

DOCD/DPP - AIR QUALITY

**OMB Control No. 1010-0151
OMB Approval Expires: xx/xx/202x**

COMPANY	
AREA	
BLOCK	
LEASE	
FACILITY	
WELL	
COMPANY CONTACT	
TELEPHONE NO.	
REMARKS	

LEASE TERM PIPELINE CONSTRUCTION INFORMATION:		
YEAR	NUMBER OF PIPELINES	TOTAL NUMBER OF CONSTRUCTION DAYS
2020		
2021		
2022		
2023		
2024		
2025		
2026		
2027		
2028		
2029		

AIR EMISSIONS COMPUTATION FACTORS

Fuel Usage Conversion Factors	Natural Gas Turbines		Natural Gas Engines		Diesel Recip. Engine		Diesel Turbines		REF.	DATE	Reference Links
	SCF/HP-hr	9.524	SCF/HP-hr	7.143	GAL/HP-hr	0.0514	GAL/HP-hr	0.0514			
Equipment/Emission Factors	units	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3	
Natural Gas Turbine	g/HP-hr	0.0086	0.0086	0.0026	1.4515	0.0095	N/A	0.3719	N/A		AP42 3.1-1.4 3.1-2a
RECIP - 2 Cycle Lean Natural Gas	g/HP-hr	0.1293	0.1293	0.0200	6.9998	0.4082	N/A	1.2009	N/A		AP42 3.1-1
RECIP - 4 Cycle Lean Natural Gas	g/HP-hr	0.0002	0.0002	0.0020	2.8814	0.4034	N/A	1.8949	N/A		AP42 3.2-2
RECIP - 4 Cycle Rich Natural Gas	g/HP-hr	0.0523	0.0523	0.0020	7.7224	0.3325	N/A	3.1968	N/A		AP42 3.1-3
Diesel Recip. < 600 hp	g/HP-hr	1	1	1	0.0279	14.1	1.04	N/A	3.03	N/A	AP42 3.1-1
Diesel Recip. > 600 hp	g/HP-hr	0.32	0.182	0.178	0.0055	10.9	0.29	N/A	2.5	N/A	AP42 3.1-1.4 3.1-2
Diesel Boiler	lb/HP-hr	0.0440	0.0420	0.0105	0.0089	1.0060	0.0084	5.14E-05	0.2100	0.0336	AP42 3.1-6 Pb and Hg; WAFRE (09/018)
Diesel Turbine	g/HP-hr	0.0381	0.0137	0.0137	0.0048	2.7941	0.0013	4.45E-05	0.0105	N/A	AP42 3.1-1.4 3.1-2a
Dual Fuel Turbine	g/HP-hr	0.0381	0.0137	0.0137	0.0048	2.7941	0.0056	4.45E-05	0.3719	0.0000	AP42 3.1-1.4 3.1-2a; AP42 3.1-1.4 3.1-2a
Vessels - Propulsion	g/HP-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI TSP refer to Diesel Recip. > 600 hp reference
Vessels - Drilling Prime Engine, Auxiliary	g/HP-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI TSP refer to Diesel Recip. > 600 hp reference
Vessels - Diesel Boiler	g/HP-hr	0.0468	0.1491	0.1417	0.0400	1.4914	0.0820	3.17E-05	0.1491	0.0003	USEPA 2017 NEI TSP (units converted) refer to Diesel Boiler Reference
Vessels - Well Stimulation	g/HP-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI TSP refer to Diesel Recip. > 600 hp reference
Natural Gas Heater/Boiler/Burner	lb/MMscf	7.60	1.90	1.90	0.60	190.00	5.50	5.00E-04	84.00	3.2	AP42 3.4-1.4 1.4-2; Pb and Hg; WAFRE (09/018)
Combustion Flare (no smoke)	lb/MMscf	0.00	0.00	0.00	0.57	71.40	35.93	N/A	325.5	N/A	AP42 13.5-1, 13.5-2
Combustion Flare (light smoke)	lb/MMscf	2.10	2.10	2.10	0.57	71.40	35.93	N/A	325.5	N/A	AP42 13.5-1, 13.5-2
Combustion Flare (medium smoke)	lb/MMscf	10.50	10.50	10.50	0.57	71.40	35.93	N/A	325.5	N/A	AP42 13.5-1, 13.5-2
Combustion Flare (heavy smoke)	lb/MMscf	21.00	21.00	21.00	0.57	71.40	35.93	N/A	325.5	N/A	AP42 13.5-1, 13.5-2
Liquid Flaring	lb/Day	0.42	0.0965	0.0951	5.964	0.84	0.02428	5.14E-05	0.21	0.0336	AP42 3.1-1 Envelop 1.3.3 and 1.3.4
Storage Tank	tons/yr/tank						4.300				2014 Gulfwide Inventory, Avg. emss (Upper bound of 95% CI)
Agitators	lb/yr/component						0.0005				API Study
Glycol Dehydrator	tons/yr/dehydrator						19.240				2011 Gulfwide Inventory, Avg. emss (Upper bound of 95% CI)
Cold Vent	tons/yr/vent						44.747				2014 Gulfwide Inventory, Avg. emss (Upper bound of 95% CI)
Waste Incinerator	lb/ton	15.0		15.0	2.5	2.0	N/A	N/A	20.0	N/A	AP 42 2.1-2
On-ice - Loader	lb/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. > 600 hp reference
On-ice - Other Construction Equipment	lb/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. > 600 hp reference
On-ice - Other Survey Equipment	lb/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. > 600 hp reference
On-ice - Tractor	lb/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.002	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. > 600 hp reference
On-ice - Truck (for gravel island)	lb/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. > 600 hp reference
On-ice - Truck (for surveys)	lb/gal	0.043	0.043	0.043	0.040	0.604	0.049	N/A	0.130	0.003	USEPA NONROAD2008 model; TSP (units converted) refer to Diesel Recip. > 600 hp reference
Man Camp - Operation (max. people/day)	tons/person/day	0.0004	0.0004	0.0004	0.0004	0.006	0.001	N/A	0.001	N/A	BOEM 2014.1003
Vessels - Ice Management Diesel	g/HP-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI TSP refer to Diesel Recip. > 600 hp reference
Vessels - Hoppercraft Diesel	g/HP-hr	0.320	0.1931	0.1873	0.0047	7.6669	0.2204	2.24E-05	1.2025	0.0022	USEPA 2017 NEI TSP refer to Diesel Recip. > 600 hp reference

Sulfur Content Source	Value	Units
Fuel Gas	3.38	ppm
Diesel Fuel	0.0015	% weight
Produced Gas (Flare)	3.38	ppm
Produced Oil (Liquid Flaring)	1	% weight

Density and Heat Value of Diesel Fuel	
Density	7.56 lb/gal
Heat Value	19,300 Btu/gal

Heat Value of Natural Gas	
Heat Value	1,056 Btu/MMBtu/MMscf

Natural Gas Flare Parameters	Value	Units
VOC Content of Flare Gas	0.6616	b VOC/b-mol gas
Natural Gas Flare Efficiency	98	%

AIR EMISSIONS CALCULATIONS

COMPANY	AREA	BLOCK	LEASE	FACILITY	WELL				
0									
Year	Facility Emitted Substance								
	TSP	PM10	PM2.5	SOx	NOx	VOC	Pb	CO	NH3
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Allowable	0.00			0.00	0.00	0.00		0.00	