



MEMO

Date: March 5, 2025 **Project No.:** 220119 /2.1
To: Joseph Parra, CRC
From: Matthew Daniel, QK
Subject: CREH Buena Vista 4 and 6 CalEEMod Emissions Update
cc: Jaymie Brauer, QK
Daniel Padilla, CRC

Introduction

The California Department of Conservation- Geological Energy Management Division (CalGEM) requested California Resources Corporation (CRC) update the Project emissions for the CREH Buena Vista 4 and 6 Project (Project) that utilized the older Road Construction Emissions Model (RCM) for estimating Project emissions. CalGEM stated that per San Joaquin Valley Air Pollution Control District's (SJVAPCD) requirements, the data and analysis need to be updated using CalEEMod. Quad Knopf, Inc. (QK) on behalf of CRC has completed the requested emissions updates and the emissions are summarized within this memo. The CalEEMod output files are included in Attachment B.

Project Emissions Update

Methodology and Assumptions

Booher Consulting, LLC. (Booher) previously calculated emissions from site preparation, drilling and facilities construction using RCM, EMFAC, and OFFROAD. Per CalGEM's request, these emissions have been updated using CalEEMod. Due to the functionality of the CalEEMod program, the input assumptions needed to be reworked in order to accurately estimate the emissions. CalEEMod requires a user to enter in the total working days for each phase, then multiplies those days with the equipment's hours per day of operating time to calculate the total hours of operation. However, since different types of equipment in each phase have varying number of days used during the phase, the total hours per day of operation for each piece of equipment needed to be ratioed as if they operated each day during the phase. Additionally, miles traveled per trip also needed to be ratioed for the same reason. Tables 1 through 5 below summarize the adjusted hours per day and miles per trip that was input to CalEEMod.



Table 1
Equipment Used During Site Preparation Phase Per Well Site
(4-5H-6D and 616-12D Wells)

On Site Equipment	Number	Days of Operation	Daily Operating Hours	Total Phase Operating Hours	Ratioed Daily Operating Hours (9 Days)*
Grader	1	2	8	16	1.78
Front Loader	1	5	8	40	4.44
Excavator	1	2	8	16	1.78
Water Truck	1	5	8	40	4.44
Mobile Sources		One-Way Trips	Days of Operation	Total Phase Miles	Ratioed Miles per Trip (9 Days)
Passenger Car/Pickup Trucks		4	9	1800	50
Heavy Trucks/Semi		2	1	100	5.56

*Per piece of equipment

Table 2
Equipment Used During Site Preparation Phase for
One (1) Well Site with Two (2) Wells
(603H-1-6D and 658UH-36-6D wells on One (1) Pad and
674UH-6-8D and 675H-6-8D wells on One (1) Well Pad)

On Site Equipment	Number	Days of Operation	Daily Operating Hours	Total Phase Operating Hours	Ratioed Daily Operating Hours (11 Days)*
Grader	1	2	8	16	1.45
Front Loader	1	5	8	40	3.64
Excavator	1	4	8	32	2.91
Water Truck	1	5	8	40	3.64
Mobile Sources		One-Way Trips	Days of Operation	Total Phase Miles	Ratioed Miles per Trip (11 Days)
Passenger Car/Pickup Trucks		16	11	8800	50
Heavy Trucks/Semi		2	1	100	4.55

*Per piece of equipment



Table 3
Equipment Used During Drilling Phase Per Well Site
(4-5H-6D and 616-12D Wells)

On Site Equipment	Number	Days of Operation	Daily Operating Hours	Total Phase Operating Hours	Ratioed Daily Operating Hours (8 Days)*
Forklift	1	7	4	28	3.50
Drill Rig 1	1	7	15.3	107.1	13.39
Drill Rig 2	1	7	17.9	125.3	15.66
Drill Rig 3	1	7	12	84	10.50
Small Generators	1	2	4	8	1.00
Small Generators	2	7	12	84	5.25
Water Truck	1	7	8	56	7.00
Vacuum Truck	1	8	24	192	24.00
Mobile Sources		One-Way Trips	Days of Operation	Total Phase Miles	Ratioed Miles per Trip (8 Days)
Passenger Car/Pickup Trucks		12	7	9000	93.75
Heavy Trucks (Normal Operations)		4	7	2400	75.00
Heavy Trucks (24 Hour Operations)		2	8	1300	81.25
Heavy Trucks (Mobilization and Demobilization of Equipment)		4	1	200	6.25

*Per piece of equipment



Table 4
Equipment Used During Drilling Phase Per Well Site
(603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D Wells)

On Site Equipment	Number	Days of Operation	Daily Operating Hours	Total Phase Operating Hours	Ratioed Daily Operating Hours (18 Days)*
Forklift	1	18	4	72	4.00
Drill Rig 1	1	18	15.3	275.4	15.30
Drill Rig 2	1	18	17.9	322.2	17.90
Drill Rig 3	1	18	12	216	12.00
Small Generators	1	2	4	8	0.44
Small Generators	2	18	12	216	6.00
Water Truck	1	18	8	144	8.00
Vacuum Truck	1	18	24	432	24.00
Mobile Sources		One-Way Trips	Days of Operation	Total Phase Miles	Ratioed Miles per Trip (18 Days)
Passenger Car/Pickup Trucks		12	18	10800	50.00
Heavy Trucks (Normal Operations)		4	18	2880	40.00
Heavy Trucks (24 Hour Operations)		2	18	1900	52.78
Heavy Trucks (Mobilization and Demobilization of Equipment)		4	1	200	2.78

*Per piece of equipment

Table 5
Equipment Used for Facilities Construction Phase Per Well Site
(All Wells)

On Site Equipment	Number	Days of Operation	Daily Operating Hours	Total Phase Operating Hours	Ratioed Daily Operating Hours (5 Days)*
Backhoe	1	5	8	40	8.00
Water trailer	2	5	1	5	0.50
Welding Machine	1	1	8	8	1.60
Mobile Sources		One-Way Trips	Days of Operation	Total Phase Miles	Ratioed Miles per Trip (5 Days)
Passenger Car/Pickup Trucks (Electrical Crew)		4	3	78	3.90
Heavy Trucks (Electrical Crew)		2	3	78	7.80
Passenger Car/Pickup Trucks (Mechanical Crew)		6	5	195	6.50
Heavy Trucks (Mechanical Crew)		2	2	26	2.60

*Per piece of equipment



Results

Updated Project emissions from site preparation, drilling and facilities construction were estimated using CalEEMod v2022.1.1.29 which is the SJVAPCD's recommended version to estimate emissions. The Project emissions are summarized in Table 6 below.

