

AERSCREEN 16216 / AERMOD 18081

12/15/20

21:19:28

TITLE: ANTLER GENERATING STATION - NO2 IMPACTS

\*\*\*\*\* STACK PARAMETERS \*\*\*\*\*

SOURCE EMISSION RATE:	3.1965 g/s	25.369 lb/hr
STACK HEIGHT:	18.29 meters	60.01 feet
STACK INNER DIAMETER:	2.743 meters	108.00 inches
PLUME EXIT TEMPERATURE:	804.9 K	989.1 Deg F
PLUME EXIT VELOCITY:	38.163 m/s	125.21 ft/s
STACK AIR FLOW RATE:	477917 ACFM	
STACK BASE LONGITUDE:	-108.0284 deg	764376. Easting
STACK BASE LATITUDE:	37.0178 deg	4100978. Northing
STACK BASE UTM ZONE:		12
REFERENCE DATUM (NADA):		4
STACK BASE ELEVATION:	1923.90 meters	6312.01 feet
RURAL OR URBAN:	RURAL	

DIGITAL ELEVATION MAP(S)	USGS_1_n38w107.tif
	USGS_1_n38w108.tif
	USGS_1_n38w109.tif
	USGS_1_n37w107.tif
	USGS_1_n37w108.tif
	USGS_1_n37w109.tif

INITIAL PROBE DISTANCE =	10000. meters	32808. feet
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NOx TO NO2 CHEMISTRY	OLM
NO2/NOx IN-STACK RATIO:	0.50000
OZONE BACKGROUND CONCENTRATION:	0.63300E+02 PPB

\*\*\*\*\* BUILDING DOWNWASH PARAMETERS \*\*\*\*\*

USER DEFINED BPIPPRM INPUT FILE: bpip.inp

MAXIMUM BUILDING HEIGHT:            7.7 meters                            25.2 feet  
 MAXIMUM BUILDING LENGTH:           28.0 meters                           91.9 feet  
 MINIMUM BUILDING WIDTH:            9.5 meters                            31.3 feet

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 \*\*\*\*\* FLOW SECTOR ANALYSIS \*\*\*\*\*  
 25 meter receptor spacing: 15. meters - 5000. meters  
 50 meter receptor spacing: 5050. meters - 10000. meters  
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FLOW SECTOR	BUILD WIDTH	BUILD LENGTH	XBADJ	YBADJ	MAXIMUM 1-HR CONC (ug/m3)	IMPACT DIST (m)	RECEPTOR HEIGHT (m)	TEMPORAL PERIOD
10	14.35	27.13	-13.91	-5.62	14.53	250.0	-4.60	SPR
20	17.60	25.48	-12.23	-5.16	15.59	250.0	-1.89	SPR
30	20.59	23.05	-10.18	-4.68	16.26	250.0	-0.43	SPR
40	23.59	19.92	-7.83	-4.37	16.60	225.0	-0.03	SPR
50	25.86	16.99	-6.03	-3.94	18.00	6300.0	142.38	WIN
60	27.36	13.64	-4.16	-3.38	19.20	5800.0	143.51	WIN
70	28.02	10.14	-2.16	-2.72	18.46	5100.0	123.44	WIN
80	27.94	9.53	-0.19	-1.98	16.05	4900.0	108.39	WIN
90	27.96	10.67	0.57	-1.18	19.37	4875.0	136.56	WIN
100	27.13	14.35	-1.56	-0.34	15.73	250.0	7.16	SPR
110	25.48	17.60	-3.64	0.51	15.92	250.0	10.05	SPR
120	23.05	20.59	-5.62	1.34	16.42	250.0	13.31	SPR
130	19.92	23.59	-7.42	2.13	16.72	250.0	14.76	SPR
140*	16.99	25.86	-8.99	2.46	21.69	4675.0	139.74	WIN
150	13.64	27.36	-10.30	2.66	20.85	4600.0	151.82	WIN
160	10.14	28.02	-11.29	2.91	18.72	3075.0	134.52	WIN
170	9.53	27.94	-11.99	4.58	17.27	2975.0	118.18	WIN
180	10.67	27.96	-12.80	5.90	16.48	3150.0	117.00	WIN
190	14.35	27.13	-13.22	5.62	15.72	250.0	6.42	SPR
200	17.60	25.48	-13.25	5.16	15.81	250.0	4.42	SPR
210	20.59	23.05	-12.87	4.68	16.20	225.0	1.54	SPR
220	23.59	19.92	-12.09	4.37	16.15	250.0	-0.67	SPR
230	22.35	9.01	-28.55	13.41	14.96	250.0	-3.43	SPR
240	23.52	6.05	-28.51	9.01	13.91	250.0	-6.65	SPR
250	23.99	3.16	-27.85	4.33	13.40	250.0	-8.79	SPR
260	23.72	3.62	-29.46	-0.48	13.05	250.0	-10.82	SPR
270	22.73	7.68	-30.99	-5.28	12.85	225.0	-11.66	SPR
280	21.05	11.51	-31.58	-9.91	12.74	225.0	-12.82	SPR
290	12.32	14.63	-45.21	-5.86	12.69	225.0	-13.56	SPR

