

APPENDIX C

Active Air Monitoring Results

Current Processing Operations

pDR-1000 S/N: 05567
User ID: 6082
Tag Number: 01
Number of logged points: 121
Start time and date: 00:23:35 01-Mar
Elapsed time: 02:01:00
Logging period (sec): 60
Calibration Factor (%): 100
Max Display Concentration: 3.559 mg/m³
Time at maximum: 01:34:15 Mar 01
Max STEL Concentration: 0.083 mg/m³
Time at max STEL: 01:42:06 Mar 01
Overall Avg Conc: 0.036 mg/m³

Logged Data:

Point	Date	Time	Avg. (mg/m ³)
1	01 Mar	00:24:35	0.053
2	01 Mar	00:25:35	0.032
3	01 Mar	00:26:35	0.034
4	01 Mar	00:27:35	0.028
5	01 Mar	00:28:35	0.038
6	01 Mar	00:29:35	0.059
7	01 Mar	00:30:35	0.036
8	01 Mar	00:31:35	0.046
9	01 Mar	00:32:35	0.040
10	01 Mar	00:33:35	0.039
11	01 Mar	00:34:35	0.048
12	01 Mar	00:35:35	0.035
13	01 Mar	00:36:35	0.043
14	01 Mar	00:37:35	0.042
15	01 Mar	00:38:35	0.060
16	01 Mar	00:39:35	0.086
17	01 Mar	00:40:35	0.033
18	01 Mar	00:41:35	0.023
19	01 Mar	00:42:35	0.028
20	01 Mar	00:43:35	0.055
21	01 Mar	00:44:35	0.034
22	01 Mar	00:45:35	0.042
23	01 Mar	00:46:35	0.024
24	01 Mar	00:47:35	0.026
25	01 Mar	00:48:35	0.018
26	01 Mar	00:49:35	0.021
27	01 Mar	00:50:35	0.013
28	01 Mar	00:51:35	0.012
29	01 Mar	00:52:35	0.014
30	01 Mar	00:53:35	0.017
31	01 Mar	00:54:35	0.046
32	01 Mar	00:55:35	0.018
33	01 Mar	00:56:35	0.015
34	01 Mar	00:57:35	0.022
35	01 Mar	00:58:35	0.187
36	01 Mar	00:59:35	0.293
37	01 Mar	01:00:35	0.045
38	01 Mar	01:01:35	0.016
39	01 Mar	01:02:35	0.025
40	01 Mar	01:03:35	0.021
41	01 Mar	01:04:35	0.019
42	01 Mar	01:05:35	0.016
43	01 Mar	01:06:35	0.013
44	01 Mar	01:07:35	0.011
45	01 Mar	01:08:35	0.011
46	01 Mar	01:09:35	0.013
47	01 Mar	01:10:35	0.013
48	01 Mar	01:11:35	0.012
49	01 Mar	01:12:35	0.013
50	01 Mar	01:13:35	0.015
51	01 Mar	01:14:35	0.013
52	01 Mar	01:15:35	0.012
53	01 Mar	01:16:35	0.011
54	01 Mar	01:17:35	0.036
55	01 Mar	01:18:35	0.012
56	01 Mar	01:19:35	0.013

