04	4.32E-04	5.40E-04	6.47E-04	4.44E-04	5.07E-04	5.71E-04	2.03E-03	1.77E-03	2.59E-03	2.16E-03	1.73E-03	1.29E-03	8.63E-04	4.32E-04	1.29E-02
Hg	6.91E-04	5.88E-08	1.76E-04	3.52E-04	5.29E-04	7.05E-04	8.81E-04	1.06E-03	7.25E-04	8.28E-04	9.32E-04	3.31E-03	2.90E-03	4.23E-03	3.52E-03	2.82E-03	2.11E-03	1.41E-03	7.05E-04	2.10E-02
Benzene	3.31E-01	2.82E-05	8.46E-02	1.69E-01	2.54E-01	3.38E-01	4.23E-01	5.07E-01	3.48E-01	3.97E-01	4.47E-01	1.59E+00	1.39E+00	2.03E+00	1.69E+00	1.35E+00	1.01E+00	6.76E-01	3.38E-01	1.01E+01
Toluene	1.77E-03	1.51E-07	4.52E-04	9.04E-04	1.36E-03	1.81E-03	2.26E-03	2.71E-03	1.86E-03	2.12E-03	2.39E-03	8.50E-03	7.44E-03	1.09E-02	9.04E-03	7.23E-03	5.43E-03	3.62E-03	1.81E-03	5.39E-02
Ethylbenzene	1.46E-03	1.25E-07	3.74E-04	7.47E-04	1.12E-03	1.49E-03	1.87E-03	2.24E-03	1.54E-03	1.76E-03	1.98E-03	7.02E-03	6.14E-03	8.97E-03	7.47E-03	5.98E-03	4.48E-03	2.99E-03	1.49E-03	4.45E-02
Xylenes	1.46E-03	1.25E-07	3.74E-04	7.47E-04	1.12E-03	1.49E-03	1.87E-03	2.24E-03	1.54E-03	1.76E-03	1.98E-03	7.02E-03	6.14E-03	8.97E-03	7.47E-03	5.98E-03	4.48E-03	2.99E-03	1.49E-03	4.45E-02
Argon	1.49E-01	1.27E-05	3.81E-02	7.63E-02	1.14E-01	1.53E-01	1.91E-01	2.29E-01	1.57E-01	1.79E-01	2.02E-01	7.17E-01	6.27E-01	9.15E-01	7.63E-01	6.10E-01	4.58E-01	3.05E-01	1.53E-01	4.55E+00
Radon Calculations																				
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)	(Ci/event)
Radon	9.64E-04	8.20E-08	2.46E-04	4.92E-04	7.38E-04	9.84E-04	1.23E-03	1.48E-03	1.01E-03	1.16E-03	1.30E-03	4.62E-03	4.05E-03	5.90E-03	4.92E-03	3.94E-03	2.95E-03	1.97E-03	9.84E-04	2.93E-02

ppmw = part(s) per million by weight
NCG = Non-condensable gas
lb = pound(s)
lbs/hr = pound(s) per hour
Ci = Curie(s)
Ci/hr = Curie(s) per hour

^a Steam flows greater than the sum of the high pressure and standard pressure steam flows assume the following NCG correction factor, based on the low pressure steam flow being comprised of only a fraction of the NCG concentration as the high and standard pressure steam flows:

Table 2.10 NCG Emissions During Normal Operation

Elmore North Geothermal Project

Elmore North Operational Emissions

Sparger Emission Calculations

April 2023

Normal Continuous Operation at Sparger

Nominal Brine Flow Rate to High Pressure (HP) Separator	10,934,588	lbs/hr			
Steam Flow Rate to Turbine - HP	1,183,725	lbs/hr	100%	NCG	
Steam Flow Rate to Turbine - Standard Pressure (SP)	438,412	lbs/hr	30%	NCG	
Steam Flow Rate to Turbine - Low Pressure (LP)	674,391	lbs/hr	5%	NCG	
Average NCG:Steam Ratio	11,753	ppmw			
NCG Flow Rate to Turbine	15,854	lbs/hr			

Sparger Emission Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Mass Flow Rate into Turbine	Partitioned into NCG ^{a, b}	Mass Flow Rate to Sparger	Sparger DRE	Hourly Emissions	Annual Emissions
GHG & Volatile/Non-Volatile Compound Calculations								
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(%)	(lbs/hr)	(%)	(lbs/hr)	(tpy)
CO ₂	1.12E+04	9.49E-01	1.50E+04	100%	1.50E+04	0%	1.50E+04	6.44E+04
H ₂ S	9.94E+01	8.45E-03	1.34E+02	60%	8.04E+01	96.5%	2.81E+00	1.20E+01
NH ₃	1.01E+00	8.56E-05	1.36E+00	100%	1.36E+00	0%	1.36E+00	5.81E+00
N ₂	5.20E+01	4.43E-03	7.02E+01	100%	7.02E+01	0%	7.02E+01	3.00E+02
CH ₄	2.79E+01	2.37E-03	3.76E+01	100%	3.76E+01	0%	3.76E+01	1.61E+02
H ₂	2.98E-01	2.53E-05	4.02E-01	100%	4.02E-01	0%	4.02E-01	1.72E+00
As	4.23E-04	3.60E-08	5.71E-04	0%	0.00E+00	0%	0.00E+00	0.00E+00
Hg	6.91E-04	5.88E-08	9.32E-04	0%	0.00E+00	0%	0.00E+00	0.00E+00
Benzene	3.31E-01	2.82E-05	4.47E-01	100%	4.47E-01	0%	4.47E-01	1.91E+00
Toluene	1.77E-03	1.51E-07	2.39E-03	100%	2.39E-03	0%	2.39E-03	1.02E-02
Ethylbenzene	1.46E-03	1.25E-07	1.98E-03	100%	1.98E-03	0%	1.98E-03	8.45E-03
Xylenes	1.46E-03	1.25E-07	1.98E-03	100%	1.98E-03	0%	1.98E-03	8.45E-03
Argon	1.49E-01	1.27E-05	2.02E-01	100%	2.02E-01	0%	2.02E-01	8.63E-01
Radon Calculations								
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(%)	(Ci/hr)	(%)	(Ci/hr)	(Ci/year)
Radon	9.64E-04	8.20E-08	1.30E-03	100%	1.30E-03	0%	1.30E-03	1.11E+01

ppmw = part(s) per million by weight

DRE = Destruction and Removal Efficiency

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

tpy = ton(s) per year

^a NH₃ is conservatively assumed to be partitioned 100% into NCG flows.

^b As and Hg are assumed to be partitioned 0% into NCG flows based on their boiling points being at temperatures higher than the typical operating temperature of the cooling tower basin (i.e., they remain in liquid form).

Elmore North Geothermal Project
Elmore North Operational Emissions
Sparger Bypass Emission Calculations
April 2023

Table 2.10 NCG Emissions During Normal Operation

Maintenance at Sparger

Nominal Brine Flow Rate to HP Separator	10,934,588	lbs/hr		
Steam Flow Rate to Turbine - HP	1,183,725	lbs/hr	100%	NCG
Steam Flow Rate to Turbine - SP	438,412	lbs/hr	30%	NCG
Steam Flow Rate to Turbine - LP	674,391	lbs/hr	5%	NCG
Average NCG:Steam Ratio	11,753	ppmw		
NCG Flow Rate to Turbine	15,854	lbs/hr		
Hours Bypassing Sparger	200	hr/year		

Sparger Bypass Emission Data

NCG Component	Average Component/Steam Ratio	Average Component/NCG Mass Fraction	Mass Flow Rate into Turbine	Partitioned into NCG ^a	Mass Flow Rate to Sparger	Sparger DRE ^b	Hourly Emissions	Annual Emissions
GHG & Volatile/Non-Volatile Compound Calculations								
Pollutant	(ppmw)	(lb/lb NCG)	(lbs/hr)	(%)	(lbs/hr)	(%)	(lbs/hr)	(tpy)
CO ₂	1.12E+04	9.49E-01	1.50E+04	100%	1.50E+04	0%	1.50E+04	1.50E+03
H ₂ S	9.94E+01	8.45E-03	1.34E+02	60%	8.04E+01	0%	8.04E+01	8.04E+00
NH ₃	4.18E+02	3.56E-02	5.64E+02	80%	4.49E+02	0%	4.49E+02	4.49E+01
N ₂	5.20E+01	4.43E-03	7.02E+01	100%	7.02E+01	0%	7.02E+01	7.02E+00
CH ₄	2.79E+01	2.37E-03	3.76E+01	100%	3.76E+01	0%	3.76E+01	3.76E+00
H ₂	2.98E-01	2.53E-05	4.02E-01	100%	4.02E-01	0%	4.02E-01	4.02E-02
As	4.23E-04	3.60E-08	5.71E-04	0%	0.00E+00	0%	0.00E+00	0.00E+00
Hg	6.91E-04	5.88E-08	9.32E-04	0%	0.00E+00	0%	0.00E+00	0.00E+00
Benzene	3.31E-01	2.82E-05	4.47E-01	100%	4.47E-01	0%	4.47E-01	4.47E-02
Toluene	1.77E-03	1.51E-07	2.39E-03	100%	2.39E-03	0%	2.39E-03	2.39E-04
Ethylbenzene	1.46E-03	1.25E-07	1.98E-03	100%	1.98E-03	0%	1.98E-03	1.98E-04
Xylenes	1.46E-03	1.25E-07	1.98E-03	100%	1.98E-03	0%	1.98E-03	1.98E-04
Argon	1.49E-01	1.27E-05	2.02E-01	100%	2.02E-01	0%	2.02E-01	2.02E-02
Radon Calculations								
Pollutant	(Ci/10 ⁶ lb Steam)	(Ci/lb NCG)	(Ci/hr)	(%)	(Ci/hr)	(%)	(Ci/hr)	(Ci/year)
Radon	9.64E-04	8.20E-08	1.30E-03	100%	1.30E-03	0%	1.30E-03	2.60E-01

ppmw = part(s) per million by weight

DRE = Destruction and Removal Efficiency

NCG = Non-condensable gas

lb = pound(s)

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

tpy = ton(s) per year

^a As and Hg are assumed to be partitioned 0% into NCG flows based on their boiling points being at temperatures higher than the typical operating temperature of the cooling tower basin (i.e., they remain in liquid form).

^b During sparger bypass operations, no emission controls are operational; therefore, the DRE for all pollutants is 0%.

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Table 2.12 Total NCG Emissions during Normal Operation

Elmore North Geothermal Project

Elmore North Operational Emissions

Sparger Emission Summary

April 2023

Sparger Emission Summary

NCG Component	Sparger Bypass Emissions	Sparger Normal Operation Emissions	Total Stack Hourly Emissions	Total Stack Annual Emissions
Criteria Pollutant, GHG & Volatile/Non-Volatile Compound Calculations				
Pollutant	(lbs/hr)	(lbs/hr)	(lbs/hr)	(tpy)
NOx	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ROG	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SO ₂	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM ₁₀	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM _{2.5}	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H ₂ S	8.04E+01	2.81E+00	8.04E+01	2.01E+01
NH ₃	4.49E+02	1.36E+00	4.49E+02	5.07E+01
N ₂	7.02E+01	7.02E+01	7.02E+01	3.07E+02
CH ₄	3.76E+01	3.76E+01	3.76E+01	1.65E+02
H ₂	4.02E-01	4.02E-01	4.02E-01	1.76E+00
As	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	4.47E-01	4.47E-01	4.47E-01	1.96E+00
Toluene	2.39E-03	2.39E-03	2.39E-03	1.05E-02
Ethylbenzene	1.98E-03	1.98E-03	1.98E-03	8.65E-03
Xylenes	1.98E-03	1.98E-03	1.98E-03	8.65E-03
Argon	2.02E-01	2.02E-01	2.02E-01	8.83E-01
CO ₂	1.50E+04	1.50E+04	1.50E+04	6.59E+04
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PAH's (excluding naphthalene)	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon Calculations				
Pollutant	(Ci/hr)	(Ci/hr)	(Ci/hr)	(Ci/year)
Radon	1.30E-03	1.30E-03	1.30E-03	1.14E+01

NCG = Non-condensable gas

lbs/hr = pound(s) per hour

Ci = Curie(s)

Ci/hr = Curie(s) per hour

tpy = ton(s) per year

Table 2.13 Cooling Tower PM Emissions During Normal Operation

Elmore North Geothermal Project
Elmore North Operational Emissions
Cooling Tower Particulate Emission Data
April 2023

Cooling Tower Particulate Emission Calculations

Parameter	Units	Scenario 1 Value	Data Source
Water Circulation Rate	gpm	230,000	2 banks of 7 cells X 115,000 gpm/bank
Total Liquid Drift	%	0.00050	BACT/Vendor
Maximum TDS of Circulated Water	ppmw	9,000	Highest Concentration Expected Based on Actuals from Other Applicant-owned Facilities
TDS in Make-up Water ^a	ppmw	690	IID 2021 lab sampling - Vail 4
Cycles of Concentration	Dimensionless	13	--
Fraction of TDS as PM ₁₀	Mass Fraction	70%	South Coast Air Quality Management District. 2006. <i>Final- Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds</i> . Appendix A. October.
Fraction of TDS as PM _{2.5}	Mass Fraction	42%	South Coast Air Quality Management District. 2006. <i>Final- Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds</i> . Appendix A. October.
<i>Emissions Summary</i>			
TSP ^b	lbs/hr	5.18	--
PM ₁₀ ^c	lbs/hr	3.63	--
PM _{2.5} ^c	lbs/hr	2.18	--

ppmw = part(s) per million by weight

gpm = gallon(s) per minute

lbs/hr = pound(s) per hour

TDS = Total Dissolved Solids

^a TDS of make-up water assumed equal to the TDS in condensate.

^b TSP emission rate calculated based on EPA's *AP-42*, Section 13.4, Table 13.4-1 (EPA 1995), modified to the Elmore North design.

^c PM₁₀ and PM_{2.5} emission rates calculated consistent with the TSP emission rate, assuming only a fraction of TDS is PM₁₀ or PM_{2.5}, respectively.

Table 2.15 Cooling Tower TAC Emissions During Normal Operation

Elmore North Geothermal Project

Elmore North Operational Emissions

Cooling Tower TAC Emission Data

April 2023

Cooling Tower Recirculation Rate	230,000	gpm
Drift Eliminator Efficiency	0.00050%	
Cooling Tower Cycles of Concentration	8	
Cooling Tower Makeup Rate	4,151	gpm
Water Evaporated from Cooling Tower	3,631	gpm

Cooling Tower TAC Emission Calculations

Constituents	Concentration Analyzed in Condensate ^a	Hourly Emissions ^{b, c, d}
Non-Volatile Compound Calculations		
Pollutant	(µg/L)	(lbs/hr)
Aluminum	50	2.88E-05
Antimony	7.5	4.32E-06
As	470.5	2.71E-04
Barium	240	1.38E-04
Beryllium	0.5	2.88E-07
Cobalt	0.5	2.88E-07
Cadmium	1.5	8.64E-07
Total Chromium	2.5	1.44E-06
Copper	24	1.38E-05
Vanadium	2.5	1.44E-06
Lead	35.5	2.04E-05
Lithium	50	2.88E-05
Manganese	2,300	1.32E-03
Hg	26.8	1.54E-05
Nickel	6.1	3.51E-06
Selenium	79	4.55E-05
Total Silica	2,500	1.44E-03
Silver	2.5	1.44E-06
Strontium	50	2.88E-05
Zinc	1,425	8.20E-04

Table 2.15 Cooling Tower TAC Emissions During Normal Operation

Constituents	Concentration Analyzed in Condensate ^a	Hourly Emissions ^{b, c, d}
Volatile Compound Calculations		
Pollutant	(µg/L)	(lbs/hr)
Ammonia (mg/L)	55.3	1.15E+02
H ₂ S	N/A	2.68E+00
Benzene	0.25	5.2E-04
Ethylbenzene	0.25	5.2E-04
Toluene	0.25	5.2E-04
Xylenes (m+p+o)	0.5	1.0E-03
Radon Calculations		
Pollutant	(Ci/L)	(Ci/hr)
Radon	9.20E-13	8.67E-07

µg/L = microgram(s) per liter

mg/L = milligram(s) per liter

gpm = gallon(s) per minute

lbs/hr = pound(s) per hour

Ci/L = Curie(s) per Liter

Ci/hr = Curie(s) per hour

^a Data represent the average of 2022 source testing data from Elmore and Leathers. Analytes that were registered as non-detect were analyzed at 1/2 the detection limit. Based on the likelihood of compounds being volatilized during the first pass through the Cooling Tower, data for volatile compounds were best represented by Cooling Tower Hotwell measurements, whereas non-volatile compounds (i.e., metals) were best represented by Cooling Tower Blowdown measurements.

^b Emissions were estimated as follows:

Emission Rate for Non-Volatile Compounds:
$$ER \text{ (lbs/hr)} = \text{Recirculation Rate (gpm)} * 60 \text{ min/hr} * 3.785 \text{ liters/gal} * \text{HAP Concentration (}\mu\text{g/L)} * 1 \text{ lb} / 453.6 \text{ g} * 1 \text{ g} / 10^6 \mu\text{g} * \text{Drift Fraction}$$

Emission Rate for Volatile Compounds:
$$ER \text{ (lbs/hr)} = \text{Makeup Rate (gpm)} * 60 \text{ min/hr} * 3.785 \text{ liters/gal} * \text{HAP Concentration (}\mu\text{g/L)} * 1 \text{ lb} / 453.6 \text{ g} * 1 \text{ g} / 10^6 \mu\text{g} * \text{Volatilization Fraction (assumed to be one)}$$

^c H₂S abatement efficiency of Oxidation Box is: 95%

^d Ammonia emissions calculated based on ammonia concentration, which was derived from a mass balance of ammonia detected in both the Hot Well and Blowdown streams (230 mg/L at 4,383 gpm and 1,500 mg/L at 519 gpm, respectively).

Table 2.15 Cooling Tower TAC Emissions During Normal Operation

Elmore North Geothermal Project

Elmore North Operational Emissions

Cooling Tower Oxidation Box Bypass TAC Emission Data

April 2023

Cooling Tower Recirculation Rate	230,000	gpm
Drift Eliminator Efficiency	0.00050%	
Cooling Tower Cycles of Concentration	8	
Cooling Tower Makeup Rate	4,151	gpm
Water Evaporated from Cooling Tower	3,631	gpm

Cooling Tower Oxidation Box Bypass TAC Emission Calculations

Constituents	Concentration Analyzed in Condensate ^a	Hourly Emissions ^{b, c, d}
Non-Volatile Compound Calculations		
Pollutant	(µg/L)	(lbs/hr)
Aluminum	50	2.88E-05
Antimony	7.5	4.32E-06
Arsenic	470.5	2.71E-04
Barium	240	1.38E-04
Beryllium	0.5	2.88E-07
Cobalt	0.5	2.88E-07
Cadmium	1.5	8.64E-07
Total Chromium	2.5	1.44E-06
Copper	24	1.38E-05
Vanadium	2.5	1.44E-06
Lead	35.5	2.04E-05
Lithium	50	2.88E-05
Manganese	2,300	1.32E-03
Mercury	26.8	1.54E-05
Nickel	6.1	3.51E-06
Selenium	79	4.55E-05
Total Silica	2,500	1.44E-03
Silver	2.5	1.44E-06
Strontium	50	2.88E-05
Zinc	1,425	8.20E-04

Table 2.15 Cooling Tower TAC Emissions During Normal Operation

<i>Volatile Compound Calculations</i>		
Pollutant	(µg/L)	(lbs/hr)
Ammonia (mg/L)	55.3	1.15E+02
H ₂ S	N/A	5.36E+01
Benzene	0.25	5.2E-04
Ethylbenzene	0.25	5.2E-04
Toluene	0.25	5.2E-04
Xylenes (m+p+o)	0.5	1.0E-03
<i>Radon Calculations</i>		
Pollutant	(Ci/L)	(Ci/hr)
Radon	9.20E-13	8.67E-07

µg/L = microgram(s) per liter

mg/L = milligram(s) per liter

gpm = gallon(s) per minute

lb/hr = pound(s) per hour

Ci/L = Curie(s) per liter

Ci/hr = Curie(s) per hour

^a Data represent the average of 2022 source testing data from Elmore and Leathers. Analytes that were registered as non-detect were analyzed at 1/2 the detection limit. Based on the likelihood of compounds being volatilized during the first pass through the Cooling Tower, data for volatile compounds were best represented by Cooling Tower Hotwell measurements, whereas non-volatile compounds (i.e., metals) were best represented by Cooling Tower Blowdown measurements.

^b Emissions were estimated as follows:

Emission Rate for Non-Volatile Compounds:
$$ER \text{ (lbs/hr)} = \text{Recirculation Rate (gpm)} * 60 \text{ min/hr} * 3.785 \text{ liters/gal} * \text{HAP Concentration (}\mu\text{g/L)} * 1 \text{ lb} / 453.6 \text{ g} * 1 \text{ g} / 10^6 \mu\text{g} * \text{Drift Fraction}$$

Emission Rate for Volatile Compounds:
$$ER \text{ (lbs/hr)} = \text{Makeup Rate (gpm)} * 60 \text{ min/hr} * 3.785 \text{ liters/gal} * \text{HAP Concentration (}\mu\text{g/L)} * 1 \text{ lb} / 453.6 \text{ g} * 1 \text{ g} / 10^6 \mu\text{g} * \text{Volatilization Fraction (assumed to be one)}$$

^c Oxbox bypass assumes 0% control of H₂S.

^d Ammonia emissions calculated based on an effective concentration, which was derived from a mass balance of ammonia detected in both the Hot Well and Blowdown streams (230 mg/L at 4,383 gpm and 1,500 mg/L at 519 gpm, respectively).

Table 2.17 Emissions from Operation and Maintenance Equipment

Elmore North Geothermal Project
Elmore North Operational Emissions
O&M Emission Calculations
April 2023

O&M Equipment and Vehicle Emission Rates

O&M Equipment and Vehicle	Fuel	Equipment Type	Usage ^a (hr or mile/hr)	Emission Factors (lbs/hr or lb/mile)									Emission Rates (lbs/hr)								
				NO _x	CO	VOC	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O	NO _x	CO	VOC	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Water Truck	Diesel	Construction Equipment	1	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03
Dump Truck	Diesel	Construction Equipment	1	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03
On-Site Pickup Truck	Gasoline	Vehicle	20	4.70E-04	7.30E-03	1.20E-04	8.37E-06	4.02E-05	1.74E-05	8.27E-01	3.01E-05	2.03E-06	9.39E-03	1.46E-01	2.41E-03	1.67E-04	8.05E-04	3.49E-04	1.65E+01	6.02E-04	4.05E-05
Off-Site Pickup Trucks	Gasoline	Vehicle	50	4.70E-04	7.30E-03	1.20E-04	8.37E-06	4.02E-05	1.74E-05	8.27E-01	3.01E-05	2.03E-06	2.35E-02	3.65E-01	6.02E-03	4.19E-04	2.01E-03	8.72E-04	4.13E+01	1.50E-03	1.01E-04
Off-Site Haul Truck	Diesel	Vehicle	50	2.67E-03	2.03E-04	2.18E-05	2.95E-05	2.25E-04	9.23E-05	3.10E+00	1.01E-06	6.78E-06	1.34E-01	1.02E-02	1.09E-03	1.48E-03	1.12E-02	4.61E-03	1.55E+02	5.07E-05	3.39E-04
Forklift	Diesel	Construction Equipment	1	1.52E-01	2.73E-01	1.06E-02	4.13E-04	3.65E-03	3.36E-03	4.47E+01	1.81E-03	3.63E-04	1.52E-01	2.73E-01	1.06E-02	4.13E-04	3.65E-03	3.36E-03	4.47E+01	1.81E-03	3.63E-04
Boom Truck	Diesel	Construction Equipment	1	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03
Crane-50T	Diesel	Construction Equipment	1	5.00E-01	3.94E-01	4.93E-02	1.14E-03	2.01E-02	1.85E-02	1.24E+02	5.02E-03	1.00E-03	5.00E-01	3.94E-01	4.93E-02	1.14E-03	2.01E-02	1.85E-02	1.24E+02	5.02E-03	1.00E-03
Excavator	Diesel	Construction Equipment	1	1.06E-01	1.27E-01	1.25E-02	1.63E-04	3.59E-03	3.31E-03	1.77E+01	7.19E-04	1.44E-04	1.06E-01	1.27E-01	1.25E-02	1.63E-04	3.59E-03	3.31E-03	1.77E+01	7.19E-04	1.44E-04
Backhoe	Diesel	Construction Equipment	1	1.50E-01	2.39E-01	1.47E-02	3.35E-04	6.66E-03	6.12E-03	3.63E+01	1.47E-03	2.95E-04	1.50E-01	2.39E-01	1.47E-02	3.35E-04	6.66E-03	6.12E-03	3.63E+01	1.47E-03	2.95E-04
Yardogs	Diesel	Construction Equipment	1	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03	3.89E-01	3.76E-01	5.78E-02	1.54E-03	1.40E-02	1.28E-02	1.66E+02	6.74E-03	1.35E-03
Pressure Washers	Diesel	Construction Equipment	1	4.09E-02	3.03E-02	4.94E-03	7.94E-05	1.71E-03	1.57E-03	5.36E+00	2.17E-04	4.35E-05	4.09E-02	3.03E-02	4.94E-03	7.94E-05	1.71E-03	1.57E-03	5.36E+00	2.17E-04	4.35E-05
Welders	Diesel	Construction Equipment	1	1.73E-01	2.08E-01	2.44E-02	3.35E-04	5.97E-03	5.49E-03	2.59E+01	1.05E-03	2.10E-04	1.73E-01	2.08E-01	2.44E-02	3.35E-04	5.97E-03	5.49E-03	2.59E+01	1.05E-03	2.10E-04
Manlift	Diesel	Construction Equipment	1	9.07E-02	9.78E-02	4.98E-03	1.70E-04	6.81E-04	6.26E-04	1.85E+01	7.48E-04	1.50E-04	9.07E-02	9.78E-02	4.98E-03	1.70E-04	6.81E-04	6.26E-04	1.85E+01	7.48E-04	1.50E-04
Air Compressors	Diesel	Construction Equipment	2	1.51E-01	1.91E-01	2.27E-02	2.88E-04	5.31E-03	4.89E-03	2.23E+01	9.03E-04	1.81E-04	3.03E-01	3.82E-01	4.55E-02	5.75E-04	1.06E-02	9.77E-03	4.45E+01	1.81E-03	3.61E-04
Carry Deck	Diesel	Construction Equipment	1	5.00E-01	3.94E-01	4.93E-02	1.14E-03	2.01E-02	1.85E-02	1.24E+02	5.02E-03	1.00E-03	5.00E-01	3.94E-01	4.93E-02	1.14E-03	2.01E-02	1.85E-02	1.24E+02	5.02E-03	1.00E-03

lbs/hr = pound(s) per hour
lb/mile = pound(s) per mile
mile/hr = mile(s) per hour
^a Assumes two air compressors.

