

TABLE 9A-8 ALASKA PIPELINE CONSTRUCTION EMISSIONS: SUMMARY OF DAILY EMISSIONS BY MONTH (UNITS: LBS PER DAY)

Table 9A-8

Alaska Pipeline Construction Emissions: Summary of Daily emissions by Month (units: lbs per day)																								
	Daily Emissions (unit: lbs/day)																							
	Fugitive Dust PM10	Exhaust PM10	Total PM10	Fugitive Dust PM2.5	Exhaust PM2.5	Total PM2.5	CO	VOC	NOx	SOx	CO2	CH4	N2O	CO2e	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde	Naphthalene	Toluene	Xylenes	Total PAH	Total HAPs
month 001 (2016/09)	29,071.27	73.93	29,145.20	2,944.39	71.71	3,016.10	474.38	107.83	1,389.20	4.03	363,901.21	57.66	19.45	371,140.23	0.58	5.74	0.70	5.73	10.93	0.53	2.21	1.54	0.99	28.41
month 002 (2016/10)	11.23	73.93	85.16	2.88	71.71	74.59	474.38	107.83	1,389.20	4.03	363,901.21	57.66	19.45	371,140.23	0.58	5.74	0.70	5.73	10.93	0.53	2.21	1.54	0.99	28.41
month 003 (2016/11)	11.23	108.10	119.33	2.88	104.86	107.74	657.11	154.16	1,972.02	6.42	443,706.92	113.62	44.53	459,898.03	0.58	5.92	0.75	11.37	11.51	1.48	4.25	2.94	2.53	39.83
month 004 (2016/12)	11.23	108.10	119.33	2.88	104.86	107.74	657.11	154.16	1,972.02	6.42	443,706.92	113.62	44.53	459,898.03	0.58	5.92	0.75	11.37	11.51	1.48	4.25	2.94	2.53	39.83
month 005 (2017/01)	11.37	110.16	121.54	2.91	106.86	109.78	668.24	157.05	2,009.94	6.54	451,424.07	115.68	45.36	467,915.21	0.59	6.13	0.78	11.60	11.86	1.50	4.34	3.01	2.57	40.87
month 006 (2017/02)	11.37	110.16	121.54	2.91	106.86	109.78	668.24	157.05	2,009.94	6.54	451,424.07	115.68	45.36	467,915.21	0.59	6.13	0.78	11.60	11.86	1.50	4.34	3.01	2.57	40.87
month 007 (2017/03)	11.37	110.16	121.54	2.91	106.86	109.78	668.24	157.05	2,009.94	6.54	451,424.07	115.68	45.36	467,915.21	0.59	6.13	0.78	11.60	11.86	1.50	4.34	3.01	2.57	40.87
month 008 (2017/04)	11.23	108.10	119.33	2.88	104.86	107.74	657.11	154.16	1,972.02	6.42	443,706.92	113.62	44.53	459,898.03	0.58	5.92	0.75	11.37	11.51	1.48	4.25	2.94	2.53	39.83
month 009 (2017/05)	11.23	103.22	114.44	2.88	100.12	103.00	631.01	147.54	1,888.76	6.08	432,306.10	105.63	40.95	447,218.35	0.58	5.89	0.74	10.56	11.43	1.34	3.95	2.74	2.31	38.20
month 010 (2017/06)	17,712.73	93.16	17,805.89	1,804.03	90.36	1,894.39	568.32	133.91	1,696.95	5.56	388,247.28	96.84	37.69	401,964.92	0.53	5.56	0.70	9.74	10.67	1.22	3.67	2.54	2.11	35.53
month 011 (2017/07)	18,439.03	95.57	18,534.61	1,877.41	92.71	1,970.12	584.67	137.45	1,733.98	5.67	397,133.45	98.54	38.29	411,072.60	0.55	5.73	0.72	9.92	11.01	1.24	3.74	2.59	2.14	36.41
month 012 (2017/08)	18,439.03	95.57	18,534.61	1,877.41	92.71	1,970.12	584.67	137.45	1,733.98	5.67	397,133.45	98.54	38.29	411,072.60	0.55	5.73	0.72	9.92	11.01	1.24	3.74	2.59	2.14	36.41
month 013 (2017/09)	18,439.03	95.57	18,534.61	1,877.41	92.71	1,970.12	584.67	137.45	1,733.98	5.67	397,133.45	98.54	38.29	411,072.60	0.55	5.73	0.72	9.92	11.01	1.24	3.74	2.59	2.14	36.41
month 014 (2017/10)	10.63	88.74	99.37	2.73	86.08	88.80	548.12	128.18	1,617.41	5.19	381,172.31	87.35	33.27	393,321.04	0.55	5.70	0.71	8.79	10.89	1.05	3.33	2.31	1.84	34.12
month 015 (2017/11)	10.63	112.17	122.80	2.73	108.81	111.53	673.42	159.95	2,017.06	6.84	435,896.22	125.72	50.47	454,183.53	0.55	5.82	0.75	12.65	11.29	1.70	4.73	3.27	2.89	41.95
month 016 (2017/12)	18.88	168.02	186.90	4.84	162.98	167.82	1,025.15	240.05	3,083.21	9.79	715,560.45	166.16	63.71	738,799.36	0.98	9.91	1.24	16.61	19.16	2.06	6.24	4.32	3.57	62.02
month 017 (2018/01)	18.88	168.02	186.90	4.84	162.98	167.82	1,025.15	240.05	3,083.21	9.79	715,560.45	166.16	63.71	738,799.36	0.98	9.91	1.24	16.61	19.16	2.06	6.24	4.32	3.57	62.02