57,	01	Mar,	01:20:35,	0.010
58,	01	Mar,	01:21:35,	0.011
59,	01	Mar,	01:22:35,	0.012
60,	01	Mar,	01:23:35,	0.013
61,	01	Mar,	01:24:35,	0.012
62,	01	Mar,	01:25:35,	0.012
63,	01	Mar,	01:26:35,	0.017
64,	01	Mar,	01:27:35,	0.012
65,	01	Mar,	01:28:35,	0.013
66,	01	Mar,	01:29:35,	0.027
67,	01	Mar,	01:30:35,	0.054
68,	01	Mar,	01:31:35,	0.019
69,	01	Mar,	01:32:35,	0.013
70,	01	Mar,	01:33:35,	0.020
71,	01	Mar,	01:34:35,	0.704
72,	01	Mar,	01:35:35,	0.020
73,	01	Mar,	01:36:35,	0.040
74,	01	Mar,	01:37:35,	0.051
75,	01	Mar,	01:38:35,	0.053
76,	01	Mar,	01:39:35,	0.039
77,	01	Mar,	01:40:35,	0.044
78,	01	Mar,	01:41:35,	0.112
79,	01	Mar,	01:42:35,	0.033
80,	01	Mar,	01:43:35,	0.017
81,	01	Mar,	01:44:35,	0.024
82,	01	Mar,	01:45:35,	0.013
83,	01	Mar,	01:46:35,	0.009
84,	01	Mar,	01:47:35,	0.016
85,	01	Mar,	01:48:35,	0.013
86,	01	Mar,	01:49:35,	0.015
87,	01	Mar,	01:50:35,	0.013
88,	01	Mar,	01:51:35,	0.019
89,	01	Mar,	01:52:35,	0.042
90,	01	Mar,	01:53:35,	0.040
91,	01	Mar,	01:54:35,	0.058
92,	01	Mar,	01:55:35,	0.036
93,	01	Mar,	01:56:35,	0.043
94,	01	Mar,	01:57:35,	0.036
95,	01	Mar,	01:58:35,	0.059
96,	01	Mar,	01:59:35,	0.017
97,	01	Mar,	02:00:35,	0.017
98,	01	Mar,	02:01:35,	0.019
99,	01	Mar,	02:02:35,	0.032
100,	01	Mar,	02:03:35,	0.023
101,	01	Mar,	02:04:35,	0.019
102,	01	Mar,	02:05:35,	0.014
103,	01	Mar,	02:06:35,	0.012
104,	01	Mar,	02:07:35,	0.009
105,	01	Mar,	02:08:35,	0.017
106,	01	Mar,	02:09:35,	0.019
107,	01	Mar,	02:10:35,	0.022
108,	01	Mar,	02:11:35,	0.010
109,	01	Mar,	02:12:35,	0.014
110,	01	Mar,	02:13:35,	0.016
111,	01	Mar,	02:14:35,	0.020
112,	01	Mar,	02:15:35,	0.012
113,	01	Mar,	02:16:35,	0.014
114,	01	Mar,	02:17:35,	0.013
115,	01	Mar,	02:18:35,	0.014
116,	01	Mar,	02:19:35,	0.016
117,	01	Mar,	02:20:35,	0.013
118,	01	Mar,	02:21:35,	0.034
119,	01	Mar,	02:22:35,	0.032
120,	01	Mar,	02:23:35,	0.017
121,	01	Mar,	02:24:35,	0.027

Mining Activities

TrakPro Version 4.30 ASCII Data File

Model:,Dust Trak
Model Number:,8520
Serial Number:,85201560
Test ID:,001
Test Abbreviation:,
Start Date:,06/18/2010
Start Time:,08:24:25
Duration (dd:hh:mm:ss):,0:02:25:00
Time constant (seconds):,10
Log Interval (mm:ss):,01:00
Number of points:,145
Notes:,

Statistics,Channel:,Aerosol
,Units:,mg/m³
,Average:,0.050
,Minimum:,0.004
,Time of Minimum:,09:25:25
,Date of Minimum:,06/18/2010
,Maximum:,0.736
,Time of Maximum:,10:08:25
,Date of Maximum:,06/18/2010

Calibration,Sensor:,Aerosol
,Cal. date,01/11/2010

Date,Time,Aerosol
MM/dd/yyyy, hh:mm:ss,mg/m³

06/18/2010,08:25:25,0.020
06/18/2010,08:26:25,0.017
06/18/2010,08:27:25,0.008
06/18/2010,08:28:25,0.133
06/18/2010,08:29:25,0.031
06/18/2010,08:30:25,0.009
06/18/2010,08:31:25,0.007
06/18/2010,08:32:25,0.006
06/18/2010,08:33:25,0.041
06/18/2010,08:34:25,0.029
06/18/2010,08:35:25,0.053
06/18/2010,08:36:25,0.483
06/18/2010,08:37:25,0.026
06/18/2010,08:38:25,0.015
06/18/2010,08:39:25,0.122
06/18/2010,08:40:25,0.005
06/18/2010,08:41:25,0.005
06/18/2010,08:42:25,0.386
06/18/2010,08:43:25,0.005
06/18/2010,08:44:25,0.006
06/18/2010,08:45:25,0.006
06/18/2010,08:46:25,0.007
06/18/2010,08:47:25,0.043
06/18/2010,08:48:25,0.011
06/18/2010,08:49:25,0.014
06/18/2010,08:50:25,0.023
06/18/2010,08:51:25,0.017
06/18/2010,08:52:25,0.053
06/18/2010,08:53:25,0.033
06/18/2010,08:54:25,0.024
06/18/2010,08:55:25,0.057
06/18/2010,08:56:25,0.035
06/18/2010,08:57:25,0.024
06/18/2010,08:58:25,0.013