Table 2.17 Emissions from Operation and Maintenance Equipment

O&M Equipment and Vehicle Emissions

O&M Equipment and Vehicle	Fuel	Equipment Type	Usage ^b (hr/year)	Emission Rates (lbs/day) ^a									Emission Rates (tpy)								
				NO _x	CO	VOC	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O	NO _x	CO	VOC	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Water Truck	Diesel	Construction Equipment	200	3.11E+00	3.01E+00	4.62E-01	1.23E-02	1.12E-01	1.03E-01	1.33E+03	5.39E-02	1.08E-02	3.89E-02	3.76E-02	5.78E-03	1.54E-04	1.40E-03	1.28E-03	1.66E+01	6.74E-04	1.35E-04
Dump Truck	Diesel	Construction Equipment	200	3.11E+00	3.01E+00	4.62E-01	1.23E-02	1.12E-01	1.03E-01	1.33E+03	5.39E-02	1.08E-02	3.89E-02	3.76E-02	5.78E-03	1.54E-04	1.40E-03	1.28E-03	1.66E+01	6.74E-04	1.35E-04
On-Site Pickup Truck	Gasoline	Vehicle	2,000	7.51E-02	1.17E+00	1.93E-02	1.34E-03	6.44E-03	2.79E-03	1.32E+02	4.82E-03	3.24E-04	9.39E-03	1.46E-01	2.41E-03	1.67E-04	8.05E-04	3.49E-04	1.65E+01	6.02E-04	4.05E-05
Off-Site Pickup Trucks	Gasoline	Vehicle	2,000	1.88E-01	2.92E+00	4.81E-02	3.35E-03	1.61E-02	6.98E-03	3.31E+02	1.20E-02	8.11E-04	2.35E-02	3.65E-01	6.02E-03	4.19E-04	2.01E-03	8.72E-04	4.13E+01	1.50E-03	1.01E-04
Off-Site Haul Truck	Diesel	Vehicle	400	1.07E+00	8.13E-02	8.74E-03	1.18E-02	9.00E-02	3.69E-02	1.24E+03	4.06E-04	2.71E-03	2.67E-02	2.03E-03	2.18E-04	2.95E-04	2.25E-03	9.23E-04	3.10E+01	1.01E-05	6.78E-05
Forklift	Diesel	Construction Equipment	200	1.21E+00	2.18E+00	8.47E-02	3.31E-03	2.92E-02	2.69E-02	3.58E+02	1.45E-02	2.90E-03	1.52E-02	2.73E-02	1.06E-03	4.13E-05	3.65E-04	3.36E-04	4.47E+00	1.81E-04	3.63E-05
Boom Truck	Diesel	Construction Equipment	450	3.11E+00	3.01E+00	4.62E-01	1.23E-02	1.12E-01	1.03E-01	1.33E+03	5.39E-02	1.08E-02	8.76E-02	8.47E-02	1.30E-02	3.45E-04	3.14E-03	2.89E-03	3.74E+01	1.52E-03	3.03E-04
Crane-50T	Diesel	Construction Equipment	384	4.00E+00	3.15E+00	3.95E-01	9.15E-03	1.61E-01	1.48E-01	9.90E+02	4.02E-02	8.03E-03	9.60E-02	7.57E-02	9.47E-03	2.19E-04	3.86E-03	3.55E-03	2.38E+01	9.64E-04	1.93E-04
Excavator	Diesel	Construction Equipment	260	8.45E-01	1.01E+00	1.00E-01	1.31E-03	2.87E-02	2.64E-02	1.42E+02	5.75E-03	1.15E-03	1.37E-02	1.65E-02	1.63E-03	2.12E-05	4.67E-04	4.30E-04	2.30E+00	9.34E-05	1.87E-05
Backhoe	Diesel	Construction Equipment	260	1.20E+00	1.92E+00	1.18E-01	2.68E-03	5.33E-02	4.90E-02	2.90E+02	1.18E-02	2.36E-03	1.95E-02	3.11E-02	1.92E-03	4.36E-05	8.65E-04	7.96E-04	4.72E+00	1.91E-04	3.83E-05
Yardogs	Diesel	Construction Equipment	260	3.11E+00	3.01E+00	4.62E-01	1.23E-02	1.12E-01	1.03E-01	1.33E+03	5.39E-02	1.08E-02	5.06E-02	4.89E-02	7.51E-03	2.00E-04	1.81E-03	1.67E-03	2.16E+01	8.77E-04	1.75E-04
Pressure Washers	Diesel	Construction Equipment	450	3.27E-01	2.43E-01	3.95E-02	6.36E-04	1.36E-02	1.26E-02	4.28E+01	1.74E-03	3.48E-04	9.20E-03	6.82E-03	1.11E-03	1.79E-05	3.84E-04	3.53E-04	1.21E+00	4.89E-05	9.78E-06
Welders	Diesel	Construction Equipment	450	1.38E+00	1.66E+00	1.95E-01	2.68E-03	4.77E-02	4.39E-02	2.07E+02	8.42E-03	1.68E-03	3.88E-02	4.68E-02	5.48E-03	7.54E-05	1.34E-03	1.24E-03	5.84E+00	2.37E-04	4.73E-05
Manlift	Diesel	Construction Equipment	384	7.26E-01	7.82E-01	3.99E-02	1.36E-03	5.44E-03	5.01E-03	1.48E+02	5.99E-03	1.20E-03	1.74E-02	1.88E-02	9.57E-04	3.27E-05	1.31E-04	1.20E-04	3.54E+00	1.44E-04	2.87E-05
Air Compressors	Diesel	Construction Equipment	800	2.42E+00	3.06E+00	3.64E-01	4.60E-03	8.50E-02	7.82E-02	3.56E+02	1.44E-02	2.89E-03	1.21E-01	1.53E-01	1.82E-02	2.30E-04	4.25E-03	3.91E-03	1.78E+01	7.22E-04	1.44E-04
Carry Deck	Diesel	Construction Equipment	200	4.00E+00	3.15E+00	3.95E-01	9.15E-03	1.61E-01	1.48E-01	9.90E+02	4.02E-02	8.03E-03	5.00E-02	3.94E-02	4.93E-03	1.14E-04	2.01E-03	1.85E-03	1.24E+01	5.02E-04	1.00E-04

hr/year = hour(s) per year

lbs/day = pound(s) per day

tpy = ton(s) per year

^a Equipment and vehicle operations assume 8 hours per day

^b Each of the site's two (2) air compressors are assumed to operate 800 hours per year.

Elmore North Geothermal Project
Elmore North Operational Emissions
Fire Pump Emission Data
April 2023

Engine Information	Value
Engine Rating (kW)	236
Annual Hours of Operations (hrs/yr)	50
Fuel Use (gal/hr)	6
Heat Input (MMBtu/hr) ^a	0.8

kW = kilowatt
hrs/yr = hour(s) per year
gal/hr = gallon(s) per hour
MMBtu/hr = million British thermal unit(s) per hour
^a Heat input for Fire Pump calculated based upon 1 horsepower = 2,544 Btu/hr.

Criteria Pollutant Emissions

Pollutant	Emission Factor (g/kW-hr)	Basis	1-Hour Emission Rate (lbs/hr)	Annual Emissions (tpy)	Annual Average Hourly Emissions (lbs/hr)
NO _x Emissions	3.4	Vendor Data	1.78E+00	4.46E-02	1.02E-02
CO Emissions	0.8	Vendor Data	4.16E-01	1.04E-02	2.38E-03
PM ₁₀ Emissions	0.11	Vendor Data	5.72E-02	1.43E-03	3.27E-04
PM _{2.5} Emissions	0.11	Vendor Data	5.72E-02	1.43E-03	3.27E-04
SO _x Emissions	0.00001	Calculated based upon 15 ppm USLD	2.70E-06	6.76E-08	1.54E-08
VOC Emissions	0.09	Vendor Data	4.68E-02	1.17E-03	2.67E-04

g/kW-hr = gram(s) per kilowatt-hour
lbs/hr = pound(s) per hour
ppm = part(s) per million
tpy = ton(s) per year
USLD = Ultra low sulfur diesel

Toxic Emissions

Pollutant	Emission Factor (lb/MMBTU) ^a	Fire Pump Emissions (lbs/yr)	Fire Pump Emissions (tpy)
Benzene	9.33E-04	3.73E-02	1.87E-05
Toluene	4.09E-04	1.64E-02	8.18E-06
Xylenes	2.85E-04	1.14E-02	5.70E-06
Formaldehyde	1.18E-03	4.72E-02	2.36E-05
1,3-Butadiene	3.91E-05	1.56E-03	7.82E-07
Acetaldehyde	7.67E-04	3.07E-02	1.53E-05
Acrolein	9.25E-05	3.70E-03	1.85E-06
Naphthalene	8.48E-05	3.39E-03	1.70E-06
Propylene	2.58E-03	1.03E-01	5.16E-05
Acenaphthylene	5.06E-06	2.02E-04	1.01E-07
Acenaphthene	1.42E-06	5.68E-05	2.84E-08
Fluorene	2.92E-05	1.17E-03	5.84E-07
Phenanthrene	2.94E-05	1.18E-03	5.88E-07
Anthracene	1.87E-06	7.48E-05	3.74E-08
Fluoranthene	7.61E-06	3.04E-04	1.52E-07
Pyrene	4.78E-06	1.91E-04	9.56E-08
Benz(a)anthracene	1.68E-06	6.72E-05	3.36E-08
Chrysene	3.53E-07	1.41E-05	7.06E-09
Benzo(b)fluoranthene	9.91E-08	3.96E-06	1.98E-09
Benzo(k)fluoranthene	1.55E-07	6.20E-06	3.10E-09
Benzo(a)pyrene	1.88E-07	7.52E-06	3.76E-09
Indeno(1,2,3-cd)pyrene	3.75E-07	1.50E-05	7.50E-09
Dibenz(a,h)anthracene	5.83E-07	2.33E-05	1.17E-08
Benzo(g,h,i)perylene	4.89E-07	1.96E-05	9.78E-09

lb/MMBtu = pound(s) per million British thermal unit
lbs/yr = pound(s) per year

tpy = ton(s) per year
^a Toxic Emission Factors from EPA's *AP-42*, Section 3.3, Table 3.3-2 (EPA 1996).

Stack Parameters	Value	Units
Stack Diameter	0.50	feet
Stack Diameter	0.15	meters
Stack Height	10.92	feet
Stack Height	3.33	meters
Stack Flow	1400	cubic feet per minute
Stack Flow	39.66	cubic meters per minute
Exit Velocity	36.23	meters per second
Stack Temperature	961	degrees Fahrenheit (°F)
Stack Temperature	789.26	degrees Kelvin (K)

GHG Emissions

Source Name	CO ₂ Emissions (tpy)	CH ₄ Emissions (tpy)	N ₂ O Emissions (tpy)	CO ₂ e Emissions (tpy)
Fire Pump	3.26	1.32E-04	2.65E-05	3.27

tpy = ton(s) per year

Diesel Fuel GHG Emission Factors and Conversions			Source
CO ₂	73.96	kg/MMBtu	40 CFR 98.33, Table C-1
CH ₄	3.00E-03	kg/MMBtu	40 CFR 98.33, Table C-2
N ₂ O	6.00E-04	kg/MMBtu	40 CFR 98.33, Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33, Table C-1
Density of Distillate #2	7.05	lbs/gallon	AP-42, Appendix A
Conversion	1.1023	ton/tonne	--
Conversion	0.0010	tonne/kg	--

HHV = Higher Heating Value
kg/MMBtu = kilogram(s) per million British thermal unit
MMBtu/gal = million British thermal unit(s) per gallon
lbs = pound(s)
kg = kilogram(s)

Global Warming Potentials (GWP)		Source
GWP CO ₂ =	1	40 CFR 98 Subpart A, Table A-1
GWP CH ₄ =	25	40 CFR 98 Subpart A, Table A-1
GWP N ₂ O =	298	40 CFR 98 Subpart A, Table A-1

Elmore North Geothermal Project
Elmore North Operational Emissions
Generator 1 Emission Data
April 2023

Engine Information	Value
Engine Rating (kW)	2,700
Engine Rating (HP)	3,621
Annual Hours of Operations (hrs/yr)	50
Fuel Use (gal/hr)	175
Heat Input (MMBtu/hr)	24.1

kW = kilowatt(s)
HP = horsepower

hrs/yr = hour(s) per year
gal/hr = gallon(s) per hour
MMBtu/hr = million British thermal unit(s) per hour

Criteria Pollutant Emissions

Pollutant	Emission Factor (g/kW-hr)	Basis	1-Hour Emission Rate (lbs/hr)	Annual Emissions (tpy)	Annual Average Hourly Emissions (lbs/hr)
NO _x Emissions	0.67	Applicant Provided Data	4.0	0.10	0.023
CO Emissions	3.5	Applicant Provided Data	20.8	0.52	0.12
PM ₁₀ Emissions	0.03	Applicant Provided Data	0.18	0.00	0.001
PM _{2.5} Emissions	0.03	Applicant Provided Data	0.18	0.00	0.001
SO _x Emissions	0.00001	Calculated based upon 15 ppm ULSD	8.14E-05	2.04E-06	4.65E-07
VOC Emissions	0.19	Applicant Provided Data	1.13	0.03	0.006

g/kW-hr = gram(s) per kilowatt-hour
lbs/hr = pound(s) per hour

ppm = part(s) per million
tpy = ton(s) per year
ULSD = Ultra low sulfur diesel

Toxic Emissions

Pollutant	Emission Factor (lb/MMBTU) ^a	Controlled Generator Emissions (lbs/yr) ^b	Controlled Generator Emissions (tpy)
Benzene	7.76E-04	1.87E-01	9.35E-05
Toluene	2.81E-04	6.77E-02	3.39E-05
Xylenes	1.93E-04	4.65E-02	2.33E-05
Formaldehyde	7.89E-05	1.90E-02	9.51E-06
Acetaldehyde	2.52E-05	6.07E-03	3.04E-06
Acrolein	7.88E-06	1.90E-03	9.49E-07
Naphthalene	1.30E-04	3.13E-02	1.57E-05
Propylene	2.79E-03	6.72E-01	3.36E-04
Ammonia	5 ppm slip ^c	1.39E+01	6.93E-03
Acenaphthylene	9.23E-06	2.22E-03	1.11E-06
Acenaphthene	4.68E-06	1.13E-03	5.64E-07
Fluorene	1.28E-05	3.08E-03	1.54E-06
Phenanthrene	4.08E-05	9.83E-03	4.92E-06
Anthracene	1.23E-06	2.96E-04	1.48E-07
Fluoranthene	4.03E-06	9.71E-04	4.86E-07
Pyrene	3.71E-06	8.94E-04	4.47E-07
Benz(a)anthracene	6.22E-07	1.50E-04	7.49E-08
Chrysene	1.53E-06	3.69E-04	1.84E-07
Benzo(b)fluoranthene	1.11E-06	2.67E-04	1.34E-07
Benzo(k)fluoranthene	2.18E-07	5.25E-05	2.63E-08
Benzo(a)pyrene	2.57E-07	6.19E-05	3.10E-08
Indeno(1,2,3-cd)pyrene	4.14E-07	9.98E-05	4.99E-08
Dibenz(a,h)anthracene	3.46E-07	8.34E-05	4.17E-08
Benzo(g,h,i)perylene	5.56E-07	1.34E-04	6.70E-08

lb/MMBtu = pound(s) per million British thermal unit
lbs/yr = pound(s) per year
tpy = ton(s) per year

^b Control efficiencies use industry standard of 80% control of VOCs for Tier 4 engines.
^c 5 ppm ammonia slip typical estimate for Selective Catalytic Reduction (SCR) systems.

^a Toxic Emission Factors from EPA's *AP-42*, Section 3.4, Tables 3.4-3 and 3.4-4 (EPA 1996).

Stack Parameters	Value	Units
Stack Diameter	1.17	feet
Stack Diameter	0.36	meters
Stack Height	23.39	feet
Stack Height	7.13	meters
Stack Flow	19459	cubic feet per minute
Stack Flow	551.21	cubic meters per minute
Exit Velocity	92.50	meters per second
Stack Temperature	914	°F
Stack Temperature	763.15	K

GHG Emissions

Source Name	CO ₂ Emissions (tpy)	CH ₄ Emissions (tpy)	N ₂ O Emissions (tpy)	CO ₂ e Emissions (tpy)
Generator 1	98.22	0.004	0.001	98.55

tpy = ton(s) per year

Diesel Fuel GHG Emission Factors and Conversions			Source
CO ₂	73.96	kg/MMBtu	40 CFR 98.33, Table C-1
CH ₄	3.00E-03	kg/MMBtu	40 CFR 98.33, Table C-2
N ₂ O	6.00E-04	kg/MMBtu	40 CFR 98.33, Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33, Table C-1
Density of Distillate #2	7.05	lbs/gallon	AP-42, Appendix A
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--
	28.3168	L/ft ³	--
Molar Volume of Air at STP	22.4	L/mol	--

HHV = Higher Heating Value
kg/MMBtu = kilogram(s) per million British thermal unit
MMBtu/gal = million British thermal unit(s) per gallon
lbs = pound(s)
kg = kilogram(s)
L/ft³ = liter(s) per cubic foot
L = liter(s)

Global Warming Potentials		Source
GWP CO ₂ =	1	40 CFR 98 Subpart A, Table A-1
GWP CH ₄ =	25	40 CFR 98 Subpart A, Table A-1
GWP N ₂ O =	298	40 CFR 98 Subpart A, Table A-1

Elmore North Geothermal Project
Elmore North Operational Emissions
Generator 2-5 Emission Data
April 2023

Engine Information	Value
Engine Rating (kW)	3,490
Engine Rating (HP)	4,680
Annual Hours of Operations (hrs/yr)	50
Fuel Use (gal/hr)	219
Heat Input (MMBtu/hr)	30.2
Generator Count	4

kW = kilowatt
HP = horsepower
hrs/yr = hour(s) per year

gal/hr = gallon(s) per hour
MMBtu/hr = million British thermal unit(s) per hour

Criteria Pollutant Emissions Per Generator

Pollutant	Emission Factor (g/kW-hr)	Basis	1-Hour Emission Rate (lbs/hr)	Annual Emissions (tpy)	Annual Average Hourly Emissions (lbs/hr)
NO _x Emissions	0.67	Applicant Provided Data	5.2	0.13	0.029
CO Emissions	3.5	Applicant Provided Data	26.9	0.67	0.15
PM ₁₀ Emissions	0.03	Applicant Provided Data	0.23	0.01	0.001
PM _{2.5} Emissions	0.03	Applicant Provided Data	0.23	0.01	0.001
SO _x Emissions	0.000002	Calculated based upon 15 ppm ULSD	1.41E-05	3.53E-07	8.05E-08
VOC Emissions	0.19	Applicant Provided Data	1.46	0.04	0.008

g/kW-hr = gram(s) per kilowatt-hour
lbs/hr = pound(s) per hour
ppm = part(s) per million

tpy = ton(s) per year
ULSD = Ultra low sulfur diesel

Toxic Emissions Per Generator

Pollutant	Emission Factor (lb/MMBTU) ^a	Controlled Generator Emissions (lbs/yr) ^b	Controlled Generator Emissions (tpy)
Benzene	7.76E-04	2.35E-01	1.17E-04
Toluene	2.81E-04	8.50E-02	4.25E-05
Xylenes	1.93E-04	5.84E-02	2.92E-05
Formaldehyde	7.89E-05	2.39E-02	1.19E-05
Acetaldehyde	2.52E-05	7.62E-03	3.81E-06
Acrolein	7.88E-06	2.38E-03	1.19E-06
Naphthalene	1.30E-04	3.93E-02	1.97E-05
Propylene	2.79E-03	8.44E-01	4.22E-04
Ammonia	5 ppm slip ^c	1.69E+01	8.44E-03
Acenaphthylene	9.23E-06	2.79E-03	1.40E-06
Acenaphthene	4.68E-06	1.42E-03	7.08E-07
Fluorene	1.28E-05	3.87E-03	1.94E-06
Phenanthrene	4.08E-05	1.23E-02	6.17E-06
Anthracene	1.23E-06	3.72E-04	1.86E-07
Fluoranthene	4.03E-06	1.22E-03	6.10E-07
Pyrene	3.71E-06	1.12E-03	5.61E-07
Benz(a)anthracene	6.22E-07	1.88E-04	9.41E-08
Chrysene	1.53E-06	4.63E-04	2.31E-07
Benzo(b)fluoranthene	1.11E-06	3.36E-04	1.68E-07
Benzo(k)fluoranthene	2.18E-07	6.59E-05	3.30E-08
Benzo(a)pyrene	2.57E-07	7.77E-05	3.89E-08
Indeno(1,2,3-cd)pyrene	4.14E-07	1.25E-04	6.26E-08
Dibenz(a,h)anthracene	3.46E-07	1.05E-04	5.23E-08
Benzo(g,h,i)perylene	5.56E-07	1.68E-04	8.41E-08

lb/MMBTu = pound(s) per million British thermal unit
lbs/yr = pound(s) per year

^a Toxic Emission Factors from EPA's *AP-42*, Section 3.4, Tables 3.4-3 and 3.4-4 (EPA 1996)
^b Control efficiencies use industry standard of 80% control of VOCs for Tier 4 engines.

tpy = ton(s) per year ° 5 ppm ammonia slip typical estimate for SCR systems.

Stack Parameters	Value	Units
Stack Diameter	1.17	feet
Stack Diameter	0.36	meters
Stack Height	23.54	feet
Stack Height	7.17	meters
Stack Flow	23,696	cubic feet per minute
Stack Flow	671.23	cubic meters per minute
Exit Velocity	112.64	meters per second
Stack Temperature	887	°F
Stack Temperature	748.15	K

GHG Emissions Per Generator

Source Name	CO ₂ Emissions (tpy)	CH ₄ Emissions (tpy)	N ₂ O Emissions (tpy)	CO ₂ e Emissions (tpy)
Generator 2-4	123.31	0.005	0.001	123.73

tpy = ton(s) per year

Diesel Fuel GHG Emission Factors and Conversions			Source
CO ₂	73.96	kg/MMBtu	40 CFR 98.33, Table C-1
CH ₄	3.00E-03	kg/MMBtu	40 CFR 98.33, Table C-2
N ₂ O	6.00E-04	kg/MMBtu	40 CFR 98.33, Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33, Table C-1
Density of Distillate #2	7.05	lbs/gallon	AP-42, Appendix A
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--
	28.3168	L/ft ³	--
Molar Volume of Air at STP	22.4	L/mol	--

HHV = Higher Heating Value
kg/MMBtu = kilogram(s) per million British thermal unit
MMBtu/gal = million British thermal unit(s) per gallon
lbs = pound(s)
kg = kilogram(s)
L/ft³ = liter(s) per cubic foot
L = liter(s)

Global Warming Potentials		Source	
GWP CO ₂ =	1	40 CFR 98 Subpart A, Table A-1	
GWP CH ₄ =	25	40 CFR 98 Subpart A, Table A-1	
GWP N ₂ O =	298	40 CFR 98 Subpart A, Table A-1	

Elmore North Geothermal Project
Elmore North Operational Emissions
Insulating Gas Emissions
April 2023

Engine Information	Value
Insulating Gas Used in Equipment	Sulfur Hexafluoride
Mass of Insulating Gas Used (lbs)	300
Gas Global Warming Potential ^a	22,800
CO ₂ e System Capacity (Metric Tons) ^b	3,054
Assumed Annual Emissions (Metric Tons/Year)	61.07

lbs = pound(s)

^a Global Warming Potential from 40 CFR Part 98, Table A-1

^b Estimated leak rate based upon California Regulation for Reducing Greenhouse Gas Emissions from Gas-Insulated Equipment (17 CCR 95353, Tables 4 and 5) for data years through 2034.

Elmore North Geothermal Project
Elmore North Operational Emissions
O&M Equipment Emission Factors
April 2023

O&M Equipment Emission Factor Data					Equipment Exhaust Emission Factors (g/hp-hr) ^{b,c}								
Equipment Type	Fuel	Horsepower ^a	Load Factor ^a	CalEEMOD Equipment Category	CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Crane-50T	Diesel	367	0.29	Cranes	1.68E+00	2.10E-01	2.13E+00	4.87E-03	8.57E-02	7.89E-02	5.28E+02	2.14E-02	4.28E-03
Water Truck	Diesel	376	0.38	Off-Highway Trucks	1.19E+00	1.83E-01	1.24E+00	4.87E-03	4.43E-02	4.08E-02	5.28E+02	2.14E-02	4.28E-03
Dump Truck	Diesel	376	0.38	Off-Highway Trucks	1.19E+00	1.83E-01	1.24E+00	4.87E-03	4.43E-02	4.08E-02	5.28E+02	2.14E-02	4.28E-03
Excavator	Diesel	36	0.38	Excavators	4.20E+00	4.15E-01	3.50E+00	5.42E-03	1.19E-01	1.10E-01	5.87E+02	2.38E-02	4.76E-03
Backhoe	Diesel	84	0.37	Tractors/Loaders /Backhoes	3.49E+00	2.15E-01	2.19E+00	4.89E-03	9.72E-02	8.94E-02	5.30E+02	2.15E-02	4.30E-03
Yardogs	Diesel	376	0.38	Off-Highway Trucks	1.19E+00	1.83E-01	1.24E+00	4.87E-03	4.43E-02	4.08E-02	5.28E+02	2.14E-02	4.28E-03
Pressure washers	Diesel	14	0.3	Pressure Washers	3.28E+00	5.34E-01	4.41E+00	8.58E-03	1.84E-01	1.69E-01	5.78E+02	2.35E-02	4.69E-03
Welders	Diesel	46	0.45	Welders	4.56E+00	5.34E-01	3.78E+00	7.35E-03	1.31E-01	1.20E-01	5.68E+02	2.31E-02	4.61E-03
Forklift	Diesel	96	0.4	Rough Terrain Forklifts	3.22E+00	1.25E-01	1.79E+00	4.88E-03	4.31E-02	3.97E-02	5.29E+02	2.14E-02	4.29E-03
Boom Truck	Diesel	376	0.38	Off-Highway Trucks	1.19E+00	1.83E-01	1.24E+00	4.87E-03	4.43E-02	4.08E-02	5.28E+02	2.14E-02	4.28E-03
Carry Deck	Diesel	367	0.29	Cranes	1.68E+00	2.10E-01	2.13E+00	4.87E-03	8.57E-02	7.89E-02	5.28E+02	2.14E-02	4.28E-03
Air Compressors	Diesel	37	0.48	Air Compressors	4.88E+00	5.81E-01	3.86E+00	7.35E-03	1.36E-01	1.25E-01	5.68E+02	2.31E-02	4.61E-03
Manlift	Diesel	46	0.31	Aerial Lifts	3.11E+00	1.58E-01	2.89E+00	5.42E-03	2.16E-02	1.99E-02	5.87E+02	2.38E-02	4.76E-03

g/hp-hr = gram(s) per horsepower hour

^a Construction equipment horsepower and load factor taken from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

^b Construction equipment emission factors taken from Table G-11 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

^c Based on the preliminary construction schedule, construction is expected to begin in 2024. Despite operations occurring later than construction, 2024 emission factors were used for all calculations to provide a more conservative emissions estimate.

Elmore North Geothermal Project
Elmore North Operational Emissions
O&M Vehicle Emission Factors
April 2023

Vehicle Exhaust Emission Factors

Vehicle Type	Location of Vehicle Operation ^a	Vehicle Class ^b	2024 Exhaust Emission Factors (g/mile) ^{c, d}									Paved Road Fugitive Dust Emission Factors (g/mile) ^e		Unpaved Road Fugitive Dust Emission Factors (g/mile) ^e	
			CO	VOC	SO ₂	NO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
Pickup Truck	Onsite, Offsite	Light-duty truck	3.313	0.055	0.004	0.213	0.018	0.008	375.110	0.014	0.001	0.299	0.075	658.809	65.743
Haul Trucks	Offsite	Heavy-duty Diesel	0.092	0.010	0.013	1.213	0.102	0.042	1,404.258	0.000	0.003	0.299	0.075	N/A	N/A

g/mile = gram(s) per mile

^a Offsite vehicle emissions occur as a result of roadway travel.

