Alaska Department of Environmental Conservation

Division of Air Quality

Final

2021 Fee Study Report

Appendix Documents

Adopted

May 23, 2022

Appendix Documents

Permit Administrative Fee Changes January 2022

Emissions Fee Calculation

MG1 Emission Fee Calculations

Regression Analysis

Proposed Permit Administration Flat Fees - January 2022

		Expenses FY10 through FY19 in 2020 Dollars								
Old Regulation Citation	**Description**	**Labor**	**Non Labor**	**Total**	**Count**	**Calculated Fee Before Inflation**	**Average Annual Inflation (increase over calculated fee at 2% per year over 4 years, divided by 4)**	**Proposed Annual Fee (Calculated Fee plus Average Annual Inflation, Rounded)**	**Current Fee**	**Change in Fee**
18 AAC 50.400(a)(1)(A)	Oil and Gas Source with potential to emit more than 250 tons per year of any one pollutant	766,544.62	494,005.91	1,260,550.53	362	3,482.18	177.63	3,660	4,261	(601)
18 AAC 50.400(a)(2)(A)	Large non-standard power plant with the potential to emit more than 250 tons per year of any one pollutant	293,366.20	56,577.52	349,943.72	151	2,317.51	118.22	2,436	2,527	(91)
18 AAC 50.400(a)(3)(A)	Standard coal-fired power plant with the potential to emit more than 250 tons per year of any one pollutant	300,240.72	46,319.80	346,560.52	49	7,072.66	360.78	7,433	6,871	562
18 AAC 50.400(a)(4)(A)	Small power plant with the potential to emit more than 250 tons per year of any one pollutant	231,210.50	61,247.26	292,457.76	150	1,949.72	99.46	2,049	1,720	329
18 AAC 50.400(a)(5)(A)	Oil and Gas or Thermal Soil Remediation Source with the potential to emit between 100 and 250 tons per year of any one pollutant	159,560.15	51,826.50	211,386.65	92	2,297.68	117.20	2,415	1,303	1,112
18 AAC 50.400(a)(6)(A)	Small power plant with the potential to emit between 100 and 250 tons per year of any one pollutant	367,194.97	87,697.32	454,892.29	202	2,251.94	114.87	2,367	2,067	300
18 AAC 50.400(a)(9)(A)	Title V source with the potential to emit less than 250 tons of any one pollutant where source type is not described in 18 AAC 50.400(a)1-8	234,672.64	56,140.03	290,812.67	148	1,964.95	100.23	2,065	844	1,221
18 AAC 50.400(a)(1)(B)	Oil and Gas Source with potential to emit more than 250 tons per year of any one pollutant	1,727,401.48	262,552.27	1,989,953.75	447	4,451.80	227.09	4,679	4,436	243
18 AAC 50.400(a)(2)(B)	Large non-standard power plant with the potential to emit more than 250 tons per year of any one pollutant	696,968.12	49,869.04	746,837.16	148	5,046.20	257.41	5,304	3,372	1,932
18 AAC 50.400(a)(3)(B)	Standard coal-fired power plant with the potential to emit more than 250 tons per year of any one pollutant	360,980.67	22,208.78	383,189.45	49	7,820.19	398.91	8,219	6,767	1,452
18 AAC 50.400(a)(4)(B)	Small power plant with the potential to emit more than 250 tons per year of any one pollutant	405,355.18	31,756.07	437,111.25	154	2,838.38	144.79	2,983	2,491	492