Table 6
Updated Criteria Pollutant Emissions

Project Phases	ROG (tons/yr)	NOX (tons/yr)	CO (tons/yr)	SOX (tons/yr)	PM10 (tons/yr)	PM2.5 (tons/yr)	CO2e (MT/yr)
Per Well (4-5H-6D and 616-12D Wells)							
Total (One Well)	0.05	0.99	0.31	<0.005	0.03	0.02	145
Total (Two Wells)	0.10	1.98	0.62	<0.010	0.06	0.04	290
Per Well (603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D Wells)							
Total (One Well)	0.12	2.47	0.75	<0.005	0.07	0.06	348
Total (Four Wells)	0.48	9.88	3.00	<0.020	0.28	0.24	1,392

Attachments:

- A. Criteria Pollutants Calculated by Booher
- B. CalEEMod Output Files

ATTACHMENT A

CRITERIA POLLUTANT EMISSIONS CALCULATED BY BOOHER

Table 6
Criteria Pollutant Emissions Rates (8 days)
(4-5H-6D and 616-12D Wells)

Emissions below 0.0000 tons/yr. are reported as 0.0000

Project Phases	ROG (tons/yr)	NOx (tons/yr)	PM-10 (tons/yr)	PM-2.5* (tons/yr)	SOx (tons/yr)	CO (tons/yr)
Site Preparation						
On-site Equipment plus fugitive dust	0.0031	0.0307	0.0013	0.0067	0.0000	0.0192
Mobile Sources	0.0000	0.0005	0.0000	0.0001	0.0000	0.0073
Drilling Phase						
On-site Equipment	0.0406	0.7966	0.0172	0.1595	0.0014	0.2843
Mobile Sources	0.0000	0.0071	0.0000	0.0013	0.0000	0.0064
Facilities Construction Phase						
On-site Equipment	0.0010	0.0055	0.0002	0.0013	0.0000	0.0062
Mobile Sources	0.0000	0.0002	0.0000	0.0000	0.0000	0.0003
Total Construction for One (1) Well Site and One (1) Well	0.0447	0.8406	0.0187	0.1689	0.0014	0.3237
Total Construction for Two (2) Well Sites and Two (2) Wells	0.0894	1.6812	0.0374	0.3378	0.0028	0.6474

**PM-2.5 is the summation of PM-2.5 direct and PM-2.5 indirect emissions.*

Table 7
Criteria Pollutant Emissions Rates (18 days)
(603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D wells)

Emissions below 0.0000 tons/yr. are reported as 0.0000

Project Phases	ROG (tons/yr)	NOx (tons/yr)	PM-10 (tons/yr)	PM-2.5* (tons/yr)	SOx (tons/yr)	CO (tons/yr)
Site Preparation						
On-site Equipment plus fugitive dust	0.0033	0.0333	0.0014	0.0073	0.0000	0.0202
Mobile Sources	0.0000	0.0005	0.0000	0.0001	0.0000	0.0073
Drilling Phase						
On-site Equipment	0.1032	2.0354	0.0438	0.4073	0.0035	0.7218
Mobile Sources	0.0002	0.0173	0.0000	0.0032	0.0001	0.0161
Facilities Construction Phase						
On-site Equipment	0.0010	0.0055	0.0002	0.0013	0.0000	0.0062
Mobile Sources	0.0000	0.0002	0.0000	0.0000	0.0000	0.0003
Total Construction for One (1) Well Site and One (1) Well	0.1077	2.0922	0.0454	0.4192	0.0036	0.7719
Total Construction for One (1) Well on Existing Well Site	0.1044	2.0584	0.0440	0.4118	0.0036	0.7444
Total Construction for Two (2) Well Sites and Four (4) Wells	0.4242	8.3012	0.1788	1.6620	0.0144	3.0326

**PM-2.5 is the summation of PM-2.5 direct and PM-2.5 indirect emissions.*

ATTACHMENT B

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CREH (4-5H-6D and 616-12D Wells)
Construction Start Date	4/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	1.40
Location	35.17045813553344, -119.4413377277121
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2945
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.00	User Defined Unit	1.00	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13.8	11.6	239	73.1	0.34	5.61	1.25	6.86	5.16	0.31	5.47	—	37,818	37,818	1.47	0.57	7.28	38,033
Mit.	13.8	11.6	239	73.1	0.34	5.61	1.25	6.86	5.16	0.31	5.47	—	37,818	37,818	1.47	0.57	7.28	38,033
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.33	0.28	5.41	1.71	0.01	0.13	0.03	0.17	0.12	0.01	0.13	—	870	870	0.03	0.01	0.08	875
Mit.	0.33	0.28	5.41	1.71	0.01	0.13	0.03	0.17	0.12	0.01	0.13	—	870	870	0.03	0.01	0.08	875
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.05	0.99	0.31	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	144	144	0.01	< 0.005	0.01	145
Mit.	0.06	0.05	0.99	0.31	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	144	144	0.01	< 0.005	0.01	145
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	13.8	11.6	239	73.1	0.34	5.61	1.25	6.86	5.16	0.31	5.47	—	37,818	37,818	1.47	0.57	7.28	38,033
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.33	0.28	5.41	1.71	0.01	0.13	0.03	0.17	0.12	0.01	0.13	—	870	870	0.03	0.01	0.08	875
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.06	0.05	0.99	0.31	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	144	144	0.01	< 0.005	0.01	145

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	13.8	11.6	239	73.1	0.34	5.61	1.25	6.86	5.16	0.31	5.47	—	37,818	37,818	1.47	0.57	7.28	38,033
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.33	0.28	5.41	1.71	0.01	0.13	0.03	0.17	0.12	0.01	0.13	—	870	870	0.03	0.01	0.08	875
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.06	0.05	0.99	0.31	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	144	144	0.01	< 0.005	0.01	145

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.28	3.33	0.01	0.12	—	0.12	0.11	—	0.11	—	1,336	1,336	0.05	0.01	—	1,341
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.0	33.0	< 0.005	< 0.005	—	33.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.46	5.46	< 0.005	< 0.005	—	5.47
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.04	0.81	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	155	155	0.01	< 0.005	0.56	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.1	41.1	< 0.005	0.01	0.09	43.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.47	3.47	< 0.005	< 0.005	0.01	3.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.01	1.01	< 0.005	< 0.005	< 0.005	1.06
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.28	3.33	0.01	0.12	—	0.12	0.11	—	0.11	—	1,336	1,336	0.05	0.01	—	1,341
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.0	33.0	< 0.005	< 0.005	—	33.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.46	5.46	< 0.005	< 0.005	—	5.47
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.04	0.81	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	155	155	0.01	< 0.005	0.56	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.1	41.1	< 0.005	0.01	0.09	43.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.47	3.47	< 0.005	< 0.005	0.01	3.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.01	1.01	< 0.005	< 0.005	< 0.005	1.06
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18