^b The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be 50% LDT1 Gas and 50% LDT2 Gas values, based on an understanding of the vehicle type.

Heavy-duty Diesel: Assumed to be 100% HHDT DSL values, per Section 4.6.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022).

^c Exhaust and idling emission factors from EMFAC2021 for Imperial County, calendar year 2024. A speed of 40 mph was assumed for all vehicles. An average temperature of 78°F and humidity of 40% were used per Table B-1 of *CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions* (UC Davis 2007).

^d Although operation will occur after 2026, 2024 emission factors and fuel economy were used, as appropriate, to provide a more conservative emissions estimate.

^e Paved and unpaved road emission factors calculated using CalEEMod methodology, as described below assuming no emission controls. The unpaved road fugitive dust emission factors only apply to onsite vehicle travel on unpaved roads.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^a	1.0	0.25
sL ^a	0.1	0.1
P ^b	5.0	5.0
Emission Factor (g/mile) ^c	0.299	0.075

g/mile = gram(s) per mile

^a Average Weight, k, and sL taken as the CalEEMod statewide defaults from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022).

^b P taken as the CalEEMod default value for the Imperial County Airport from Table G-2 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

^c Emission factor calculated using the following equation from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022):

Emission Factor (g/mile) = k (g/mile) x [sL (g/m²)]^{0.91} x [Average Weight (tons)]^{1.02} x (1 - P (days) / [4 x 365 days])

Fugitive Dust Emission Factors for Unpaved Roads

Vehicles on Unpaved Surfaces at Industrial Sites

Parameter	PM ₁₀	PM _{2.5}
k ^a	1.80	0.18
s ^a	8.5	8.5
M ^a	0.5	0.5
S ^a	40	40
C ^b	0.00047	0.00036
P ^c	5	5
Emission Factor (lb/mile) ^d	1.452	0.145

lb/mile = pound(s) per mile

^a k, s, M, and S are taken as the CalEEMod default values from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022); k was converted from g to lbs.

^b C taken as the default values from Table 13.2.2-4 of *AP-42* (EPA 2006), per Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022).

^c P taken as the CalEEMod default value for the Imperial County Airport from Table G-2 of Appendix G of the *CalEEMod User's Guide* (ICF 2022).

^d Emission factor calculated using the following equation from Section 5.1.4 of Appendix C of the *CalEEMod User's Guide* (ICF 2022):

Emission Factor (lb/mile) = ([k (lb/mile) x (s (%) / 12) x (S (mph) / 30)^{0.5} / [M (%) / 0.5]^{0.2}] - C (lb/mile)) x (1 - P (days) / 365 days)

Appendix 5.1B

Operational Air Quality Impacts Analysis



Elmore North Geothermal Project

Elmore North Operational Air Quality Impacts Analysis

Source Parameters

April 2023

Elmore North Operational Modeled Source Parameters

Source ID	Source Type	Stack Release Type	Source Description	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter
				(m)	(m)	(m)	(m)	(K)	(m/s)	(m)
CT1	POINT	DEFAULT	Cooling Tower 1	630,402.12	3,672,170.77	-68.58	12.98	311.76	7.91	10.63
CT2	POINT	DEFAULT	Cooling Tower 2	630,413.15	3,672,159.98	-68.58	12.98	311.76	7.91	10.63
CT3	POINT	DEFAULT	Cooling Tower 3	630,424.17	3,672,149.81	-68.58	12.98	311.76	7.91	10.63
CT4	POINT	DEFAULT	Cooling Tower 4	630,435.10	3,672,138.91	-68.58	12.98	311.76	7.91	10.63
CT5	POINT	DEFAULT	Cooling Tower 5	630,446.02	3,672,128.65	-68.58	12.98	311.76	7.91	10.63
CT6	POINT	DEFAULT	Cooling Tower 6	630,456.94	3,672,117.96	-68.58	12.98	311.76	7.91	10.63
CT7	POINT	DEFAULT	Cooling Tower 7	630,467.86	3,672,107.58	-68.58	12.98	311.76	7.91	10.63
CT8	POINT	DEFAULT	Cooling Tower 8	630,510.87	3,672,205.27	-68.58	12.98	311.76	7.91	10.63
CT9	POINT	DEFAULT	Cooling Tower 9	630,521.90	3,672,194.69	-68.58	12.98	311.76	7.91	10.63
CT10	POINT	DEFAULT	Cooling Tower 10	630,532.92	3,672,184.32	-68.58	12.98	311.76	7.91	10.63
CT11	POINT	DEFAULT	Cooling Tower 11	630,543.84	3,672,173.84	-68.58	12.98	311.76	7.91	10.63
CT12	POINT	DEFAULT	Cooling Tower 12	630,554.66	3,672,163.04	-68.58	12.98	311.76	7.91	10.63
CT13	POINT	DEFAULT	Cooling Tower 13	630,565.69	3,672,152.56	-68.58	12.98	311.76	7.91	10.63
CT14	POINT	DEFAULT	Cooling Tower 14	630,576.61	3,672,142.19	-68.58	12.98	311.76	7.91	10.63
PTU_1	POINT	DEFAULT	PTU with Warm-up AFT	630,206.07	3,672,337.22	-68.58	18.29	373.15	6.72	2.24
PTU_2	POINT	DEFAULT	PTU with Warm-up AFT	630,216.85	3,672,337.25	-68.58	18.29	373.15	6.72	2.24
FPUMP	POINT	DEFAULT	Fire Water Pump	630,588.13	3,672,252.14	-68.58	4.60	665.00	53.30	0.15
G2_1	POINT	DEFAULT	Generator 2 (3.49 MW) Stack 1	630,348.70	3,672,065.53	-68.58	6.26	748.15	46.36	0.32
G2_2	POINT	DEFAULT	Generator 2 (3.49 MW) Stack 2	630,348.70	3,672,067.41	-68.58	6.26	748.15	46.36	0.32
G2_3	POINT	DEFAULT	Generator 2 (3.49 MW) Stack 3	630,348.70	3,672,069.29	-68.58	6.26	748.15	46.36	0.32
G3_1	POINT	DEFAULT	Generator 3 (3.49 MW) Stack 1	630,348.79	3,672,058.17	-68.58	6.26	748.15	46.36	0.32
G3_2	POINT	DEFAULT	Generator 3 (3.49 MW) Stack 2	630,348.79	3,672,060.05	-68.58	6.26	748.15	46.36	0.32
G3_3	POINT	DEFAULT	Generator 3 (3.49 MW) Stack 3	630,348.79	3,672,061.93	-68.58	6.26	748.15	46.36	0.32
G4_1	POINT	DEFAULT	Generator 4 (3.49 MW) Stack 1	630,348.78	3,672,051.23	-68.58	6.26	748.15	46.36	0.32
G4_2	POINT	DEFAULT	Generator 4 (3.49 MW) Stack 2	630,348.78	3,672,053.11	-68.58	6.26	748.15	46.36	0.32
G4_3	POINT	DEFAULT	Generator 4 (3.49 MW) Stack 3	630,348.78	3,672,054.99	-68.58	6.26	748.15	46.36	0.32
G5_1	POINT	DEFAULT	Generator 5 (3.49 MW) Stack 1	630,348.77	3,672,044.28	-68.58	6.26	748.15	46.36	0.32
G5_2	POINT	DEFAULT	Generator 5 (3.49 MW) Stack 2	630,348.77	3,672,046.16	-68.58	6.26	748.15	46.36	0.32
G5_3	POINT	DEFAULT	Generator 5 (3.49 MW) Stack 3	630,348.77	3,672,048.04	-68.58	6.26	748.15	46.36	0.32
G1_1	POINT	DEFAULT	Generator 1 (2.7 MW) Stack 1	630,523.09	3,672,287.71	-68.58	6.22	763.15	38.08	0.32
G1_2	POINT	DEFAULT	Generator 1 (2.7 MW) Stack 2	630,523.09	3,672,289.59	-68.58	6.22	763.15	38.08	0.32
G1_3	POINT	DEFAULT	Generator 1 (2.7 MW) Stack 3	630,523.09	3,672,291.47	-68.58	6.22	763.15	38.08	0.32
RMP	POINT	DEFAULT	Rock Muffler	630,421.44	3,672,208.12	-68.58	7.32	402.00	4.33	9.29

Note: Coordinates presented are UTM NAD83 Zone 11

m = meter(s)

K = Kelvin

m/s = meter(s) per second

Elmore North Geothermal Project

Elnore North Operational Air Quality Impacts Analysis

Source Emission Rates

April 2023

Elmore North Operational Modeled Source Emission Rates

Source ID	Source Type	Stack Release Type	Source Description	H2S	CO	CO8	NO2	NO2A	PM25	PM25A	PM10	PM10A	SO2	SO23	SO24	SO2A	NO2C	HNO3
				(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)	(g/s)
CT1	POINT	DEFAULT	Cooling Tower 1	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT2	POINT	DEFAULT	Cooling Tower 2	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT3	POINT	DEFAULT	Cooling Tower 3	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT4	POINT	DEFAULT	Cooling Tower 4	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT5	POINT	DEFAULT	Cooling Tower 5	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT6	POINT	DEFAULT	Cooling Tower 6	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT7	POINT	DEFAULT	Cooling Tower 7	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT8	POINT	DEFAULT	Cooling Tower 8	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT9	POINT	DEFAULT	Cooling Tower 9	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT10	POINT	DEFAULT	Cooling Tower 10	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT11	POINT	DEFAULT	Cooling Tower 11	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT12	POINT	DEFAULT	Cooling Tower 12	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT13	POINT	DEFAULT	Cooling Tower 13	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
CT14	POINT	DEFAULT	Cooling Tower 14	4.94E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-02	1.95E-02	3.26E-02	3.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E+02
PTU_1	POINT	DEFAULT	PTU with Warm-up AFT	1.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.04E-02
PTU_2	POINT	DEFAULT	PTU with Warm-up AFT	1.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.04E-02
FPUMP	POINT	DEFAULT	Fire Water Pump	0.00E+00	5.24E-02	6.55E-03	1.29E-03	1.29E-03	3.00E-04	4.12E-05	3.00E-04	4.12E-05	3.40E-07	1.14E-07	1.42E-08	1.94E-09	2.24E-01	3.78E-02
G2_1	POINT	DEFAULT	Generator 2 (3.49 MW) Stack 1	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G2_2	POINT	DEFAULT	Generator 2 (3.49 MW) Stack 2	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G2_3	POINT	DEFAULT	Generator 2 (3.49 MW) Stack 3	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G3_1	POINT	DEFAULT	Generator 3 (3.49 MW) Stack 1	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G3_2	POINT	DEFAULT	Generator 3 (3.49 MW) Stack 2	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G3_3	POINT	DEFAULT	Generator 3 (3.49 MW) Stack 3	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G4_1	POINT	DEFAULT	Generator 4 (3.49 MW) Stack 1	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G4_2	POINT	DEFAULT	Generator 4 (3.49 MW) Stack 2	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G4_3	POINT	DEFAULT	Generator 4 (3.49 MW) Stack 3	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G5_1	POINT	DEFAULT	Generator 5 (3.49 MW) Stack 1	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G5_2	POINT	DEFAULT	Generator 5 (3.49 MW) Stack 2	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G5_3	POINT	DEFAULT	Generator 5 (3.49 MW) Stack 3	0.00E+00	1.13E+00	1.41E-01	1.24E-03	1.24E-03	8.08E-04	5.53E-05	8.08E-04	5.53E-05	5.92E-07	1.98E-07	4.94E-08	3.38E-09	2.17E-01	4.06E-02
G1_1	POINT	DEFAULT	Generator 1 (2.7 MW) Stack 1	0.00E+00	8.74E-01	1.09E-01	9.56E-04	9.56E-04	6.25E-04	4.28E-05	6.25E-04	4.28E-05	3.41E-06	1.14E-06	2.85E-07	1.95E-08	1.68E-01	3.16E-02
G1_2	POINT	DEFAULT	Generator 1 (2.7 MW) Stack 2	0.00E+00	8.74E-01	1.09E-01	9.56E-04	9.56E-04	6.25E-04	4.28E-05	6.25E-04	4.28E-05	3.41E-06	1.14E-06	2.85E-07	1.95E-08	1.68E-01	3.16E-02
G1_3	POINT	DEFAULT	Generator 1 (2.7 MW) Stack 3	0.00E+00	8.74E-01	1.09E-01	9.56E-04	9.56E-04	6.25E-04	4.28E-05	6.25E-04	4.28E-05	3.41E-06	1.14E-06	2.85E-07	1.95E-08	1.68E-01	3.16E-02
RMP	POINT	DEFAULT	Rock Muffler	1.92E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E+00

Notes:

Emission rates were derived from Appendix 5.1A, Operational Emissions Inventory, based on the following:

Short-term emissions from cooling tower operation exclude non-routine operations. Short-term emissions from all other emission sources assume the worst-case operating hour.

Annual emissions from all emission sources represent the maximum of a routine operation year with or without startups, shutdowns, and emission control downtime (i.e., excluding a commissioning year).

Cooling tower emission rates represent the sum of cooling tower and sparger emissions as both vent from the cooling tower.

24-hour emission rates from the diesel fire water pump and diesel-fired emergency generators assume 1 hour per day and 2 hours per day, respectively.

For the 1-hour NO₂ standard, the diesel-fired emergency generators and diesel fire water pump were modeled using an average annual hourly emission rate based on EPA's guidance for intermittent source operations.

HNO₃ emissions for nitrogen deposition assume all nitrogen emitted in the form of NO_x and NH₃ converts to HNO₃ in the atmosphere.

Descriptions of pollutant IDs and their associated averaging periods are as follows:

H2S emission rates correspond to the 1-hour H₂S averaging period.

CO emission rates correspond to the 1-hour CO averaging period.

CO8 emission rates correspond to the 8-hour CO averaging period.

NO2 emission rates correspond to the 1-hour NO₂ averaging period.

NO2A emission rates correspond to the Annual NO₂ averaging period.

PM25 emission rates correspond to the 24-hour PM_{2.5} averaging period.

PM25A emission rates correspond to the Annual PM_{2.5} averaging period.

PM10 emission rates correspond to the 24-hour PM₁₀ averaging period.

PM10A emission rates correspond to the Annual PM₁₀ averaging period.

SO2 emission rates correspond to the 1-hour SO₂ averaging period.

SO23 emission rates correspond to the 3-hour SO₂ averaging period.

SO24 emission rates correspond to the 24-hour SO₂ averaging period.

SO2A emission rates correspond to the Annual SO₂ averaging period.

NO2C emission rates correspond to the 1-Hour NO₂ averaging period for the CAAQS analysis.

HNO3 emission rates correspond to the Annual HNO₃ averaging period for nitrogen deposition.

g/s = gram(s) per second

Elmore North Geothermal Project
Elmore North Operational Air Quality Impacts Analysis
Building Data
April 2023

Elmore North Operational Modeled Building Data

Building Name	Number of Tiers	Tier Number	Note	Base Elevation	Tier Height	Number of Corners	Corner 1 East (X)	Corner 1 North (Y)	Corner 2 East (X)	Corner 2 North (Y)	Corner 3 East (X)	Corner 3 North (Y)	Corner 4 East (X)	Corner 4 North (Y)
				(ft)	(ft)		(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
BLD1	1.00	1.00	Cooling Tower Bldg	-225.00	37.60	4.00	630,389.07	3,672,170.47	630,402.10	3,672,183.79	630,479.91	3,672,108.84	630,466.98	3,672,095.62
BLD2	1.00	1.00	Maintenance Bldg	-225.00	30.00	4.00	630,408.93	3,672,061.45	630,454.65	3,672,061.45	630,454.65	3,672,030.97	630,408.93	3,672,030.97
BLD3	1.00	1.00	Control Bldg	-225.00	20.00	4.00	630,382.94	3,672,320.66	630,425.85	3,672,320.66	630,425.85	3,672,296.62	630,382.94	3,672,296.62
BLD4	1.00	1.00	Cooling Tower Bldg	-225.00	37.60	4.00	630,497.62	3,672,204.99	630,510.87	3,672,218.21	630,588.61	3,672,143.30	630,575.78	3,672,130.08
G2_B	1.00	1.00	Gen 2 Enc	-225.00	14.10	4.00	630,345.10	3,672,065.53	630,345.10	3,672,069.29	630,361.40	3,672,069.29	630,361.40	3,672,065.53
G3_B	1.00	1.00	Gen 3 Enc	-225.00	14.10	4.00	630,345.19	3,672,058.17	630,345.19	3,672,061.93	630,361.49	3,672,061.93	630,361.49	3,672,058.17
G4_B	1.00	1.00	Gen 4 Enc	-225.00	14.10	4.00	630,345.18	3,672,051.23	630,345.18	3,672,054.99	630,361.48	3,672,054.99	630,361.48	3,672,051.23
G5_B	1.00	1.00	Gen 5 Enc	-225.00	14.10	4.00	630,345.17	3,672,044.28	630,345.17	3,672,048.04	630,361.47	3,672,048.04	630,361.47	3,672,044.28
G1_B	1.00	1.00	Gen 1 Enc	-225.00	14.10	4.00	630,519.49	3,672,287.71	630,519.49	3,672,291.47	630,535.79	3,672,291.47	630,535.79	3,672,287.71
FPUMP_B	1.00	1.00	FP Enc	-225.00	10.00	4.00	630,585.68	3,672,251.58	630,585.68	3,672,252.70	630,590.58	3,672,252.70	630,590.58	3,672,251.58
RM_B	1.00	1.00	RM Enc	-225.00	24.00	4.00	630,417.33	3,672,204.01	630,417.33	3,672,212.24	630,425.55	3,672,212.24	630,425.55	3,672,204.01

Note: Coordinates presented are UTM NAD83 Zone 11

ft = feet

m = meter(s)

Elmore North Geothermal Project

Elmore North Operational Air Quality Impacts Analysis

Tank Data

April 2023

Elmore North Operational Modeled Tank Data

Tank Name	Notes	Base Elevation	Center East (X)	Center North (Y)	Tank Height	Tank Diameter
		(ft)	(m)	(m)	(ft)	(ft)
Tank1	TK-2801 THICKENER	-225.00	630,306.73	3,672,090.43	51.00	75.00
Tank2	TK-2601 SEC. CLARIFIER 150-0 DIA.	-225.00	630,329.26	3,672,152.23	51.00	150.00
Tank3	TK-2501 PRIM. CLARIFIER 160-0 DIA.	-225.00	630,329.52	3,672,211.67	53.00	160.00

Note: Coordinates presented are UTM NAD83 Zone 11

ft = feet

m = meter(s)

Appendix 5.1C

Air Dispersion Modeling Protocol



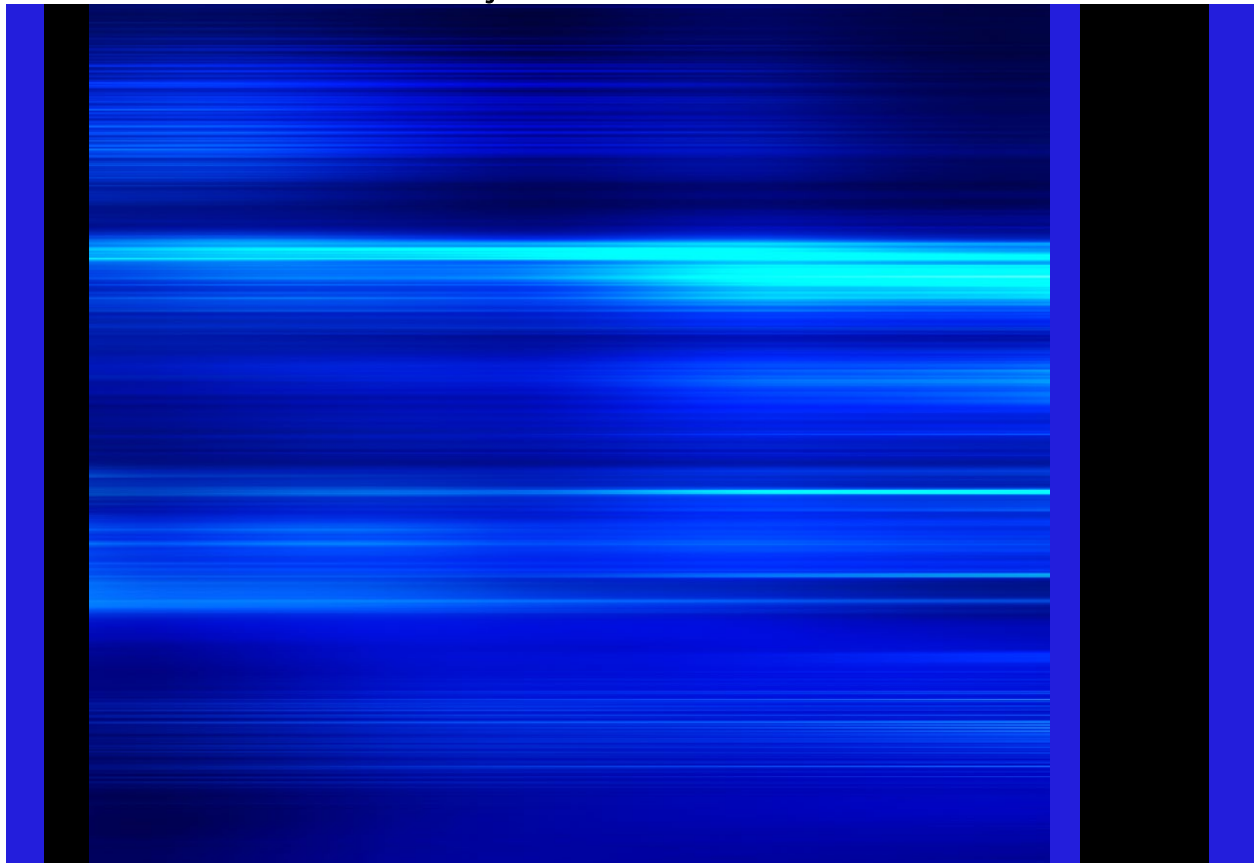
Air Dispersion Modeling Protocol for Elmore North Geothermal Project

Document No: PPS1116221558SDO
Revision No: 0

BHE Renewables, LLC

Salton Sea Geothermal Project
Development

Elmore North Geothermal Project



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Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	microgram(s) per cubic meter
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
BHER	Berkshire Hathaway Energy Renewables
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CFR	<i>Code of Federal Regulations</i>
CO	carbon monoxide
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
EN	Elmore North
GEP	good engineering practice
H ₂ S	hydrogen sulfide
HAP	hazardous air pollutant
HARP	Hotspots Analysis and Reporting Program
HI	hazard index
HNO ₃	nitric acid
HRA	health risk assessment
ID	identification
MERP	Modeled Emission Rates for Precursor
MW	megawatt(s)
NAAQS	National Ambient Air Quality Standards
NH ₃	ammonia
NLCD	National Land Cover Database
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
OEHHA	California Office of Environmental Health Hazard Assessment
PM	particulate matter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
PM ₁₀	particulate matter less than 10 micrometers in diameter

ppm	part(s) per million
PRIME	plume rise model enhancement
REL	reference exposure level
SIL	significant impact level
SO ₂	sulfur dioxide
SO _x	oxides of sulfur
VOC	volatile organic compound

1. Project Overview

Berkshire Hathaway Energy Renewables (BHER) plans to develop and construct a new geothermal power plant called Elmore North (EN) in Imperial County, California. The proposed site is expected to have an output of 132.6 megawatts (MW). The new plant will be on a parcel currently owned by BHER southeast of the Salton Sea near BHER's existing geothermal power plants, specifically, adjacent to their Elmore facility. The EN power plant site will include production and reinjection well pads extending off the power plant site and the electrical interconnection (gen-tie) with a new Imperial Irrigation District switching station. An overview of the EN location is included on Figure 1-1.

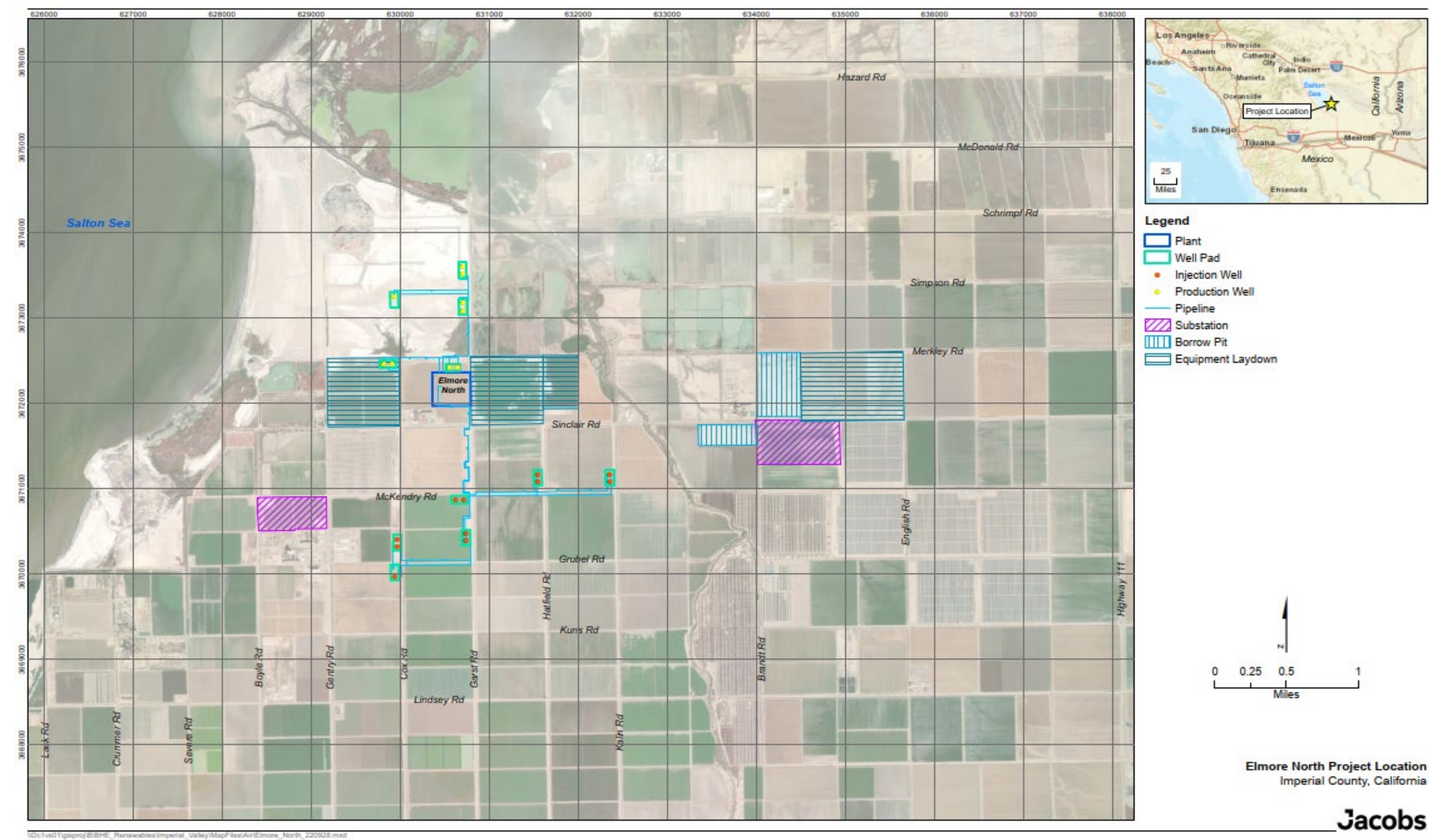


Figure 1-1. Project Location

2. Area and Facility Classification

The proposed EN plant will be situated to the southeast of the Salton Sea southwest from the town of Niland, located in Imperial County, California. Being located in California, the project would be subject to both the federal National Ambient Air Quality Standards (NAAQS) and the State of California Ambient Air Quality Standards (CAAQS).