18 AAC 50.400(a)(5)(B)	Oil and Gas or Thermal Soil Remediation Source with the potential to emit between 100 and 250 tons per year of any one pollutant	393,247.30	42,084.03	435,331.33	104	4,185.88	213.52	4,399	3,341	1,058
18 AAC 50.400(a)(6)(B)	Small power plant with the potential to emit between 100 and 250 tons per year of any one pollutant	592,522.71	75,766.72	668,289.43	203	3,292.07	167.93	3,460	2,989	471
18 AAC 50.400(a)(7)(B) GPA	Diesel Engine General Operating (non-source-specific) for source with potential to emit over 100 tons of any one pollutant	109,126.30	9,387.47	118,513.77	58	2,043.34	104.23	2,148	1,554	594
18 AAC 50.400(a)(9)(B)	Title V source with the potential to emit less than 250 tons of any one pollutant where source type is not described in 18 AAC 50.400(a)1-8	575,369.34	35,832.41	611,201.75	119	5,136.15	262.00	5,398	3,159	2,239
18 AAC 50.400(a)(8)(B) GP3	Asphalt Plant General Operating (non-source-specific) for source with potential to emit over 100 tons of any one pollutant	216,877.63	12,383.20	229,260.83	81	2,830.38	144.38	2,975	2,091	884
18 AAC 50.400(d)(1)(B) MSS w/no TV, and MSS for Source that will become Title V	Minor Source Specific Permit for Title I source, or Source that will become Title V	433,001.08	112,667.81	545,668.89	314	1,737.80	88.65	1,826	750	1,076
18 AAC 50.400(d)(3)(A)(ii) MG1	Oil & Gas Drilling Operating Permit for a non-Title V source							Time and Expense	750	To Time and Expense
18 AAC 50.400(d)(3)(B)(ii) MG2	Oil & Gas Drilling (Less Restrictive) Operating Permit for a non-Title V source							Time and Expense	750	To Time and Expense
18 AAC 50.400(d)(2)(A)(ii) MG3	Asphalt Plant Operating Permit for a non-Title V source	394,520.94	84,042.78	478,563.72	363	1,318.36	67.25	1,386	750	636
18 AAC 50.400(d)(2)(B)(ii) MG9	Rock Crusher Operating Permit for a non-Title V source	320,676.85	24,520.49	345,197.34	492	701.62	35.79	737	750	(13)
18 AAC 50.400(f)(1)(B)	Owner Requested Limit Permit under 18 AAC 50.225 - only for sources that do not require Title V	201,640.09	4,914.14	206,554.23	531	388.99	19.84	409	319	90
18 AAC 50.400(f)(2)(B)	Pre-approved Emission Limit under 18 AAC 50.230(c) or 18 AAC 50.230(d)	185,731.85	2,191.21	187,923.06	1695	110.87	5.66	117	95	22
18 AAC 50.400(f)(1)(A)	Owner Requested Limit Permit under 18 AAC 50.225 - only for sources that do not require Title V	180,631.00	35,615.07	216,246.07	93	2,325.23	118.61	2,444	2,168	276
18 AAC 50.400(f)(2)(A)	Pre-approved Emission Limit under 18 AAC 50.230(c) or 18 AAC 50.230(d)	17,871.80	17.13	17,888.93	86	208.01	10.61	219	88	131
18 AAC 50.400(g)	Request for Open Burning under 18 AAC 50.065	83,211.95	-	83,211.95	226	368.19	18.78	387	230	157
18 AAC 50.400(e)(1)	Excess Emissions or Permit Deviation	50,264.63	-	50,264.63	1182	42.53	2.17	45	20	25