month 018 (2018/02)	18.88	168.02	186.90	4.84	162.98	167.82	1,025.15	240.05	3,083.21	9.79	715,560.45	166.16	63.71	738,799.36	0.98	9.91	1.24	16.61	19.16	2.06	6.24	4.32	3.57	62.02
month 019 (2018/03)	19.24	170.44	189.68	4.93	165.33	170.26	1,041.50	243.58	3,120.23	9.90	724,446.63	167.86	64.31	747,907.04	0.99	10.09	1.27	16.79	19.49	2.08	6.31	4.37	3.60	62.89
month 020 (2018/04)	19.24	170.44	189.68	4.93	165.33	170.26	1,041.50	243.58	3,120.23	9.90	724,446.63	167.86	64.31	747,907.04	0.99	10.09	1.27	16.79	19.49	2.08	6.31	4.37	3.60	62.89
month 021 (2018/05)	19.24	139.20	158.44	4.93	135.03	139.96	874.44	201.22	2,587.37	7.71	651,481.41	116.70	41.37	666,757.05	0.99	9.92	1.21	11.64	18.97	1.21	4.44	3.09	2.19	52.45
month 022 (2018/06)	24,864.85	114.63	24,979.48	2,521.16	111.19	2,632.35	690.35	162.94	2,045.63	6.78	460,832.24	120.01	47.24	477,998.25	0.64	6.97	0.88	12.20	13.19	1.52	4.63	3.21	2.64	44.35
month 023 (2018/07)	24,138.55	112.21	24,250.76	2,447.78	108.84	2,556.62	673.99	159.40	2,008.61	6.67	451,946.06	118.31	46.65	468,890.57	0.63	6.79	0.86	12.02	12.85	1.50	4.56	3.16	2.61	43.48
month 024 (2018/08)	24,138.55	112.21	24,250.76	2,447.78	108.84	2,556.62	673.99	159.40	2,008.61	6.67	451,946.06	118.31	46.65	468,890.57	0.63	6.79	0.86	12.02	12.85	1.50	4.56	3.16	2.61	43.48
month 025 (2018/09)	24,138.55	112.21	24,250.76	2,447.78	108.84	2,556.62	673.99	159.40	2,008.61	6.67	451,946.06	118.31	46.65	468,890.57	0.63	6.79	0.86	12.02	12.85	1.50	4.56	3.16	2.61	43.48
month 026 (2018/10)	16.46	131.66	148.12	4.22	127.72	131.93	815.07	188.09	2,442.83	7.45	592,064.01	117.07	43.06	607,872.31	0.85	8.51	1.05	11.68	16.37	1.33	4.42	3.06	2.35	48.29
month 027 (2018/11)	16.82	125.30	142.11	4.31	121.54	125.85	784.43	179.71	2,329.99	6.95	580,428.72	104.38	37.21	594,156.55	0.87	8.64	1.06	10.40	16.56	1.10	3.96	2.75	1.98	46.23
month 028 (2018/12)	13.61	103.14	116.74	3.49	100.05	103.53	647.02	147.97	1,962.44	5.69	481,780.00	83.90	29.64	492,731.09	0.69	6.58	0.81	8.23	12.83	0.91	3.09	2.15	1.60	35.99
month 029 (2019/01)	13.79	104.35	118.14	3.53	101.22	104.75	655.20	149.74	1,980.95	5.75	486,223.09	84.75	29.94	497,284.93	0.69	6.67	0.82	8.32	13.00	0.91	3.13	2.17	1.62	36.43
month 030 (2019/02)	13.79	104.35	118.14	3.53	101.22	104.75	655.20	149.74	1,980.95	5.75	486,223.09	84.75	29.94	497,284.93	0.69	6.67	0.82	8.32	13.00	0.91	3.13	2.17	1.62	36.43
month 031 (2019/03)	13.42	101.93	115.35	3.44	98.87	102.31	638.85	146.20	1,943.93	5.64	477,336.91	83.05	29.34	488,177.25	0.68	6.50	0.80	8.15	12.67	0.90	3.06	2.12	1.59	35.55
month 032 (2019/04)	12.95	96.59	109.54	3.32	93.70	97.01	608.41	138.65	1,849.57	5.34	457,459.52	78.09	27.39	467,589.05	0.64	5.99	0.74	7.60	11.80	0.85	2.83	1.96	1.49	33.05
month 033 (2019/05)	7.89	63.35	71.25	2.02	61.45	63.48	393.56	91.19	1,177.60	3.61	282,262.46	58.08	21.54	290,158.90	0.40	4.00	0.50	5.78	7.74	0.68	2.18	1.51	1.18	23.29
month 034 (2019/06)	15,041.64	51.64	15,093.27	1,537.89	50.09	1,587.98	330.91	75.30	977.77	2.79	254,900.50	38.89	12.94	259,727.65	0.40	3.94	0.48	3.85	7.54	0.35	1.48	1.03	0.66	19.37
month 035 (2019/07)	15,411.62	54.06	15,465.68	1,576.31	52.44	1,628.75	347.26	78.84	1,014.80	2.91	263,786.68	40.59	13.54	268,835.33	0.42	4.12	0.50	4.02	7.88	0.37	1.55	1.08	0.69	20.25
month 036 (2019/08)	739.97	4.84	744.81	76.84	4.69	81.53	32.71	7.08	74.05	0.23	17,772.35	3.40	1.20	18,215.35	0.03	0.36	0.04	0.35	0.67	0.03	0.14	0.10	0.06	1.75
month 037 (2019/09)	739.97	4.84	744.81	76.84	4.69	81.53	32.71	7.08	74.05	0.23	17,772.35	3.40	1.20	18,215.35	0.03									