Imperial County is designated as attainment for the carbon monoxide (CO), sulfur dioxide (SO₂), and nitrogen dioxide (NO₂) NAAQS. The county is in moderate nonattainment for particulate matter less than 2.5 micrometers in diameter (PM_{2.5}), and marginal nonattainment for the 8-hour ozone NAAQS. Particulate matter less than 10 micrometers in diameter (PM₁₀) was redesignated to attainment in September 2020.

At the state level, Imperial County is designated as attainment or unclassified for the PM_{2.5}, CO, NO₂, SO₂, sulfates, lead, hydrogen sulfide (H₂S), and visibility reducing particulates CAAQS. The county is designated as nonattainment for the ozone and PM₁₀ CAAQS.

The primary North American Industrial Classification System for the facility is 221116. The EN plant is not expected to be a “major” source of air pollution. The facility would emit less than 100 tons per year of any regulated pollutant. The site would be a minor source for hazardous air pollutants (HAPs) with total potential aggregate HAP emissions of less than 25 tons per year and emissions of any single HAP of less than 10 tons per year. EN is not a listed facility in 40 *Code of Federal Regulations* (CFR) Part 52 (100 tons per year threshold) and is not otherwise subject to Part 52 Prevention of Significant Deterioration (PSD) requirements due to potential emissions less than 250 tons per year per criteria air pollutants for which the area is designated as attainment. EN emissions are expected to be below the applicable Nonattainment New Source Review threshold of 100 tons per year for moderate nonattainment PM_{2.5} and 100 tons per year each for oxides of nitrogen (NO_x) and volatile organic compound (VOC) for the marginal nonattainment ozone designation as per 40 CFR Part 51.165.

3. Project Description

The proposed EN geothermal power plant would be located on the southern shore of the Salton Sea and is expected to have a net output of 132.6 MW. The new plant will be on a parcel currently owned by BHER east of the Salton Sea near BHER's existing geothermal power plants. The EN power plant site will include production and reinjection well pads extending off the power plant site.

3.1 Emissions Sources

Air emission sources associated with the EN plant will be characterized for inclusion in the dispersion modeling analysis and permit application, where appropriate. The proposed emission sources for the facility include the following source/process types:

- Process-related emissions including:
 - a. Geothermal brine steam flashing activities and venting
 - b. Geothermal brine steam condensation activities
 - c. Drilling operations
- Emergency diesel engines (electrical generators and fire water pump)
- Cooling towers

The well extraction and injection activities would be part of a closed system and not represent a source of emissions; therefore, all emissions would result from within the power plant footprint. A process flow diagram for the facility process is included on Figure 3-1.

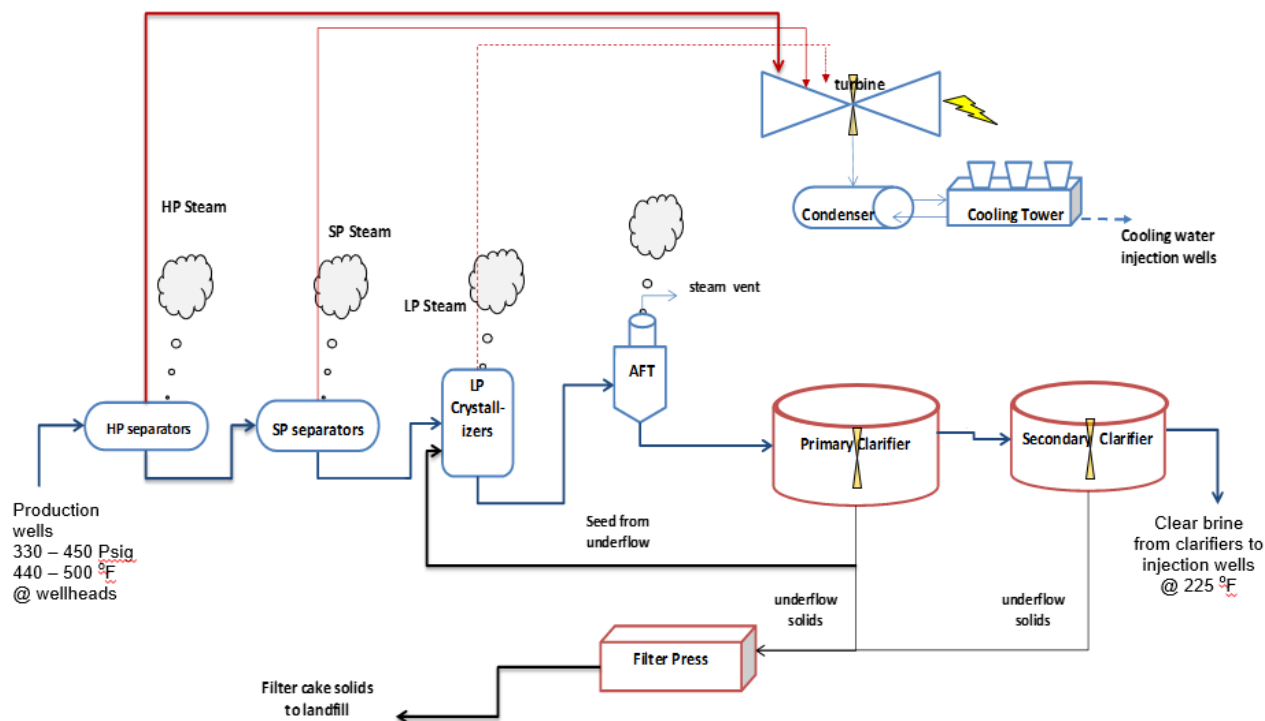


Figure 3-1. Process Flow Diagram

At the time this modeling protocol was submitted, design of the EN project was ongoing. Therefore, detailed information, including source and building locations, is subject to change. Associated emissions data, and other final design data are currently being evaluated and are not presented in this protocol. These data will be finalized and included in the final modeling report.

4. Dispersion Modeling Methodology

4.1 Dispersion Model

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 22112) will be used as recommended in the U.S. Environmental Protection Agency (EPA) Appendix W, Guideline on Air Quality Models (EPA 2017).

AERMOD is a steady-state Gaussian plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short-range (less than 50 kilometers) dispersion from the source. The model incorporates the plume rise model enhancement (PRIME) algorithm for modeling building downwash. AERMOD is designed to accept input data prepared by two specific preprocessor programs, AERMET and AERMAP. AERMOD will be run with the following options:

- Direction-specific building downwash
- Regulatory default options unless otherwise specified in this protocol
- Rural dispersion characteristics
- Actual receptor elevations and hill height scales obtained from AERMAP (Version 18081)

4.2 Operational Source Characterization

Operation of the proposed process and equipment systems would result in emissions to the atmosphere of both criteria and toxic air pollutants. Criteria pollutant emissions would consist primarily of NO_x, CO, VOCs, oxides of sulfur (SO_x), PM₁₀, and PM_{2.5}. Other regulated air pollutants of ammonia (NH₃), H₂S, and carbon dioxide equivalent will also be quantified. Toxic air pollutants will consist of a combination of non-condensable gases and toxic particulate matter (PM) species.

The EN project operational scenarios would consist of start-up and commissioning activities as well as normal operating conditions post-startup. Emissions for each of these scenarios will be presented in the final modeling report, with the worst-case emissions from both scenarios modeled as applicable to the respective standards.

4.2.1 Cooling Towers

Cooling tower stack diameter, height, flow rate, temperature, drift eliminator efficiency, and location will be based upon the latest design data. A particle size distribution may be applied to the total PM emissions as calculated using the total dissolved solids of the circulating water. The methodology to develop this particle size distribution will be obtained from the published work of Joel Reisman and Gordon Frisbie in *Calculating Realistic PM₁₀ Emissions from Cooling Towers* (Resiman and Frisbie 2012). A list of each of the specific cooling tower stack parameters used in the modeling analysis will be included in the final modeling report.

4.2.2 Emergency Diesel Engines

Emergency diesel engine stack diameter, height, flow rate, temperature, and location will be based on the design data provided by the vendors. A list of each of the specific emergency engine stack parameters used in the modeling analysis will be included in the final modeling report.

For purposes of the 1-hour NO₂ standard, emergency engines in this analysis would be classified as intermittent sources because they have less than 500 hours per year of operation according to EPA (EPA 2011). As a result, the annual average hourly emission rate for each engine will be used in the

1-hour averaging period NO₂ modeling analysis, consistent with EPA's Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ NAAQS Memorandum (EPA 2011).

4.2.3 Geothermal Brine Steam Flashing Activities

Onsite operations may occur in the direct release of geothermal brine steam to the atmosphere. At this stage in design, this release would occur either through the use of an atmospheric flash tank or a rock muffler.

Source type characterizations for modeling these sources will be made as their designs are finalized. At the time of this modeling protocol, design is not yet finalized for these sources. All associated data used in the characterization of these sources as well as their release parameters for modeling will be included in the final modeling report.

4.3 Construction Source Characterization

Construction emissions would include emissions from mobile sources including diesel construction-type equipment. These equipment emissions will be evenly distributed over the construction area and modeled as a grid of point (POINT) sources with a horizontal stack release spaced approximately 25 meters apart over the entire construction area. The horizontal release type is an AERMOD option (which negates mechanical plume rise). This conservative approach was used because it is unknown whether all construction equipment will have vertically oriented exhaust stacks. Source parameters for these sources will be included in the final modeling report.

4.4 Building Downwash

Building influences on the air dispersion of emissions from point source stacks will be calculated by incorporating the EPA Building Profile Input Program for use with the PRIME algorithm (BPIP-PRIME). Stack heights, building locations, and building dimensions will be obtained from the most currently available architectural plans and onsite measurements. Stacks located on or adjacent to buildings will be given base elevations of said buildings. A list of the buildings and their coordinates will be included in the final modeling report submitted with the permit application.

As part of this analysis, a good engineering practice (GEP) stack height screening will be performed to determine which stack height will be used in the modeling. The GEP stack height is defined as the height in which the plume dispersion from the stack is not influenced by building downwash. This GEP stack height is calculated as the lesser of the following two criteria:

- 65 meters
- The sum of the maximum building height for which the stack is in the area of influence plus 1.5 times the lesser of the building height or projected building width

The stack heights used in the dispersion modeling will be the actual stack height or the GEP stack height, whichever is less.

4.5 Ambient Air Boundary

The ambient air boundary is defined by the property line that surrounds the BHER-owned property within which non-authorized personnel access is precluded. A final ambient air boundary figure will be included in the final modeling report submitted with the permit application.

4.6 Rural versus Urban Option

The land use surrounding the facility has been evaluated for classification as either urban or rural. A land use analysis was performed following the Auer land use methodology (Auer 1978) using the most recent

If more than 50 percent of the area within 3 kilometers is classified as urban land use, the URBAN option may be used for AERMOD modeling of the facility. The analysis showed that approximately 1 percent of the land within a 3-kilometer radius of the facility may be classified as urban; therefore, the URBAN option in AERMOD will not be used in the dispersion modeling analysis.

4.7 Meteorological Data

Five years of AERMET-processed meteorological data were obtained from the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program (HARP) AERMOD Meteorological Files webpage for Imperial County Airport (KIPL, WBAN ID: 03144). The 5 years of data were processed by CARB with AERMET Version 19191 for 2015 through 2018 and 2021. The years 2019 and 2020 were not included in the meteorological data set because they were likely determined to be incomplete by CARB. The data set was selected based on completeness, similar surrounding land use as the EN plant and proximity to the facility as shown on Figure 4-2. Wind speeds and directions for this data set are presented in the wind rose on Figure 4-3. The average wind speed for the 5-year period was 3.45 meters per second.

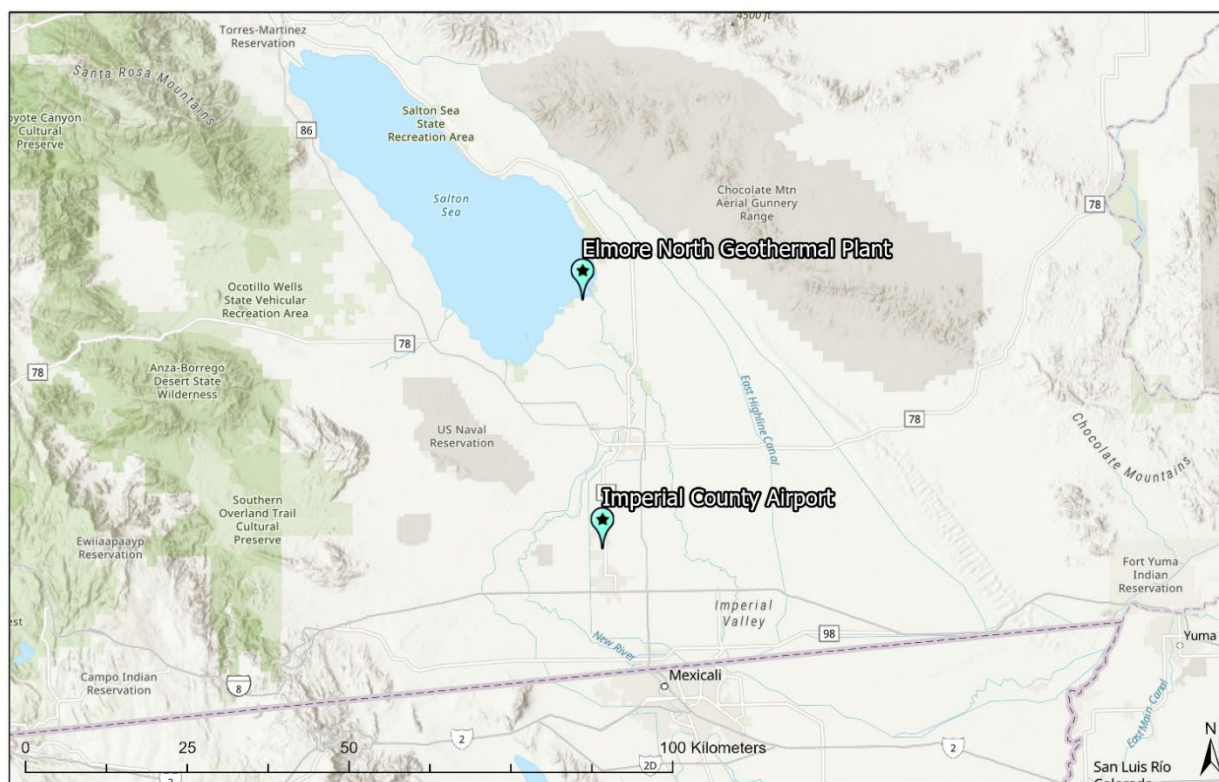


Figure 4-2. Topographical Map of Elmore North Geothermal Plant's Proximity to the Imperial County Airport

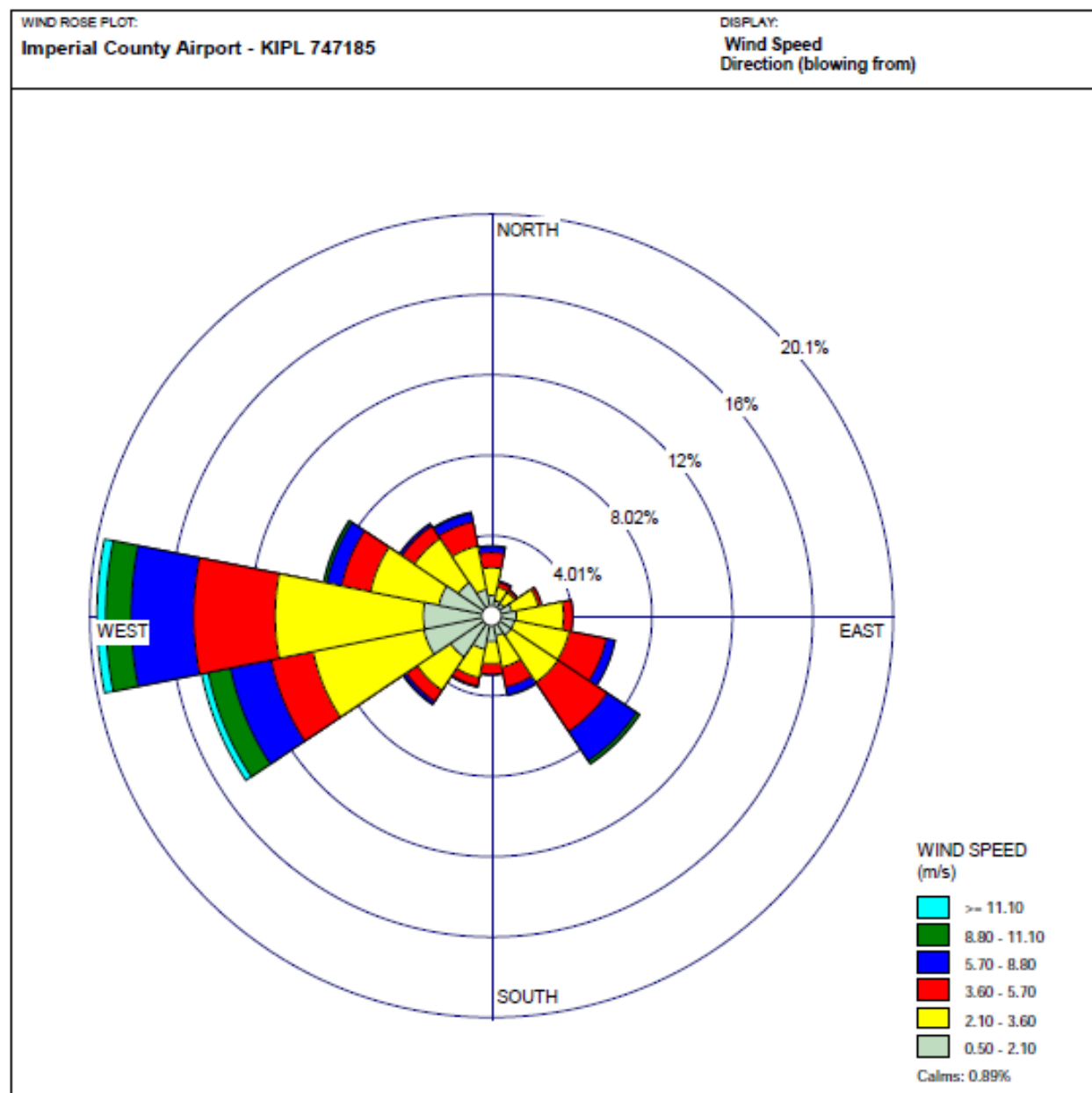


Figure 4-3. Windrose for the 2015 to 2018 and 2021 Meteorological Data for the Imperial County Airport

4.8 Receptors

The ambient air boundary will be defined by the fence line surrounding the facility. The selection of receptors in AERMOD will be as follows:

- Discrete receptors every 25 meters around the ambient air boundary (i.e., fence line)
- 25-meter spacing from the fence line to 500 meters from grid origin
- 100-meter spacing from beyond 500 meters to 1,000 meters from the fence line
- 250-meter spacing from beyond 1,000 meters to 5,000 meters from the fence line
- 500-meter spacing from beyond 5,000 meters to 10,000 meters from the fence line

All receptors and source locations will be expressed in the Universal Transverse Mercator North American Datum 1983, Zone 11 coordinate system. If modeling results show significant impacts at the outer edge of the initial grid, then the grid will be extended accordingly to ensure that the area of maximum modeled impacts is captured. U.S. Geological Survey National Elevation Dataset terrain data will be used in conjunction with the AERMAP preprocessor (Version 18081) to determine receptor elevations and terrain maxima.

4.9 Oxides of Nitrogen Modeling Methodology and Chemistry

The Guideline on Air Quality Models, Appendix W to 40 CFR Part 51 (EPA 2017), recommends a tiered screening approach to characterize the conversion of total NO_x from the proposed source to NO₂. A Tier 1 approach assumes a 100 percent conversion of total NO_x to NO₂ and is typically overly conservative. The Tier 2 approach allows for the use of the Ambient Ratio Method 2 (ARM2). The Tier 1 and Tier 2 options do not require agency approval.

For this analysis, the Tier 2 approach was selected using the ARM2 model with a default in-stack ratio of 0.5 and a default out-of-stack ratio of 0.9. The in-stack ratio may be revised based upon updated engineering data and will be reflected in the final modeling report.

Additionally, emergency diesel engines in this analysis can be classified as intermittent sources because of having less than 500 hours per year of operation according to EPA (EPA 2011). As a result, the annual average hourly emission rate for each engine will be used for the 1-hour averaging period NO₂ modeling analysis, consistent with EPA's *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO₂ National Ambient Air Quality Standard Memorandum* (EPA 2011).

5. Criteria Pollutant Background Concentrations

When necessary, ambient background concentrations will be added to model results for comparison to the NAAQS and CAAQS. Background concentration values for all pollutant averaging times were obtained from EPA's AirData website for years 2019 to 2021. The following sites were used for the 2019-2021 period background concentrations:

- **Monitor Identification (ID):** Niland-English Road (AQS ID: 60254004) [7.6 miles from project]: 24-hour PM₁₀ concentrations (2019-2021)
- **Monitor ID:** Brawley-220 Main Street (AQS ID: 60250007) [13.8 miles from project]: 24-hour PM_{2.5} concentrations (2019-2021), and annual PM_{2.5} concentrations (2019-2020)
- **Monitor ID:** El Centro-9th Street (AQS ID: 60251003) [26.1 miles from project]: annual PM_{2.5} concentrations (2021), 1-hour NO₂ concentrations (2019-2021), and annual NO₂ concentrations (2020-2021)
- **Monitor ID:** Calexico-Ethel Street (AQS ID: 60250005) [34.6 miles from project]: annual NO₂ concentrations (2019), 1-hour SO₂ concentrations (2019-2021), 3-hour SO₂ concentrations (2019-2021), 1-hour CO concentrations (2019-2021), and 8-hour CO concentrations (2019-2021).

Background concentration values for pollutants were pulled from the same monitoring site with the exception of 2021 annual PM_{2.5} and 2019 annual NO₂, which were pulled from different stations due to data incompleteness issues. The locations of these monitors relative to the project location are shown in Figure 5-1.



Figure 5-1. Background Monitor Locations in Proximity to the Elmore North Geothermal Plant

Air Dispersion Modeling Protocol for Elmore North Geothermal Plant

The average background concentrations from 2019 to 2021 were chosen for 1-hour SO₂, 24-hour and annual PM_{2.5}, and 1-hour NO₂. The maximum background concentrations from 2019 to 2021 were chosen for 1-hour and 8-hour CO, 3-hour SO₂, 24-hour PM₁₀, and annual NO₂. Background design values for each criteria pollutant for NAAQS comparison are shown in Table 5-1.

Table 5-1. Criteria Pollutant Background Concentrations

Pollutant	Averaging Period	Value chosen	2019	2020	2021	Design Value	Units	Concentration (µg/m ³) ^e
CO ^a	1-hour	Second Max 1-hour	4.30	4.60	3.80	4.60 ^c	ppm	5,270
CO ^a	8-hour	Second Max 8-hour	3.10	2.70	2.90	3.10 ^e	ppm	3,551
SO ₂ ^a	1-hour	99th Percentile	5.00	7.00	6.00	6.00 ^f	ppb	15.71
SO ₂ ^a	3-hour	First Max 1-hour	7.50	7.10	8.60	8.60 ^f	ppb	22.51
PM ₁₀ ^b	24-hour	First Max	141.00	143.00	186.00	142.00 ^e	µg/m ³	142.00
PM ₁₀ ^b	24-hour	Second Max	124.00	142.00	156.00	N/A	µg/m ³	N/A
PM _{2.5} ^c	24-hour	98th Percentile	21.00	21.00	21.00	21.00 ^f	µg/m ³	21.00
PM _{2.5} ^c	Annual	Weighted Annual Mean	8.30 ^d	9.40	8.30	8.67 ^f	µg/m ³	8.67
NO ₂ ^d	1-hour	98th Percentile	30.00	36.00	38.00	34.67 ^e	ppb	65.22
NO ₂ ^d	Annual	Annual Mean	9.26 ^a	7.93	6.73	9.26 ^e	ppb	17.42

Notes:

^a Monitor Location: 1029 Ethel St, Calexico High School, Calexico, California (Site ID: 60250005)

^b Monitor Location: 7711 English Road, Niland, California (Site ID: 60254004)

^c Monitor Location: 220 Main St., Ste 204, Brawley, California (Site ID: 60250007)

^d Monitor Location: 150 9th St., El Centro, California (Site ID: 60251003)

^e Maximum fourth highest value observed over 3 years (2019-2021)

^f Average 2019 to 2021 value chosen for design value

^e For conversion of ppm and ppb to µg/m³, standard conditions assumed (25 degrees Celsius. and 760 millimeters of mercury)

µg/m³ = microgram(s) per cubic meter

N/A = not applicable

ppb = part(s) per billion

ppm = part(s) per million

6. Impacts Analysis

6.1 Criteria Pollutants

Modeled concentrations of criteria pollutants emitted by the proposed EN geothermal plant will be compared to the applicable significant impact level (SIL) shown in Table 6-1. If the predicted concentrations are not significant (that is, if they are less than the SIL), the modeling is complete for that pollutant and averaging period and compliance with the NAAQS is demonstrated by not causing or contributing to a violation. If impacts are above the SIL, a cumulative modeling analysis would be required. Imperial County would be contacted and a data request for neighboring facilities would be submitted.

Additionally, CAAQS shown in Table 6-1 will also be considered as part of the modeling analysis.

The results of the project and cumulative modeling impact analyses will be combined with respective background data, where appropriate, and compared to the NAAQS as shown in Table 6-1.

Table 6-1. Summary of Criteria Pollutant Air Quality Standards

Pollutant	Averaging Period	SIL ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	CAAQS ($\mu\text{g}/\text{m}^3$)
CO	1-hour	2,000 ^a	40,000 ^c	22,900 ^c
	8-hour	500 ^a	10,000 ^d	10,000 ^d
NO ₂	1-hour	7.5 ^b	188 ^e	338.65 ^e
	Annual	1 ^a	100 ^f	56.44 ^f
PM _{2.5}	24-hour	1.2 ^b	35 ^g	--
	Annual	0.2 ^b	12 ^h	12 ^h
PM ₁₀	24-hour	5 ^a	150 ⁱ	50 ⁱ
	Annual	--	--	20 ^f
SO ₂	1-hour	7.9 ^b	196 ^j	--
	3-hour	25 ^a	1,300 ^k	--
	24-hour	--	--	25
H ₂ S	1-hour	--	--	41.79 (0.03 ppm) ^l

^a Design value is the maximum modeled concentration over 5 years

^b Design value is the maximum 5-year average concentration

^c Highest of the second highest (H2H) 1-hour concentration

^d Highest of the second highest (H2H) 8-hour concentration

^e Highest of 5-year averages of the 98th percentile (H8H) of the annual distribution of maximum daily 1-hour concentrations

^f Maximum annual average

^g Annual 98th percentile daily maximum average; 5-year average of eighth high

^h Highest of the 5-year average of annual concentrations

ⁱ Highest of the sixth highest (H6H) 24-hour modeled concentrations

^j Highest of multi-year averages of the 99th percentile (H4H) of the annual distribution of maximum daily 1-hour concentrations

^k Highest of the second highest (H2H) 3-hour concentration over the entire receptor network for each year modeled

^l Highest modeled concentration over the entire receptor network

6.1.1 Hydrogen Sulfide Impacts Analysis

H₂S in the ambient air near the Salton Sea is subject to episodic events that result in concentrations which temporarily exceed the CAAQS of 0.03 parts per million (ppm). These episodic events of H₂S exceedances are well known and largely due to biogenic sources and activity (SCAQMD 2021). As a result, monitoring data in the region may not be representative for use in a CAAQS modeling analysis.