06/18/2010,08:59:25,0.024
06/18/2010,09:00:25,0.012
06/18/2010,09:01:25,0.009
06/18/2010,09:02:25,0.010
06/18/2010,09:03:25,0.007
06/18/2010,09:04:25,0.008
06/18/2010,09:05:25,0.019
06/18/2010,09:06:25,0.010
06/18/2010,09:07:25,0.014
06/18/2010,09:08:25,0.028
06/18/2010,09:09:25,0.053
06/18/2010,09:10:25,0.025
06/18/2010,09:11:25,0.061
06/18/2010,09:12:25,0.036
06/18/2010,09:13:25,0.069
06/18/2010,09:14:25,0.014
06/18/2010,09:15:25,0.006
06/18/2010,09:16:25,0.005
06/18/2010,09:17:25,0.007
06/18/2010,09:18:25,0.009
06/18/2010,09:19:25,0.006
06/18/2010,09:20:25,0.005
06/18/2010,09:21:25,0.005
06/18/2010,09:22:25,0.005
06/18/2010,09:23:25,0.007
06/18/2010,09:24:25,0.005
06/18/2010,09:25:25,0.004
06/18/2010,09:26:25,0.005
06/18/2010,09:27:25,0.015
06/18/2010,09:28:25,0.010
06/18/2010,09:29:25,0.006
06/18/2010,09:30:25,0.005
06/18/2010,09:31:25,0.005
06/18/2010,09:32:25,0.005
06/18/2010,09:33:25,0.004
06/18/2010,09:34:25,0.005
06/18/2010,09:35:25,0.004
06/18/2010,09:36:25,0.005
06/18/2010,09:37:25,0.005
06/18/2010,09:38:25,0.006
06/18/2010,09:39:25,0.005
06/18/2010,09:40:25,0.005
06/18/2010,09:41:25,0.004
06/18/2010,09:42:25,0.005
06/18/2010,09:43:25,0.005
06/18/2010,09:44:25,0.005
06/18/2010,09:45:25,0.007
06/18/2010,09:46:25,0.014
06/18/2010,09:47:25,0.024
06/18/2010,09:48:25,0.022
06/18/2010,09:49:25,0.009
06/18/2010,09:50:25,0.013
06/18/2010,09:51:25,0.008
06/18/2010,09:52:25,0.032
06/18/2010,09:53:25,0.044
06/18/2010,09:54:25,0.079
06/18/2010,09:55:25,0.014
06/18/2010,09:56:25,0.025
06/18/2010,09:57:25,0.011
06/18/2010,09:58:25,0.012
06/18/2010,09:59:25,0.016
06/18/2010,10:00:25,0.049
06/18/2010,10:01:25,0.077

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06/18/2010,10:02:25,0.089
06/18/2010,10:03:25,0.204
06/18/2010,10:04:25,0.191
06/18/2010,10:05:25,0.121
06/18/2010,10:06:25,0.070
06/18/2010,10:07:25,0.300
06/18/2010,10:08:25,0.736
06/18/2010,10:09:25,0.088
06/18/2010,10:10:25,0.015
06/18/2010,10:11:25,0.016
06/18/2010,10:12:25,0.012
06/18/2010,10:13:25,0.007
06/18/2010,10:14:25,0.015
06/18/2010,10:15:25,0.014
06/18/2010,10:16:25,0.009
06/18/2010,10:17:25,0.025
06/18/2010,10:18:25,0.013
06/18/2010,10:19:25,0.019
06/18/2010,10:20:25,0.014
06/18/2010,10:21:25,0.205
06/18/2010,10:22:25,0.152
06/18/2010,10:23:25,0.230
06/18/2010,10:24:25,0.490
06/18/2010,10:25:25,0.012
06/18/2010,10:26:25,0.029
06/18/2010,10:27:25,0.098
06/18/2010,10:28:25,0.288
06/18/2010,10:29:25,0.149
06/18/2010,10:30:25,0.157
06/18/2010,10:31:25,0.278
06/18/2010,10:32:25,0.103
06/18/2010,10:33:25,0.004
06/18/2010,10:34:25,0.006
06/18/2010,10:35:25,0.015
06/18/2010,10:36:25,0.022
06/18/2010,10:37:25,0.017
06/18/2010,10:38:25,0.038
06/18/2010,10:39:25,0.020
06/18/2010,10:40:25,0.005
06/18/2010,10:41:25,0.006
06/18/2010,10:42:25,0.004
06/18/2010,10:43:25,0.007
06/18/2010,10:44:25,0.004
06/18/2010,10:45:25,0.012
06/18/2010,10:46:25,0.005
06/18/2010,10:47:25,0.030
06/18/2010,10:48:25,0.016
06/18/2010,10:49:25,0.046