TABLE 9A-9 ALASKA PIPELINE CONSTRUCTION EMISSIONS: SUMMARY OF DAILY EMISSIONS BY LOCATIONS BY MONTH AND ANNUAL EMISSIONS
BY LOCATIONS BY MONTH (UNIT: LBS PER DAY)

[illegible]

TABLE 9A-10 ALASKA PIPELINE CONSTRUCTION EMISSIONS: SUMMARY OF ANNUAL EMISSIONS BY LOCATIONS BY YEAR (UNIT: TONS PER YEAR)

Table 9A-10

Alaska Pipeline Construction Emissions: Summary of Annual Emissions by Locations by Year (unit: tons per year)																								
	Annual Emissions (unit: tons/year)																							
	Fugitive Dust PM10	Exhaust PM10	Total PM10	Fugitive Dust PM2.5	Exhaust PM2.5	Total PM2.5	CO	VOC	NOx	SOx	CO2	CH4	N2O	CO2e	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Formaldehyde	Naphthalene	Toluene	Xylenes	Total PAH	Total HAPs
month 001 (2016/09) - month 012 (2017/08)																								
Camp A1	-	1.33	1.33	-	1.29	1.29	7.13	1.81	22.73	0.09	3,112.42	2.18	0.98	3,461.55	-	0.01	0.00	0.22	0.02	0.04	0.08	0.05	0.06	0.45
Camp A10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A12	-	1.05	1.05	-	1.02	1.02	5.64	1.43	17.98	0.07	2,462.58	1.73	0.77	2,738.81	-	0.01	0.00	0.17	0.02	0.03	0.06	0.04	0.05	0.35
Camp A13	-	0.44	0.44	-	0.43	0.43	2.35	0.60	7.49	0.03	1,026.07	0.72	0.32	1,141.17	-	0.00	0.00	0.07	0.01	0.01	0.03	0.02	0.02	0.15
Camp A14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A4	-	0.41	0.41	-	0.40	0.40	2.19	0.56	6.99	0.03	957.67	0.67	0.30	1,065.09	-	0.00	0.00	0.07	0.01	0.01	0.02	0.02	0.02	0.14
Camp A5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A6	-	1.03	1.03	-	0.99	0.99	5.48	1.39	17.48	0.07	2,394.17	1.68	0.75	2,662.73	-	0.01	0.00	0.17	0.02	0.03	0.06	0.04	0.05	0.34
Camp A7	-	0.44	0.44	-	0.43	0.43	2.35	0.60	7.49	0.03	1,026.07	0.72	0.32	1,141.17	-	0.00	0.00	0.07	0.01	0.01	0.03	0.02	0.02	0.15
Camp A8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Camp A9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor Station - Chapman Creek Stn AK6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor Station - Fort Hamlin Hills Stn AK8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor Station - Galbraith Lake Stn AK4 req'd 1st gas	10.89	0.04	10.93	1.10	0.04	1.14	0.25	0.05	0.56	0.00	133.29	0.03	0.01	136.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Compressor Station - George Lake Stn AK 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor Station - Happy Valley Stn AK2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor Station - Johnson Road Stn AK12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compressor Station - Tatalina River Stn AK10 req'd 1st gas	10.89	0.04	10.93	1.10	0.04	1.14	0.25	0.05	0.56	0.00	133.29	0.03	0.01	136.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Compressor Station - Tetlin Junction Stn AK16 req'd 1st gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HDD-A11-Chena River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HDD-A11-Salcha River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HDD-A12-Tanana River #1	0.01	0.09	0.10	0.00	0.09	0.09	0.50	0.13	1.71	0.01	347.27	0.09	0.04	360.77	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.05
HDD-A14-Tanana River #2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meter Station - Point Thomson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meter Station- Alaska Mainline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Point Thomson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 1	244.96	4.12	249.08	24.66	4.00	28.66	26.48	5.98	79.32	0.22	20,818.19	3.12	1.03	21,203.45	0.03	0.30	0.04	0.31	0.59	0.03	0.12	0.08	0.05	1.52
Pipeline Construction - Spread 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 12	3.68	2.54	6.21	0.83	2.46	3.29	16.12	3.69	46.67	0.14	12,150.91	2.02	0.69	12,407.93	0.02	0.20	0.02	0.20	0.38	0.02	0.08	0.06	0.03	1.00
Pipeline Construction - Spread 13	9.35	1.24	10.58	2.05	1.20	3.25	7.87	1.81	22.92	0.07	5,995.53	1.00	0.35	6,123.92	0.01	0.10	0.01	0.10	0.19	0.01	0.04	0.03	0.02	0.50
Pipeline Construction - Spread 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 4	288.79	0.78	289.56	29.03	0.75	29.78	5.08	1.16	14.80	0.04	3,919.81	0.61	0.20	3,994.79	0.01	0.06	0.01	0.06	0.12	0.01	0.02	0.02	0.01	0.30
Pipeline Construction - Spread 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 6	188.78	3.32	192.11	19.02	3.22	22.24	21.44	4.88	61.56	0.18	16,157.56	2.65	0.90	16,492.55	0.03	0.27	0.03	0.27	0.50	0.02	0.10	0.07	0.05	1.32
Pipeline Construction - Spread 7	498.94	0.99	499.93	50.11	0.96	51.07	6.28	1.44	18.41	0.06	4,785.38	0.80	0.28	4,888.55	0.01	0.08	0.01	0.08	0.15	0.01	0.03	0.02	0.01	0.40
Pipeline Construction - Spread 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pipeline Construction - Spread 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
month 002 (2016/10) - month 013 (2017/09)																								
Camp A1	-	1.33	1.33	-	1.29	1.29	7.13	1.81	22.73	0.09	3,112.42	2.18	0.98	3,461.55	-	0.01	0.00	0.22	0.02	0.04	0.08	0.05	0.06	0.45
Camp A10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						

ALASKA PipelineProject	ALASKA PIPELINE PROJECT DRAFT RESOURCE REPORT 9 AIR AND NOISE QUALITY APPENDIX 9A	USAG-UR-SREG-000007 DECEMBER 2011 REVISION 0
	FERC Docket No. PF09-11-000	