3.3. Drilling (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm ent	13.6	11.5	237	68.4	0.33	5.58	—	5.58	5.13	—	5.13	—	35,292	35,292	1.43	0.29	—	35,414
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.30	0.25	5.19	1.50	0.01	0.12	—	0.12	0.11	—	0.11	—	774	774	0.03	0.01	—	776
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.05	0.05	0.95	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	128	128	0.01	< 0.005	—	129
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.23	4.46	0.00	0.00	0.79	0.79	0.00	0.19	0.19	—	868	868	0.03	0.03	3.15	879
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.74	0.27	0.01	0.03	0.45	0.48	0.03	0.12	0.16	—	1,658	1,658	0.01	0.26	4.13	1,740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.03	17.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.3	36.3	< 0.005	0.01	0.04	38.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	2.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.02	6.02	< 0.005	< 0.005	0.01	6.31

3.4. Drilling (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	13.6	11.5	237	68.4	0.33	5.58	—	5.58	5.13	—	5.13	—	35,292	35,292	1.43	0.29	—	35,414
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	5.19	1.50	0.01	0.12	—	0.12	0.11	—	0.11	—	774	774	0.03	0.01	—	776
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.05	0.95	0.27	< 0.005	0.02	—	0.02	0.02	—	0.02	—	128	128	0.01	< 0.005	—	129
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.23	4.46	0.00	0.00	0.79	0.79	0.00	0.19	0.19	—	868	868	0.03	0.03	3.15	879
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.74	0.27	0.01	0.03	0.45	0.48	0.03	0.12	0.16	—	1,658	1,658	0.01	0.26	4.13	1,740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.03	17.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.3	36.3	< 0.005	0.01	0.04	38.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	2.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.02	6.02	< 0.005	< 0.005	0.01	6.31

3.5. Facilities Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.96	0.80	6.28	2.71	< 0.005	0.50	—	0.50	0.46	—	0.46	—	279	279	0.01	< 0.005	—	280
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3.82	3.82	< 0.005	< 0.005	—	3.84
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.63	0.63	< 0.005	< 0.005	—	0.64
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.29	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.8	43.8	< 0.005	< 0.005	0.15	44.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.3	77.3	< 0.005	0.01	0.18	81.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18

3.6. Facilities Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	6.28	2.71	< 0.005	0.50	—	0.50	0.46	—	0.46	—	279	279	0.01	< 0.005	—	280
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3.82	3.82	< 0.005	< 0.005	—	3.84
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.63	0.63	< 0.005	< 0.005	—	0.64
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.29	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.8	43.8	< 0.005	< 0.005	0.15	44.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.3	77.3	< 0.005	0.01	0.18	81.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
---------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Grading	4/1/2025	4/9/2025	7.00	9.00	—
Drilling	Building Construction	4/10/2025	4/17/2025	7.00	8.00	—
Facilities Construction	Building Construction	4/18/2025	4/22/2025	7.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	1.78	185	0.41
Site Preparation	Excavators	Diesel	Average	1.00	1.78	135	0.38
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.44	286	0.37
Site Preparation	Other General Industrial Equipment	Diesel	Average	1.00	4.44	300	0.34
Drilling	Other General Industrial Equipment	Diesel	Average	1.00	7.00	300	0.34
Drilling	Forklifts	Diesel	Average	1.00	3.50	300	0.20

Drilling	Other General Industrial Equipment	Diesel	Average	1.00	24.0	300	0.34
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	13.4	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	15.7	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	10.5	1,354	0.50
Drilling	Generator Sets	Diesel	Average	1.00	1.00	154	0.74
Drilling	Generator Sets	Diesel	Average	2.00	5.25	12.0	0.74
Facilities Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	74.0	0.37
Facilities Construction	Other General Industrial Equipment	Diesel	Average	2.00	0.50	6.00	0.34
Facilities Construction	Welders	Diesel	Average	1.00	1.60	23.0	0.45

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	1.78	185	0.41
Site Preparation	Excavators	Diesel	Average	1.00	1.78	135	0.38
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.44	286	0.37
Site Preparation	Other General Industrial Equipment	Diesel	Average	1.00	4.44	300	0.34
Drilling	Other General Industrial Equipment	Diesel	Average	1.00	7.00	300	0.34
Drilling	Forklifts	Diesel	Average	1.00	3.50	300	0.20
Drilling	Other General Industrial Equipment	Diesel	Average	1.00	24.0	300	0.34
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	13.4	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	15.7	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	10.5	1,354	0.50
Drilling	Generator Sets	Diesel	Average	1.00	1.00	154	0.74
Drilling	Generator Sets	Diesel	Average	2.00	5.25	12.0	0.74

Facilities Construction	Tractors/Loaders/Back	Diesel	Average	1.00	8.00	74.0	0.37
Facilities Construction	Other General Industrial Equipment	Diesel	Average	2.00	0.50	6.00	0.34
Facilities Construction	Welders	Diesel	Average	1.00	1.60	23.0	0.45

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	4.00	50.0	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	2.00	5.56	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Drilling	—	—	—	—
Drilling	Worker	12.0	93.8	LDA,LDT1,LDT2
Drilling	Vendor	0.00	10.6	HHDT,MHDT
Drilling	Hauling	10.0	48.8	HHDT
Drilling	Onsite truck	—	—	HHDT
Facilities Construction	—	—	—	—
Facilities Construction	Worker	10.0	5.46	LDA,LDT1,LDT2
Facilities Construction	Vendor	0.00	10.6	HHDT,MHDT
Facilities Construction	Hauling	4.00	5.20	HHDT
Facilities Construction	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—