Specifically, the 1-hour H₂S CAAQS was adopted in 1969 for purposes of odor control and not for protection of public and environmental health. People have experienced eye irritation at concentrations of 50-ppm which is much greater than the CAAQS of 0.03-ppm (CARB 2022a). Therefore, temporary exceedances of the H₂S CAAQS would not result in elevated exposure of the public and environment to H₂S health-related risks but would be characterized as a nuisance and an odor impact.

As a result of the project location and nature of the standard, H₂S will be analyzed similarly to nuisance-related impacts caused by odorous compounds. Specifically, the 1-hour H₂S analysis will follow the ICAPCD CEQA Air Quality Handbook methodology for assessing odor-related impacts, as presented in Section 4.6(b), which states that H₂S emissions may result in impacts that would not be significant except as a nuisance. The Guidelines further provide the respective screening distances for odor impacts in Table 3, which is 1 mile for all facility types (ICAPCD 2017).

The nearest residences and sensitive receptors are located greater than 1 mile away from the project location. Given the location of these receptors and the ICAPCD CEQA Guidelines, the 1-hour H₂S modeling analysis will not include any receptors within 1 mile from the project. Any impacts within this 1-mile radius would be considered to be nuisance-related and not expose any nearby residences or sensitive receptors to any potential nuisances.

6.1.2 Significant Impact Level for Ozone and Secondary PM_{2.5}

Although it is expected that the air quality impacts for VOC as an ozone precursor will be below the EPA regulatory limit, the additive precursor impact assessment for ozone may be performed. The lowest illustrative Modeled Emission Rates for Precursors (MERPs) values from Table 4-1 for the southwest of the final MERPs guidance (EPA 2019) will be used for the additive precursor assessment. The following calculation will be carried out to perform the VOC precursor impacts on 8-hour daily maximum ozone:

$$\frac{\text{Total NOx Emissions from Project}}{\text{Lowest Illustrative MERPS value for NOx}} + \frac{\text{Total VOC Emissions from Project}}{\text{Lowest Illustrative MERPS value for VOC}} = \text{Impact (\%)}$$

If the calculated impacts are below 100 percent, then the ozone SIL will not be exceeded.

Air quality impacts from secondary PM_{2.5} may be carried out for SIL analysis. To estimate the impacts of precursors to the PM_{2.5} SIL, primary 24-hour and annual PM_{2.5} will be modeled with AERMOD. The impact from AERMOD will be compared against the SIL and the percentual contribution to the SIL will be calculated for both averaging periods (24-hour and annual). The secondary impacts will be calculated based on the representative lowest MERPs values from Table 4-1 for the southwest of the final MERPs guidance with the following equation:

$$\begin{aligned} & \frac{\text{Total NOx Emissions from Project}}{\text{Lowest Illustrative NOx annual or 24hr PM}_{2.5} \text{ MERPs value}} \\ & + \frac{\text{Total SO}_2 \text{ Emissions from Project}}{\text{Lowest Illustrative SO}_2 \text{ annual or 24hr PM}_{2.5} \text{ MERPs value}} = \text{Impact (\%)} \end{aligned}$$

The total impact from secondary PM_{2.5} will be added to the contribution from primary PM_{2.5}. If the total contribution from the primary plus secondary PM_{2.5} is greater than 100 percent, then a cumulative analysis and a comparison to the NAAQS will be required.

6.2 Operational Toxic Air Pollutants

The most recent version of HARP2 (Version 22118 [CARB 2022b]), with the revised unit risk and cancer potency values, updated October 2022, will be used for the toxic air pollutants analysis. The updated sensitivity factors will be applied in accordance with the *Risk Management Guidance for Stationary Sources of Air Toxics* (CARB 2015).

The deposition rate modeled in HARP2 will be conservatively set to 0.05 meter per second for uncontrolled sources for preliminary analysis. This assumption may be refined to 0.02 meter per second if refined source information becomes available.

6.2.1 Risk Evaluation

Risk characterization from toxics emitted by the facility will be carried out according to the procedures specified by California Office of Environmental Health Hazard Assessment (OEHHA) guidance for both carcinogenic and noncarcinogenic risks (OEHHA 2015).

As recommended by the 2015 OEHHA and CARB Guidance, a Tier 1 assessment will be performed. The Tier 1 assessment is the most conservative of the four tier assessment methodologies identified in the OEHHA guidance and uses a standard point-estimate approach with standard OEHHA assumptions.

Risk will be evaluated for each of the three receptor types:

- Maximally exposed individual resident (MEIR)
- Maximally exposed individual worker (MEIW)
- Maximally exposed sensitive receptor (MESR)

6.2.2 Carcinogenic Risk

Residential and sensitive cancer risks will be evaluated using the 30-year continuous exposure duration scenario and worker cancer risk will be evaluated using the 25-year exposure duration (8 hours per day starting at age 16 years old) as recommended in the OEHHA guidelines (OEHHA 2015). Based on the OEHHA guidelines, the derived (adjusted) method in HARP2 will be used for the cancer risk evaluation, which uses the 95th percentile breathing rate from the third trimester to 2 years and the 80th percentile inhalation rate from 2 years to 70 years for residential cancer risk assessments (CARB 2015). The 30-year and 25-year exposure durations for residential and commercial/industrial receptors, respectively, are obtained from the OEHHA guidelines (OEHHA 2015).

Cancer risks will be evaluated based on the annual toxic air contaminant (TAC) emission rates from the emission inventory, ground-level concentrations as obtained from the dispersion modeling analysis, inhalation cancer potency, oral slope factor, frequency and duration of exposure at the receptor, age-specific sensitivity factors, and breathing rates of the exposed persons. Cancer risk results will be expressed on an incremental increase of risk above baseline as a number per million basis.

6.2.3 Noncarcinogenic Chronic Exposure

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure caused by chemicals accumulating in the body. To assess chronic noncancer exposures, annual TAC ground-level concentrations are compared with the reference exposure levels (RELs) developed by OEHHA to obtain a chronic hazard index (HI). The REL is a concentration in ambient air at, or below which, no adverse health effects are anticipated. Noncancer chronic health risks are calculated as a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are summed with the resulting totals expressed as HIs for each organ system.

6.2.4 Noncarcinogenic Acute Exposure

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. To assess acute noncancer exposures, 1 hour TAC ground-level concentrations are compared with the acute REL to obtain an acute HI. Similar to assessing chronic noncancer health risks, acute noncancer health risks are calculated as a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are summed with the resulting totals expressed as HIs for each organ system.

6.3 Exposure Pathways

For this risk analysis, exposure pathways will be included for each risk scenario as specified in Table 6.2.

Table 6-2. Summary of HARP2 Exposure Pathways

Risk Analysis	Model Exposure Pathways	Intake Rate Percentile
Acute	Inhalation	N/A
Noncancer Chronic	Inhalation Soil Ingestion Dermal Absorption Mother's Milk Homegrown Produce Beef/Dairy (Farming) Pig/Chicken/Egg (Farming)	N/A
Cancer	Inhalation Soil Ingestion Dermal Absorption Mother's Milk Homegrown Produce Beef/Dairy (Farming) Pig/Chicken/Egg (Farming)	RMP Using the Derived Method

6.4 Construction Air Toxic Emissions

To determine impacts from TACs from construction activities, a screening-level health risk assessment (HRA) will be performed for the project's construction emissions. Diesel particulate matter (DPM) would be the only TAC evaluated in the HRA for construction equipment and vehicle emissions, which would be based upon construction equipment combustion PM₁₀ emissions as a surrogate.

A screening HRA will be conducted following the OEHHHA's Air Toxics Hot Spots Program *Guidance Manual for Preparation of Health Risk Assessments* (OEHHHA 2015).

Cancer and noncancer chronic health risks at each receptor will be calculated by using equations from the Air Toxics Hot Spots Program *Guidance Manual for Preparation of Health Risk Assessments* (OEHHHA 2015) to convert the modeled ground-level DPM concentrations to health risk values. Cancer risk will be expressed as a numerical excess lifetime cancer risk per 1 million exposed individuals. The noncancer health effects associated with chronic exposures are expressed as chronic HI, which is the ratio of expected exposure levels to acceptable chronic RELs. RELs are concentrations of a chemical at or below which adverse noncancer health effects are not anticipated to occur for a specified exposure duration.

Noncancer acute health risks due to 1-hour exposure to TACs will not be estimated, because currently no acute RELs were developed for DPM (OEHHHA 2015; OEHHHA & CARB 2022).

6.5 Class I Area Analyses

As described above, the project is not expected to result in emission increases that would exceed PSD thresholds. Additionally, there are no federally designated Class I areas located within 50 kilometers of the proposed project. Therefore, no visibility or Class I air quality-related values screening analyses would be required.

6.6 Fumigation Analysis

The proposed project is located within 3,000 meters of the Salton Sea shoreline; therefore, a fumigation screening analysis will be performed as part of this analysis. This analysis will use the EPA developed SCREEN3 model to calculate the air quality impacts during a shoreline fumigation scenario.

6.7 Nitrogen Deposition Analysis

The proposed project may result in emissions of nitrogenous compounds such as NO_x and NH₃. Nitrogen oxide gases (NO and NO₂) convert to nitrate particulates in a form that is suitable for uptake by most plants and could promote plant growth and primary productivity. Coastal salt marshes are a common natural habitat in the vicinity of the project where nitrogen deposition may occur. If required, a deposition analysis would be performed using AERMOD with the options and inputs as described in this modeling protocol. In addition, the following data would be used/assumed for this analysis:

- AERMOD wet and dry deposition options. Depositional rates and parameters would be based upon nitric acid (HNO₃) which, of all the depositing species, has the highest affinity for impacts to soils and vegetation and tendency to stick to what it is deposited on.
- Dry deposition land use characteristics would be developed using satellite aerial imagery for each 10-degree increment within a 3-kilometer radius surrounding the project.
- Dry deposition seasonal categories would be assigned based upon historical meteorological trends for the region.
- NO_x and NH₃ would be 100 percent converted into atmospherically-derived nitrogen at the release point, where applicable, rather than allowing for the conversion of NO_x and NH₃ to occur over distance and time within the atmosphere, which would be more realistic.
- Maximum settling velocities would be selected to produce conservative deposition rates.

7. References

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Appendix 5.1D

Construction Emissions Inventory and Air Quality Impacts Analysis



Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Modeling Summary

April 2023

Elmore North Onsite Construction Emissions for Modeling

Onsite Construction ^a	Criteria Pollutant Emissions						
	CO	NO _x	SO _x	PM ₁₀ - Combustion	PM _{2.5} - Combustion	Fugitive PM ₁₀	Fugitive PM _{2.5}
Maximum Daily Emissions (lb/day)	275	127	0.64	3.57	3.34	5.87	0.66
Average Annual Emissions (tpy) ^b	19.2	7.55	0.04	0.20	0.19	0.50	0.05

Notes:

^a For purposes of determining air quality impacts associated with construction activities, only emissions from onsite construction activities were evaluated. This includes emissions resulting from operation of onsite construction equipment and vehicles, as well as onsite fugitive dust emissions. It was also assumed that construction activities would occur for up to 20 hours per day.

^b Maximum project emissions were conservatively averaged over the months in which heavy construction activity is expected to determine a 12-month total for modeling.

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary and Threshold Comparison

April 2023

Elmore North Construction Emissions

Construction	Criteria Pollutant Emissions					
	CO	VOC	NO _x	SO _x	PM ₁₀ ^a	PM _{2.5} ^a
Average Daily Emissions (lb/day) ^b	481	46.1	120	1.16	23.6	17.3
Maximum Project Emissions (tons)	160	15.4	39.9	0.39	7.88	5.77
ICAPCD Thresholds of Significance (lb/day) ^c	550	75	100	N/A	150	N/A
Exceeds Threshold (Y/N)?	N	N	Y	N/A	N	N/A

Construction	GHG Emissions			
	CO ₂	N ₂ O	CH ₄	CO ₂ e ^d
Average Daily Emissions (metric tons/day) ^b	45.1	3.58E-04	1.80E-03	45.2
Maximum Project Emissions (metric tons)	30,078	2.39E-01	1.20E+00	30,179
Average Yearly Construction Emissions (metric tons/year)	12,446	9.87E-02	4.97E-01	12,488
Thresholds of Significance (metric tons/year) ^e	N/A	N/A	N/A	10,000
Exceeds Threshold (Y/N)?	N/A	N/A	N/A	Y

Notes:

N/A = Not applicable (i.e., no construction significance threshold exists for this pollutant)

^a These estimates include both fugitive dust emissions and exhaust emissions.

^b The results reported here are the total project emissions conservatively averaged over the months in which heavy construction activity is expected. Peak daily emissions may be higher than what is presented.

^c ICAPCD Thresholds of Significance taken from Table 4 of the *2017 CEQA Air Quality Handbook* (ICAPCD 2017).

^d The following global warming potentials were used to estimate CO₂ equivalent emissions, per 40 CFR Part 98, Table A-1:

CH₄ = 25

N₂O = 298

^e ICAPCD does not have thresholds of significance for GHGs, so the SCAQMD threshold was used for CO₂e (<http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>).

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

CO Emissions																			
Emission Source		CO Emissions by Month																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Onsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	1,928.16	2,403.64	2,890.25	3,133.61	2,001.66	2,173.79	2,839.15	4,242.26	4,242.26	4,972.53	4,972.53	6,317.85	5,279.11	4,972.53	5,046.37
	Total (lb/day)	0.00	0.00	0.00	83.83	104.51	125.66	136.24	87.03	94.51	123.44	184.45	184.45	216.20	216.20	274.69	229.53	216.20	219.41
Offsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	10,829.38	10,985.10	10,985.10	10,985.10	10,985.10	10,985.10	10,985.10	10,985.10	11,485.98	11,485.98	11,140.81	11,140.81
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	470.84	477.61	477.61	477.61	477.61	477.61	477.61	477.61	499.39	499.39	484.38	484.38
Onsite Construction Vehicle																			
	Total (lb/month)	0.00	0.00	0.00	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
	Total (lb/day) ^a	0.00	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.04	0.06	0.13	0.20	0.34	0.34	0.38	0.52	0.62	0.62	0.78	0.95	1.16	1.30	1.29	1.23	1.14	0.92
	Total (lb/day) ^a	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.06	0.06	0.05	0.05	0.04
Onroad Construction Vehicle																			
	Total (lb/month)	0.02	0.04	0.08	33.85	55.02	168.83	253.17	274.33	354.49	497.81	561.15	649.83	877.64	890.54	810.42	801.87	827.04	986.99
	Total (lb/day) ^a	0.00	0.00	0.00	1.47	2.39	7.34	11.01	11.93	15.41	21.64	24.40	28.25	38.16	38.72	35.24	34.86	35.96	42.91
Total Project CO Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	0.04	0.06	0.13	1,930.14	2,405.75	2,892.37	3,135.76	2,003.95	2,176.18	2,841.53	4,244.81	4,244.98	4,975.46	4,975.61	6,320.92	5,282.11	4,975.44	5,049.06
	Total Onsite Daily Emissions (lb/day)	0.00	0.00	0.01	83.92	104.60	125.76	136.34	87.13	94.62	123.54	184.56	184.56	216.32	216.33	274.82	229.66	216.32	219.52
	Total Offsite Monthly Emissions (lb/month)	0.02	0.04	0.08	33.85	55.02	168.83	11,082.55	11,259.43	11,339.58	11,482.91	11,546.24	11,634.92	11,862.74	11,875.63	12,296.41	12,287.85	11,967.86	12,127.81
	Total Offsite Daily Emissions (lb/day)	0.00	0.00	0.00	1.47	2.39	7.34	481.85	489.54	493.03	499.26	502.01	505.87	515.77	516.33	534.63	534.25	520.34	527.30
	Total Monthly Emissions (lb/month)	0.06	0.10	0.21	1,963.99	2,460.77	3,061.20	14,218.31	13,263.38	13,515.76	14,324.44	15,791.05	15,879.90	16,838.21	16,851.24	18,617.32	17,569.96	16,943.30	17,176.87
	Total Daily Emissions (lb/day)	0.00	0.00	0.01	85.39	106.99	133.10	618.19	576.67	587.64	622.80	686.57	690.43	732.10	732.66	809.45	763.91	736.67	746.82
	Rolling 12 Month Total (Tons)												47.24	55.66	64.08	73.39	81.20	88.44	95.49
	Total Project Emissions (tons)	160.41																	
	Average Daily Emissions (lb/day) ^{b, c}	480.99																	

VOC Emissions																			
Emission Source		VOC Emissions by Month																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Onsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	125.22	180.12	189.78	238.03	106.05	109.83	127.98	154.96	154.96	185.16	185.16	349.44	189.98	185.16	186.78
	Total (lb/day)	0.00	0.00	0.00	5.44	7.83	8.25	10.35	4.61	4.78	5.56	6.74	6.74	8.05	8.05	15.19	8.26	8.05	8.12
Offsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	1,379.26	1,381.37	1,381.37	1,381.37	1,381.37	1,381.37	1,381.37	1,381.37	1,388.90	1,388.90	1,383.47	1,383.47
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	59.97	60.06	60.06	60.06	60.06	60.06	60.06	60.06	60.39	60.39	60.15	60.15
Onsite Construction Vehicle																			
	Total (lb/month)	0.00	0.00	0.00	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.08	0.08	0.07	0.06
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Paving																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.03	17.03	0.00	0.00
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.74	0.00	0.00
Offsite Paving																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.17	19.17	0.00	0.00
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.83	0.00	0.00
Onroad Construction Vehicle																			
	Total (lb/month)	0.00	0.01	0.01	0.53	0.86	2.58	3.86	4.19	5.41	7.57	8.54	9.90	13.36	13.58	12.36	12.23	12.59	14.99
	Total (lb/day) ^a	0.00	0.00	0.00	0.02	0.04	0.11	0.17	0.18	0.24	0.33	0.37	0.43	0.58	0.59	0.54	0.53	0.55	0.65
Total Project VOC Emissions (Construction Equipment, Paving, and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	0.00	0.00	0.01	125.29	180.20	189.85	238.10	106.14	109.92	128.07	155.06	155.07	185.28	185.29	366.61	207.14	185.28	186.89
	Total Onsite Daily Emissions (lb/day)	0.00	0.00	0.00	5.45	7.83	8.25	10.35	4.61	4.78	5.57	6.74	6.74	8.06	8.06	15.94	9.01	8.06	8.13
	Total Offsite Monthly Emissions (lb/month)	0.00	0.01	0.01	0.53	0.86	2.58	1,383.12	1,385.56	1,386.77	1,388.94	1,389.91	1,391.27	1,394.73	1,394.94	1,420.44	1,420.30	1,396.07	1,398.46
	Total Offsite Daily Emissions (lb/day)	0.00	0.00	0.00	0.02	0.04	0.11	60.14	60.24	60.29	60.39	60.43	60.49	60.64	60.65	61.76	61.75	60.70	60.80
	Total Monthly Emissions (lb/month)	0.01	0.01	0.02	125.82	181.06	192.43	1,621.22	1,491.69	1,496.70	1,517.01	1,544.97	1,546.34	1,580.01	1,580.24	1,787.04	1,627.44	1,581.35	1,585.35
	Total Daily Emissions (lb/day)	0.00	0.00	0.00	5.47	7.87	8.37	70.49	64.86	65.07	65.96	67.17	67.23	68.70	68.71	77.70	70.76	68.75	68.93
	Rolling 12 Month Total (Tons)												4.86	5.65	6.44	7.33	8.08	8.78	9.48
	Total Project Emissions (tons)	15.38																	
	Average Daily Emissions (lb/day) ^{b, c}	46.12																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

CO Emissions

Emission Source		2026						2026											
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (lb/month)	5,326.99	5,607.62	5,290.68	5,290.68	5,216.83	5,216.83	855.16	855.16	695.25	518.38	346.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	231.61	243.81	230.03	230.03	226.82	226.82	37.18	37.18	30.23	22.54	15.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																			
	Total (lb/month)	11,140.81	11,140.81	11,140.81	10,985.10	10,985.10	10,985.10	10,829.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	484.38	484.38	484.38	477.61	477.61	477.61	470.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (lb/month)	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.82	0.82	0.78	0.78	0.35	0.26	0.26	0.26	0.26	0.07	0.07	0.07	0.47	0.47	0.44	0.44	0.35	0.35
	Total (lb/day) ^a	0.04	0.04	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02
Onroad Construction Vehicle																			
	Total (lb/month)	1,079.67	1,269.36	1,277.77	1,341.00	1,311.22	1,188.91	1,045.59	670.42	295.24	134.94	97.00	80.14	55.10	42.45	0.28	0.28	0.22	0.22
	Total (lb/day) ^a	46.94	55.19	55.56	58.30	57.01	51.69	45.46	29.15	12.84	5.87	4.22	3.48	2.40	1.85	0.01	0.01	0.01	0.01
Total Project CO Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	5,329.59	5,610.21	5,293.22	5,293.22	5,218.96	5,218.86	857.19	857.19	697.28	520.23	348.09	0.07	0.47	0.47	0.44	0.44	0.35	0.35
	Total Onsite Daily Emissions (lb/day)	231.72	243.92	230.14	230.14	226.91	226.91	37.27	37.27	30.32	22.62	15.13	0.00	0.02	0.02	0.02	0.02	0.02	0.02
	Total Offsite Monthly Emissions (lb/month)	12,220.49	12,410.18	12,418.58	12,326.09	12,296.32	12,174.01	11,874.97	670.42	295.24	134.94	97.00	80.14	55.10	42.45	0.28	0.28	0.22	0.22
	Total Offsite Daily Emissions (lb/day)	531.33	539.57	539.94	535.92	534.62	529.30	516.30	29.15	12.84	5.87	4.22	3.48	2.40	1.85	0.01	0.01	0.01	0.01
	Total Monthly Emissions (lb/month)	17,550.07	18,020.39	17,711.80	17,619.32	17,515.28	17,392.88	12,732.16	1,527.61	992.52	655.17	445.09	80.21	55.57	42.93	0.73	0.73	0.57	0.57
	Total Daily Emissions (lb/day)	763.05	783.50	770.08	766.06	761.53	756.21	553.57	66.42	43.15	28.49	19.35	3.49	2.42	1.87	0.03	0.03	0.02	0.02
	Rolling 12 Month Total (Tons)	97.16	99.54	101.64	103.28	104.15	104.90	102.85	95.19	86.38	77.92	69.67	61.12	52.37	43.39	34.53	25.72	16.96	8.27
	Total Project Emissions (tons)																		
	Average Daily Emissions (lb/day) ^{b, c}																		

VOC Emissions

Emission Source		2026						2026											
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment	Total (lb/month)	192.17	197.57	186.45	186.45	184.83	184.83	79.53	79.53	76.02	56.93	53.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	8.36	8.59	8.11	8.11	8.04	8.04	3.46	3.46	3.31	2.48	2.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment	Total (lb/month)	1,383.47	1,383.47	1,383.47	1,381.37	1,381.37	1,381.37	1,379.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	60.15	60.15	60.15	60.06	60.06	60.06	59.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle	Total (lb/month)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions	Total (lb/month)	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.02	0.02
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Paving	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Paving	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle	Total (lb/month)	16.38	19.24	19.37	20.32	19.83	17.98	15.81	10.15	4.48	2.04	1.47	1.22	0.87	0.68	0.04	0.04	0.03	0.03
	Total (lb/day) ^a	0.71	0.84	0.84	0.88	0.86	0.78	0.69	0.44	0.19	0.09	0.06	0.05	0.04	0.03	0.00	0.00	0.00	0.00
Total Project VOC Emissions (Construction Equipment, Paving, and Vehicles)		192.28	197.68	186.55	186.55	184.91	184.90	79.60	79.60	76.09	56.99	53.21	0.00	0.03	0.03	0.03	0.03	0.02	0.02
Total Onsite Monthly Emissions (lb/month)		8.36	8.59	8.11	8.11	8.04	8.04	3.46	3.46	3.31	2.48	2.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Onsite Daily Emissions (lb/day)		1,399.85	1,402.71	1,402.84	1,401.69	1,401.20	1,399.35	1,395.08	10.15	4.48	2.04	1.47	1.22	0.87	0.68	0.04	0.04	0.03	0.03
Total Offsite Monthly Emissions (lb/month)		60.86	60.99	60.99	60.94	60.92	60.84	60.66	0.44	0.19	0.09	0.06	0.05	0.04	0.03	0.00	0.00	0.00	0.00
Total Offsite Daily Emissions (lb/day)		1,592.13	1,600.39	1,589.39	1,588.24	1,586.11	1,584.25	1,474.68	89.75	80.57	59.04	54.68	1.22	0.90	0.71	0.07	0.07	0.06	0.06
Total Monthly Emissions (lb/month)		69.22	69.58	69.10	69.05	68.96	68.88	64.12	3.90	3.50	2.57	2.38	0.05	0.04	0.03	0.00	0.00	0.00	0.00
Total Daily Emissions (lb/day)		9.47	9.52	9.57	9.60	9.62	9.64	9.59	8.84	7.99	7.21	6.44	5.65	4.85	4.05	3.26	2.47	1.67	0.88
Rolling 12 Month Total (Tons)																			
Total Project Emissions (tons)																			
Average Daily Emissions (lb/day) ^{b, c}																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

SO _x Emissions																			
Emission Source		SO _x Emissions by Month																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Onsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	4.68	6.26	7.15	8.12	4.56	4.86	6.13	8.76	8.76	10.10	10.10	14.74	10.50	10.10	10.23
	Total (lb/day)	0.00	0.00	0.00	0.20	0.27	0.31	0.35	0.20	0.21	0.27	0.38	0.38	0.44	0.44	0.64	0.46	0.44	0.44
Offsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	28.37	28.57	28.57	28.57	28.57	28.57	28.57	28.57	29.23	29.23	28.77	28.77
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.27	1.27	1.25	1.25
Onsite Construction Vehicle																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																			
	Total (lb/month)	0.00	0.00	0.01	0.07	0.11	0.27	0.40	0.44	0.56	0.77	0.87	1.02	1.38	1.43	1.31	1.28	1.30	1.50
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.03	0.04	0.04	0.06	0.06	0.06	0.06	0.06	0.07
Total Project SO _x Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	0.00	0.00	0.00	4.68	6.26	7.15	8.12	4.56	4.87	6.14	8.77	8.77	10.10	10.10	14.75	10.51	10.10	10.24
	Total Onsite Daily Emissions (lb/day)	0.00	0.00	0.00	0.20	0.27	0.31	0.35	0.20	0.21	0.27	0.38	0.38	0.44	0.44	0.64	0.46	0.44	0.45
	Total Offsite Monthly Emissions (lb/month)	0.00	0.00	0.01	0.07	0.11	0.27	28.76	29.01	29.13	29.34	29.44	29.59	29.95	30.00	30.54	30.51	30.07	30.27
	Total Offsite Daily Emissions (lb/day)	0.00	0.00	0.00	0.00	0.00	0.01	1.25	1.26	1.27	1.28	1.28	1.29	1.30	1.30	1.33	1.33	1.31	1.32
	Total Monthly Emissions (lb/month)	0.00	0.01	0.01	4.75	6.37	7.42	36.89	33.57	34.00	35.47	38.21	38.36	40.05	40.10	45.29	41.02	40.18	40.51
	Total Daily Emissions (lb/day)	0.00	0.00	0.00	0.21	0.28	0.32	1.60	1.46	1.48	1.54	1.66	1.67	1.74	1.74	1.97	1.78	1.75	1.76
	Rolling 12 Month Total (Tons)												0.12	0.14	0.16	0.18	0.20	0.22	0.23
	Total Project Emissions (tons)	0.39																	
	Average Daily Emissions (lb/day) ^{b, c}	1.16																	