**TABLE 9A-11 CONSTRUCTION EQUIPMENT AND VEHICLE
INFORMATION FOR EMISSION CALCULATION**

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Table 9A-11

Construction Equipment and Vehicle Information for Emission Calculation															
	Item #	Equipment/Vehicles	Horse-power (HP)	Diesel / Propane Gasoline	Weight (ton)	# of Tires	Diesel Fuel Consumption [gallon/hr]	Location	Maximum Trip/Day/Unit	Maximum Traveling distance off-site (mile/trip/day/unit)	Maximum Total off-site traveling distance (mile/day/unit)	Maximum Traveling distance on-site (mile/trip/day/unit)	Maximum Total on-site traveling distance (mile/day/unit)	Maximum Projected Op. Hrs/Day	Estimated onsite operating hour %
Nonroad Equipment															
GTP -- Non-Phase-Specific Rolling Stock, Passenger and Equipment (November 2014 - August 2020)	N4	Power Generation - 200 Main Pioneer Camp	268	D	-	-	14.00	GTP	-	-	-	-	-	24.00	100%
	N5	Power Generation - 700 Main Pioneer Camp	939	D	-	-	49.00	GTP	-	-	-	-	-	24.00	100%
	N6	Power Generation - 335 Main Pioneer Camp	448	D	-	-	23.45	GTP	-	-	-	-	-	12.00	100%
	N7	Site CNST Power Generation - 1 MW	1,341	D	-	-	70.00	GTP	-	-	-	-	-	12.00	100%
	N8	Heat - 10,000 sq. ft. Pioneer Camp	196	D	-	-	7.77	GTP	-	-	-	-	-	24.00	100%
	N9	Heat - 46,550 sq. ft. Temp CNSRT Camp	914	D	-	-	36.17	GTP	-	-	-	-	-	24.00	100%
	N10	Heat - 44,555 sq. ft. Perm Ops and Cnst Camp	875	D	-	-	34.62	GTP	-	-	-	-	-	12.00	100%
	N11	Heat - 64,000 sq. ft. Perm Warehouse	1,257	D	-	-	93.24	GTP	-	-	-	-	-	24.00	100%
	N12	Heat - 43,000 sq. ft. Perm Maintenance Facil	844	D	-	-	62.65	GTP	-	-	-	-	-	24.00	100%
	N13	Heat - 84,000 sq. ft. Perm Ops Cnst and Dining	1,649	D	-	-	65.27	GTP	-	-	-	-	-	12.00	100%
	N18	Snow Blower (150-600 hp) / Loader Mount (501h	600	D	15	4	16.00	GTP	4.00	-	-	0.90	3.60	12.00	100%
	N19	Light Plant	330	D	1	2	2.00	GTP	-	-	-	-	-	24.00	100%
	N20	Tioga Heaters	236	D	2,625	2	5.60	GTP	-	-	-	-	-	24.00	100%
	G2	CAT 16G/H Motor Grader	250	D	15	6	7.00	PUT23-GTP	8.00	0.50	4.00	0.45	3.60	24.00	50%
	G3	CAT 345 Large Excavator	345	D	20	2	9.00	PUT23	8.00	0.50	4.00	-	-	24.00	0%
	G4	Cat 740 Rock Truck	436	D	30	6	8.00	PUT23	8.00	0.50	4.00	-	-	24.00	0%
	G5	CAT 966 Loader	220	D	10	4	6.00	PUT23	8.00	0.50	4.00	-	-	24.00	0%
	G6	Cat 988B Loader	375	D	15	4	11.00	PUT23	8.00	0.50	4.00	-	-	24.00	0%
	G7	Cat 988H Loader	555	D	15	4	12.00	PUT23	8.00	0.50	4.00	-	-	24.00	0%
Gravel Site Construction and Site Conditioning, North Access and Ice Road to PUT 23 (11/27/14 - May 10, 2018)	G8	Cat CS563E Roller	150	D	10	2	6.00	PUT23-GTP	8.00	0.50	4.00	0.45	3.60	24.00	50%
	G9	Cat D-10 Dozer	700	D	30	2	20.00	PUT23	8.00	0.50	4.00	-	-	24.00	0%
	G10	CAT D-8 Dozer	310	D	15	2	14.00	PUT23-GTP	8.00	-	-	0.45	3.60	24.00	100%
	G11	CAT D-9 Dozer	475	D	40	2	14.00	PUT23-GTP	8.00	0.50	4.00	0.45	3.60	24.00	50%
	G15	Heater	393	D	3	2	8.00	PUT23	-	-	-	-	-	24.00	0%
	G16	IR CM 2000 Drill and 1600 Compressor	550	D	20	-	16.00	PUT23	2.00	0.50	1.00	-	-	24.00	0%