Site Preparation	Worker	4.00	50.0	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	2.00	5.56	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Drilling	—	—	—	—
Drilling	Worker	12.0	93.8	LDA,LDT1,LDT2
Drilling	Vendor	0.00	10.6	HHDT,MHDT
Drilling	Hauling	10.0	48.8	HHDT
Drilling	Onsite truck	—	—	HHDT
Facilities Construction	—	—	—	—
Facilities Construction	Worker	10.0	5.46	LDA,LDT1,LDT2
Facilities Construction	Vendor	0.00	10.6	HHDT,MHDT
Facilities Construction	Hauling	4.00	5.20	HHDT
Facilities Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	9.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	22.7	annual days of extreme heat
Extreme Precipitation	0.00	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	75.4
AQ-PM	57.3
AQ-DPM	8.76
Drinking Water	92.6
Lead Risk Housing	56.5
Pesticides	88.1
Toxic Releases	91.4
Traffic	2.73
Effect Indicators	—
CleanUp Sites	85.8
Groundwater	94.8
Haz Waste Facilities/Generators	97.3
Impaired Water Bodies	0.00
Solid Waste	99.5
Sensitive Population	—
Asthma	17.7

Cardio-vascular	58.1
Low Birth Weights	61.9
Socioeconomic Factor Indicators	—
Education	76.0
Housing	16.9
Linguistic	57.8
Poverty	70.3
Unemployment	87.7

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—

Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0
Asthma ER Admissions	85.0
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	35.0
Physically Disabled	11.3
Heart Attack ER Admissions	61.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0

Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	76.6
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	4.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	95.8
Traffic Density	0.0
Traffic Access	0.0
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	81.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage changed to match the original run of 1 acre of disturbed land
Construction: Construction Phases	Changes made to match project schedules
Construction: Off-Road Equipment	Equipment and schedule matches Project data
Construction: Dust From Material Movement	To match original run, 1 acre per day for 9 days
Construction: Trips and VMT	Adjusted to match Project Data

CREH (603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D Wells) Detailed Report

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4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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5.18.1.1. Unmitigated

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5.18.2.1. Unmitigated

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CREH (603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D Wells)
Construction Start Date	4/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	1.40
Location	35.17045813553344, -119.4413377277121
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2945
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.00	User Defined Unit	1.00	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.5	13.0	270	79.3	0.38	6.35	0.68	7.04	5.85	0.17	6.02	—	41,239	41,239	1.64	0.49	4.02	41,429
Mit.	15.5	13.0	270	79.3	0.38	6.35	0.68	7.04	5.85	0.17	6.02	—	41,239	41,239	1.64	0.49	4.02	41,429
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	0.67	13.5	4.08	0.02	0.32	0.05	0.38	0.30	0.01	0.31	—	2,091	2,091	0.08	0.03	0.12	2,100
Mit.	0.79	0.67	13.5	4.08	0.02	0.32	0.05	0.38	0.30	0.01	0.31	—	2,091	2,091	0.08	0.03	0.12	2,100
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.12	2.47	0.75	< 0.005	0.06	0.01	0.07	0.05	< 0.005	0.06	—	346	346	0.01	< 0.005	0.02	348
Mit.	0.14	0.12	2.47	0.75	< 0.005	0.06	0.01	0.07	0.05	< 0.005	0.06	—	346	346	0.01	< 0.005	0.02	348
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	15.5	13.0	270	79.3	0.38	6.35	0.68	7.04	5.85	0.17	6.02	—	41,239	41,239	1.64	0.49	4.02	41,429
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.79	0.67	13.5	4.08	0.02	0.32	0.05	0.38	0.30	0.01	0.31	—	2,091	2,091	0.08	0.03	0.12	2,100
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.14	0.12	2.47	0.75	< 0.005	0.06	0.01	0.07	0.05	< 0.005	0.06	—	346	346	0.01	< 0.005	0.02	348

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	15.5	13.0	270	79.3	0.38	6.35	0.68	7.04	5.85	0.17	6.02	—	41,239	41,239	1.64	0.49	4.02	41,429
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.79	0.67	13.5	4.08	0.02	0.32	0.05	0.38	0.30	0.01	0.31	—	2,091	2,091	0.08	0.03	0.12	2,100
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.14	0.12	2.47	0.75	< 0.005	0.06	0.01	0.07	0.05	< 0.005	0.06	—	346	346	0.01	< 0.005	0.02	348

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.88	3.23	0.01	0.11	—	0.11	0.10	—	0.10	—	1,181	1,181	0.05	0.01	—	1,186
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	35.6	35.6	< 0.005	< 0.005	—	35.7
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.90	5.90	< 0.005	< 0.005	—	5.92
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.17	3.24	0.00	0.00	0.57	0.57	0.00	0.13	0.13	—	618	618	0.02	0.02	2.24	627
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.3	34.3	< 0.005	0.01	0.08	36.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.0	17.0	< 0.005	< 0.005	0.03	17.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.88	3.23	0.01	0.11	—	0.11	0.10	—	0.10	—	1,181	1,181	0.05	0.01	—	1,186
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	35.6	35.6	< 0.005	< 0.005	—	35.7
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.90	5.90	< 0.005	< 0.005	—	5.92
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.17	3.24	0.00	0.00	0.57	0.57	0.00	0.13	0.13	—	618	618	0.02	0.02	2.24	627
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.3	34.3	< 0.005	0.01	0.08	36.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.0	17.0	< 0.005	< 0.005	0.03	17.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18

3.3. Drilling (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm ent	15.4	12.9	269	76.6	0.37	6.34	—	6.34	5.83	—	5.83	—	39,827	39,827	1.62	0.32	—	39,963
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.76	0.64	13.3	3.78	0.02	0.31	—	0.31	0.29	—	0.29	—	1,964	1,964	0.08	0.02	—	1,971
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	0.14	0.12	2.42	0.69	< 0.005	0.06	—	0.06	0.05	—	0.05	—	325	325	0.01	< 0.005	—	326
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.07	0.13	2.43	0.00	0.00	0.42	0.42	0.00	0.10	0.10	—	464	464	0.02	0.01	1.68	470
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	1.06	0.20	0.01	0.02	0.26	0.27	0.02	0.07	0.09	—	949	949	0.01	0.15	2.35	996
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.8	20.8	< 0.005	< 0.005	0.04	21.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.8	46.8	< 0.005	0.01	0.05	49.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	0.01	3.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	8.12

3.4. Drilling (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	15.4	12.9	269	76.6	0.37	6.34	—	6.34	5.83	—	5.83	—	39,827	39,827	1.62	0.32	—	39,963
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.64	13.3	3.78	0.02	0.31	—	0.31	0.29	—	0.29	—	1,964	1,964	0.08	0.02	—	1,971
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.14	0.12	2.42	0.69	< 0.005	0.06	—	0.06	0.05	—	0.05	—	325	325	0.01	< 0.005	—	326
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.07	0.13	2.43	0.00	0.00	0.42	0.42	0.00	0.10	0.10	—	464	464	0.02	0.01	1.68	470
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	1.06	0.20	0.01	0.02	0.26	0.27	0.02	0.07	0.09	—	949	949	0.01	0.15	2.35	996
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.8	20.8	< 0.005	< 0.005	0.04	21.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.8	46.8	< 0.005	0.01	0.05	49.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	0.01	3.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.75	7.75	< 0.005	< 0.005	0.01	8.12