NO _x Emissions																			
Emission Source		NO _x Emissions by Month																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Onsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	814.56	1,181.75	1,263.62	1,585.71	886.78	1,002.24	1,153.84	1,294.15	1,294.15	1,786.99	1,786.99	2,931.06	1,856.73	1,786.99	1,836.52
	Total (lb/day)	0.00	0.00	0.00	35.42	51.38	54.94	68.94	38.56	43.58	50.17	56.27	56.27	77.70	77.70	127.44	80.73	77.70	79.85
Offsite Construction Equipment																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	2,191.23	2,202.18	2,202.18	2,202.18	2,202.18	2,202.18	2,202.18	2,202.18	2,291.64	2,291.64	2,213.12	2,213.12
	Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	95.27	95.75	95.75	95.75	95.75	95.75	95.75	95.75	99.64	99.64	96.22	96.22
Onsite Construction Vehicle																			
	Total (lb/month)	0.00	0.00	0.00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.04	0.07	0.14	0.22	0.38	0.38	0.42	0.57	0.68	0.68	0.86	1.02	1.24	1.32	1.31	1.28	1.21	1.01
	Total (lb/day) ^a	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.05	0.04
Onroad Construction Vehicle																			
	Total (lb/month)	0.31	0.48	1.06	3.69	6.12	13.02	18.42	20.86	26.49	35.18	40.36	47.76	63.97	67.99	62.88	60.69	60.71	67.29
	Total (lb/day) ^a	0.01	0.02	0.05	0.16	0.27	0.57	0.80	0.91	1.15	1.53	1.75	2.08	2.78	2.96	2.73	2.64	2.64	2.93
Total Project NO _x Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	0.04	0.07	0.14	814.88	1,182.23	1,264.10	1,586.23	887.46	1,003.02	1,154.62	1,295.11	1,295.28	1,788.34	1,788.42	2,932.48	1,858.12	1,788.31	1,837.64
	Total Onsite Daily Emissions (lb/day)	0.00	0.00	0.01	35.43	51.40	54.96	68.97	38.59	43.61	50.20	56.31	56.32	77.75	77.76	127.50	80.79	77.75	79.90
	Total Offsite Monthly Emissions (lb/month)	0.31	0.48	1.06	3.69	6.12	13.02	2,209.66	2,223.04	2,228.67	2,237.35	2,242.54	2,249.94	2,266.15	2,270.16	2,354.52	2,352.33	2,273.83	2,280.41
	Total Offsite Daily Emissions (lb/day)	0.01	0.02	0.05	0.16	0.27	0.57	96.07	96.65	96.90	97.28	97.50	97.82	98.53	98.70	102.37	102.28	98.86	99.15
	Total Monthly Emissions (lb/month)	0.35	0.55	1.21	818.57	1,188.36	1,277.12	3,795.89	3,110.50	3,231.69	3,391.98	3,537.65	3,545.21	4,054.49	4,058.59	5,287.00	4,210.45	4,062.15	4,118.05
	Total Daily Emissions (lb/day)	0.02	0.02	0.05	35.59	51.67	55.53	165.04	135.24	140.51	147.48	153.81	154.14	176.28	176.46	229.87	183.06	176.62	179.05
	Rolling 12 Month Total (Tons)												11.95	13.98	16.01	18.65	20.34	21.78	23.20
	Total Project Emissions (tons)	39.90																	
	Average Daily Emissions (lb/day) ^{b, c}	119.63																	

Elmore North Geothermal Project
Elmore North Construction Emissions
Construction Emissions Summary by Source Category
April 2023

SO _x Emissions																			
Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (lb/month)	10.76	11.28	10.66	10.66	10.53	10.53	2.41	2.41	2.13	1.72	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	0.47	0.49	0.46	0.46	0.46	0.46	0.10	0.10	0.09	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																			
	Total (lb/month)	28.77	28.77	28.77	28.57	28.57	28.57	28.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	1.25	1.25	1.25	1.24	1.24	1.24	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																			
	Total (lb/month)	1.62	1.90	1.91	2.00	1.92	1.74	1.53	0.99	0.45	0.20	0.15	0.12	0.12	0.10	0.04	0.04	0.03	0.03
	Total (lb/day) ^a	0.07	0.08	0.08	0.09	0.08	0.08	0.07	0.04	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Total Project SO _x Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	10.76	11.29	10.67	10.67	10.54	10.54	2.42	2.42	2.13	1.72	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Daily Emissions (lb/day)	0.47	0.49	0.46	0.46	0.46	0.46	0.11	0.11	0.09	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Offsite Monthly Emissions (lb/month)	30.40	30.67	30.68	30.57	30.49	30.30	29.90	0.99	0.45	0.20	0.15	0.12	0.12	0.10	0.04	0.04	0.03	0.03
	Total Offsite Daily Emissions (lb/day)	1.32	1.33	1.33	1.33	1.33	1.32	1.30	0.04	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Monthly Emissions (lb/month)	41.16	41.96	41.35	41.24	41.02	40.84	32.31	3.40	2.58	1.92	1.56	0.12	0.12	0.10	0.04	0.04	0.03	0.03
	Total Daily Emissions (lb/day)	1.79	1.82	1.80	1.79	1.78	1.78	1.40	0.15	0.11	0.08	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Rolling 12 Month Total (Tons)	0.23	0.24	0.24	0.24	0.25	0.25	0.24	0.23	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.04	0.02
	Total Project Emissions (tons)																		
	Average Daily Emissions (lb/day) ^{b, c}																		

NO _x Emissions																			
Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (lb/month)	1,864.58	1,892.65	1,821.22	1,821.22	1,771.69	1,771.69	776.38	776.38	669.12	473.57	358.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	81.07	82.29	79.18	79.18	77.03	77.03	33.76	33.76	29.09	20.59	15.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																			
	Total (lb/month)	2,213.12	2,213.12	2,213.12	2,202.18	2,202.18	2,202.18	2,191.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	96.22	96.22	96.22	95.75	95.75	95.75	95.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (lb/month)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.91	0.91	0.85	0.85	0.39	0.29	0.29	0.29	0.29	0.08	0.08	0.08	0.52	0.52	0.49	0.49	0.39	0.39
	Total (lb/day) ^a	0.04	0.04	0.04	0.04	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02
Onroad Construction Vehicle																			
	Total (lb/month)	72.14	83.64	83.77	87.60	82.37	74.19	65.50	42.76	20.01	8.76	6.46	5.43	7.19	6.42	3.63	3.63	2.86	2.86
	Total (lb/day) ^a	3.14	3.64	3.64	3.81	3.58	3.23	2.85	1.86	0.87	0.38	0.28	0.24	0.31	0.28	0.16	0.16	0.12	0.12
Total Project NO _x Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (lb/month)	1,865.60	1,893.66	1,822.18	1,822.18	1,772.19	1,772.09	776.77	776.77	669.52	473.75	358.29	0.08	0.52	0.52	0.49	0.49	0.39	0.39
	Total Onsite Daily Emissions (lb/day)	81.11	82.33	79.23	79.23	77.05	77.05	33.77	33.77	29.11	20.60	15.58	0.00	0.02	0.02	0.02	0.02	0.02	0.02
	Total Offsite Monthly Emissions (lb/month)	2,285.26	2,296.76	2,296.88	2,289.77	2,284.55	2,276.36	2,256.73	42.76	20.01	8.76	6.46	5.43	7.19	6.42	3.63	3.63	2.86	2.86
	Total Offsite Daily Emissions (lb/day)	99.36	99.86	99.86	99.56	99.33	98.97	98.12	1.86	0.87	0.38	0.28	0.24	0.31	0.28	0.16	0.16	0.12	0.12
	Total Monthly Emissions (lb/month)	4,150.86	4,190.42	4,119.07	4,111.96	4,056.74	4,048.45	3,033.50	819.53	689.53	482.51	364.75	5.51	7.71	6.94	4.12	4.12	3.25	3.25
	Total Daily Emissions (lb/day)	180.47	182.19	179.09	178.78	176.38	176.02	131.89	35.63	29.98	20.98	15.86	0.24	0.34	0.30	0.18	0.18	0.14	0.14
	Rolling 12 Month Total (Tons)	23.38	23.92	24.36	24.72	24.98	25.23	24.72	23.10	20.81	18.94	17.09	15.04	12.96	10.87	8.82	6.76	4.73	2.71
	Total Project Emissions (tons)																		
	Average Daily Emissions (lb/day) ^{b, c}																		

April 2023

PM_{2.5} Emissions

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Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

PM₁₀ Emissions

Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (lb/month)	44.10	45.18	42.40	42.40	42.22	42.22	19.53	19.53	19.14	13.26	12.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	1.92	1.96	1.84	1.84	1.84	1.84	0.85	0.85	0.83	0.58	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																			
	Total (lb/month)	510.28	510.28	510.28	509.86	509.86	509.86	509.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	22.19	22.19	22.19	22.17	22.17	22.17	22.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (lb/month)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Fugitive Dust																			
	Total (lb/month)	86.86	86.86	86.86	86.86	86.86	86.86	86.86	86.86	86.86	86.86	86.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																			
	Total (lb/month)	160.68	188.53	189.64	198.92	193.44	175.23	154.19	99.11	44.03	20.00	14.43	11.95	9.34	7.49	1.22	1.22	0.96	0.96
	Total (lb/day) ^a	6.99	8.20	8.25	8.65	8.41	7.62	6.70	4.31	1.91	0.87	0.63	0.52	0.41	0.33	0.05	0.05	0.04	0.04
Total Project PM ₁₀ Emissions (Construction Equipment, Fugitive Dust)																			
	Total Onsite Monthly Emissions (lb/month)	130.96	132.04	129.27	129.27	129.09	129.09	106.40	106.40	106.01	100.12	99.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Monthly Emissions Without Fugitive Dust (lb/month)	44.11	45.19	42.41	42.41	42.23	42.23	19.54	19.54	19.15	13.27	12.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Daily Emissions (lb/day)	5.69	5.74	5.62	5.62	5.61	5.61	4.63	4.63	4.61	4.35	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Daily Emissions (lb/day) Without Fugitive Dust	1.92	1.96	1.84	1.84	1.84	1.84	0.85	0.85	0.83	0.58	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Offsite Monthly Emissions (lb/month)	670.96	698.81	699.92	708.78	703.29	685.09	663.62	99.11	44.03	20.00	14.43	11.95	9.34	7.49	1.22	1.22	0.96	0.96
	Total Offsite Daily Emissions (lb/day)	29.17	30.38	30.43	30.82	30.58	29.79	28.85	4.31	1.91	0.87	0.63	0.52	0.41	0.33	0.05	0.05	0.04	0.04
	Total Monthly Emissions (lb/month)	801.93	830.85	829.19	838.05	832.38	814.18	770.02	205.51	150.04	120.12	114.13	11.95	9.34	7.49	1.22	1.22	0.96	0.96
	Total Daily Emissions (lb/day)	34.87	36.12	36.05	36.44	36.19	35.40	33.48	8.94	6.52	5.22	4.96	0.52	0.41	0.33	0.05	0.05	0.04	0.04
	Rolling 12 Month Total (Tons)	4.48	4.56	4.64	4.71	4.76	4.81	4.81	4.52	4.19	3.87	3.55	3.16	2.76	2.35	1.94	1.52	1.10	0.70
	Total Project Emissions (tons)																		
	Average Daily Emissions (lb/day) ^{b, c}																		

PM_{2.5} Emissions

Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (lb/month)	41.88	42.96	40.32	40.32	40.14	40.14	18.05	18.05	17.66	12.23	11.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	1.82	1.87	1.75	1.75	1.75	1.75	0.78	0.78	0.77	0.53	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																			
	Total (lb/month)	510.28	510.28	510.28	509.86	509.86	509.86	509.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	22.19	22.19	22.19	22.17	22.17	22.17	22.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (lb/month)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Fugitive Dust																			
	Total (lb/month)	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	8.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day)	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (lb/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																			
	Total (lb/month)	41.52	48.71	48.99	51.38	49.93	45.23	39.80	25.59	11.38	5.16	3.73	3.09	2.45	1.97	0.35	0.35	0.28	0.28
	Total (lb/day) ^a	1.81	2.12	2.13	2.23	2.17	1.97	1.73	1.11	0.49	0.22	0.16	0.13	0.11	0.09	0.02	0.02	0.01	0.01
Total Project PM _{2.5} Emissions (Construction Equipment, Fugitive Dus																			
	Total Onsite Monthly Emissions (lb/month)	50.53	51.61	48.98	48.98	48.80	48.79	26.71	26.71	26.32	20.89	20.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Monthly Emissions Without Fugitive Dust (lb/month)	41.88	42.96	40.32	40.32	40.14	40.14	18.06	18.06	17.67	12.24	11.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Daily Emissions (lb/day)	2.20	2.24	2.13	2.13	2.12	2.12	1.16	1.16	1.14	0.91	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Onsite Daily Emissions Without Fugitive Dust (lb/day)	1.82	1.87	1.75	1.75	1.75	1.75	0.79	0.79	0.77	0.53	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Offsite Monthly Emissions (lb/month)	551.80	558.98	559.26	561.24	559.79	555.09	549.24	25.59	11.38	5.16	3.73	3.09	2.45	1.97	0.35	0.35	0.28	0.28
	Total Offsite Daily Emissions (lb/day)	23.99	24.30	24.32	24.40	24.34	24.13	23.88	1.11	0.49	0.22	0.16	0.13	0.11	0.09	0.02	0.02	0.01	0.01
	Total Monthly Emissions (lb/month)	602.33	610.60	608.24	610.21	608.59	603.88	575.94	52.30	37.70	26.05	24.20	3.09	2.45	1.97	0.35	0.35	0.28	0.28
	Total Daily Emissions (lb/day)	26.19	26.55	26.45	26.53	26.46	26.26	25.04	2.27	1.64	1.13	1.05	0.13	0.11	0.09	0.02	0.02	0.01	0.01
	Rolling 12 Month Total (Tons)	3.51	3.54	3.57	3.59	3.61	3.62	3.61	3.34	3.05	2.76	2.48	2.18	1.88	1.58	1.27	0.97	0.66	0.36
	Total Project Emissions (tons)																		
	Average Daily Emissions (lb/day) ^{b, c}																		

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

CO₂ Emissions

Emission Source		CO ₂ Emissions by Month												2025					
		2024																	
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Onsite Construction Equipment																			
	Total (metric tons/month)	0.00	0.00	0.00	229.75	307.50	351.01	392.83	209.13	219.95	278.95	408.09	408.09	456.63	456.63	684.63	476.51	456.63	461.28
	Total (metric tons/day)	0.00	0.00	0.00	9.99	13.37	15.26	17.08	9.09	9.56	12.13	17.74	17.74	19.85	19.85	29.77	20.72	19.85	20.06
Offsite Construction Equipment																			
	Total (metric tons/month)	0.00	0.00	0.00	0.00	0.00	0.00	1,019.33	1,029.29	1,029.29	1,029.29	1,029.29	1,029.29	1,029.29	1,029.29	1,061.62	1,061.62	1,039.24	1,039.24
	Total (metric tons/day)	0.00	0.00	0.00	0.00	0.00	0.00	44.32	44.75	44.75	44.75	44.75	44.75	44.75	44.75	46.16	46.16	45.18	45.18
Onsite Construction Vehicle																			
	Total (metric tons/month)	0.00	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Total (metric tons/day) ^a	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Onsite Construction Vehicle Idle Emissions																			
	Total (metric tons/month)	0.00	0.01	0.01	0.02	0.03	0.03	0.03	0.05	0.05	0.05	0.07	0.08	0.10	0.11	0.11	0.10	0.10	0.08
	Total (metric tons/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																			
	Total (metric tons/month)	0.15	0.23	0.51	2.98	4.91	12.29	17.89	19.82	25.39	34.68	39.43	46.20	62.18	64.74	59.41	57.96	58.81	67.57
	Total (metric tons/day) ^a	0.01	0.01	0.02	0.13	0.21	0.53	0.78	0.86	1.10	1.51	1.71	2.01	2.70	2.81	2.58	2.52	2.56	2.94
Total Project CO ₂ Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (metric tons/month)	0.00	0.01	0.01	229.90	307.66	351.17	392.99	209.30	220.13	279.14	408.29	408.30	456.86	456.87	684.87	476.74	456.86	461.49
	Total Onsite Daily Emissions (metric tons/day)	0.00	0.00	0.00	10.00	13.38	15.27	17.09	9.10	9.57	12.14	17.75	17.75	19.86	19.86	29.78	20.73	19.86	20.06
	Total Offsite Monthly Emissions (metric tons/month)	0.15	0.23	0.51	2.98	4.91	12.29	1,037.23	1,049.11	1,054.67	1,063.96	1,068.72	1,075.49	1,091.47	1,094.02	1,121.03	1,119.58	1,098.05	1,106.81
	Total Offsite Daily Emissions (metric tons/day)	0.01	0.01	0.02	0.13	0.21	0.53	45.10	45.61	45.86	46.26	46.47	46.76	47.46	47.57	48.74	48.68	47.74	48.12
	Total Monthly Emissions (metric tons/month)	0.15	0.24	0.53	232.88	312.57	363.46	1,430.22	1,258.41	1,274.81	1,343.10	1,477.00	1,483.79	1,548.33	1,550.89	1,805.90	1,596.32	1,554.91	1,568.30
	Total Daily Emissions (metric tons/day)	0.01	0.01	0.02	10.13	13.59	15.80	62.18	54.71	55.43	58.40	64.22	64.51	67.32	67.43	78.52	69.41	67.60	68.19
	Rolling 12 Month Total (Metric Tons)																		
	Total Project Emissions (metric tons)	30,077.87																	
	Average Daily Emissions (metric tons/day) ^{b, c}	45.09																	

N₂O Emissions

Emission Source		N ₂ O Emissions by Month												2025					
		2024																	
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Onsite Construction Equipment																			
	Total (metric tons/month)	0.00E+00	0.00E+00	0.00E+00	1.86E-03	2.49E-03	2.85E-03	3.19E-03	1.70E-03	1.78E-03	2.26E-03	3.31E-03	3.31E-03	3.70E-03	3.70E-03	5.55E-03	3.87E-03	3.70E-03	3.74E-03
	Total (metric tons/day)	0.00E+00	0.00E+00	0.00E+00	8.10E-05	1.08E-04	1.24E-04	1.39E-04	7.38E-05	7.76E-05	9.84E-05	1.44E-04	1.44E-04	1.61E-04	1.61E-04	2.41E-04	1.68E-04	1.61E-04	1.63E-04
Offsite Construction Equipment																			
	Total (metric tons/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Total (metric tons/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (metric tons/month)	0.00E+00	0.00E+00	0.00E+00	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07
	Total (metric tons/day) ^a	0.00E+00	0.00E+00	0.00E+00	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08
Onsite Construction Vehicle Idle Emissions																			
	Total (metric tons/month)	6.73E-09	1.05E-08	2.32E-08	3.58E-08	6.10E-08	6.10E-08	6.73E-08	9.26E-08	1.09E-07	1.09E-07	1.39E-07	1.72E-07	2.14E-07	2.49E-07	2.46E-07	2.29E-07	2.09E-07	1.63E-07
	Total (metric tons/day) ^a	2.93E-10	4.58E-10	1.01E-09	1.56E-09	2.65E-09	2.65E-09	2.93E-09	4.03E-09	4.76E-09	4.76E-09	6.04E-09	7.48E-09	9.28E-09	1.08E-08	1.07E-08	9.95E-09	9.10E-09	7.10E-09
Onroad Construction Vehicle																			
	Total (metric tons/month)	2.34E-07	3.65E-07	8.03E-07	9.94E-06	1.62E-05	4.56E-05	6.75E-05	7.39E-05	9.51E-05	1.32E-04	1.49E-04	1.74E-04	2.35E-04	2.43E-04	2.22E-04	2.17E-04	2.22E-04	2.60E-04
	Total (metric tons/day) ^a	1.02E-08	1.59E-08	3.49E-08	4.32E-07	7.06E-07	1.98E-06	2.94E-06	3.21E-06	4.13E-06	5.74E-06	6.49E-06	7.57E-06	1.02E-05	1.05E-05	9.63E-06	9.45E-06	9.65E-06	1.13E-05
Total Project N ₂ O Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (metric tons/month)	6.73E-09	1.05E-08	2.32E-08	1.86E-03	2.50E-03	2.85E-03	3.19E-03	1.70E-03	1.78E-03	2.26E-03	3.31E-03	3.31E-03	3.71E-03	3.71E-03	5.55E-03	3.87E-03	3.71E-03	3.74E-03
	Total Onsite Daily Emissions (metric tons/day)	2.93E-10	4.58E-10	1.01E-09	8.11E-05	1.08E-04	1.24E-04	1.39E-04	7.38E-05	7.76E-05	9.84E-05	1.44E-04	1.44E-04	1.61E-04	1.61E-04	2.42E-04	1.68E-04	1.61E-04	1.63E-04
	Total Offsite Monthly Emissions (metric tons/month)	2.34E-07	3.65E-07	8.03E-07	9.94E-06	1.62E-05	4.56E-05	8.34E-03	8.42E-03	8.45E-03	8.48E-03	8.50E-03	8.52E-03	8.59E-03	8.59E-03	8.83E-03	8.83E-03	8.65E-03	8.69E-03
	Total Offsite Daily Emissions (metric tons/day)	1.02E-08	1.59E-08	3.49E-08	4.32E-07	7.06E-07	1.98E-06	3.62E-04	3.67E-04	3.67E-04	3.69E-04	3.70E-04	3.71E-04	3.73E-04	3.74E-04	3.84E-04	3.84E-04	3.76E-04	3.78E-04
	Total Monthly Emissions (metric tons/month)	2.40E-07	3.76E-07	8.26E-07	1.87E-03	2.51E-03	2.89E-03	1.15E-02	1.01E-02	1.02E-02	1.07E-02	1.18E-02	1.18E-02	1.23E-02	1.23E-02	1.44E-02	1.27E-02	1.24E-02	1.24E-02
	Total Daily Emissions (metric tons/day)	1.05E-08	1.63E-08	3.59E-08	8.15E-05	1.09E-04	1.26E-04	5.01E-04	4.40E-04	4.45E-04	4.67E-04	5.14E-04	5.15E-04	5.34E-04	5.35E-04	6.26E-04	5.52E-04	5.37E-04	5.41E-04
	Rolling 12 Month Total (Metric Tons)																		
	Total Project Emissions (metric tons)	2.39E-01																	
	Average Daily Emissions (metric tons/day) ^{b, c}	3.58E-04																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

CO₂ Emissions

Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (metric tons/month)	487.10	512.93	484.40	484.40	479.76	479.76	103.79	103.79	93.73	80.20	69.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (metric tons/day)	21.18	22.30	21.06	21.06	20.86	20.86	4.51	4.51	4.08	3.49	3.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																			
	Total (metric tons/month)	1,039.24	1,039.24	1,039.24	1,029.29	1,029.29	1,029.29	1,019.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (metric tons/day)	45.18	45.18	45.18	44.75	44.75	44.75	44.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (metric tons/month)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (metric tons/day) ^a	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle Idle Emissions																			
	Total (metric tons/month)	0.07	0.07	0.07	0.07	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.04	0.04	0.04	0.04	0.03	0.03
	Total (metric tons/day) ^a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																			
	Total (metric tons/month)	73.21	85.50	85.86	89.96	86.38	78.09	68.79	44.48	20.16	9.02	6.57	5.47	5.42	4.60	1.76	1.76	1.38	1.38
	Total (metric tons/day) ^a	3.18	3.72	3.73	3.91	3.76	3.40	2.99	1.93	0.88	0.39	0.29	0.24	0.24	0.20	0.08	0.08	0.06	0.06
Total Project CO ₂ Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (metric tons/month)	487.30	513.13	484.60	484.60	479.92	479.91	103.94	103.94	93.89	80.33	69.51	0.01	0.04	0.04	0.04	0.04	0.03	0.03
	Total Onsite Daily Emissions (metric tons/day)	21.19	22.31	21.07	21.07	20.87	20.87	4.52	4.52	4.08	3.49	3.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Offsite Monthly Emissions (metric tons/month)	1,112.45	1,124.75	1,125.11	1,119.25	1,115.67	1,107.37	1,088.13	44.48	20.16	9.02	6.57	5.47	5.42	4.60	1.76	1.76	1.38	1.38
	Total Offsite Daily Emissions (metric tons/day)	48.37	48.90	48.92	48.66	48.51	48.15	47.31	1.93	0.88	0.39	0.29	0.24	0.24	0.20	0.08	0.08	0.06	0.06
	Total Monthly Emissions (metric tons/month)	1,599.76	1,637.88	1,609.71	1,603.85	1,595.60	1,587.29	1,192.07	148.42	114.04	89.36	76.08	5.48	5.46	4.64	1.80	1.80	1.42	1.42
	Total Daily Emissions (metric tons/day)	69.55	71.21	69.99	69.73	69.37	69.01	51.83	6.45	4.96	3.89	3.31	0.24	0.24	0.20	0.08	0.08	0.06	0.06
	Rolling 12 Month Total (Metric Tons)	18,061.52	18,440.98	18,775.89	19,036.64	19,155.23	19,258.72	18,902.47	17,499.99	15,808.14	14,301.18	12,822.34	11,259.52	9,665.23	8,032.00	6,424.09	4,822.03	3,227.85	1,641.98
	Total Project Emissions (metric tons)																		
	Average Daily Emissions (metric tons/day) ^{b, c}																		