300	23.05	20.59	-14.98	-1.34	12.66	225.0	-14.05	SPR
310	19.92	23.59	-16.17	-2.13	12.64	225.0	-14.44	SPR
320	16.99	25.86	-16.87	-2.46	12.60	225.0	-15.24	SPR
330	13.64	27.36	-17.06	-2.66	12.66	250.0	-14.57	SPR
340	10.14	28.02	-16.73	-2.91	12.79	250.0	-13.03	SPR
350	9.53	27.94	-15.95	-4.58	13.16	250.0	-10.12	SPR
360	10.67	27.96	-15.16	-5.90	13.47	250.0	-8.45	SPR

\* = worst case flow sector

\*\*\*\*\* MAKEMET METEOROLOGY PARAMETERS \*\*\*\*\*

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Desert Shrubland

DOMINANT CLIMATE TYPE: Dry Conditions

DOMINANT SEASON: Winter

ALBEDO: 0.45

BOWEN RATIO: 10.00

ROUGHNESS LENGTH: 0.150 (meters)

SURFACE FRICTION VELOCITY (U\*) NOT ADJUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR MO DY JDY HR

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H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
-1.89	0.048	-9.000	0.020	-999.	24.	4.4	0.150	10.00	0.45	1.00		

HT	REF	TA	HT
10.0	250.0	2.0	

WIND SPEED AT STACK HEIGHT (non-downwash): 2.0 m/s

STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 18.3 meters

ESTIMATED FINAL PLUME RISE (non-downwash): 108.5 meters

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 126.7 meters

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR MO DY JDY HR

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10 02 06 6 12

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
400.33	0.141	1.800	0.020	826.	122.	-1.0	0.300	10.00	0.28	0.50		

HT	REF	TA	HT
10.0	310.0	2.0	

WIND SPEED AT STACK HEIGHT (non-downwash): 0.6 m/s  
STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 18.3 meters  
ESTIMATED FINAL PLUME RISE (non-downwash): 1409.8 meters  
ESTIMATED FINAL PLUME HEIGHT (non-downwash): 1428.1 meters

\*\*\*\*\* AERSCREEN AUTOMATED DISTANCES \*\*\*\*\*  
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	RECEPTOR HEIGHT (m)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	RECEPTOR HEIGHT (m)
15.24	1.436	-2.68	3775.00	15.91	120.39
25.00	1.545	-1.95	3800.00	15.72	122.96
50.00	1.406	-0.29	3825.00	15.79	124.73
75.00	1.451	1.19	3850.00	16.18	127.22
100.00	1.993	2.86	3875.00	16.56	130.11
125.00	3.887	4.51	3900.00	16.69	131.75
150.00	9.321	5.86	3925.00	16.83	133.89
175.00	12.83	2.35	3950.00	16.99	101.03
200.00	15.78	0.72	3975.00	17.51	102.49
225.00	16.62	0.31	4000.00	17.87	103.63
250.00	16.85	15.37	4025.00	18.17	104.66
275.00	16.77	20.74	4050.00	17.66	103.56
300.00	17.08	27.57	4075.00	18.86	132.62
325.00	15.90	28.27	4100.00	18.69	131.81
350.00	14.87	29.66	4125.00	18.67	132.33
375.00	13.87	29.81	4150.00	18.74	133.80
400.00	12.96	29.45	4175.00	18.95	137.97