Emission Fee Calculations

Actual Expenses Incurred During the Study Period		**Expenses in 2020 Dollars**
Air Permitting Program Actual Expenses FY10 - FY19	$	50,518,109.81
Less: FY10 - FY19 Expenses Covered by Permit Administration Flat Fees and Time and Expense Charges	$	19,363,648.83
Equals Permitting Program Actual Expenses to Include in Emissions Fees	$	31,154,460.98
Annualized Permitting Program Actual Expenses to Include in Emissions Fees	$	3,115,446.10
Add: Average Annual Administrative Actual Expenses from Division of Administrative Services	$	493,667.73
Equals Total Average Annual Actual Expenses to include in Emissions Fees	**$**	**3,609,113.83**
Known Additional Obligations		
Monitoring Program - Average Annual Expenses	$	1,228,762.64
Pension Liability Increase - Annual Estimated Amount allocable to Permitting Program	$	312,600.00
Other Known Obligations: Staff training, travel, and related costs not already included in actual expense base - Annual Estimated Amount	$	174,000.00
Total Known Additional Obligations	**$**	**1,715,362.64**
Total Average Annual Expenses to include in Emissions Fees	**$**	**5,324,476.47**

		Average Annualized Inflation
Inflation - 2% per year for 4 years	$	271,601.76
Total Average Expense Amount to include in Emissions Fees	**$**	**5,596,078.23**

			Emission Units - From Regression Analysis	**Proposed Emissions Fees**	
Title I Portion of Emissions Expense	$	58,881.83	3,327	**$**	**17.70**
Title V Portion of Emissions Expense	$	5,537,196.40	65,697	**$**	**84.29**
	$	5,596,078.23			

North Slope Model Drill Rigs

Based on December 1, 1998 *Revised Modeling Analysis for Mobile Exploration Drilling and Well Testing, North Slope, Alaska. ARCO Alaska, Inc.*

Maximum annual fuel consumption for a winter drilling season

500000	gallons																	
Fuel source estimates																		
Engines	Other fuel burning equipment			For engines prorate fuel use by total horsepower above and at or below 600hp per engines														
				Total hp - small engines	Total hp - large engines													
				2055	3645													
Percent of total fuel used							Emission Factors from											
75%	25%			27%	48%		AP-42: 3.4-1, 3.3-2, 1.3-2											
North Slope																		
Large engines				Small engines				Other fuel burning equipment										
240000	gallons/season			135000				125000	gallons									
32887.2	mmbtu			18499.05	small													
105239	lb nox	52.61952	tpy nox	81580.8105	lb nox	40.79041	tpy nox	2500	lb nox	1.25	tpy nox	94.659925						
16443.6	lb so2	8.2218	tpy so2	9249.525	lb so2	4.624763	tpy so2	8875	lb so2	4.4375	tpy so2	17.284063						
3288.72	lb PM-10	1.64436	tpy PM-10	5734.7055	lb PM-10	2.867353	tpy PM-10	135	lb PM-10	0.0675	tpy PM-10	4.5792128						
27954.12	lb co	13.97706		17574.0975	lb co	8.787049		625	lb co	0.3125		23.076609						
2959.848	lb VOC	1.479924		6659.658	lb VOC	3.329829		0	lb VOC	0		4.809753						
		77.94266				60.3994				6.0675		144.40956	PTE (4 mos drilling) for Portable Drill Rigs North of 69 Degree					
		975.8422				756.2005				75.9651		$ 2,556.05	for winter drilling (4 mos.)			18 AAC 50.410(g)((3)(A)(i)		
												$ 7,668.15	for entire year (12 mos.)			18 AAC 50.410(g)((3)(A)(ii)		

Not North Slope

Maximum annual fuel consumption for a winter drilling season — Rate is based on PTE multiplied by current/proposed Title 1 (ECPR) Emission Fee Rate (18 AAC 50.410)

Based on Nabors 160 rig

70155	gallons																	
Fuel source estimates																		
Engines	Other fuel burning equipment			For engines prorate fuel use by total horsepower above and at or below 600hp per engines														
				Total hp - small engines	Total hp - large engines													
				183.58	3800													
Percent of total fuel used																		
90%	10%			4%	86%													
North Slope																		
Large engines				Small engines				Other fuel burning equipment										
60333.3	gallons/season			2806.2				7015.5	gallons									
8267.472	mmbtu			384.533586	small													
26455.91	lb nox	13.22796	tpy nox	1695.793114	lb nox	0.847897	tpy nox	2500	lb nox	1.25	tpy nox	15.325852						
4133.736	lb so2	2.066868	tpy so2	192.266793	lb so2	0.096133	tpy so2	8875	lb so2	4.4375	tpy so2	6.6005014						
826.7472	lb PM-10	0.413374	tpy PM-10	119.2054117	lb PM-10	0.059603	tpy PM-10	135	lb PM-10	0.0675	tpy PM-10	0.5404763						
7027.351	lb co	3.513676		365.3069067	lb co	0.182653		625	lb co	0.3125		4.0088291						
744.0725	lb VOC	0.372036		138.432091	lb VOC	0.069216		0	lb VOC	0		0.4412523						
		19.59391				1.255502				6.0675		26.916911	PTE for Portable Drill Rigs outside of North of 69 Degree					
		245.3157				15.71889				75.9651		$ 476.43	per well rate for Portable Drill Rigs outside of North of 69 Degree					
												$ 2,382.15	per 5 wells			18 AAC 50.410(g)(3)(B)(i)		
												$ 4,764.29	per 10 wells			18 AAC 50.410(g)(3)(B)(ii)		
												$ 7,146.44	per 15 wells			18 AAC 50.410(g)(3)(B)(iii)		