N₂O Emissions

Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (metric tons/month)	3.95E-03	4.16E-03	3.93E-03	3.93E-03	3.89E-03	3.89E-03	8.42E-04	8.42E-04	7.60E-04	6.51E-04	5.63E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (metric tons/day)	1.72E-04	1.81E-04	1.71E-04	1.71E-04	1.69E-04	1.69E-04	3.66E-05	3.66E-05	3.31E-05	2.83E-05	2.45E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite Construction Equipment																			
	Total (metric tons/month)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (metric tons/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (metric tons/month)	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	2.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (metric tons/day) ^a	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	1.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Construction Vehicle Idle Emissions																			
	Total (metric tons/month)	1.46E-07	1.46E-07	1.38E-07	1.38E-07	6.31E-08	4.63E-08	4.63E-08	4.63E-08	4.63E-08	1.26E-08	1.26E-08	1.26E-08	8.42E-08	8.42E-08	7.91E-08	7.91E-08	6.23E-08	6.23E-08
	Total (metric tons/day) ^a	6.37E-09	6.37E-09	6.00E-09	6.00E-09	2.75E-09	2.01E-09	2.01E-09	2.01E-09	2.01E-09	5.49E-10	5.49E-10	5.49E-10	3.66E-09	3.66E-09	3.44E-09	3.44E-09	2.71E-09	2.71E-09
Onroad Construction Vehicle																			
	Total (metric tons/month)	2.83E-04	3.32E-04	3.34E-04	3.50E-04	3.40E-04	3.08E-04	2.71E-04	1.74E-04	7.77E-05	3.52E-05	2.54E-05	2.11E-05	1.70E-05	1.38E-05	2.75E-06	2.75E-06	2.16E-06	2.16E-06
	Total (metric tons/day) ^a	1.23E-05	1.44E-05	1.45E-05	1.52E-05	1.48E-05	1.34E-05	1.18E-05	7.58E-06	3.38E-06	1.53E-06	1.11E-06	9.17E-07	7.41E-07	5.99E-07	1.19E-07	1.19E-07	9.40E-08	9.40E-08
Total Project N ₂ O Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (metric tons/month)	3.95E-03	4.16E-03	3.93E-03	3.93E-03	3.89E-03	3.89E-03	8.42E-04	8.42E-04	7.61E-04	6.51E-04	5.63E-04	1.26E-08	8.42E-08	8.42E-08	7.91E-08	7.91E-08	6.23E-08	6.23E-08
	Total Onsite Daily Emissions (metric tons/day)	1.72E-04	1.81E-04	1.71E-04	1.71E-04	1.69E-04	1.69E-04	3.66E-05	3.66E-05	3.31E-05	2.83E-05	2.45E-05	5.49E-10	3.66E-09	3.66E-09	3.44E-09	3.44E-09	2.71E-09	2.71E-09
	Total Offsite Monthly Emissions (metric tons/month)	8.71E-03	8.76E-03	8.77E-03	8.70E-03	8.69E-03	8.66E-03	8.54E-03	1.74E-04	7.77E-05	3.52E-05	2.54E-05	2.11E-05	1.70E-05	1.38E-05	2.75E-06	2.75E-06	2.16E-06	2.16E-06
	Total Offsite Daily Emissions (metric tons/day)	3.79E-04	3.81E-04	3.81E-04	3.78E-04	3.78E-04	3.76E-04	3.71E-04	7.58E-06	3.38E-06	1.53E-06	1.11E-06	9.17E-07	7.41E-07	5.99E-07	1.19E-07	1.19E-07	9.40E-08	9.40E-08
	Total Monthly Emissions (metric tons/month)	1.27E-02	1.29E-02	1.27E-02	1.26E-02	1.26E-02	1.26E-02	9.38E-03	1.02E-03	8.38E-04	6.86E-04	5.89E-04	2.11E-05	1.71E-05	1.39E-05	2.82E-06	2.82E-06	2.22E-06	2.22E-06
	Total Daily Emissions (metric tons/day)	5.51E-04	5.62E-04	5.52E-04	5.49E-04	5.47E-04	5.46E-04	4.08E-04	4.42E-05	3.65E-05	2.98E-05	2.56E-05	9.17E-07	7.45E-07	6.03E-07	1.23E-07	1.23E-07	9.67E-08	9.67E-08
	Rolling 12 Month Total (Metric Tons)	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.12	0.11	0.10	0.09	0.08	0.06	0.05	0.04	0.03	0.01
	Total Project Emissions (metric tons)																		
	Average Daily Emissions (metric tons/day) ^{b, c}																		

Elmore North Geothermal Project
Elmore North Construction Emissions
Construction Emissions Summary by Source Category
April 2023

CH ₄ Emissions																			
Emission Source	CH ₄ Emissions by Month																		
	2024												2025						
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	
Onsite Construction Equipment																			
Total (metric tons/month)	0.00E+00	0.00E+00	0.00E+00	9.32E-03	1.25E-02	1.42E-02	1.59E-02	8.48E-03	8.92E-03	1.13E-02	1.66E-02	1.66E-02	1.85E-02	1.85E-02	2.78E-02	1.93E-02	1.85E-02	1.87E-02	
Total (metric tons/day)	0.00E+00	0.00E+00	0.00E+00	4.05E-04	5.42E-04	6.19E-04	6.93E-04	3.69E-04	3.88E-04	4.92E-04	7.20E-04	7.20E-04	8.05E-04	8.05E-04	1.21E-03	8.40E-04	8.05E-04	8.14E-04	
Offsite Construction Equipment																			
Total (metric tons/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Total (metric tons/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Onsite Construction Vehicle																			
Total (metric tons/month)	0.00E+00	0.00E+00	0.00E+00	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	
Total (metric tons/day) ^a	0.00E+00	0.00E+00	0.00E+00	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	
Onsite Construction Vehicle Idle Emissions																			
Total (metric tons/month)	4.88E-08	7.62E-08	1.68E-07	2.59E-07	4.42E-07	4.42E-07	4.88E-07	6.70E-07	7.92E-07	7.92E-07	1.01E-06	1.23E-06	1.52E-06	1.74E-06	1.72E-06	1.62E-06	1.49E-06	1.18E-06	
Total (metric tons/day) ^a	2.12E-09	3.31E-09	7.29E-09	1.13E-08	1.92E-08	1.92E-08	2.12E-08	2.92E-08	3.45E-08	3.45E-08	4.37E-08	5.36E-08	6.61E-08	7.55E-08	7.46E-08	7.03E-08	6.48E-08	5.14E-08	
Onroad Construction Vehicle																			
Total (metric tons/month)	7.67E-08	1.20E-07	2.64E-07	5.99E-05	9.73E-05	2.98E-04	4.47E-04	4.84E-04	6.26E-04	8.78E-04	9.90E-04	1.15E-03	1.55E-03	1.57E-03	1.43E-03	1.41E-03	1.46E-03	1.74E-03	
Total (metric tons/day) ^a	3.34E-09	5.21E-09	1.15E-08	2.60E-06	4.23E-06	1.30E-05	1.94E-05	2.10E-05	2.72E-05	3.82E-05	4.30E-05	4.99E-05	6.73E-05	6.83E-05	6.22E-05	6.15E-05	6.34E-05	7.57E-05	
Total Project CH ₄ Emissions (Construction Equipment and Vehicles)																			
Total Onsite Monthly Emissions (metric tons/month)	4.88E-08	7.62E-08	1.68E-07	9.33E-03	1.25E-02	1.42E-02	1.59E-02	8.49E-03	8.93E-03	1.13E-02	1.66E-02	1.66E-02	1.85E-02	1.85E-02	2.78E-02	1.93E-02	1.85E-02	1.87E-02	
Total Onsite Daily Emissions (metric tons/day)	2.12E-09	3.31E-09	7.29E-09	4.05E-04	5.43E-04	6.19E-04	6.93E-04	3.69E-04	3.88E-04	4.92E-04	7.20E-04	7.20E-04	8.06E-04	8.06E-04	1.21E-03	8.41E-04	8.06E-04	8.14E-04	
Total Offsite Monthly Emissions (metric tons/month)	7.67E-08	1.20E-07	2.64E-07	5.99E-05	9.73E-05	2.98E-04	4.18E-02	4.22E-02	4.24E-02	4.26E-02	4.27E-02	4.29E-02	4.33E-02	4.33E-02	4.45E-02	4.45E-02	4.36E-02	4.39E-02	
Total Offsite Daily Emissions (metric tons/day)	3.34E-09	5.21E-09	1.15E-08	2.60E-06	4.23E-06	1.30E-05	1.82E-03	1.84E-03	1.84E-03	1.85E-03	1.86E-03	1.87E-03	1.88E-03	1.88E-03	1.93E-03	1.93E-03	1.90E-03	1.91E-03	
Total Monthly Emissions (metric tons/month)	1.26E-07	1.96E-07	4.31E-07	9.39E-03	1.26E-02	1.45E-02	5.77E-02	5.07E-02	5.13E-02	5.40E-02	5.93E-02	5.95E-02	6.18E-02	6.19E-02	7.23E-02	6.38E-02	6.21E-02	6.26E-02	
Total Daily Emissions (metric tons/day)	5.46E-09	8.53E-09	1.88E-08	4.08E-04	5.47E-04	6.32E-04	2.51E-03	2.21E-03	2.23E-03	2.35E-03	2.58E-03	2.59E-03	2.69E-03	2.69E-03	3.14E-03	2.77E-03	2.70E-03	2.72E-03	
Rolling 12 Month Total (Metric Tons)												0.37	0.43	0.49	0.56	0.62	0.67	0.72	
Total Project Emissions (metric tons)	1.20E+00																		
Average Daily Emissions (metric tons/day) ^{b, c}	1.80E-03																		

Notes:
^a Daily transportation emissions are presented as average daily emissions.
^b Per information provided by the Applicant's engineering contractor, work days per month are as follows: 23
^c Average daily emissions conservatively estimated based on the months in which heavy construction activity is expected, as follows: 29

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Emissions Summary by Source Category

April 2023

CH ₄ Emissions																			
Emission Source		2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Onsite Construction Equipment																			
	Total (metric tons/month)	1.98E-02	2.08E-02	1.96E-02	1.96E-02	1.95E-02	1.95E-02	4.21E-03	4.21E-03	3.80E-03	3.25E-03	2.81E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (metric tons/day)	8.59E-04	9.05E-04	8.54E-04	8.54E-04	8.46E-04	8.46E-04	1.83E-04	1.83E-04	1.65E-04	1.41E-04	1.22E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite Construction Equipment																			
	Total (metric tons/month)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total (metric tons/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Vehicle																			
	Total (metric tons/month)	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	5.52E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (metric tons/day) ^a	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	2.40E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Construction Vehicle Idle Emissions																			
	Total (metric tons/month)	1.06E-06	1.06E-06	1.00E-06	1.00E-06	4.57E-07	3.35E-07	3.35E-07	3.35E-07	3.35E-07	9.14E-08	9.14E-08	9.14E-08	6.10E-07	6.10E-07	5.73E-07	5.73E-07	4.51E-07	4.51E-07
	Total (metric tons/day) ^a	4.61E-08	4.61E-08	4.35E-08	4.35E-08	1.99E-08	1.46E-08	1.46E-08	1.46E-08	1.46E-08	3.98E-09	3.98E-09	3.98E-09	2.65E-08	2.65E-08	2.49E-08	2.49E-08	1.96E-08	1.96E-08
Onroad Construction Vehicle																			
	Total (metric tons/month)	1.90E-03	2.24E-03	2.25E-03	2.37E-03	2.31E-03	2.10E-03	1.84E-03	1.18E-03	5.21E-04	2.38E-04	1.71E-04	1.41E-04	9.76E-05	7.53E-05	9.02E-07	9.02E-07	7.10E-07	7.10E-07
	Total (metric tons/day) ^a	8.28E-05	9.73E-05	9.80E-05	1.03E-04	1.01E-04	9.11E-05	8.02E-05	5.14E-05	2.26E-05	1.03E-05	7.44E-06	6.15E-06	4.24E-06	3.27E-06	3.92E-08	3.92E-08	3.09E-08	3.09E-08
Total Project CH ₄ Emissions (Construction Equipment and Vehicles)																			
	Total Onsite Monthly Emissions (metric tons/month)	1.98E-02	2.08E-02	1.97E-02	1.97E-02	1.95E-02	1.95E-02	4.22E-03	4.22E-03	3.81E-03	3.26E-03	2.82E-03	9.14E-08	6.10E-07	6.10E-07	5.73E-07	5.73E-07	4.51E-07	4.51E-07
	Total Onsite Daily Emissions (metric tons/day)	8.59E-04	9.05E-04	8.55E-04	8.55E-04	8.46E-04	8.46E-04	1.83E-04	1.83E-04	1.66E-04	1.42E-04	1.23E-04	3.98E-09	2.65E-08	2.65E-08	2.49E-08	2.49E-08	1.96E-08	1.96E-08
	Total Offsite Monthly Emissions (metric tons/month)	4.41E-02	4.44E-02	4.44E-02	4.41E-02	4.41E-02	4.38E-02	4.32E-02	1.18E-03	5.21E-04	2.38E-04	1.71E-04	1.41E-04	9.76E-05	7.53E-05	9.02E-07	9.02E-07	7.10E-07	7.10E-07
	Total Offsite Daily Emissions (metric tons/day)	1.92E-03	1.93E-03	1.93E-03	1.92E-03	1.92E-03	1.91E-03	1.88E-03	5.14E-05	2.26E-05	1.03E-05	7.44E-06	6.15E-06	4.24E-06	3.27E-06	3.92E-08	3.92E-08	3.09E-08	3.09E-08
	Total Monthly Emissions (metric tons/month)	6.38E-02	6.52E-02	6.41E-02	6.38E-02	6.35E-02	6.33E-02	4.74E-02	5.40E-03	4.33E-03	3.50E-03	2.99E-03	1.41E-04	9.82E-05	7.59E-05	1.47E-06	1.47E-06	1.16E-06	1.16E-06
	Total Daily Emissions (metric tons/day)	2.78E-03	2.84E-03	2.79E-03	2.77E-03	2.76E-03	2.75E-03	2.06E-03	2.35E-04	1.88E-04	1.52E-04	1.30E-04	6.15E-06	4.27E-06	3.30E-06	6.41E-08	6.41E-08	5.05E-08	5.05E-08
	Rolling 12 Month Total (Metric Tons)	0.72	0.74	0.75	0.76	0.76	0.77	0.75	0.70	0.63	0.57	0.51	0.45	0.38	0.32	0.25	0.19	0.13	0.06
Total Project Emissions (metric tons)																			
Average Daily Emissions (metric tons/day) ^{b, c}																			

Notes:

^a Daily transportation emissions are presented as average daily emissions.

^b Per information provided by the Applicant's engineering contractor, work c

^c Average daily emissions conservatively estimated based on the months in

Elmore North Geothermal Project

Elmore North Construction Emissions

Number of Equipment and Vehicles

April 2023

Number of Construction Equipment for Elmore North Construction

Construction Equipment	Location of Equipment Operation	Number per Day ^a																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Backhoe	Onsite	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0
10 Wheel Dump Truck	Onsite	0	0	0	2	4	4	4	0	0	0	0	0	0	0	0	0	0	0
Dozer	Onsite	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Front End Loader	Onsite	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
150 Ton Hydraulic Crane	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75 Ton Hydraulic Crane	Onsite	0	0	0	0	0	0	0	0	0	2	4	4	4	4	4	4	4	4
35 Ton Hydraulic Crane	Onsite	0	0	0	0	0	3	3	4	4	4	7	7	7	7	7	7	7	7
Pile Driver	Onsite	0	0	0	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0
Fork Lift	Onsite	0	0	0	0	0	0	0	1	1	1	1	1	3	3	3	3	3	3
Grader	Onsite	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Drill Rigs	Offsite ^b	0	0	0	0	0	0	1	2	2	2	2	2	2	2	3	3	3	3
Drilling Diesel Generator (Kenai)	Offsite ^b	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
Drilling Rental Generator	Offsite ^b	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Drilling Pump	Offsite ^b	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Drilling Forklift	Offsite ^b	0	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5	5	5
Drilling Manlift	Offsite ^b	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Drilling Backhoe	Offsite ^b	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
Drilling Light Tower	Offsite ^b	0	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5	5	5
Pavers ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Paving Equipment ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Paving Rollers ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0
Paving Tractor/Loader/Backhoe ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0
Electrical Generators	Onsite	0	0	0	0	0	0	3	3	3	4	4	4	7	7	7	7	7	7
Concrete Pump Trucks	Onsite	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0	0
Diesel Welders	Onsite	0	0	0	0	0	0	0	4	6	6	6	6	12	12	12	12	12	12
Compactor	Onsite	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
Stake Truck	Onsite	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Water Truck (shared between 3 projects)	Onsite	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Air Compressor	Onsite	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2
Light Towers	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Lift Lattice boom Main Crane	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Lift Lattice boom Tail Crane	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy lift Gantry Crane	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

^a Equipment counts presented above were provided by the Applicant's engineering contractor.

^b Drilling equipment will not be stationed at a single area longer than 2 months.

^c Paving operations will occur both onsite and offsite. The same equipment will be used at all paving locations

^d Paving equipment types, counts, and duration are from default data in CalEEMOD for paving.

Number of Vehicles for BHER Elmore North Construction

Vehicle Type	Location of Vehicle Operation	Average Number per Day ^a																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Delivery Truck	Offsite	0.4	0.625	1.375	2.125	3.625	3.625	4	5.5	6.5	6.5	8.25	9.25	10.75	9.75	9.75	10.5	10.5	9.7
Pickup Truck	Onsite	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Heavy Haul Truck	Offsite	0	0	0	0	0	0	0	0	0	0	0	0.5	1	2.6	2.5	1.6	1	0
Worker Commutes ^b	Offsite	0	0	0	16	26	80	120	130	168	236	266	308	416	422	384	380	392	468

Notes:

^a Vehicle counts presented above were provided by the Applicant's engineering contractor.

^b Assumed 1 commute per 1 worker; number of workers traveling to both onsite and offsite locations provided by the Applicant's engineering contractor as Total Staffing each

Elmore North Geothermal Project

Elmore North Construction Emissions

Number of Equipment and Vehicles

April 2023

Number of Construction Equipment for Elmore North Construc

Construction Equipment	Location of Equipment Operation																		
									2026										
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Backhoe	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Wheel Dump Truck	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dozer	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Front End Loader	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150 Ton Hydraulic Crane	Onsite	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
75 Ton Hydraulic Crane	Onsite	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0
35 Ton Hydraulic Crane	Onsite	7	7	7	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0
Pile Driver	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lift	Onsite	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Grader	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drill Rigs	Offsite ^b	3	3	3	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0
Drilling Diesel Generator (Kenai)	Offsite ^b	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0
Drilling Rental Generator	Offsite ^b	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Drilling Pump	Offsite ^b	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Drilling Forklift	Offsite ^b	5	5	5	5	5	5	5	0	0	0	0	0	0	0	0	0	0	0
Drilling Manlift	Offsite ^b	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Drilling Backhoe	Offsite ^b	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Drilling Light Tower	Offsite ^b	5	5	5	5	5	5	5	0	0	0	0	0	0	0	0	0	0	0
Pavers ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paving Equipment ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paving Rollers ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paving Tractor/Loader/Backhoe ^d	Onsite and Offsite ^c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical Generators	Onsite	7	7	7	7	7	7	3	3	3	0	0	0	0	0	0	0	0	0
Concrete Pump Trucks	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel Welders	Onsite	12	12	12	12	12	12	4	4	3	2	0	0	0	0	0	0	0	0
Compactor	Onsite	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stake Truck	Onsite	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Water Truck (shared between 3 projects)	Onsite	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
Air Compressor	Onsite	2	2	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Light Towers	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Lift Lattice boom Main Crane	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Lift Lattice boom Tail Crane	Onsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy lift Gantry Crane	Onsite	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

^a Equipment counts presented above were provided by the Applicant's engineering contractor.

^b Drilling equipment will not be stationed at a single area longer than 2 months.

^c Paving operations will occur both onsite and offsite. The same equipment will be used at all paving locations

^d Paving equipment types, counts, and duration are from default data in CalEEMOD for paving.

Number of Vehicles for Elmore North Construction

Vehicle Type	Location of Vehicle Operation																		
									2026										
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Delivery Truck	Offsite	8.7	8.7	8.2	8.2	3.75	2.75	2.75	2.75	2.75	0.75	0.75	0.75	5	5	4.7	4.7	3.7	3.7
Pickup Truck	Onsite	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0
Heavy Haul Truck	Offsite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker Commutes ^b	Offsite	512	602	606	636	622	564	496	318	140	64	46	38	26	20	0	0	0	0

Notes:

^a Vehicle counts presented above were provided by the Applicant's engineering contractor.

^b Assumed 1 commute per 1 worker; number of workers traveling to both onsite and offsite locations provided by the Applicant's engineering contractor as Total Staffing each

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment CO Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	CO Emissions (lb/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	56.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	233.24	233.24	233.24	233.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	346.25	692.50	692.50	692.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	387.07	387.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	202.62	202.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	561.24	1,122.49	1,122.49	1,122.49	1,122.49	1,122.49	1,122.49	1,122.49	1,122.49
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	841.87	841.87	1,122.49	1,122.49	1,122.49	1,964.36	1,964.36	1,964.36	1,964.36	1,964.36	1,964.36	1,964.36	1,964.36
Pile Driver	Onsite	0.00	0.00	0.00	387.68	516.90	516.90	516.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.54	61.54	61.54	61.54	61.54	184.61	184.61	184.61	184.61	184.61	184.61
Grader	Onsite	0.00	0.00	0.00	227.68	227.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	155.72	311.43	311.43	311.43	311.43	311.43	311.43	311.43	467.15	467.15	467.15	467.15
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	615.10	615.10	615.10	615.10	615.10	615.10	615.10	615.10	615.10	615.10	615.10	615.10
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	207.07	207.07	207.07	207.07	207.07	207.07	207.07	207.07	207.07	207.07	207.07	207.07
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	720.42	720.42	720.42	720.42	720.42	720.42	720.42	720.42	720.42	720.42	720.42	720.42
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	59.29	59.29	59.29	59.29	59.29	59.29	59.29	59.29	59.29	59.29	59.29	59.29
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	116.62	116.62	116.62	116.62	116.62	116.62	116.62	116.62	116.62	116.62	116.62	116.62
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	247.39	247.39	247.39	247.39	247.39	247.39	247.39	247.39	247.39	247.39	247.39	247.39
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.65	127.65	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	120.22	120.22	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.64	170.64	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	233.24	233.24	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	90.79	90.79	90.79	121.06	121.06	121.06	211.85	211.85	211.85	211.85	211.85	211.85
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	173.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,038.75	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	344.27	516.40	516.40	516.40	516.40	1,032.81	1,032.81	1,032.81	1,032.81	1,032.81	1,032.81
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	36.32	36.32	36.32	36.32	36.32	36.32	36.32	36.32	36.32	36.32	36.32	36.32
Stake Truck	Onsite	0.00	0.00	0.00	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.84	73.84	73.84	73.84	73.84	73.84	73.84	73.84	147.69
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		0.00	0.00	0.00	1,928.16	2,403.64	2,890.25	3,133.61	2,001.66	2,173.79	2,839.15	4,242.26	4,242.26	4,972.53	4,972.53	6,317.85	5,279.11	4,972.53	5,046.37
Total Monthly Offsite Emissions (lb/month)		0.00	0.00	0.00	0.00	0.00	0.00	10,829.38	10,985.10	10,985.10	10,985.10	10,985.10	10,985.10	10,985.10	10,985.10	11,485.98	11,485.98	11,140.81	11,140.81
Total Daily Onsite Emissions (lb/day) ^b		0.00	0.00	0.00	83.83	104.51	125.66	136.24	87.03	94.51	123.44	184.45	184.45	216.20	216.20	274.69	229.53	216.20	219.41
Total Daily Offsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	470.84	477.61	477.61	477.61	477.61	477.61	477.61	477.61	499.39	499.39	484.38	484.38
Total Project Emissions (tons)		151.41																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment CO Emissions from Elmore North Construc

Onsite Equipment	Equipment Location	2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	280.62	280.62	280.62	280.62	280.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	1,122.49	1,122.49	1,122.49	1,122.49	1,122.49	1,122.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	1,964.36	1,964.36	1,964.36	1,964.36	1,964.36	1,964.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	184.61	184.61	184.61	184.61	184.61	184.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	467.15	467.15	467.15	311.43	311.43	311.43	155.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	8,707.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	615.10	615.10	615.10	615.10	615.10	615.10	615.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	207.07	207.07	207.07	207.07	207.07	207.07	207.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	720.42	720.42	720.42	720.42	720.42	720.42	720.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	59.29	59.29	59.29	59.29	59.29	59.29	59.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	116.62	116.62	116.62	116.62	116.62	116.62	116.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	247.39	247.39	247.39	247.39	247.39	247.39	247.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	211.85	211.85	211.85	211.85	211.85	211.85	90.79	90.79	90.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	1,032.81	1,032.81	1,032.81	1,032.81	1,032.81	1,032.81	344.27	344.27	258.20	172.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	36.32	36.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	173.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	147.69	147.69	147.69	147.69	73.84	73.84	73.84	73.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	280.62	280.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		5,326.99	5,607.62	5,290.68	5,290.68	5,216.83	5,216.83	855.16	855.16	695.25	518.38	346.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (lb/month)		11,140.81	11,140.81	11,140.81	10,985.10	10,985.10	10,985.10	10,829.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (lb/day) ^b		231.61	243.81	230.03	230.03	226.82	226.82	37.18	37.18	30.23	22.54	15.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (lb/day) ^b		484.38	484.38	484.38	477.61	477.61	477.61	470.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment VOC Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	VOC Emissions (lb/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	3.15	3.15	3.15	3.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	53.15	106.31	106.31	106.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.79	21.59	21.59	21.59	21.59	21.59	21.59	21.59	21.59
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	16.19	16.19	21.59	21.59	21.59	37.78	37.78	37.78	37.78	37.78	37.78	37.78	37.78
Pile Driver	Onsite	0.00	0.00	0.00	5.24	6.99	6.99	6.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.83	0.83	0.83	0.83	2.49	2.49	2.49	2.49	2.49	2.49
Grader	Onsite	0.00	0.00	0.00	3.08	3.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	2.10	4.21	4.21	4.21	4.21	4.21	4.21	4.21	6.31	6.31	6.31	6.31
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	15.56	15.56	15.56	15.56	15.56	15.56	15.56	15.56	15.56	15.56	15.56	15.56
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	1.73	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.62	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75	3.75	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.15	3.15	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	17.20	17.20	17.20	22.93	22.93	22.93	40.13	40.13	40.13	40.13	40.13	40.13
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	26.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	159.46	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.56	11.34	11.34	11.34	11.34	22.67	22.67	22.67	22.67	22.67	22.67
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	5.72	5.72	5.72	5.72	5.72	5.72	5.72	5.72	5.72	5.72	5.72	5.72
Stake Truck	Onsite	0.00	0.00	0.00	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	3.24
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		0.00	0.00	0.00	125.22	180.12	189.78	238.03	106.05	109.83	127.98	154.96	154.96	185.16	185.16	349.44	189.98	185.16	186.78
Total Monthly Offsite Emissions (lb/month)		0.00	0.00	0.00	0.00	0.00	0.00	1,379.26	1,381.37	1,381.37	1,381.37	1,381.37	1,381.37	1,381.37	1,381.37	1,388.90	1,388.90	1,383.47	1,383.47
Total Daily Onsite Emissions (lb/day) ^b		0.00	0.00	0.00	5.44	7.83	8.25	10.35	4.61	4.78	5.56	6.74	6.74	8.05	8.05	15.19	8.26	8.05	8.12
Total Daily Offsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	59.97	60.06	60.06	60.06	60.06	60.06	60.06	60.06	60.39	60.39	60.15	60.15
Total Project Emissions (tons)		15.21																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment VOC Emissions from Elmore North Constr