425.00	12.16	29.86	4200.00	18.67	143.81
450.00	11.43	29.89	4225.00	16.91	103.17
475.00	10.77	25.30	4250.00	17.18	104.12
500.00	10.18	24.78	4275.00	17.44	105.11
525.00	9.639	19.25	4300.00	17.74	106.26
550.00	9.142	18.45	4325.00	17.83	106.79
575.00	8.672	17.46	4350.00	18.09	107.93
600.00	8.228	16.59	4375.00	18.33	109.07
625.00	7.807	15.78	4400.00	18.49	110.01
650.00	7.415	18.01	4425.00	18.64	110.97
675.00	7.041	16.33	4450.00	18.82	112.18
700.00	6.696	19.05	4475.00	18.98	113.49
725.00	6.370	19.76	4500.00	19.14	114.95
750.00	6.065	18.80	4525.00	19.24	116.44
775.00	5.778	20.75	4550.00	19.28	117.73
800.00	5.511	20.80	4575.00	19.27	118.81
825.00	5.259	21.06	4600.00	20.85	151.82
850.00	5.024	22.06	4625.00	20.66	152.36
875.00	4.887	36.71	4650.00	21.49	134.58
900.00	4.758	38.13	4675.00	21.69	139.74
925.00	4.630	39.67	4700.00	21.55	142.93
950.00	4.503	40.49	4725.00	21.49	142.23
975.00	4.378	40.27	4750.00	20.71	149.63
1000.00	4.258	40.22	4775.00	19.30	156.20
1025.00	4.143	35.44	4800.00	18.63	163.97
1050.00	4.032	34.42	4825.00	18.87	167.65
1075.00	3.925	34.08	4850.00	18.95	170.33
1100.00	3.822	33.73	4875.00	19.37	136.56
1125.00	3.721	33.23	4900.00	19.32	137.11
1150.00	3.624	32.99	4925.00	18.81	173.47
1175.00	3.530	32.80	4950.00	18.69	172.12
1200.00	3.439	33.84	4975.00	18.65	173.87
1225.00	3.353	52.04	5000.00	18.57	173.53
1250.00	3.370	52.69	5050.00	18.43	174.57
1275.00	3.403	52.99	5100.00	18.46	123.44
1300.00	3.311	52.83	5150.00	18.07	179.00
1325.00	3.152	52.40	5200.00	17.81	181.70
1350.00	5.211	59.20	5250.00	17.47	166.18
1375.00	6.428	62.54	5300.00	17.36	166.56
1400.00	7.554	65.39	5350.00	17.36	182.04
1425.00	8.515	67.74	5400.00	17.39	173.06
1450.00	9.356	69.78	5450.00	17.21	171.43
1475.00	10.03	71.41	5500.00	16.77	165.87
1500.00	10.22	72.01	5550.00	16.78	129.57
1525.00	9.951	71.76	5600.00	18.34	148.47
1550.00	9.644	71.42	5650.00	18.61	143.60
1575.00	9.358	71.10	5700.00	18.24	146.92
1600.00	9.135	70.89	5750.00	18.42	130.93
1625.00	9.014	70.87	5800.00	19.20	143.51
1650.00	9.190	71.45	5850.00	18.94	146.28
1675.00	9.703	72.70	5900.00	18.43	150.14
1700.00	10.44	74.38	5950.00	17.37	155.81