3.5. Facilities Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

CREH (603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D Wells) Detailed Report, 3/6/2025

Off-Road Equipment	0.96	0.80	6.28	2.71	< 0.005	0.50	—	0.50	0.46	—	0.46	—	279	279	0.01	< 0.005	—	280
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3.82	3.82	< 0.005	< 0.005	—	3.84
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.63	0.63	< 0.005	< 0.005	—	0.64
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.29	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.8	43.8	< 0.005	< 0.005	0.15	44.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.3	77.3	< 0.005	0.01	0.18	81.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18

3.6. Facilities Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	6.28	2.71	< 0.005	0.50	—	0.50	0.46	—	0.46	—	279	279	0.01	< 0.005	—	280
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3.82	3.82	< 0.005	< 0.005	—	3.84
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.63	0.63	< 0.005	< 0.005	—	0.64
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.29	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.8	43.8	< 0.005	< 0.005	0.15	44.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.3	77.3	< 0.005	0.01	0.18	81.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
---------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Grading	5/1/2025	5/11/2025	7.00	11.0	—
Drilling	Building Construction	5/12/2025	5/29/2025	7.00	18.0	—
Facilities Construction	Building Construction	5/30/2025	6/3/2025	7.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	1.45	185	0.41
Site Preparation	Excavators	Diesel	Average	1.00	2.91	135	0.38
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	3.64	286	0.37
Site Preparation	Other General Industrial Equipment	Diesel	Average	1.00	3.64	300	0.34
Drilling	Other General Industrial Equipment	Diesel	Average	1.00	8.00	300	0.34
Drilling	Forklifts	Diesel	Average	1.00	4.00	300	0.20

Drilling	Other General Industrial Equipment	Diesel	Average	1.00	24.0	300	0.34
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	15.3	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	17.9	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	12.0	1,354	0.50
Drilling	Generator Sets	Diesel	Average	1.00	0.44	154	0.74
Drilling	Generator Sets	Diesel	Average	2.00	6.00	12.0	0.74
Facilities Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	74.0	0.37
Facilities Construction	Other General Industrial Equipment	Diesel	Average	2.00	0.50	6.00	0.34
Facilities Construction	Welders	Diesel	Average	1.00	1.60	23.0	0.45

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	1.45	185	0.41
Site Preparation	Excavators	Diesel	Average	1.00	2.91	135	0.38
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	3.64	286	0.37
Site Preparation	Other General Industrial Equipment	Diesel	Average	1.00	3.64	300	0.34
Drilling	Other General Industrial Equipment	Diesel	Average	1.00	8.00	300	0.34
Drilling	Forklifts	Diesel	Average	1.00	4.00	300	0.20
Drilling	Other General Industrial Equipment	Diesel	Average	1.00	24.0	300	0.34
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	15.3	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	17.9	1,354	0.50
Drilling	Bore/Drill Rigs	Diesel	Average	1.00	12.0	1,354	0.50
Drilling	Generator Sets	Diesel	Average	1.00	0.44	154	0.74
Drilling	Generator Sets	Diesel	Average	2.00	6.00	12.0	0.74

Facilities Construction	Tractors/Loaders/Back	Diesel	Average	1.00	8.00	74.0	0.37
Facilities Construction	Other General Industrial Equipment	Diesel	Average	2.00	0.50	6.00	0.34
Facilities Construction	Welders	Diesel	Average	1.00	1.60	23.0	0.45

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	16.0	50.0	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	2.00	4.55	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Drilling	—	—	—	—
Drilling	Worker	12.0	50.0	LDA,LDT1,LDT2
Drilling	Vendor	0.00	10.6	HHDT,MHDT
Drilling	Hauling	10.0	27.7	HHDT
Drilling	Onsite truck	—	—	HHDT
Facilities Construction	—	—	—	—
Facilities Construction	Worker	10.0	5.46	LDA,LDT1,LDT2
Facilities Construction	Vendor	0.00	10.6	HHDT,MHDT
Facilities Construction	Hauling	4.00	5.20	HHDT
Facilities Construction	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—

Site Preparation	Worker	16.0	50.0	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	2.00	4.55	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Drilling	—	—	—	—
Drilling	Worker	12.0	50.0	LDA,LDT1,LDT2
Drilling	Vendor	0.00	10.6	HHDT,MHDT
Drilling	Hauling	10.0	27.7	HHDT
Drilling	Onsite truck	—	—	HHDT
Facilities Construction	—	—	—	—
Facilities Construction	Worker	10.0	5.46	LDA,LDT1,LDT2
Facilities Construction	Vendor	0.00	10.6	HHDT,MHDT
Facilities Construction	Hauling	4.00	5.20	HHDT
Facilities Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	11.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	22.7	annual days of extreme heat
Extreme Precipitation	0.00	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.8	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	75.4
AQ-PM	57.3
AQ-DPM	8.76
Drinking Water	92.6
Lead Risk Housing	56.5
Pesticides	88.1
Toxic Releases	91.4
Traffic	2.73
Effect Indicators	—
CleanUp Sites	85.8
Groundwater	94.8
Haz Waste Facilities/Generators	97.3
Impaired Water Bodies	0.00
Solid Waste	99.5
Sensitive Population	—
Asthma	17.7

Cardio-vascular	58.1
Low Birth Weights	61.9
Socioeconomic Factor Indicators	—
Education	76.0
Housing	16.9
Linguistic	57.8
Poverty	70.3
Unemployment	87.7

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—

Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0
Asthma ER Admissions	85.0
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	35.0
Physically Disabled	11.3
Heart Attack ER Admissions	61.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0

Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	90.9
Elderly	76.6
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	4.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	95.8
Traffic Density	0.0
Traffic Access	0.0
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	81.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage changed to match the original run of 1 acre of disturbed land
Construction: Construction Phases	Changes made to match project schedules
Construction: Off-Road Equipment	Equipment and schedule matches Project data
Construction: Dust From Material Movement	To match original run, 1 acre per day for 11 days
Construction: Trips and VMT	Adjusted to match Project Data



MEMO

Date: January 20, 2025
Project No.: 220119 /2.1
To: Joseph Parra, CRC
From: Matthew Daniel, QK
Subject: CREH Buena Vista 4 and 6 Project Health Screening Assessment
cc: Jaymie Brauer, QK
Daniel Padilla, CRC

Introduction

The California Department of Conservation- Geological Energy Management Division (CalGEM) requested California Resources Corporation (CRC) to complete a Health Screen Assessment (HSA) for the CREH Buena Vista 4 and 6 Project (Project) using the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Prioritization Score Spreadsheet Tool to provide substantial evidence that the health risks from the Project are acceptable. Quad Knopf, Inc. (QK) on behalf of CRC has completed the requested HSA and the findings are summarized within this memo. The spreadsheet is included in Attachment B.