APPENDIX **D**

Statistical Analysis

Current Processing Operations

General UCL Statistics for Full Data Sets

User Selected Options

From File C:\Documents and Settings\vincent.yanagita\My Documents\Projects\pvt\Wood Demolition DOH Letter\air sampli
Full Precision OFF
Confidence Coefficient 95%
Number of Bootstrap Operations 2000

pdr

General Statistics

Number of Valid Observations 123

Number of Distinct Observations 46

Raw Statistics

Minimum 0.009
Maximum 0.704
Mean 0.0349
Median 0.019
SD 0.069
Coefficient of Variation 1.981
Skewness 8.116

Log-transformed Statistics

Minimum of Log Data -4.711
Maximum of Log Data -0.351
Mean of log Data -3.759
SD of log Data 0.708

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic 0.354
Lilliefors Critical Value 0.0799

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic 0.126
Lilliefors Critical Value 0.0799

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL 0.0452

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL 0.05
95% Modified-t UCL 0.0459

Assuming Lognormal Distribution

95% H-UCL 0.0339

95% Chebyshev (MVUE) UCL 0.0391
97.5% Chebyshev (MVUE) UCL 0.0431
99% Chebyshev (MVUE) UCL 0.0509

Gamma Distribution Test

k star (bias corrected) 1.356
Theta Star 0.0257
nu star 333.6

Approximate Chi Square Value (.05) 292.3

Adjusted Level of Significance 0.048

Adjusted Chi Square Value 291.9

Anderson-Darling Test Statistic 8.463

Anderson-Darling 5% Critical Value 0.773

Kolmogorov-Smirnov Test Statistic 0.165

Kolmogorov-Smirnov 5% Critical Value 0.0853

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL 0.0398
95% Adjusted Gamma UCL 0.0398

Potential UCL to Use

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL 0.0451

95% Jackknife UCL 0.0452

95% Standard Bootstrap UCL 0.0448

95% Bootstrap-t UCL 0.0631

95% Hall's Bootstrap UCL 0.0847

95% Percentile Bootstrap UCL 0.046

95% BCA Bootstrap UCL 0.0544

95% Chebyshev(Mean, Sd) UCL 0.062

97.5% Chebyshev(Mean, Sd) UCL 0.0737

99% Chebyshev(Mean, Sd) UCL 0.0968

Use 95% Chebyshev (Mean, Sd) UCL 0.062

Mining Activities

General UCL Statistics for Full Data Sets

User Selected Options

From File WorkSheet.wst
Full Precision OFF
Confidence Coefficient 95%
Number of Bootstrap Operations 2000

PM10 (mg/m³)

General Statistics

Number of Valid Observations 145

Number of Distinct Observations 63

Raw Statistics

Minimum 0.004
Maximum 0.736
Mean 0.0497
Median 0.014
SD 0.101
Coefficient of Variation 2.025
Skewness 4.044

Log-transformed Statistics

Minimum of Log Data -5.521
Maximum of Log Data -0.307
Mean of log Data -3.988
SD of log Data 1.259

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic 0.325
Lilliefors Critical Value 0.0736

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic 0.114
Lilliefors Critical Value 0.0736

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL 0.0635

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL 0.0664
95% Modified-t UCL 0.064

Assuming Lognormal Distribution

95% H-UCL 0.0527

95% Chebyshev (MVUE) UCL 0.0647
97.5% Chebyshev (MVUE) UCL 0.0751
99% Chebyshev (MVUE) UCL 0.0956

Gamma Distribution Test

k star (bias corrected) 0.615
Theta Star 0.0807
nu star 178.4
Approximate Chi Square Value (.05) 148.5
Adjusted Level of Significance 0.0483
Adjusted Chi Square Value 148.3

Anderson-Darling Test Statistic 10.28
Anderson-Darling 5% Critical Value 0.808
Kolmogorov-Smirnov Test Statistic 0.201
Kolmogorov-Smirnov 5% Critical Value 0.0816

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL 0.0597
95% Adjusted Gamma UCL 0.0598

Potential UCL to Use

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL 0.0634
95% Jackknife UCL 0.0635
95% Standard Bootstrap UCL 0.0632
95% Bootstrap-t UCL 0.0673
95% Hall's Bootstrap UCL 0.0678
95% Percentile Bootstrap UCL **0.0637**
95% BCA Bootstrap UCL 0.0669
95% Chebyshev(Mean, Sd) UCL 0.0861
97.5% Chebyshev(Mean, Sd) UCL 0.102
99% Chebyshev(Mean, Sd) UCL 0.133

Use 97.5% Chebyshev (Mean, Sd) UCL 0.102

APPENDIX **E**

Air Dispersion Modeling

Current Processing Operations

Soil Disposal Emission Rate

$$Q = (E_{10} \times h \times u_{\text{mean}}) / (L \times 10^6)$$

where: Q: PM₁₀ emission rate (g/s-m²)
E₁₀: PM₁₀ concentration (µg/m³)
h: mixing height
u_{mean}: mean wind speed (m/s), and
L: landfill length.