	G17	Blasting equipment	600	D	20	4	-	PUT23	2.00	0.50	1.00	-	-	24.00	0%
	G18	Pumps/equipment de-watering	10	D	2	2	-	PUT23	-	-	-	-	-	24.00	0%
	G19	Light Plant	30	D	1	2	2.00	PUT23	-	-	-	-	-	24.00	0%
	G20	Portable generators	100	D	-	-	-	PUT23	-	-	-	-	-	12.00	0%
	P4	Crane Hylt 80 Ton	275	D	15	4	1.90	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P5	Drill Watson 3000	996	D	10	10	14.60	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P6	Drill Texoma	602	D	10	10	0.42	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P7	Envirotrac field office	-	D	-	-	-	GTP	-	-	-	-	-	12.00	100%
	P10	Generator 8kw	14	D	2	2	0.40	GTP	-	-	-	-	-	12.00	100%
	P11	Generator 50KW	67	D	4	2	2.60	GTP	-	-	-	-	-	12.00	100%
	P12	Generator 150kw	240	D	10	4	4.20	GTP	-	-	-	-	-	12.00	100%
	P13	Indirect Heater	14	D	2	2	3.90	GTP	-	-	-	-	-	12.00	100%
	P14	Light Plant	14	D	1	2	1.30	GTP	-	-	-	-	-	12.00	100%
Piles and VSM Installation (SL1 1/1/16-1/2017, SL2 12/17-2/2018, SL3 12/18-3/19)	P15	Loader L150	269	D	15	4	5.30	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P16	Manlifts	49	D	10	4	0.50	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P20	Slurry Truck 10 yds	285	D	15	10	4.40	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P21	Snow Blower	475	D	10	4	3.80	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P25	Welding Machine	33	D	-	-	0.60	GTP	-	-	-	-	-	12.00	100%
	P26	Maxihaul 30 yard	750	D	30	10	5.00	GTP	4.00	-	-	0.90	3.60	12.00	100%
	P28	Sideboom 583	300	D	10	4	10.00	GTP	4.00	-	-	0.90	3.60	12.00	100%
	IC1	Light plants with generators	100	D	2	2	2.00	GTP	-	-	-	-	-	24.00	100%
	IC2	966 w Bucket and Forks	220	D	10	4	3.00	GTP	4.00	-	-	0.45	1.80	24.00	100%
	IC4	150 tonne crane	500	D	20	4	6.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IC5	25-35 ton crane, 50% shift at 12 hrs/day	240	D	10	4	5.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IC6	60' JLG 50% at 12 hrs/day/bldg.	63	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IC7	8,000 lb Lull RT Forklift, 12 hrs/day per bldg	115	D	5	4	3.00	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IC8	Welding Machines, 20% Utilization, 12 hr shift	33	D	-	-	1.00	GTP	-	-	-	-	-	12.00	100%
	IW1	Light plants with generators	100	D	2	2	2.00	GTP	-	-	-	-	-	24.00	100%
	IW2	966 w Bucket and Forks	220	D	5	4	3.00	GTP	2.00	-	-	0.45	0.90	24.00	100%
	IW4	Propane powered scissor lifts, 12 hr shifts	75	P	5	4	-	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IW5	34ft. RT Scissor Lift	49	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IW6	25-35 ton crane, 50% shift at 12 hrs/day	240	D	10	4	5.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
GTP -- Infra - CC 5-10/2016, Wilmaint 6-11/2016, V Maint 7-12/2016, WSTor 8/16-12/017, Fstor 10/16-3/2017	IW7	60' JLG 50% at 12 hrs/day/bldg.	63	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IW8	8,000 lb Lull RT Forklift, 12 hrs/day per bldg	115	D	5	4	3.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IW9	Welding Machines, 20% Utilization, 12 hr shift	33	D	-	-	1.00	GTP	-	-	-	-	-	12.00	100%