Onsite Equipment	Equipment Location	2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	5.40	5.40	5.40	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	21.59	21.59	21.59	21.59	21.59	21.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	37.78	37.78	37.78	37.78	37.78	37.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	2.49	2.49	2.49	2.49	2.49	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	6.31	6.31	6.31	4.21	4.21	4.21	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	1,273.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	70.12	70.12	70.12	70.12	70.12	70.12	70.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	15.56	15.56	15.56	15.56	15.56	15.56	15.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	9.74	9.74	9.74	9.74	9.74	9.74	9.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	1.30	1.30	1.30	1.30	1.30	1.30	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	1.58	1.58	1.58	1.58	1.58	1.58	1.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	5.43	5.43	5.43	5.43	5.43	5.43	5.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	40.13	40.13	40.13	40.13	40.13	40.13	17.20	17.20	17.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	22.67	22.67	22.67	22.67	22.67	22.67	7.56	7.56	5.67	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	26.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	3.24	3.24	3.24	3.24	1.62	1.62	1.62	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		192.17	197.57	186.45	186.45	184.83	184.83	79.53	79.53	76.02	56.93	53.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (lb/month)		1,383.47	1,383.47	1,383.47	1,381.37	1,381.37	1,381.37	1,379.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (lb/day) ^b		8.36	8.59	8.11	8.11	8.04	8.04	3.46	3.46	3.31	2.48	2.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (lb/day) ^b		60.15	60.15	60.15	60.06	60.06	60.06	59.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment NO_x Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	NO _x Emissions (lb/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	38.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	16.39	16.39	16.39	16.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	358.11	716.22	716.22	716.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	38.71	38.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	14.24	14.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.12	112.25	112.25	112.25	112.25	112.25	112.25	112.25	112.25	112.25
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	84.19	84.19	112.25	112.25	112.25	196.44	196.44	196.44	196.44	196.44	196.44	196.44	196.44
Pile Driver	Onsite	0.00	0.00	0.00	27.24	36.32	36.32	36.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.32	4.32	4.32	4.32	4.32	12.97	12.97	12.97	12.97	12.97	12.97
Grader	Onsite	0.00	0.00	0.00	16.00	16.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	10.94	21.88	21.88	21.88	21.88	21.88	21.88	21.88	32.83	32.83	32.83	32.83
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12	70.12
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	50.62	50.62	50.62	50.62	50.62	50.62	50.62	50.62	50.62	50.62	50.62	50.62
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	39.77	39.77	39.77	39.77	39.77	39.77	39.77	39.77	39.77	39.77	39.77	39.77
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19	8.19
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	165.93	165.93	165.93	165.93	165.93	165.93	165.93	165.93	165.93	165.93	165.93	165.93
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.97	8.97	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.45	8.45	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	114.45	114.45	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.39	16.39	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	137.83	137.83	137.83	183.77	183.77	183.77	321.60	321.60	321.60	321.60	321.60	321.60
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	179.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,074.33	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	230.91	346.37	346.37	346.37	346.37	692.74	692.74	692.74	692.74	692.74	692.74
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	43.36	43.36	43.36	43.36	43.36	43.36	43.36	43.36	43.36	43.36	43.36	43.36
Stake Truck	Onsite	0.00	0.00	0.00	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.53	49.53	49.53	49.53	49.53	49.53	49.53	49.53	99.06
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		0.00	0.00	0.00	814.56	1,181.75	1,263.62	1,585.71	886.78	1,002.24	1,153.84	1,294.15	1,294.15	1,786.99	1,786.99	2,931.06	1,856.73	1,786.99	1,836.52
Total Monthly Offsite Emissions (lb/month)		0.00	0.00	0.00	0.00	0.00	0.00	2,191.23	2,202.18	2,202.18	2,202.18	2,202.18	2,202.18	2,202.18	2,202.18	2,291.64	2,291.64	2,213.12	2,213.12
Total Daily Onsite Emissions (lb/day) ^b		0.00	0.00	0.00	35.42	51.38	54.94	68.94	38.56	43.58	50.17	56.27	56.27	77.70	77.70	127.44	80.73	77.70	79.85
Total Daily Offsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	95.27	95.75	95.75	95.75	95.75	95.75	95.75	95.75	99.64	99.64	96.22	96.22
Total Project Emissions (tons)		39.26																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment NO_x Emissions from Elmore North Construc

Onsite Equipment	Equipment Location	2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	28.06	28.06	28.06	28.06	28.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	112.25	112.25	112.25	112.25	112.25	112.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	196.44	196.44	196.44	196.44	196.44	196.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	12.97	12.97	12.97	12.97	12.97	12.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	32.83	32.83	32.83	21.88	21.88	21.88	10.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	1,666.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	70.12	70.12	70.12	70.12	70.12	70.12	70.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	179.05	179.05	179.05	179.05	179.05	179.05	179.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	50.62	50.62	50.62	50.62	50.62	50.62	50.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	39.77	39.77	39.77	39.77	39.77	39.77	39.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	8.19	8.19	8.19	8.19	8.19	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	165.93	165.93	165.93	165.93	165.93	165.93	165.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	321.60	321.60	321.60	321.60	321.60	321.60	137.83	137.83	137.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	692.74	692.74	692.74	692.74	692.74	692.74	230.91	230.91	173.18	115.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	43.36	43.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	179.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	99.06	99.06	99.06	99.06	49.53	49.53	49.53	49.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	28.06	28.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		1,864.58	1,892.65	1,821.22	1,821.22	1,771.69	1,771.69	776.38	776.38	669.12	473.57	358.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (lb/month)		2,213.12	2,213.12	2,213.12	2,202.18	2,202.18	2,202.18	2,191.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (lb/day) ^b		81.07	82.29	79.18	79.18	77.03	77.03	33.76	33.76	29.09	20.59	15.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (lb/day) ^b		96.22	96.22	96.22	95.75	95.75	95.75	95.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment SO_x Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	SO _x Emissions (lb/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.31	0.31	0.31	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	1.41	2.83	2.83	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.73	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	1.58	1.58	2.10	2.10	2.10	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68
Pile Driver	Onsite	0.00	0.00	0.00	0.51	0.68	0.68	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.24	0.24	0.24	0.24	0.24	0.24
Grader	Onsite	0.00	0.00	0.00	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.61	0.61	0.61	0.61
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	24.51	24.51	24.51	24.51	24.51	24.51	24.51	24.51	24.51	24.51	24.51	24.51
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.33	0.33	0.33	0.58	0.58	0.58	0.58	0.58	0.58
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.24	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.93	0.93	0.93	0.93	1.85	1.85	1.85	1.85	1.85	1.85
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stake Truck	Onsite	0.00	0.00	0.00	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.26
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		0.00	0.00	0.00	4.68	6.26	7.15	8.12	4.56	4.86	6.13	8.76	8.76	10.10	10.10	14.74	10.50	10.10	10.23
Total Monthly Offsite Emissions (lb/month)		0.00	0.00	0.00	0.00	0.00	0.00	28.37	28.57	28.57	28.57	28.57	28.57	28.57	28.57	29.23	29.23	28.77	28.77
Total Daily Onsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.20	0.27	0.31	0.35	0.20	0.21	0.27	0.38	0.38	0.44	0.44	0.64	0.46	0.44	0.44
Total Daily Offsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	1.23	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.27	1.27	1.25	1.25
Total Project Emissions (tons)		0.37																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment SO_x Emissions from Elmore North Construc

Onsite Equipment	Equipment Location	2026												July	August	September	October	November	December
		July	August	September	October	November	December	January	February	March	April	May	June						
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.53	0.53	0.53	0.53	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	2.10	2.10	2.10	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	3.68	3.68	3.68	3.68	3.68	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.24	0.24	0.24	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.61	0.61	0.61	0.41	0.41	0.41	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	24.51	24.51	24.51	24.51	24.51	24.51	24.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	1.73	1.73	1.73	1.73	1.73	1.73	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	0.58	0.58	0.58	0.58	0.58	0.58	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	1.85	1.85	1.85	1.85	1.85	1.85	0.62	0.62	0.46	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	0.26	0.26	0.26	0.26	0.13	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.53	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		10.76	11.28	10.66	10.66	10.53	10.53	2.41	2.41	2.13	1.72	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (lb/month)		28.77	28.77	28.77	28.57	28.57	28.57	28.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (lb/day) ^b		0.47	0.49	0.46	0.46	0.46	0.46	0.10	0.10	0.09	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (lb/day) ^b		1.25	1.25	1.25	1.24	1.24	1.24	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment PM₁₀ Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	PM ₁₀ Emissions (lb/month) ^{a, b}													2025					
		2024																		
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.63	0.63	0.63	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	12.84	25.68	25.68	25.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	1.49	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.55	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	3.24	3.24	4.32	4.32	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
Pile Driver	Onsite	0.00	0.00	0.00	1.05	1.40	1.40	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17	0.17	0.17	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Grader	Onsite	0.00	0.00	0.00	0.62	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.84	0.84	0.84	0.84	0.84	0.84	0.84	1.26	1.26	1.26	1.26	1.26
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.00	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	5.67	5.67	5.67	7.56	7.56	7.56	13.24	13.24	13.24	13.24	13.24	13.24	13.24
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.51	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.26	1.26	1.26	1.26	2.52	2.52	2.52	2.52	2.52	2.52	2.52
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
Stake Truck	Onsite	0.00	0.00	0.00	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.36
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		0.00	0.00	0.00	29.46	42.65	44.47	58.11	25.53	25.95	30.18	35.57	35.57	42.84	42.84	82.16	43.65	42.84	43.02	
Total Monthly Offsite Emissions (lb/month)		0.00	0.00	0.00	0.00	0.00	0.00	509.44	509.86	509.86	509.86	509.86	509.86	509.86	509.86	511.19	511.19	510.28	510.28	
Total Daily Onsite Emissions (lb/day) ^b		0.00	0.00	0.00	1.28	1.85	1.93	2.53	1.11	1.13	1.31	1.55	1.55	1.86	1.86	3.57	1.90	1.86	1.87	
Total Daily Offsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	22.15	22.17	22.17	22.17	22.17	22.17	22.17	22.17	22.23	22.23	22.19	22.19	
Total Project Emissions (tons)		5.33																		

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment PM₁₀ Emissions from Elmore North Constr

Onsite Equipment	Equipment Location	2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	1.08	1.08	1.08	1.08	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	4.32	4.32	4.32	4.32	4.32	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	7.56	7.56	7.56	7.56	7.56	7.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	1.26	1.26	1.26	0.84	0.84	0.84	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	497.32	497.32	497.32	497.32	497.32	497.32	497.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	3.40	3.40	3.40	3.40	3.40	3.40	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	5.28	5.28	5.28	5.28	5.28	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	1.95	1.95	1.95	1.95	1.95	1.95	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	13.24	13.24	13.24	13.24	13.24	13.24	5.67	5.67	5.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	2.52	2.52	2.52	2.52	2.52	2.52	0.84	0.84	0.63	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	1.69	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	0.36	0.36	0.36	0.36	0.18	0.18	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	1.08	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		44.10	45.18	42.40	42.40	42.22	42.22	19.53	19.53	19.14	13.26	12.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (lb/month)		510.28	510.28	510.28	509.86	509.86	509.86	509.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (lb/day) ^b		1.92	1.96	1.84	1.84	1.84	1.84	0.85	0.85	0.83	0.58	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (lb/day) ^b		22.19	22.19	22.19	22.17	22.17	22.17	22.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment PM_{2.5} Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	PM _{2.5} Emissions (lb/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.63	0.63	0.63	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	11.81	23.62	23.62	23.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	1.49	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.55	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	3.24	3.24	4.32	4.32	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
Pile Driver	Onsite	0.00	0.00	0.00	1.05	1.40	1.40	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17	0.17	0.17	0.50	0.50	0.50	0.50	0.50	0.50
Grader	Onsite	0.00	0.00	0.00	0.62	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.84	0.84	0.84	0.84	0.84	0.84	0.84	1.26	1.26	1.26	1.26
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32	497.32
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	5.22	5.22	5.22	6.96	6.96	6.96	12.18	12.18	12.18	12.18	12.18	12.18
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.43	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.26	1.26	1.26	1.26	2.52	2.52	2.52	2.52	2.52	2.52
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Stake Truck	Onsite	0.00	0.00	0.00	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.36
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		0.00	0.00	0.00	27.40	39.56	41.39	53.93	23.91	24.33	28.41	33.81	33.81	40.62	40.62	76.86	41.42	40.62	40.80
Total Monthly Offsite Emissions (lb/month)		0.00	0.00	0.00	0.00	0.00	0.00	509.44	509.86	509.86	509.86	509.86	509.86	509.86	509.86	511.19	511.19	510.28	510.28
Total Daily Onsite Emissions (lb/day) ^b		0.00	0.00	0.00	1.19	1.72	1.80	2.34	1.04	1.06	1.24	1.47	1.47	1.77	1.77	3.34	1.80	1.77	1.77
Total Daily Offsite Emissions (lb/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	22.15	22.17	22.17	22.17	22.17	22.17	22.17	22.17	22.23	22.23	22.19	22.19
Total Project Emissions (tons)		5.30																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment PM_{2.5} Emissions from Elmore North Constr u

Onsite Equipment	Equipment Location	2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	1.08	1.08	1.08	1.08	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	4.32	4.32	4.32	4.32	4.32	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	7.56	7.56	7.56	7.56	7.56	7.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	1.26	1.26	1.26	0.84	0.84	0.84	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	497.32	497.32	497.32	497.32	497.32	497.32	497.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	3.40	3.40	3.40	3.40	3.40	3.40	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	5.28	5.28	5.28	5.28	5.28	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	1.95	1.95	1.95	1.95	1.95	1.95	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	12.18	12.18	12.18	12.18	12.18	12.18	5.22	5.22	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	2.52	2.52	2.52	2.52	2.52	2.52	0.84	0.84	0.63	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	1.56	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	0.36	0.36	0.36	0.36	0.18	0.18	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	1.08	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (lb/month)		41.88	42.96	40.32	40.32	40.14	40.14	18.05	18.05	17.66	12.23	11.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (lb/month)		510.28	510.28	510.28	509.86	509.86	509.86	509.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (lb/day) ^b		1.82	1.87	1.75	1.75	1.75	1.75	0.78	0.78	0.77	0.53	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (lb/day) ^b		22.19	22.19	22.19	22.17	22.17	22.17	22.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment CO₂ Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	CO ₂ Emissions (metric tons/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	15.15	15.15	15.15	15.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	69.37	138.75	138.75	138.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	35.94	35.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	13.07	13.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.65	103.31	103.31	103.31	103.31	103.31	103.31	103.31	103.31
35 Ton Hydraulic Crane	Onsite	0.00	0.00	0.00	0.00	0.00	77.48	77.48	103.31	103.31	103.31	180.79	180.79	180.79	180.79	180.79	180.79	180.79	180.79
Pile Driver	Onsite	0.00	0.00	0.00	25.12	33.49	33.49	33.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.98	3.98	3.98	3.98	3.98	11.93	11.93	11.93	11.93	11.93	11.93
Grader	Onsite	0.00	0.00	0.00	14.80	14.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	9.95	19.91	19.91	19.91	19.91	19.91	19.91	19.91	29.86	29.86	29.86	29.86
Drilling Diesel Generator (Kenai)	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	860.12	860.12	860.12	860.12	860.12	860.12	860.12	860.12	860.12	860.12	860.12	860.12
Drilling Rental Generator	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75
Drilling Pump	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32
Drilling Forklift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	46.68	46.68	46.68	46.68	46.68	46.68	46.68	46.68	46.68	46.68	46.68	46.68
Drilling Manlift	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85
Drilling Backhoe	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58	7.58
Drilling Light Tower	Offsite	0.00	0.00	0.00	0.00	0.00	0.00	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.24	8.24	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.78	7.78	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.08	11.08	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.15	15.15	0.00	0.00
Electrical Generators	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	8.13	8.13	8.13	10.83	10.83	10.83	18.96	18.96	18.96	18.96	18.96	18.96
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	34.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	208.12	0.00	0.00	0.00
Diesel Welders	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.65	32.47	32.47	32.47	32.47	64.94	64.94	64.94	64.94	64.94	64.94
Compactor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Stake Truck	Onsite	0.00	0.00	0.00	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69
Water Truck (shared between 3 projects)	Onsite	0.00	0.00	0.00	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69
Air Compressor	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.64	4.64	4.64	4.64	4.64	4.64	4.64	4.64	9.29
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (metric tons/month)		0.00	0.00	0.00	229.75	307.50	351.01	392.83	209.13	219.95	278.95	408.09	408.09	456.63	456.63	684.63	476.51	456.63	461.28
Total Monthly Offsite Emissions (metric tons/month)		0.00	0.00	0.00	0.00	0.00	0.00	1,019.33	1,029.29	1,029.29	1,029.29	1,029.29	1,029.29	1,029.29	1,029.29	1,061.62	1,061.62	1,039.24	1,039.24
Total Daily Onsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	9.99	13.37	15.26	17.08	9.09	9.56	12.13	17.74	17.74	19.85	19.85	29.77	20.72	19.85	20.06
Total Daily Offsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	44.32	44.75	44.75	44.75	44.75	44.75	44.75	44.75	46.16	46.16	45.18	45.18
Total Project Emissions (metric tons)		28,827.86																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment CO₂ Emissions from Elmore North Construc

Onsite Equipment	Equipment Location	2026																	
		July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Excavator	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 Wheel Dump Truck	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dozer	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Front End Loader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150 Ton Hydraulic Crane	Onsite	0.00	25.83	25.83	25.83	25.83	25.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75 Ton Hydraulic Crane	Onsite	103.31	103.31	103.31	103.31	103.31	103.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 Ton Hydraulic Crane	Onsite	180.79	180.79	180.79	180.79	180.79	180.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Driver	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lift	Onsite	11.93	11.93	11.93	11.93	11.93	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drill Rigs	Offsite	29.86	29.86	29.86	19.91	19.91	19.91	9.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Diesel Generator (Kenai)	Offsite	860.12	860.12	860.12	860.12	860.12	860.12	860.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Rental Generator	Offsite	60.75	60.75	60.75	60.75	60.75	60.75	60.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Pump	Offsite	14.32	14.32	14.32	14.32	14.32	14.32	14.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Forklift	Offsite	46.68	46.68	46.68	46.68	46.68	46.68	46.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Manlift	Offsite	3.85	3.85	3.85	3.85	3.85	3.85	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Backhoe	Offsite	7.58	7.58	7.58	7.58	7.58	7.58	7.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drilling Light Tower	Offsite	16.10	16.10	16.10	16.10	16.10	16.10	16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pavers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Rollers	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Generators	Onsite	18.96	18.96	18.96	18.96	18.96	18.96	8.13	8.13	8.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pump Trucks	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Welders	Onsite	64.94	64.94	64.94	64.94	64.94	64.94	21.65	21.65	16.23	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor	Onsite	2.70	2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	Onsite	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck (shared between 3 projects)	Onsite	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	34.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	Onsite	9.29	9.29	9.29	9.29	4.64	4.64	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Towers	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Main Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy lift Gantry Crane	Onsite	25.83	25.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Onsite Emissions (metric tons/month)		487.10	512.93	484.40	484.40	479.76	479.76	103.79	103.79	93.73	80.20	69.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (metric tons/month)		1,039.24	1,039.24	1,039.24	1,029.29	1,029.29	1,029.29	1,019.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (metric tons/day) ^b		21.18	22.30	21.06	21.06	20.86	20.86	4.51	4.51	4.08	3.49	3.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (metric tons/day) ^b		45.18	45.18	45.18	44.75	44.75	44.75	44.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (metric tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment N₂O Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	N ₂ O Emissions (metric tons/month) ^{a, b}												2025					
		2024																	
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	Onsite	0.00E+00	0.00E+00	0.00E+00	1.23E-04	1.23E-04	1.23E-04	1.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10 Wheel Dump Truck	Onsite	0.00E+00	0.00E+00	0.00E+00	5.63E-04	1.13E-03	1.13E-03	1.13E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dozer	Onsite	0.00E+00	0.00E+00	0.00E+00	2.92E-04	2.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Front End Loader	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-04	1.06E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
150 Ton Hydraulic Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75 Ton Hydraulic Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04
35 Ton Hydraulic Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.29E-04	6.29E-04	8.38E-04	8.38E-04	8.38E-04	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03
Pile Driver	Onsite	0.00E+00	0.00E+00	0.00E+00	2.04E-04	2.72E-04	2.72E-04	2.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fork Lift	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	9.68E-05	9.68E-05	9.68E-05	9.68E-05	9.68E-05	9.68E-05
Grader	Onsite	0.00E+00	0.00E+00	0.00E+00	1.20E-04	1.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drill Rigs	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.08E-05	1.62E-04	1.62E-04	1.62E-04	1.62E-04	1.62E-04	1.62E-04	1.62E-04	2.42E-04	2.42E-04	2.42E-04	2.42E-04
Drilling Diesel Generator (Kenai)	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03
Drilling Rental Generator	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04
Drilling Pump	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04
Drilling Forklift	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04
Drilling Manlift	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05
Drilling Backhoe	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05
Drilling Light Tower	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04
Pavers	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.68E-05	6.68E-05	0.00E+00	0.00E+00
Paving Equipment	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-05	6.31E-05	0.00E+00	0.00E+00
Paving Rollers	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.99E-05	8.99E-05	0.00E+00	0.00E+00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-04	1.23E-04	0.00E+00	0.00E+00
Electrical Generators	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.59E-05	6.59E-05	6.59E-05	8.79E-05	8.79E-05	8.79E-05	8.79E-05	1.54E-04	1.54E-04	1.54E-04	1.54E-04	1.54E-04
Concrete Pump Trucks	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-03	0.00E+00	0.00E+00
Diesel Welders	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-04	2.63E-04	2.63E-04	2.63E-04	2.63E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04
Compactor	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05	2.19E-05
Stake Truck	Onsite	0.00E+00	0.00E+00	0.00E+00	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04
Water Truck (shared between 3 projects)	Onsite	0.00E+00	0.00E+00	0.00E+00	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04
Air Compressor	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	7.53E-05
Light Towers	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy Lift Lattice boom Main Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy lift Gantry Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total Monthly Onsite Emissions (metric tons/month)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Total Monthly Offsite Emissions (metric tons/month)		0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total Daily Onsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (metric tons)		0.23																	

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment N₂O Emissions from Elmore North Construc

Onsite Equipment	Equipment Location	2026												July	August	September	October	November	December
		July	August	September	October	November	December	January	February	March	April	May	June						
Excavator	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10 Wheel Dump Truck	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dozer	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Front End Loader	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
150 Ton Hydraulic Crane	Onsite	0.00E+00	2.10E-04	2.10E-04	2.10E-04	2.10E-04	2.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75 Ton Hydraulic Crane	Onsite	8.38E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04	8.38E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35 Ton Hydraulic Crane	Onsite	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pile Driver	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fork Lift	Onsite	9.68E-05	9.68E-05	9.68E-05	9.68E-05	9.68E-05	9.68E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Grader	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drill Rigs	Offsite	2.42E-04	2.42E-04	2.42E-04	1.62E-04	1.62E-04	1.62E-04	8.08E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Diesel Generator (Kenai)	Offsite	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	6.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Rental Generator	Offsite	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	4.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Pump	Offsite	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Forklift	Offsite	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	3.79E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Manlift	Offsite	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Backhoe	Offsite	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	6.15E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drilling Light Tower	Offsite	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	1.31E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pavers	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Paving Equipment	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Paving Rollers	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Electrical Generators	Onsite	1.54E-04	1.54E-04	1.54E-04	1.54E-04	1.54E-04	1.54E-04	6.59E-05	6.59E-05	6.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Concrete Pump Trucks	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Diesel Welders	Onsite	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	1.76E-04	1.76E-04	1.32E-04	8.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Compactor	Onsite	2.19E-05	2.19E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Stake Truck	Onsite	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Water Truck (shared between 3 projects)	Onsite	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	2.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Air Compressor	Onsite	7.53E-05	7.53E-05	7.53E-05	7.53E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Light Towers	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy Lift Lattice boom Main Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy lift Gantry Crane	Onsite	2.10E-04	2.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total Monthly Onsite Emissions (metric tons/month)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Monthly Offsite Emissions (metric tons/month)		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Onsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (metric tons)																			

Elmore North Geothermal Project

Elmore North Construction Emissions

Construction Equipment Emissions

April 2023

Construction Equipment CH₄ Emissions from Elmore North Construction

Onsite Equipment	Equipment Location	CH ₄ Emissions (metric tons/month) ^{a, b}																	
		2024												2025					
		January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
Excavator	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	Onsite	0.00E+00	0.00E+00	0.00E+00	6.15E-04	6.15E-04	6.15E-04	6.15E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10 Wheel Dump Truck	Onsite	0.00E+00	0.00E+00	0.00E+00	2.81E-03	5.63E-03	5.63E-03	5.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dozer	Onsite	0.00E+00	0.00E+00	0.00E+00	1.46E-03	1.46E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Front End Loader	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-04	5.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
150 Ton Hydraulic Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75 Ton Hydraulic Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-03	4.19E-03	4.19E-03	4.19E-03	4.19E-03	4.19E-03	4.19E-03	4.19E-03	4.19E-03
35 Ton Hydraulic Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-03	3.14E-03	4.19E-03	4.19E-03	4.19E-03	7.33E-03	7.33E-03	7.33E-03	7.33E-03	7.33E-03	7.33E-03	7.33E-03	7.33E-03
Pile Driver	Onsite	0.00E+00	0.00E+00	0.00E+00	1.02E-03	1.36E-03	1.36E-03	1.36E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fork Lift	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-04	1.61E-04	1.61E-04	1.61E-04	1.61E-04	4.84E-04	4.84E-04	4.84E-04	4.84E-04	4.84E-04	4.84E-04
Grader	Onsite	0.00E+00	0.00E+00	0.00E+00	6.00E-04	6.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Drill Rigs	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E-04	8.08E-04	8.08E-04	8.08E-04	8.08E-04	8.08E-04	8.08E-04	8.08E-04	8.08E-04	1.21E-03	1.21E-03	1.21E-03
Drilling Diesel Generator (Kenai)	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02
Drilling Rental Generator	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03
Drilling Pump	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04	5.81E-04
Drilling Forklift	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03	1.89E-03
Drilling Manlift	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04	1.56E-04
Drilling Backhoe	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04
Drilling Light Tower	Offsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04	6.53E-04
Pavers	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.34E-04	3.34E-04	0.00E+00	0.00E+00
Paving Equipment	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-04	3.16E-04	0.00E+00	0.00E+00
Paving Rollers	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-04	4.49E-04	0.00E+00	0.00E+00
Paving Tractor/Loader/Backhoe	Onsite and Offsite ^c	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E-04	6.15E-04	0.00E+00	0.00E+00
Electrical Generators	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-04	3.30E-04	3.30E-04	4.39E-04	4.39E-04	4.39E-04	7.69E-04	7.69E-04	7.69E-04	7.69E-04	7.69E-04	7.69E-04
Concrete Pump Trucks	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.44E-03	0.00E+00	0.00E+00	0.00E+00
Diesel Welders	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.78E-04	1.32E-03	1.32E-03	1.32E-03	1.32E-03	2.63E-03	2.63E-03	2.63E-03	2.63E-03	2.63E-03	2.63E-03
Compactor	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04	1.09E-04
Stake Truck	Onsite	0.00E+00	0.00E+00	0.00E+00	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03
Water Truck (shared between 3 projects)	Onsite	0.00E+00	0.00E+00	0.00E+00	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03	1.41E-03
Air Compressor	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-04	1.88E-04	1.88E-04	1.88E-04	1.88E-04	1.88E-04	1.88E-04	1.88E-04	3.77E-04
Light Towers	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy Lift Lattice boom Main Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy Lift Lattice boom Tail Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heavy lift Gantry Crane	Onsite	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total Monthly Onsite Emissions (metric tons/month)		0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02
Total Monthly Offsite Emissions (metric tons/month)		0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Total Daily Onsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Daily Offsite Emissions (metric tons/day) ^b		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Emissions (metric tons)		1.17																	

Notes:

^a Per information provided by the Applicant's engineering contractor, work hours per day are as follows: 20

^b Per information provided by the Applicant's engineering contractor, work days per month are as follows: 23

^c Paving emissions will occur both onsite and offsite.

Daily and monthly emissions are apportioned based upon the amount of paved area onsite and offsite, respectively.