Health Screening Assessment

The Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) recommends that lead agencies consider situations wherein a new or modified source of toxic air contaminants (TACs) is proposed for a location near an existing residential area or other sensitive receptors when evaluating potential impacts related to TACs. An HSA is used to determine if a project would be required to perform a full Health Risk Assessment (HRA) based on the project's health risk prioritization score. The prioritization score is calculated based on the potency, toxicity, quantity, and volume of hazardous materials released from the facility as well as the proximity of the facility to potential receptors. A project's priority's status is determined using the prioritization thresholds listed in Table 1, below.

Table 1
Prioritization Threshold

Prioritization Threshold	Priority Category
≤ 1	Low Priority
>1 and ≤ 10	Intermediate Priority
>10	High Priority

Source: SJVAPCD

Project Emissions

CRC provided QK with the Project's criteria pollutants that were previously calculated by Booher Consulting, LLC. (Booher). Upon review of the calculated emissions, it was determined that the Project would release toxic emissions from the burning of diesel fuel and fugitive volatile organic compound (VOC) emissions from the wells.



In order to be conservative, all PM₁₀ emissions calculated by Booher from short-term activities (onsite equipment and mobile sources during site preparation, drilling and construction) and long-term activities (routine well operations and maintenance) were considered diesel particulate matter (DPM) even though some fugitive dust emissions were included in the totals. All VOC fugitive emissions were speciated using the SJVAPCD's #204 Oilfield Equipment Fugitives spreadsheet. Emissions for each well site as calculated by Booher are included in Attachment A. HSA spreadsheets with TAC emissions are included in Attachment B.

Results

Each well site received its own prioritization score based on TAC emissions and its distance to the nearest receptor. Although some well sites have different receptors for the maximum (max) prioritization scores, all the scores are added together to determine an overall Project prioritization score. The prioritization scores are listed in the Table 2, below.

Table 2
Prioritization Scores

Well ID	Short-Term Prioritization Score	Long-Term Prioritization Score	Max Prioritization Score
4-5H-6D	1.62E-01	2.59E-01	4.21E-01
616-12D	5.39E-02	8.64E-02	1.40E-01
603H-1-6D	1.62E-01	6.29E-01	7.91E-01
658UH-36-6D	1.62E-01	6.29E-01	7.91E-01
674UH-6-8D	5.39E-02	2.03E-01	2.57E-01
675H-6-8D	5.39E-02	2.03E-01	2.57E-01
Total	6.47E-01	2.01E+00	2.66E+00

Conclusion

Each individual well site has a prioritization score of less than 1.0, which is categorized as a low priority. However, combined together the Project's prioritization score is 2.66, which is categorized as an intermediate priority. The majority of risk generated by this Project is from short-term emission impacts. Once the short-term related activities of site preparation, drilling and construction are complete, the Project's operational score is below 1.0 and is considered a low priority.

Based on the conservative analysis approach used to determine TAC emissions and by combining prioritization scores from different receptors, which is accepted by the SJVAPCD, it is determined that the Project has a less than significant impact as it relates to health risk and an HRA is not warranted.

Attachments:

- A. Criteria Pollutants Calculated by Booher
- B. HSA Spreadsheets and TAC Emission Calculations

ATTACHMENT A

CRITERIA POLLUTANT EMISSIONS CALCULATED BY BOOHER

Table 6
Criteria Pollutant Emissions Rates (8 days)
(4-5H-6D and 616-12D Wells)

Emissions below 0.0000 tons/yr. are reported as 0.0000

Project Phases	ROG (tons/yr)	NOx (tons/yr)	PM-10 (tons/yr)	PM-2.5* (tons/yr)	SOx (tons/yr)	CO (tons/yr)
Site Preparation						
On-site Equipment plus fugitive dust	0.0031	0.0307	0.0013	0.0067	0.0000	0.0192
Mobile Sources	0.0000	0.0005	0.0000	0.0001	0.0000	0.0073
Drilling Phase						
On-site Equipment	0.0406	0.7966	0.0172	0.1595	0.0014	0.2843
Mobile Sources	0.0000	0.0071	0.0000	0.0013	0.0000	0.0064
Facilities Construction Phase						
On-site Equipment	0.0010	0.0055	0.0002	0.0013	0.0000	0.0062
Mobile Sources	0.0000	0.0002	0.0000	0.0000	0.0000	0.0003
Total Construction for One (1) Well Site and One (1) Well	0.0447	0.8406	0.0187	0.1689	0.0014	0.3237
Total Construction for Two (2) Well Sites and Two (2) Wells	0.0894	1.6812	0.0374	0.3378	0.0028	0.6474

**PM-2.5 is the summation of PM-2.5 direct and PM-2.5 indirect emissions.*

Table 7
Criteria Pollutant Emissions Rates (18 days)
(603H-1-6D, 658UH-36-6D, 674UH-6-8D and 675H-6-8D wells)

Emissions below 0.0000 tons/yr. are reported as 0.0000

Project Phases	ROG (tons/yr)	NOx (tons/yr)	PM-10 (tons/yr)	PM-2.5* (tons/yr)	SOx (tons/yr)	CO (tons/yr)
Site Preparation						
On-site Equipment plus fugitive dust	0.0033	0.0333	0.0014	0.0073	0.0000	0.0202
Mobile Sources	0.0000	0.0005	0.0000	0.0001	0.0000	0.0073
Drilling Phase						
On-site Equipment	0.1032	2.0354	0.0438	0.4073	0.0035	0.7218
Mobile Sources	0.0002	0.0173	0.0000	0.0032	0.0001	0.0161
Facilities Construction Phase						
On-site Equipment	0.0010	0.0055	0.0002	0.0013	0.0000	0.0062
Mobile Sources	0.0000	0.0002	0.0000	0.0000	0.0000	0.0003
Total Construction for One (1) Well Site and One (1) Well	0.1077	2.0922	0.0454	0.4192	0.0036	0.7719
Total Construction for One (1) Well on Existing Well Site	0.1044	2.0584	0.0440	0.4118	0.0036	0.7444
Total Construction for Two (2) Well Sites and Four (4) Wells	0.4242	8.3012	0.1788	1.6620	0.0144	3.0326