	IW10	Portable Concrete Batch Plant	100	D	-	-	3.00	GTP	-	-	-	-	-	12.00	100%
	IW12	Rotary Drill for Thermo-syphons	300	D	30	8	6.00	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IV1	Light plants with generators	100	D	2	2	2.00	GTP	-	-	-	-	-	24.00	100%
	IV2	966 w Bucket and Forks	220	D	10	4	3.00	GTP	2.00	-	-	0.45	0.90	24.00	100%
	IV4	Propane powered scissor lifts, 12 hr shifts	75	P	5	4	-	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IV5	34ft. RT Scissor Lift	49	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IV6	25-35 ton crane, 50% shift at 12 hrs/day	240	D	10	4	5.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IV7	60' JLG 50% at 12 hrs/day/bldg.	63	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IV8	8,000 lb Lull RT Forklift, 12 hrs/day per bldg	115	D	5	4	3.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IV9	Welding Machines, 20% Utilization, 12 hr shift	33	D	-	-	1.00	GTP	-	-	-	-	-	12.00	100%
	IV10	Portable Concrete Batch Plant	100	D	-	-	3.00	GTP	-	-	-	-	-	12.00	100%
	IV12	Rotary Drill for Thermo-syphons	300	D	30	8	6.00	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IS1	Light plants with generators	100	D	2	2	2.00	GTP	-	-	-	-	-	24.00	100%
	IS2	966 w Bucket and Forks	220	D	10	4	3.00	GTP	2.00	-	-	0.45	0.90	24.00	100%
	IS4	Propane powered scissor lifts, 12 hr shifts	75	P	5	4	-	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IS5	25-35 ton crane, 50% shift at 12 hrs/day	240	D	10	4	5.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IS6	60' JLG 50% at 12 hrs/day/bldg.	63	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
GTP -- DH2 Upgrade (May 2016 - August 2016)	IS7	8,000 lb Lull RT Forklift, 12 hrs/day per bldg	115	D	5	4	3.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IS8	Welding Machines, 20% Utilization, 12 hr shift	33	D	-	-	1.00	GTP	-	-	-	-	-	12.00	100%
	IS9	Portable Concrete Batch Plant	100	D	-	-	3.00	GTP	-	-	-	-	-	12.00	100%
	IF1	Light plants with generators	100	D	2	2	2.00	GTP	-	-	-	-	-	24.00	100%
	IF2	966 w Bucket and Forks	220	D	10	4	3.00	GTP	2.00	-	-	0.45	0.90	24.00	100%
	IF4	Propane powered scissor lifts, 12 hr shifts	75	P	5	4	-	GTP	2.00	-	-	0.45	0.90	12.00	100%
	IF5	25-35 ton crane, 50% shift at 12 hrs/day	240	D	10	4	5.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IF6	60' JLG 50% at 12 hrs/day/bldg.	63	D	5	4	1.50	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IF7	8,000 lb Lull RT Forklift, 12 hrs/day per bldg	115	D	5	4	3.00	GTP	4.00	-	-	0.45	1.80	12.00	100%
	IF8	Welding Machines, 20% Utilization, 12 hr shift	33	D	-	-	1.00	GTP	-	-	-	-	-	12.00	100%
	IF9	Portable Concrete Batch Plant	100	D	-	-	3.00	GTP	-	-	-	-	-	12.00	100%
	D1	Cat 740 Rock Truck	436	D	40	6	7.00	DOCK	4.00	0.45	1.80	-	-	12.00	0%
	D2	Cat 966G Loader	220	D	23	4	7.90	DOCK	4.00	0.45	1.80	-	-	12.00	0%
	D3	Cat 988B Loader	375	D	30	4	13.20	DOCK	4.00	0.45	1.80	-	-	12.00	0%
	D4	Cat D-9 Dozer	475	D	40	2	14.40	DOCK	4.00	0.45					