Rate is based on PTE multiplied by current/proposed Title 1 (ECPR) Emission Fee Rate (18 AAC 50.410)

Regression Analysis

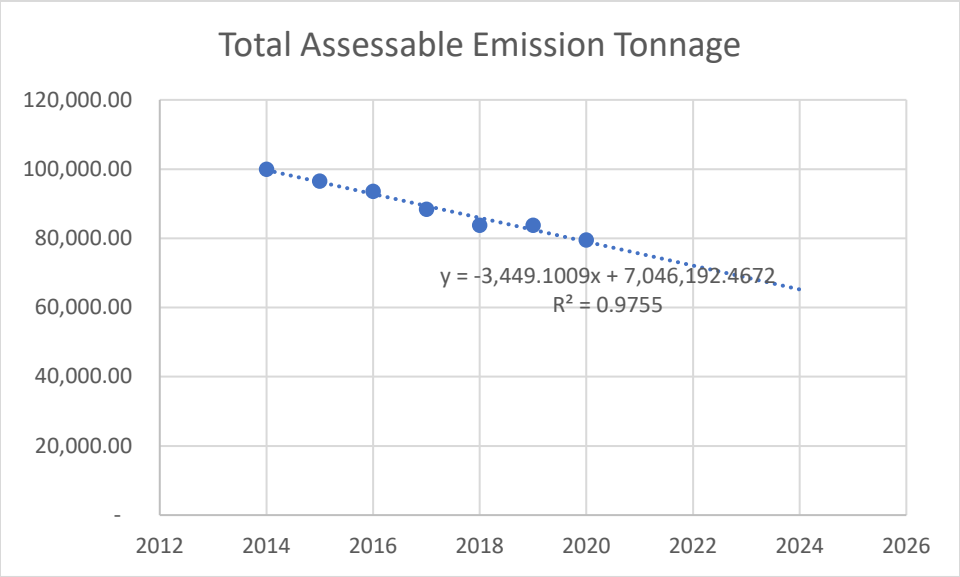
Approach

This report used a linear regression to project expected assessable emissions. The relationship between time and assessable emissions may not be strictly linear. However, the projection is short term, and is derived from the immediately preceding years, so linear regression provides a reasonable estimate.

This report is based on the linear regression of FY14 – FY20 data. Total units in the below table display actual assessed emissions by year. Division of these units into Title I and Title V Units is based on the 2018 EPA guidance document's clarification regarding Title I vs Title V stationary sources.

Actual Assessable Emissions			
Fiscal Year	**Title I Units**	**Title V Units**	**Total Units**
14	3,734.97	96,252.03	99,987.00
15	5,771.97	90,736.03	96,508.00
16	4,685.17	88,842.59	93,527.76
17	4,111.13	84,292.87	88,404.00
18	3,319.91	80,413.98	83,733.89
19	4,229.00	79,568.00	83,797.00
20	3,830.00	75,704.00	79,534.00

Application of linear regression to these data results in the following:



The regression analysis forecasts the following assessable emissions by year:

Forecast Assessable Emissions			
Fiscal Year	**Title I Units**	**Title V Units**	**Total Units**
21	3,641.99	71,918.01	75,560.00
22	3,475.70	68,634.30	72,110.00
23	3,309.46	65,351.54	68,661.00
24	3,143.23	62,068.77	65,212.00
25	2,976.98	58,786.02	61,763.00
Forecast Average*	3,326.97	65,697.29	69,024.26

*Calculated at average of FY21 – FY25, with lowest forecast year given 3/4 weighting

Presuming the trend continues, the Department estimates the assessable emissions for those years as shown in the Forecast Assessable Emissions table. The assessable emissions projected for the next four years is 3,327 for Title I, and 65,697 for Title V.

The Department recommends using these average assessable emissions for use in setting the emission fee rates.