**PM-2.5 is the summation of PM-2.5 direct and PM-2.5 indirect emissions.*

Estimated Annual Emissions Generated by Mobile Sources for BV Hills 4 and 6

Activity	Criteria Pollutant Emissions (tons per year)					
	NOx	VOC	CO2	SOx	PM10	PM2.5
Routine Well Operations	0.011	0.312	0.041	0.000	0.025	0.003
Routine Well Maintenance	0.396	0.036	0.261	0.000	0.045	0.027
Total	0.407	0.347	0.301	0.000	0.070	0.029

Estimated Annual Emissions Generated by Routine Well Operations for BV Hills 4 and 6

Well Count	Criteria Emissions (tons per year)						Emission Factors (lbs per year per well)					
6	NOx	VOC	CO2	SOx	PM10	PM2.5	NOx	VOC	CO2	SOx	PM10	PM2.5
	0.011	0.312	0.041	0.000	0.025	0.003	3.88	114.41	14.89	0.00	9.16	0.97

Estimated Annual Emissions Generated by Routine Well Maintenance for BV Hills 4 and 6

Well Count	Criteria Emissions (tons per year)						Emission Factors (lbs per year per well)					
6	NOx	VOC	CO2	SOx	PM10	PM2.5	NOx	VOC	CO2	SOx	PM10	PM2.5
	0.291	0.026	0.192	0.000	0.033	0.020	145.38	13.04	95.75	0.12	16.58	9.78

BV Hills Well Fugitives

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities
Table IV-2c. Oil and Gas Production
Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed?	0 %
Weight percentage of VOC in the total organic compounds in gas (neglect non- C_2)	20 %
Weight percentage of VOC in the total organic compounds in oil (neglect non- C_2)	20 %

Equipment Type	Service	Component Count	Total allowable leaking components	Screening Value EF - TOC < 10,000 ppmv (lb/day/source)	> 10,000 ppmv (lb/day/source)	VOC emissions (lb/day)
Valves	Gas/Light Liquid	11	0	1.852E-03	7.333E+00	0.00
	Light Crude Oil	14	0	1.005E-03	3.741E+00	0.00
	Heavy Crude Oil	0	0	7.408E-04	N/A*	0.00
Pump Seals	Gas/Light Liquid	0	0	5.270E-02	4.709E+00	0.00
	Light Crude Oil	0	0	1.402E-02	4.709E+00	0.00
	Heavy Crude Oil	0	0	N/A	N/A	N/A*
Others	Gas/Light Liquid	4	0	7.778E-03	7.281E+00	0.01
	Light Crude Oil	5	0	6.931E-03	3.757E-01	0.01
	Heavy Crude Oil	0	0	3.016E-03	N/A*	0.00
Connectors	Gas/Light Liquid	23	0	6.349E-04	1.370E+00	0.00
	Light Crude Oil	48	0	5.291E-04	1.238E+00	0.01
	Heavy Crude Oil	0	0	4.233E-04	4.233E-04	0.00
Flanges	Gas/Light Liquid	4	0	1.482E-03	3.228E+00	0.00
	Light Crude Oil	8	0	1.270E-03	1.376E+01	0.00
	Heavy Crude Oil	0	0	2.127E-03	N/A*	0.00
Open-ended Lines	Gas/Light Liquid	0	0	1.270E-03	2.905E+00	0.00
	Light Crude Oil	0	0	9.524E-04	1.175E+00	0.00
	Heavy Crude Oil	0	0	7.937E-04	3.762E+00	0.00

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 0.03 lb/day
Total VOC Emissions = 11.41 lb/year

[illegible]

ATTACHMENT B

HSA SPREADSHEETS and TAC EMISSIONS CALCULATIONS

Name		Prioritization Calculator	
Applicability		Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.	
Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#	674UH-6-8D	Operations	

Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#			
	674UH-6-8D	Operations	

Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#			
	674UH-6-8D	Operations	

Facility:	674UH-6-8D	Operations
ID#:		
Project #:		
Unit and Process#	674UH-6-8D	Operations

Project #:	
Unit and Process#	674UH-6-8D Operations

Operating Hours hr/yr	8,760.00			
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Receptor Proximity and Proximity Factors		Cancer	Chronic	Acute	Max Score
		Score	Score	Score	
0< R<100	1.000	5.39E+01	8.04E-02	9.20E-04	5.39E+01
100≤R<250	0.250	1.35E+01	2.01E-02	2.30E-04	1.35E+01
250≤R<500	0.040	2.16E+00	3.22E-03	3.68E-05	2.16E+00
500≤R<1000	0.011	5.93E-01	8.85E-04	1.01E-05	5.93E-01
1000≤R<1500	0.003	1.62E-01	2.41E-04	2.76E-06	1.62E-01
1500≤R<2000	0.002	1.08E-01	1.61E-04	1.84E-06	1.08E-01
2000<R	0.001	5.39E-02	8.04E-05	9.20E-07	5.39E-02

Receptor proximity is in meters. Prioritization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Receptor Proximity and Proximity Factors		Cancer	Chronic	Acute	Max Score
		Score	Score	Score	
0< R<100	1.000	5.39E+01	8.04E-02	9.20E-04	5.39E+01
100≤R<250	0.250	1.35E+01	2.01E-02	2.30E-04	1.35E+01
250≤R<500	0.040	2.16E+00	3.22E-03	3.68E-05	2.16E+00
500≤R<1000	0.011	5.93E-01	8.85E-04	1.01E-05	5.93E-01
1000≤R<1500	0.003	1.62E-01	2.41E-04	2.76E-06	1.62E-01
1500≤R<2000	0.002	1.08E-01	1.61E-04	1.84E-06	1.08E-01
2000<R	0.001	5.39E-02	8.04E-05	9.20E-07	5.39E-02

Receptor proximity is in meters. Prioritization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

674UH-6-8D	Enter the unit's CAS# of the substances emitted and their amounts.	Prioritization score for each substance generated below. Totals on last row.
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[illegible]

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Zinc oxide	1314132

Substance	CAS# Finder
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Substance	CAS# Finder
-----------	-------------

Zinc oxide	1314132
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	1314132
--	---------