TABLE 9A-12 GTP CONSTRUCTION EMISSIONS: CONSTRUCTION EQUIPMENT AND VEHICLE QUANTITY PROJECTION FOR EMISSION CALCULATION

GTP Construction Emissions: Construction Equipment and Vehicle Quantity Projection for Emission Calculation

Item #	Equipment/Vehicles	Month of Construction (unit: # per day)																																																																						
		N-14	D-14	J-15	F-15	M-15	A-15	M-15	J-15	J-15	A-15	S-15	O-15	N-15	D-15	J-16	F-16	M-16	A-16	M-16	J-16	J-16	A-16	S-16	O-16	N-16	D-16	J-17	F-17	M-17	A-17	M-17	J-17	J-17	A-17	S-17	O-17	N-17	D-17	J-18	F-18	M-18	A-18	M-18	J-18	J-18	A-18	S-18	O-18	N-18	D-18	J-19	F-19	M-19	A-19	M-19	J-19	J-19	A-19	S-19	O-19	N-19	D-19	J-20	F-20	M-20	A-20	M-20	J-20	J-20	A-20	S-20

GTP Construction Emissions: Construction Equipment and Vehicle Quantity Projection for Emission Calculation

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GTP Construction Emissions: Construction Equipment and Vehicle Quantity Projection for Emission Calculation

Note:

