

**APPENDIX C**  
**AIR QUALITY EMISSIONS CALCULATIONS**

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AERSCREEN 11126 / AERMOD 1234

03/25/13

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TITLE: SLC VESSEL SURVEY IMPACTS

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

SOURCE EMISSION RATE: 1.0000 g/s 7.937 lb/hr  
 STACK HEIGHT: 1.00 meters 3.28 feet  
 STACK INNER DIAMETER: 0.150 meters 5.91 inches  
 PLUME EXIT TEMPERATURE: 450.0 K 350.3 Deg F  
 PLUME EXIT VELOCITY: 149.103 m/s 489.18 ft/s  
 STACK AIR FLOW RATE: 5583 ACFM  
 RURAL OR URBAN: RURAL

INITIAL PROBE DISTANCE = 10000. meters 32808. feet

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

NO BUILDING DOWNWASH HAS BEEN REQUESTED FOR THIS ANALYSIS

\*\*\*\*\* PROBE ANALYSIS \*\*\*\*\*

25 meter receptor spacing: 1000. meters - 5000. meters  
50 meter receptor spacing: 5050. meters - 10000. meters

Zo SECTOR	ROUGHNESS LENGTH	1-HR CONC (ug/m3)	DIST (m)	TEMPORAL PERIOD
1*	0.001	43.75	1000.0	SPR

\* = worst case flow sector

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

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)  
 MINIMUM WIND SPEED: 1.0 m/s  
 ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Water  
 DOMINANT CLIMATE TYPE: Dry Conditions  
 DOMINANT SEASON: Spring

ALBEDO: 0.12  
 BOWEN RATIO: 0.10  
 ROUGHNESS LENGTH: 0.001 (meters)

Air Quality Emissions Calculations

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
21.68	0.060	0.300	0.020	49.	34.	-1.0	0.001	0.10	0.12	1.00		
HT	REF	TA	HT									
10.0	310.0	2.0										

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 57.8 meters

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR MO DY JDY HR  
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 10 01 16 16 12

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
21.68	0.060	0.300	0.020	49.	34.	-1.0	0.001	0.10	0.12	1.00		
HT	REF	TA	HT									
10.0	310.0	2.0										

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 57.8 meters

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

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1000.00	43.75	4275.00	29.67
1025.00	43.29	4300.00	29.61
1050.00	42.83	4325.00	29.56
1075.00	42.38	4350.00	29.50
1100.00	41.93	4375.00	29.44
1125.00	41.49	4400.00	29.38
1150.00	41.05	4425.00	29.32
1175.00	40.62	4450.00	29.26
1200.00	40.19	4475.00	29.20
1225.00	39.78	4500.00	29.14
1250.00	39.37	4525.00	29.08
1275.00	38.96	4550.00	29.01
1300.00	38.57	4575.00	28.95
1325.00	38.18	4600.00	28.89
1350.00	37.79	4625.00	28.83
1375.00	37.42	4650.00	28.76
1400.00	37.05	4675.00	28.70

