

Table 5-15 GMT1 Alternative D Air Quality Impacts at Alaska National Wildlife Refuge

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Ambient Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	NAAQS/AAAQS ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS/AAAQS (%)
NO ₂	1-hour ¹	5.6E-02	38	38.1	188	20
	Period ^{1,2}	5.9E-04	2.9	2.90	100	3
SO ₂	1-hour ¹	4.5E-04	7.7	7.70	196	4
	3-hour ¹	3.2E-04	18	18.0	1300	1
	24-hour ¹	1.4E-04	6.8	6.80	365	2
	Period ^{1,2}	5.6E-06	0.3	0.30	80	0
PM ₁₀	24-hour ¹	5.2E-02	48	48.1	150	32
PM _{2.5}	24-hour ¹	5.2E-02	7.1	7.15	35	20
	Period ^{1,2}	2.6E-03	2.2	2.20	12	18

¹ The maximum impacts are reported for all averaging periods.

² Due to the two erroneous WRF files, both 2007 and 2009 had to be run in separate periods in CALPUFF. Therefore the reported values may represent an annual average for only 2008, while 2007 and 2009 have periods much less than 8760 hours and conservatively represent an annual average.

Table 5-16 GMT1 Alternative D Air Quality Impacts at Gates of the Arctic

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Ambient Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	NAAQS/AAAQS ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS/AAAQS (%)
NO ₂	1-hour ¹	2.7E-02	38	38.0	188	20
	Period ^{1,2}	7.8E-05	2.9	2.90	100	3
SO ₂	1-hour ¹	3.3E-04	7.7	7.70	196	4
	3-hour ¹	3.0E-04	18	18.0	1300	1
	24-hour ¹	1.2E-04	6.8	6.80	365	2
	Period ^{1,2}	2.1E-06	0.3	0.30	80	0
PM ₁₀	24-hour ¹	7.0E-02	48	48.1	150	32
PM _{2.5}	24-hour ¹	7.0E-02	7.1	7.17	35	20
	Period ^{1,2}	1.3E-03	2.2	2.20	12	18

¹ The maximum impacts are reported for all averaging periods.

² Due to the two erroneous WRF files, both 2007 and 2009 had to be run in separate periods in CALPUFF. Therefore the reported values may represent an annual average for only 2008, while 2007 and 2009 have periods much less than 8760 hours and conservatively represent an annual average.

Table 5-17 GMT1 Alternative D Number of Days Greater Than 0.5 ddv			
Area	Number of Days Greater Than 0.5 ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	0	0	0
Gates of the Arctic	0	0	0

Table 5-18 GMT1 Alternative D Number of Days Greater Than 1.0 ddv			
Area	Number of Days Greater Than 1 ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	0	0	0
Gates of the Arctic	0	0	0

Table 5-19 GMT1 Alternative D Maximum ddv Impact			
Area	Maximum ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	0.238	0.288	0.315
Gates of the Arctic	0.154	0.220	0.431

Table 5-20 GMT1 Alternative D 98th Percentile ddv Impact			
Area	98th percentile ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	0.127	0.114	0.170
Gates of the Arctic	0.079	0.085	0.087

Table 5-21 GMT1 Alternative D Deposition Impacts

Area	Pollutant	Averaging Period	Maximum Impact (kg/ha/yr)	DAT (kg/ha/yr)	Percent of DAT (%)
Alaska National Wildlife Refuge	Nitrogen	Annual ¹	1.92E-04	0.005	7
Gates of the Arctic	Nitrogen	Annual ¹	1.03E-04	0.005	2
Alaska National Wildlife Refuge	Sulfur	Annual ¹	2.79E-06	0.005	0.1
Gates of the Arctic	Sulfur	Annual ¹	1.72E-06	0.005	0.03

¹ All maximum GMT deposition impacts occur in year 2008, thus represent a true annual impact.

Table 5-22 Cumulative Alternative D Air Quality Impacts at Alaska National Wildlife Refuge

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Ambient Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	NAAQS/AAQs ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS/AAQs (%)
NO ₂	1-hour ¹	41	38	78.8	188	42
	Period ^{1,2}	0.14	2.9	3.04	100	3
SO ₂	1-hour ¹	0.76	7.7	8.46	196	4
	3-hour ¹	0.54	18	18.5	1300	1
	24-hour ¹	0.17	6.8	6.97	365	2
	Period ^{1,2}	0.013	0.3	0.31	80	0
PM ₁₀	24-hour ¹	2.7	48	50.7	150	34
PM _{2.5}	24-hour ¹	0.45	7.1	7.55	35	22
	Period ^{1,2}	0.023	2.2	2.22	12	19

¹ The maximum impacts are reported for all averaging periods.