1. Construction schedule:
 - Total month construction
 - Days per week
 - Days per month
 - Hours per day
2. Most equipment and vehicle will maximum operate
But the construction equipment in the PUT23 site and some logistics equipment/vehicle will operate maximum
3. The weight and tires of the equipment and vehicles from either equipment spec sheet or assumptions.
4. Deliveries trip per day, distance, and origins are based on either the information on RR#9, maps, or the assumptions.
5. It is assumed the maximum distance for vehicles travel from the NE entrance is 0.9 mile to the SW corner laydown of the site; and it's the same 0.9 mile for the vehicles travelling from S. entrance to the NE laydown area.
6. Onsite means on GTP site. Offsite is anywhere outside the GTP.
7. Assumptions for equipment and vehicles:
 - Higher horsepower values were used to estimate the EF if they were provided with a range of horsepower
 - Blue Bird Bus, 30 Passenger, Mod 44P4SS is 300hp
 - Passenger Bus 10 Passenger is 220hp
 - Light plant is 30hp
 - water truck KW T800 7.1 is 240hp KENWORTH T800 w/ 3000 gal capacity
 - 2 tires were assumed for all equipment with tracks in the fugitive dust emission estimations
 - 8 tires were assumed for Modular Trailer (Axles) in the fugitive dust emission estimations
 - Heater [G15] is 1000000 Btu/hr = 392.6652 horsepower
 - Blasting equipment [G17] is 600 horsepower w/ 4 tires.
 - Portable generator [G20] is 100 horsepower.
 - Generator 8kw [p10] is 14 horsepower (max).
 - Generator 50kw [p11] is 67 horsepower (max).
 - Generator 150kw [p12] is 240 horsepower (max).
 - Maxhaul 30 yard [P26 and T16] is 750 horsepower truck.
 - Propane powered scissor lifts, 12 hr shifts is 75 horsepower aerial lift w/ 4 wheels.
 - Light plants with generator is 100 horsepower.
 - Welding Machines, 20% Utilization, 12 hr shift is 33 horsepower.
 - Rotary Drill for Thermo-synopsis is 300 horsepower Texoma 700 Drill w/ 8 wheels and 30 tons.
 - Loader [AH5] is 269 horsepower.
 - Stationary Generator - 150kw and Portable Generator (2-150Kw) are 201 horsepower generators.
 - Barge is 300 horsepower.
 - Winches (4) are 4 x 10 horsepower winches.
 - Maintenance Dredging Equipment is 1500 horsepower.
 - Dump Scow is 3000 horsepower.
 - Heater (salamander) is 393 hp heater and consume 8 gph diesel.
 - FBE Unit is welder.
 - Portable concrete batching plant exhausted emissions are assumed to be approximately the same as the emissions from one 100hp Cement & Mortar Mixer.
 - the maximum speed is 10mph onsite and 45mph offsite for all vehicle/equipment
 - Service truck has 4 tires.
 - Stretch Trailers (40'-80') has 10 tires.
 - K-Line 30-CY End Dump Trailer has 6 tires.
 - Lowboy Trailer has 6 tires.
8. Assumed that slurry truck used in Piles and VSM Installation phase will dump slurry somewhere near the GTP site or balance onsite; the slurry trucks used in pipelines construction phase will dump slurry somewhere close to the offsite pipeline construction place (2 miles).
9. Assumed that maxhaul truck will be used on GTP site only.
10. Assumed B-70, Stretch Trailers (40'-80'), K-Line 30-CY End Dump Trailer, Lowboy Trailer, Tractor Trailers are more than 400hp.
11. Assumed Wending Truck / Cut Off Drill Truck, Boom Truck are less than 400hp.
12. Distance is assumed and estimated as follows:
 - from GTP project site/DOCK/PUT23 to its the origin/destination for water, fuel, or waste is within 11 miles.
 - from GTP project site to PUT23 mining site is 2 mile each single trip.
 - from GTP project site to DOCK is 5 mile each single trip.
 - from GTP project site to Deadhorse airport is 11 mile each single trip.
 - from PUT site to Deadhorse airport is 9 mile each single trip.
 - from DOCK to PUT23 mining site is 7 mile each single trip.
 - from Anchorage to Deadhorse airport is 180 miles each single trip (assume one trip can be done in a day)
 - from Fairbank to Deadhorse airport is 500 miles each single trip (assume one trip can be done in a day)
13. Adjustment: for (NS) Power Generation - 700 Main Pioneer Camp and (N9) Heat - 46,550 sq. ft. Temp CNSRT Camp: manually adjusted the operating hours per day number down to 24 if there's any value in the cell is more than 24
14. Other adjustment:
 - for (N20) Toga Heaters: Manually adjusted the operating hour per day numbers by multiplying factor 2 to the number of equipment (every month).
 - for (N15) Truck - Potable Water Delivery and (N16) Truck - Grey Water: Manually adjusted the operating hour per day numbers by multiplying factor 4 to the number of equipment (every month).

TABLE 9A-13 GTP CONSTRUCTION EMISSIONS: CONSTRUCTION EQUIPMENT AND VEHICLE OPERATING HOUR PROJECTION FOR EMISSION CALCULATION

FERC Docket No. PF09-11-000

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GTP Construction Emissions: Construction Equipment and Vehicle Operating Hour Projection for Emission Calculation

[illegible]

8. Assumed that slurry truck used in Piles and VSM Installation phase will dump slurry somewhere near the GTP site or balance onsite; the slurry trucks used in pipelines construction phase will dump slurry somewhere close to the offsite pipeline construction place (2 mile).

9. Assumed that machaul truck will be used on GTP site only.

10. Assumed B-70, Stretch Trailers (40-80), K-Line 30-CY End Dump Trailer, Lowboy Trailer, Tractor Trailers are more than 400hp.

11. Assumed Welding Truck / Cut Off Truck, Truck, Boom Truck are less than 400hp.

12. Distance is assumed and estimated as follows:

- from GTP project site DOCK/PUT23 to its the origin/destination for water, fuel, or waste is within 11 miles.
- from GTP project site to PUT23 mining site is 2 mile each single trip.
- from GTP project site to DOCK is 5 mile each single trip.
- from GTP project site to Deadhorse airport is 11 mile each single trip.
- from PUT site to Deadhorse airport is 9 mile each single trip.
- from DOCK to PUT23 mining site is 7 mile each single trip.
- from Anchorage to Deadhorse airport is 160 miles each single trip (assume one trip can be done in a day)
- from Fairbanks to Deadhorse airport is 500 miles each single trip (assume one trip can be done in a day)

13. Adjustment: for (N5) Power Generation - 700 Main Pioneer Camper and (N9) Heat - 46,550 sq. ft. Temp CNSRTR Camper: manually adjusted the operating hours per day number down to 24 if there's any value in the cell is more than 24

14. Other adjustment:

- for (N20) Toga Heaters: Manually adjusted the operating hour per day numbers by multiplying factor 2 to the number of equipment (every month).
- for (N15) Truck - Potable Water Delivery and (N16) Truck - Grey Water: Manually adjusted the operating hour per day numbers by multiplying factor 4 to the number of equipment (every month).