Receptor Proximity and Proximity Factors		4-5H-6D	616-12D	603H-1-6D	658UH-36-6D	674UH-6-8D	675H-6-8D	Operations Total Max Score
		Max Score	Max Score	Max Score	Max Score	Max Score	Max Score	
0< R<100	1.000	5.39E+01	5.39E+01	5.39E+01	5.39E+01	5.39E+01	5.39E+01	
100≤R<250	0.250	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	
250≤R<500	0.040	2.16E+00	2.16E+00	2.16E+00	2.16E+00	2.16E+00	2.16E+00	
500≤R<1000	0.011	5.93E-01	5.93E-01	5.93E-01	5.93E-01	5.93E-01	5.93E-01	
1000≤R<1500	0.003	1.62E-01	1.62E-01	1.62E-01	1.62E-01	1.62E-01	1.62E-01	
1500≤R<2000	0.002	1.08E-01	1.08E-01	1.08E-01	1.08E-01	1.08E-01	1.08E-01	
2000<R	0.001	5.39E-02	5.39E-02	5.39E-02	5.39E-02	5.39E-02	5.39E-02	
Varies		1.62E-01	5.39E-02	1.62E-01	1.62E-01	5.39E-02	5.39E-02	6.47E-01

Name		Prioritization Calculator	
Applicability		Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.	
Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#	616-12D	Construction	

Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#			
	616-12D	Construction	

Operating Hours hr/yr		8,760.00			
Receptor Proximity and Proximity Factors		Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100	1.000	8.64E+01	1.28E-01	0.00E+00	8.64E+01
100≤R<250	0.250	2.16E+01	3.20E-02	0.00E+00	2.16E+01
250≤R<500	0.040	3.46E+00	5.12E-03	0.00E+00	3.46E+00
500≤R<1000	0.011	9.50E-01	1.41E-03	0.00E+00	9.50E-01
1000≤R<1500	0.003	2.59E-01	3.84E-04	0.00E+00	2.59E-01
1500≤R<2000	0.002	1.73E-01	2.56E-04	0.00E+00	1.73E-01
2000<R	0.001	8.64E-02	1.28E-04	0.00E+00	8.64E-02

Receptor proximity is in meters. Prioritization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

	Enter the unit's CAS# of the substances emitted and their amounts.	Prioritization score for each substance generated below. Totals on last row.
616-12D		

[illegible]

Substance	CAS# Finder
Xylene	1330207

Substance	CAS# Finder
Xylene	1330207

Name		Prioritization Calculator	
Applicability		Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.	
Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#	658UH-36-6D Construction		

Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#			
	658UH-36-6D	Construction	

Author or updater	Matthew Cegielski	Last Update	December 1, 2022
Facility:			
ID#:			
Project #:			
Unit and Process#			
	658UH-36-6D	Construction	

Facility:	658UH-36-6D	Construction
ID#:		
Project #:		
Unit and Process#	658UH-36-6D	Construction

Project #:	
Unit and Process#	658UH-36-6D Construction

Operating Hours hr/yr		8,760.00				
Receptor Proximity and Proximity Factors		Cancer	Chronic	Acute	Max Score	Receptor proximity is in meters. Prioritization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.
		Score	Score	Score		
0< R<100	1.000	2.10E+02	3.11E-01	0.00E+00	2.10E+02	
100≤R<250	0.250	5.24E+01	7.77E-02	0.00E+00	5.24E+01	
250≤R<500	0.040	8.39E+00	1.24E-02	0.00E+00	8.39E+00	
500≤R<1000	0.011	2.31E+00	3.42E-03	0.00E+00	2.31E+00	
1000≤R<1500	0.003	6.29E-01	9.33E-04	0.00E+00	6.29E-01	
1500≤R<2000	0.002	4.19E-01	6.22E-04	0.00E+00	4.19E-01	
2000<R	0.001	2.10E-01	3.11E-04	0.00E+00	2.10E-01	

	Enter the unit's CAS# of the substances emitted and their amounts.	Prioritization score for each substance generated below. Totals on last row.
65UH-36-6D		

[illegible]

Zinc oxide	1314132
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CAS# Find

1314132

Receptor Proximity and Proximity Factors	4-5H-6D	616-12D	603H-1-6D	658UH-36-6D	674UH-6-8D	675H-6-8D	Construction
	Max Score	Max Score	Max Score	Max Score	Max Score	Max Score	Total Max Score
0< R<100 1.000	8.64E+01	8.64E+01	2.10E+02	2.10E+02	2.03E+02	2.03E+02	
100≤R<250 0.250	2.16E+01	2.16E+01	5.24E+01	5.24E+01	5.08E+01	5.08E+01	
250≤R<500 0.040	3.46E+00	3.46E+00	8.39E+00	8.39E+00	8.13E+00	8.13E+00	
500≤R<1000 0.011	9.50E-01	9.50E-01	2.31E+00	2.31E+00	2.24E+00	2.24E+00	
1000≤R<1500 0.003	2.59E-01	2.59E-01	6.29E-01	6.29E-01	6.10E-01	6.10E-01	
1500≤R<2000 0.002	1.73E-01	1.73E-01	4.19E-01	4.19E-01	4.07E-01	4.07E-01	
2000<R 0.001	8.64E-02	8.64E-02	2.10E-01	2.10E-01	2.03E-01	2.03E-01	
Varies	2.59E-01	8.64E-02	6.29E-01	6.29E-01	2.03E-01	2.03E-01	2.01E+00

Name	Oilfield Equipment Fugitives						
Applicability	Use this spreadsheet for VOC fugitive emission from Oilfield Equipment using Heavy Crude Oil (Default if unknown). Entries required in yellow areas, output in gray areas.						
<i>Author or updater</i>	Matthew Cegielski	<i>Last Update</i>	July 13, 2023				
Facility:							
ID#:							
Project #:							
Inputs	lb /hr	lb /yr	Formula				
VOC Rate	1.30E-03	11.4	Emissions are calculated by the multiplication of VOC Rates and Emission Factors.				
Substances	CAS#	Emission Factor lbs/ lb VOC	LB/HR	LB/YR			
Benzene	71432	3.50E-03	4.56E-06	3.99E-02			
Hydrogen Sulfide	7783064	1.43E-02	1.86E-05	1.63E-01			
Toluene	108883	3.40E-03	4.43E-06	3.88E-02			
Xylenes	1330207	7.00E-03	9.12E-06	7.99E-02			
References:							
The emission factors are from a 1994 District emission factor memo that utilized 1991 source tests of central valley sites. #204 Oilfield Equipment Fugitive - District.							