² Due to the two erroneous WRF files, both 2007 and 2009 had to be run in separate periods in CALPUFF. Therefore the reported values represent an annual average for only 2008, while 2007 and 2009 have periods much less than 8760 hours and conservatively represent an annual average.

Table 5-23 Cumulative Alternative D Air Quality Impacts at Gates of the Arctic

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Ambient Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	NAAQS/AAQs ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS/AAQs (%)
NO ₂	1-hour ¹	0.44	38	38.4	188	20
	Period ^{1,2}	0.0024	2.9	2.90	100	3
SO ₂	1-hour ¹	0.046	7.7	7.75	196	4
	3-hour ¹	0.038	18	18.0	1300	1
	24-hour ¹	0.017	6.8	6.82	365	2
	Period ^{1,2}	0.0010	0.3	0.30	80	0
PM ₁₀	24-hour ¹	0.33	48	48.3	150	32
PM _{2.5}	24-hour ¹	0.037	7.1	7.14	35	20
	Period ^{1,2}	0.0032	2.2	2.20	12	18

¹ The maximum impacts are reported for all averaging periods.

² Due to the two erroneous WRF files, both 2007 and 2009 had to be run in separate periods in CALPUFF. Therefore the reported values represent an annual average for only 2008, while 2007 and 2009 have periods much less than 8760 hours and conservatively represent an annual average.

Table 5-24 Cumulative Alternative D Air Quality Impacts at Community of Nuiqsut

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Ambient Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	NAAQS/AAAQS ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS/AAAQS (%)
NO ₂	1-hour ¹	2.7	38	40.7	188	22
	Period ^{1,2}	0.17	2.9	3.07	100	3
SO ₂	1-hour ¹	0.71	7.7	8.41	196	4
	3-hour ¹	0.60	18	18.6	1300	1
	24-hour ¹	0.31	6.8	7.11	365	2
	Period ^{1,2}	0.025	0.3	0.33	80	0
PM ₁₀	24-hour ¹	4.8	48	52.8	150	35
PM _{2.5}	24-hour ¹	0.15	7.1	7.25	35	21
	Period ^{1,2}	0.029	2.2	2.23	12	19

¹ The maximum impacts are reported for all averaging periods.

² Due to the two erroneous WRF files, both 2007 and 2009 had to be run in separate periods in CALPUFF. Therefore the reported values represent an annual average for only 2008, while 2007 and 2009 have periods much less than 8760 hours and conservatively represent an annual average.

Table 5-25 Cumulative Alternative D Number of Days Greater Than 0.5 ddv

Area	Number of Days Greater Than 0.5 ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	86	108	96
Gates of the Arctic	11	12	19

Table 5-26 Cumulative Alternative D Number of Days Greater Than 1.0 ddv

Area	Number of Days Greater Than 1 ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	50	59	48
Gates of the Arctic	1	1	2

Table 5-27 Cumulative Alternative D Maximum ddv Impact

Area	Max ddv		
	2007	2008	2009
Alaska National Wildlife Refuge	9.016	8.628	7.791
Gates of the Arctic	1.243	1.039	1.182

Table 5-28 Cumulative Alternative D 98th Percentile ddv Impact

Area	98th percentile ddv		
	2007	2008	2009
ANWR	3.623	4.267	4.504
GAAR	0.566	0.586	0.784

Table 5-29 Cumulative Alternative D Deposition Impacts

Area	Pollutant	Averaging Period	Maximum Impact (kg/ha/yr)	DAT (kg/ha/yr)	Percent of DAT (%)
Alaska National Wildlife Refuge	Nitrogen	Annual ¹	2.37E-02	0.005	474
Gates of the Arctic	Nitrogen	Period ²	4.68E-03	0.005	94
Alaska National Wildlife Refuge	Sulfur	Annual ¹	3.91E-03	0.005	78
Gates of the Arctic	Sulfur	Period ²	7.93E-04	0.005	16

¹ Maximum cumulative impacts occur in year 2008, thus represent a true annual impact.

² Maximum cumulative impacts occur in the first portion of year 2007 (7100 hours), thus do not represent a true annual impact. The conversion from g/m²/s to kg/ha/yr assumes 8784 hours, thus reported impacts are conservative.