E₁₀ = 46
L = 45 site-specific
h = 2
u_{mean} = 2.8 site-specific

Q= 5.72444E-06

***** SCREEN3 MODEL *****
 ***** VERSION DATED 96043 *****

ENTER TITLE FOR THIS RUN (UP TO 79 CHARACTERS):
 test

ENTER SOURCE TYPE: P FOR POINT
 F FOR FLARE
 A FOR AREA
 U FOR VOLUME

ALSO ENTER ANY OF THE FOLLOWING OPTIONS ON THE SAME LINE:

N - TO USE THE NON-REGULATORY BUT CONSERVATIVE BRODE 2
 MIXING HEIGHT OPTION.
 nn.n - TO USE AN ANEMOMETER HEIGHT OTHER THAN THE REGULATORY
 (DEFAULT) 10 METER HEIGHT.
 SS - TO USE A NON-REGULATORY CAVITY CALCULATION ALTERNATIVE
 Example - PM 7.0 SS (entry for a point source)

ENTER SOURCE TYPE AND ANY OF THE ABOVE OPTIONS:

a
 ENTER EMISSION RATE (G/(S-M**2)):
 .00000572444

ENTER SOURCE RELEASE HEIGHT (M):

.1

ENTER LENGTH OF LARGER SIDE FOR AREA (M):

45

ENTER LENGTH OF SMALLER SIDE FOR AREA (M):

45

ENTER RECEPTOR HEIGHT ABOVE GROUND (FOR FLAGPOLE RECEPTOR) (M):

1.8

ENTER URBAN/RURAL OPTION (U=URBAN, R=RURAL):

r

SEARCH THROUGH RANGE OF DIRECTIONS TO FIND THE MAXIMUM?

ENTER Y OR N:

y

ENTER CHOICE OF METEOROLOGY:

1 - FULL METEOROLOGY (ALL STABILITIES & WIND SPEEDS)

2 - INPUT SINGLE STABILITY CLASS

3 - INPUT SINGLE STABILITY CLASS AND WIND SPEED

3

ENTER STABILITY CLASS, 1(<=A) TO 6(<=F):

1

ENTER ANEMOMETER HEIGHT WIND SPEED (M/S):

2.8

USE AUTOMATED DISTANCE ARRAY? ENTER Y OR N:

y

ENTER MIN AND MAX DISTANCES TO USE (M):

200

8047

 *** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
200.	.8788	1	2.8	2.8	896.0	.10	40.
300.	.3820	1	2.8	2.8	896.0	.10	35.
400.	.1976	1	2.8	2.8	896.0	.10	14.
500.	.1106	1	2.8	2.8	896.0	.10	6.
600.	.6426E-01	1	2.8	2.8	896.0	.10	17.
700.	.4046E-01	1	2.8	2.8	896.0	.10	17.
800.	.2710E-01	1	2.8	2.8	896.0	.10	17.
900.	.1904E-01	1	2.8	2.8	896.0	.10	11.
1000.	.1390E-01	1	2.8	2.8	896.0	.10	6.
1100.	.1055E-01	1	2.8	2.8	896.0	.10	6.
1200.	.8481E-02	1	2.8	2.8	896.0	.10	6.
1300.	.7298E-02	1	2.8	2.8	896.0	.10	7.
1400.	.6623E-02	1	2.8	2.8	896.0	.10	10.
1500.	.6179E-02	1	2.8	2.8	896.0	.10	9.
1600.	.5830E-02	1	2.8	2.8	896.0	.10	10.
1700.	.5527E-02	1	2.8	2.8	896.0	.10	11.
1800.	.5257E-02	1	2.8	2.8	896.0	.10	17.
1900.	.5014E-02	1	2.8	2.8	896.0	.10	10.
2000.	.4794E-02	1	2.8	2.8	896.0	.10	17.
2100.	.4594E-02	1	2.8	2.8	896.0	.10	10.
2200.	.4411E-02	1	2.8	2.8	896.0	.10	10.
2300.	.4243E-02	1	2.8	2.8	896.0	.10	11.
2400.	.4088E-02	1	2.8	2.8	896.0	.10	17.
2500.	.3945E-02	1	2.8	2.8	896.0	.10	10.
2600.	.3813E-02	1	2.8	2.8	896.0	.10	17.
2700.	.3689E-02	1	2.8	2.8	896.0	.10	10.
2800.	.3574E-02	1	2.8	2.8	896.0	.10	11.
2900.	.3467E-02	1	2.8	2.8	896.0	.10	10.
3000.	.3366E-02	1	2.8	2.8	896.0	.10	10.
3500.	.2944E-02	1	2.8	2.8	896.0	.10	10.
4000.	.2622E-02	1	2.8	2.8	896.0	.10	8.
4500.	.2368E-02	1	2.8	2.8	896.0	.10	8.
5000.	.2162E-02	1	2.8	2.8	896.0	.10	14.
5500.	.1992E-02	1	2.8	2.8	896.0	.10	8.
6000.	.1848E-02	1	2.8	2.8	896.0	.10	8.
6500.	.1725E-02	1	2.8	2.8	896.0	.10	14.
7000.	.1619E-02	1	2.8	2.8	896.0	.10	8.
7500.	.1526E-02	1	2.8	2.8	896.0	.10	8.
8000.	.1444E-02	1	2.8	2.8	896.0	.10	13.

ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 200. M:

200. .8788 1 2.8 2.8 896.0 .10 40.

USE DISCRETE DISTANCES? ENTER Y OR N:

y

TO CEASE, ENTER A DISTANCE OF ZERO (0).

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
ENTER DISTANCE (M) (0 TO EXIT):							
402							
402.	.1953	1	2.8	2.8	896.0	.10	9.
ENTER DISTANCE (M) (0 TO EXIT):							

Mining Activities

Soil Disposal Emission Rate

$$Q = (E_{10} \times h \times u_{\text{mean}}) / (L \times 10^6)$$

where: Q: PM₁₀ emission rate (g/s-m²)
E₁₀: PM₁₀ concentration (µg/m³)
h: mixing height
u_{mean}: mean wind speed (m/s), and
L: landfill length.

E₁₀ = 63.7
L = 45 site-specific
h = 2
u_{mean} = 2.8 site-specific

Q= 7.92711E-06

***** SCREEN3 MODEL *****
 ***** VERSION DATED 96043 *****

ENTER TITLE FOR THIS RUN (UP TO 79 CHARACTERS):
 mining 95ucl

ENTER SOURCE TYPE: P FOR POINT
 F FOR FLARE
 A FOR AREA
 U FOR VOLUME

ALSO ENTER ANY OF THE FOLLOWING OPTIONS ON THE SAME LINE:

N - TO USE THE NON-REGULATORY BUT CONSERVATIVE BRODE 2
 MIXING HEIGHT OPTION.
 nn.n - TO USE AN ANEMOMETER HEIGHT OTHER THAN THE REGULATORY
 (DEFAULT) 10 METER HEIGHT.
 SS - TO USE A NON-REGULATORY CAVITY CALCULATION ALTERNATIVE
 Example - PN 7.0 SS (entry for a point source)

ENTER SOURCE TYPE AND ANY OF THE ABOVE OPTIONS:

a
 ENTER EMISSION RATE (G/(S-M**2)):
 .00000792711

ENTER SOURCE RELEASE HEIGHT (M):

.1
 ENTER LENGTH OF LARGER SIDE FOR AREA (M):
 45

ENTER LENGTH OF SMALLER SIDE FOR AREA (M):
 45

ENTER RECEPTOR HEIGHT ABOVE GROUND (FOR FLAGPOLE RECEPTOR) (M):
 1.8

ENTER URBAN/RURAL OPTION (U=URBAN, R=RURAL):

r
 SEARCH THROUGH RANGE OF DIRECTIONS TO FIND THE MAXIMUM?
 ENTER Y OR N:

y
 ENTER CHOICE OF METEOROLOGY;
 1 - FULL METEOROLOGY (ALL STABILITIES & WIND SPEEDS)
 2 - INPUT SINGLE STABILITY CLASS
 3 - INPUT SINGLE STABILITY CLASS AND WIND SPEED