1	1425.00	37.01	4700.00	28.64
2	1450.00	37.02	4725.00	28.57
3	1475.00	37.01	4750.00	28.51
4	1500.00	36.98	4775.00	28.44
5	1525.00	36.95	4800.00	28.38
6	1550.00	36.90	4825.00	28.31
7	1575.00	36.85	4850.00	28.25
8	1600.00	36.78	4875.00	28.18
9	1625.00	36.71	4900.00	28.12
10	1650.00	36.63	4925.00	28.05
11	1675.00	36.53	4950.00	27.98
12	1700.00	36.44	4975.00	27.92
13	1725.00	36.33	5000.00	27.85
14	1750.00	36.22	5050.00	27.72
15	1775.00	36.10	5100.00	27.58
16	1800.00	35.98	5150.00	27.45
17	1825.00	35.85	5200.00	27.31
18	1850.00	35.72	5250.00	27.18
19	1875.00	35.58	5300.00	27.04
20	1900.00	35.44	5350.00	26.91
21	1925.00	35.29	5400.00	26.77
22	1950.00	35.14	5450.00	26.64
23	1975.00	34.99	5500.00	26.50
24	2000.00	34.83	5550.00	26.37
25	2025.00	34.67	5600.00	26.23
26	2050.00	34.51	5650.00	26.10
27	2075.00	34.35	5700.00	25.96
28	2100.00	34.18	5750.00	25.83
29	2125.00	34.02	5800.00	25.69
30	2150.00	33.85	5850.00	25.56
31	2175.00	33.67	5900.00	25.42
32	2200.00	33.50	5950.00	25.29
33	2225.00	33.33	6000.00	25.16
34	2250.00	33.15	6050.00	25.03
35	2275.00	32.98	6100.00	24.89
36	2300.00	32.80	6150.00	24.76
37	2325.00	32.62	6200.00	24.63
38	2350.00	32.45	6250.00	24.50
39	2375.00	32.27	6300.00	24.37
40	2400.00	32.09	6350.00	24.24
41	2425.00	31.91	6400.00	24.11
42	2450.00	31.73	6450.00	23.98
43	2475.00	31.55	6500.00	23.85
44	2500.00	31.37	6550.00	23.73
45	2525.00	31.20	6600.00	23.60
46	2550.00	31.02	6650.00	23.47
47	2575.00	30.84	6700.00	23.35
48	2600.00	30.66	6750.00	23.22
49	2625.00	30.58	6800.00	23.10
50	2650.00	30.64	6850.00	22.98
51	2675.00	30.70	6900.00	22.85
52	2700.00	30.76	6950.00	22.73
53	2725.00	30.81	7000.00	22.61
54	2750.00	30.86	7050.00	22.49
55	2775.00	30.90	7100.00	22.37
56	2800.00	30.94	7150.00	22.25
57	2825.00	30.98	7200.00	22.13
58	2850.00	31.02	7250.00	22.02
59	2875.00	31.05	7300.00	21.90
60	2900.00	31.08	7350.00	21.78
61	2925.00	31.10	7400.00	21.67
62	2950.00	31.12	7450.00	21.55
63	2975.00	31.14	7500.00	21.44

*Air Quality Emissions Calculations*

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1	3000.00	31.16	7550.00	21.33
2	3025.00	31.18	7600.00	21.28
3	3050.00	31.19	7650.00	21.24
4	3075.00	31.20	7700.00	21.20
5	3100.00	31.21	7750.00	21.16
6	3125.00	31.21	7800.00	21.12
7	3150.00	31.21	7850.00	21.07
8	3175.00	31.21	7900.00	21.03
9	3200.00	31.21	7950.00	20.99
10	3225.00	31.21	8000.00	20.95
11	3250.00	31.20	8050.00	20.90
12	3275.00	31.19	8100.00	20.86
13	3300.00	31.18	8150.00	20.82
14	3325.00	31.17	8200.00	20.77
15	3350.00	31.15	8250.00	20.73
16	3375.00	31.14	8300.00	20.68
17	3400.00	31.12	8350.00	20.64
18	3425.00	31.10	8400.00	20.59
19	3450.00	31.08	8450.00	20.54
20	3475.00	31.05	8500.00	20.50
21	3500.00	31.03	8550.00	20.45
22	3525.00	31.00	8600.00	20.40
23	3550.00	30.98	8650.00	20.36
24	3575.00	30.95	8700.00	20.31
25	3600.00	30.92	8750.00	20.26
26	3625.00	30.88	8800.00	20.21
27	3650.00	30.85	8850.00	20.17
28	3675.00	30.81	8900.00	20.12
29	3700.00	30.78	8950.00	20.07
30	3725.00	30.74	9000.00	20.02
31	3750.00	30.70	9050.00	19.97
32	3775.00	30.66	9100.00	19.92
33	3800.00	30.62	9150.00	19.88
34	3825.00	30.58	9200.00	19.83
35	3850.00	30.54	9250.00	19.78
36	3875.00	30.49	9300.00	19.73
37	3900.00	30.45	9350.00	19.68
38	3925.00	30.40	9400.00	19.63
39	3950.00	30.35	9450.00	19.58
40	3975.00	30.31	9500.00	19.53
41	4000.00	30.26	9550.00	19.48
42	4025.00	30.21	9600.00	19.43
43	4050.00	30.16	9650.00	19.38
44	4075.00	30.11	9700.00	19.33
45	4100.00	30.06	9750.00	19.28
46	4125.00	30.00	9800.00	19.23
47	4150.00	29.95	9850.00	19.18
48	4175.00	29.89	9900.00	19.13
49	4200.00	29.84	9950.00	19.08
50	4225.00	29.78	10000.00	19.03
51	4250.00	29.73		
52				

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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)
FLAT TERRAIN	43.75	43.75	39.38	26.25	4.375
DISTANCE FROM SOURCE            1000.00 meters					
IMPACT AT THE AMBIENT BOUNDARY	43.75	43.75	39.38	26.25	4.375
DISTANCE FROM SOURCE            1000.00 meters					

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