1725.00	11.36	76.40	6000.00	18.26	149.54
1750.00	12.42	78.67	6050.00	17.04	156.33
1775.00	13.59	81.17	6100.00	17.31	154.33
1800.00	13.61	81.52	6150.00	17.13	179.93
1825.00	13.53	81.67	6200.00	17.09	174.63
1850.00	12.33	79.60	6250.00	16.48	186.50
1875.00	10.33	75.84	6300.00	18.00	142.38
1900.00	11.25	77.97	6350.00	16.40	145.93
1925.00	12.13	80.01	6400.00	16.53	170.40
1950.00	12.84	81.74	6450.00	16.31	182.46
1975.00	13.29	82.96	6500.00	15.99	185.72
2000.00	13.51	83.72	6550.00	15.97	184.53
2025.00	13.63	84.28	6600.00	15.82	185.15
2050.00	13.94	85.28	6650.00	15.96	137.53
2075.00	14.52	86.91	6700.00	15.71	134.75
2100.00	15.05	88.52	6750.00	15.55	146.95
2125.00	15.49	90.01	6800.00	15.71	179.06
2150.00	15.86	91.39	6850.00	15.50	168.83
2175.00	16.13	92.61	6900.00	14.15	195.87
2200.00	16.22	93.35	6950.00	13.36	203.18
2225.00	16.25	93.95	7000.00	12.88	207.35
2250.00	16.33	94.73	7050.00	12.25	108.71
2275.00	16.40	95.52	7100.00	12.78	112.64
2300.00	16.43	96.22	7150.00	13.18	117.69
2325.00	16.44	96.85	7200.00	14.95	127.99
2350.00	16.52	97.87	7250.00	15.92	136.72
2375.00	16.39	97.94	7300.00	15.98	143.47
2400.00	16.08	97.23	7350.00	15.70	147.48
2425.00	15.60	95.81	7400.00	15.63	147.35
2450.00	14.95	93.90	7450.00	15.19	151.11
2475.00	14.35	92.31	7500.00	15.66	142.22
2500.00	13.91	91.30	7550.00	15.02	132.40
2525.00	13.59	90.75	7600.00	15.24	148.08
2550.00	13.47	90.65	7650.00	14.71	152.39
2575.00	13.55	91.26	7700.00	15.12	135.98
2600.00	13.89	92.79	7750.00	15.18	145.10
2625.00	13.98	93.53	7800.00	13.53	158.55
2650.00	13.99	93.97	7850.00	13.56	165.82
2675.00	14.07	94.69	7900.00	13.77	175.74
2700.00	14.34	96.32	7950.00	13.24	187.34
2725.00	14.72	97.27	8000.00	12.26	197.31
2750.00	15.55	100.72	8050.00	11.86	200.95
2775.00	16.07	102.65	8100.00	11.62	203.29
2800.00	16.34	103.92	8150.00	11.89	198.98
2825.00	16.54	105.03	8200.00	13.35	127.27
2850.00	16.69	106.03	8250.00	14.49	141.86
2875.00	16.88	107.24	8300.00	13.74	152.67
2900.00	16.89	111.54	8350.00	12.96	157.63
2925.00	17.23	109.96	8400.00	13.28	155.13
2950.00	17.72	113.97	8450.00	13.18	155.42
2975.00	17.92	119.15	8500.00	13.27	154.28
3000.00	17.55	124.53	8550.00	14.07	140.23

3025.00	18.35	129.03	8600.00	12.79	126.91
3050.00	18.47	132.63	8650.00	11.82	135.93
3075.00	18.72	134.52	8700.00	12.00	138.85
3100.00	18.54	132.80	8750.00	11.95	140.50
3125.00	18.24	132.26	8800.00	12.11	186.41
3150.00	17.66	129.07	8850.00	12.51	126.99
3175.00	16.80	124.53	8900.00	12.02	139.00
3200.00	16.87	119.26	8950.00	12.13	125.34
3225.00	16.57	115.05	9000.00	12.98	131.92
3250.00	16.24	112.96	9050.00	13.21	135.23
3275.00	16.04	112.21	9100.00	13.30	137.81
3300.00	15.91	111.99	9150.00	12.90	150.60
3325.00	15.77	112.39	9200.00	12.87	150.33
3350.00	15.34	118.60	9250.00	12.37	133.08
3375.00	15.39	118.22	9300.00	12.52	135.24
3400.00	15.21	120.32	9350.00	12.56	136.43
3425.00	15.10	119.67	9400.00	12.64	137.89
3450.00	15.00	119.35	9450.00	12.90	145.43
3475.00	14.87	118.38	9500.00	12.82	145.96
3500.00	14.75	117.82	9550.00	12.54	139.27
3525.00	14.71	118.87	9600.00	12.78	143.69
3550.00	14.60	118.27	9650.00	12.74	140.86
3575.00	14.52	117.36	9700.00	12.61	137.68
3600.00	15.24	108.78	9750.00	12.43	135.28
3625.00	15.58	110.23	9800.00	12.29	149.42
3650.00	15.72	111.69	9850.00	12.29	134.79
3675.00	15.84	113.31	9900.00	12.00	151.68
3700.00	16.01	115.18	9950.00	11.99	151.19
3725.00	16.03	116.96	10000.00	12.03	150.11
3750.00	15.99	118.55			

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 \*\*\*\*\* AERSCREEN MAXIMUM IMPACT SUMMARY \*\*\*\*\*  
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CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
ELEVATED TERRAIN	21.70	21.70	19.53	13.02	2.170

DISTANCE FROM SOURCE      4665.00 meters directed toward 140 degrees  
 RECEPTOR HEIGHT      138.58 meters

IMPACT AT THE AMBIENT BOUNDARY	1.436	1.436	1.292	0.8614	0.1436
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DISTANCE FROM SOURCE            15.24 meters directed toward 160 degrees  
RECEPTOR HEIGHT        -2.68 meters