3
 ENTER STABILITY CLASS, 1(<=A) TO 6(<=F):

1
 ENTER ANEMOMETER HEIGHT WIND SPEED (M/S):

2.8
 USE AUTOMATED DISTANCE ARRAY? ENTER Y OR N:

y
 ENTER MIN AND MAX DISTANCES TO USE (M):
 200
 8047

 *** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
200.	1.217	1	2.8	2.8	896.0	.10	40.
300.	.5289	1	2.8	2.8	896.0	.10	35.
400.	.2737	1	2.8	2.8	896.0	.10	14.
500.	.1531	1	2.8	2.8	896.0	.10	6.
600.	.8898E-01	1	2.8	2.8	896.0	.10	17.
700.	.5602E-01	1	2.8	2.8	896.0	.10	17.
800.	.3753E-01	1	2.8	2.8	896.0	.10	17.
900.	.2637E-01	1	2.8	2.8	896.0	.10	11.
1000.	.1925E-01	1	2.8	2.8	896.0	.10	6.
1100.	.1461E-01	1	2.8	2.8	896.0	.10	6.
1200.	.1174E-01	1	2.8	2.8	896.0	.10	6.
1300.	.1011E-01	1	2.8	2.8	896.0	.10	7.
1400.	.9171E-02	1	2.8	2.8	896.0	.10	10.
1500.	.8557E-02	1	2.8	2.8	896.0	.10	9.
1600.	.8073E-02	1	2.8	2.8	896.0	.10	10.
1700.	.7654E-02	1	2.8	2.8	896.0	.10	11.
1800.	.7280E-02	1	2.8	2.8	896.0	.10	17.
1900.	.6943E-02	1	2.8	2.8	896.0	.10	10.
2000.	.6639E-02	1	2.8	2.8	896.0	.10	17.
2100.	.6361E-02	1	2.8	2.8	896.0	.10	10.
2200.	.6108E-02	1	2.8	2.8	896.0	.10	10.
2300.	.5875E-02	1	2.8	2.8	896.0	.10	11.
2400.	.5661E-02	1	2.8	2.8	896.0	.10	17.
2500.	.5463E-02	1	2.8	2.8	896.0	.10	10.
2600.	.5280E-02	1	2.8	2.8	896.0	.10	17.
2700.	.5109E-02	1	2.8	2.8	896.0	.10	10.
2800.	.4949E-02	1	2.8	2.8	896.0	.10	11.
2900.	.4801E-02	1	2.8	2.8	896.0	.10	10.
3000.	.4661E-02	1	2.8	2.8	896.0	.10	10.
3500.	.4077E-02	1	2.8	2.8	896.0	.10	10.
4000.	.3631E-02	1	2.8	2.8	896.0	.10	8.
4500.	.3279E-02	1	2.8	2.8	896.0	.10	8.
5000.	.2994E-02	1	2.8	2.8	896.0	.10	14.
5500.	.2758E-02	1	2.8	2.8	896.0	.10	8.
6000.	.2559E-02	1	2.8	2.8	896.0	.10	8.
6500.	.2389E-02	1	2.8	2.8	896.0	.10	14.
7000.	.2241E-02	1	2.8	2.8	896.0	.10	8.
7500.	.2113E-02	1	2.8	2.8	896.0	.10	8.
8000.	.1999E-02	1	2.8	2.8	896.0	.10	13.

ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 200. M:
 200. 1.217 1 2.8 2.8 896.0 .10 40.

USE DISCRETE DISTANCES? ENTER Y OR N:
 y
 TO CEASE, ENTER A DISTANCE OF ZERO (0).

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
402	.2704	1	2.8	2.8	896.0	.10	9.

ENTER DISTANCE (M) (0 TO EXIT):
 0

Fine Shredding

***** SCREEN3 MODEL *****
 **** VERSION DATED 96043 ****

ENTER TITLE FOR THIS RUN (UP TO 79 CHARACTERS):
 fine processing 80tons

ENTER SOURCE TYPE: P FOR POINT
 F FOR FLARE
 A FOR AREA
 U FOR VOLUME

ALSO ENTER ANY OF THE FOLLOWING OPTIONS ON THE SAME LINE:

M - TO USE THE NON-REGULATORY BUT CONSERVATIVE BRODE 2
 MIXING HEIGHT OPTION.
 nn.n - TO USE AN ANEMOMETER HEIGHT OTHER THAN THE REGULATORY
 (DEFAULT) 10 METER HEIGHT.
 SS - TO USE A NON-REGULATORY GROUTY CALCULATION ALTERNATIVE
 Example - PM 7.0 SS (entry for a point source)

ENTER SOURCE TYPE AND ANY OF THE ABOVE OPTIONS:

P
 ENTER EMISSION RATE (G/S):
 .0267

ENTER STACK HEIGHT (M):

1

ENTER STACK INSIDE DIAMETER (M):

1

ENTER STACK GAS EXIT VELOCITY OR FLOW RATE:

OPTION 1 : EXIT VELOCITY (M/S):

DEFAULT - ENTER NUMBER ONLY

OPTION 2 : VOLUME FLOW RATE (M**3/S):

EXAMPLE "UM=20.00"

OPTION 3 : VOLUME FLOW RATE (ACFM):

EXAMPLE "UF=1000.00"

0

ENTER STACK GAS EXIT TEMPERATURE (K):

293

ENTER AMBIENT AIR TEMPERATURE (USE 293 FOR DEFAULT) (K):

293

ENTER RECEPTOR HEIGHT ABOVE GROUND (FOR FLAGPOLE RECEPTOR) (M):

1.8

ENTER URBAN/RURAL OPTION (U=URBAN, R=RURAL):

R

CONSIDER BUILDING DOWNWASH IN CALCS? ENTER Y OR N:

N

USE COMPLEX TERRAIN SCREEN FOR TERRAIN ABOVE STACK HEIGHT?

ENTER Y OR N:

N

USE SIMPLE TERRAIN SCREEN WITH TERRAIN ABOVE STACK BASE?

ENTER Y OR N:

N

ENTER CHOICE OF METEOROLOGY:

1 - FULL METEOROLOGY (ALL STABILITIES & WIND SPEEDS)

2 - INPUT SINGLE STABILITY CLASS

3 - INPUT SINGLE STABILITY CLASS AND WIND SPEED

3

ENTER STABILITY CLASS, 1(=A) TO 6(=F):

1

ENTER ANEMOMETER HEIGHT WIND SPEED (M/S):

2.8

USE AUTOMATED DISTANCE ARRAY? ENTER Y OR N:

Y

ENTER MIN AND MAX DISTANCES TO USE (M):

200

8047

***** SCREEN AUTOMATED DISTANCES *****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
200.	2.069	1	2.8	2.8	896.0	.00	49.97	29.30	NO
300.	.8909	1	2.8	2.8	896.0	.00	71.76	47.44	NO
400.	.4599	1	2.8	2.8	896.0	.00	92.71	71.16	NO
500.	.2565	1	2.8	2.8	896.0	.00	113.04	104.65	NO
600.	.1484	1	2.8	2.8	896.0	.00	132.88	153.94	NO
700.	.9342E-01	1	2.8	2.8	896.0	.00	152.31	213.33	NO
800.	.6258E-01	1	2.8	2.8	896.0	.00	171.40	283.00	NO
900.	.4395E-01	1	2.8	2.8	896.0	.00	190.18	363.13	NO
1000.	.3207E-01	1	2.8	2.8	896.0	.00	208.71	453.85	NO
1100.	.2434E-01	1	2.8	2.8	896.0	.00	226.99	555.30	NO
1200.	.1956E-01	1	2.8	2.8	896.0	.00	245.06	667.59	NO
1300.	.1684E-01	1	2.8	2.8	896.0	.00	262.94	790.83	NO
1400.	.1529E-01	1	2.8	2.8	896.0	.00	280.63	925.14	NO
1500.	.1427E-01	1	2.8	2.8	896.0	.00	298.15	1070.60	NO
1600.	.1346E-01	1	2.8	2.8	896.0	.00	315.52	1227.31	NO
1700.	.1270E-01	1	2.8	2.8	896.0	.00	332.74	1395.34	NO
1800.	.1214E-01	1	2.8	2.8	896.0	.00	349.83	1574.79	NO
1900.	.1158E-01	1	2.8	2.8	896.0	.00	366.78	1765.72	NO
2000.	.1107E-01	1	2.8	2.8	896.0	.00	383.62	1968.21	NO
2100.	.1061E-01	1	2.8	2.8	896.0	.00	400.33	2182.34	NO
2200.	.1018E-01	1	2.8	2.8	896.0	.00	416.94	2408.15	NO
2300.	.9795E-02	1	2.8	2.8	896.0	.00	433.44	2645.73	NO
2400.	.9438E-02	1	2.8	2.8	896.0	.00	449.85	2895.13	NO
2500.	.9108E-02	1	2.8	2.8	896.0	.00	466.15	3156.40	NO
2600.	.8802E-02	1	2.8	2.8	896.0	.00	482.37	3429.61	NO
2700.	.8517E-02	1	2.8	2.8	896.0	.00	498.49	3714.81	NO
2800.	.8252E-02	1	2.8	2.8	896.0	.00	514.53	4012.06	NO
2900.	.8003E-02	1	2.8	2.8	896.0	.00	530.49	4321.40	NO
3000.	.7771E-02	1	2.8	2.8	896.0	.00	546.37	4642.88	NO
3500.	.6797E-02	1	2.8	2.8	896.0	.00	624.67	5000.00	NO
4000.	.6064E-02	1	2.8	2.8	896.0	.00	701.33	5000.00	NO
4500.	.5467E-02	1	2.8	2.8	896.0	.00	776.57	5000.00	NO
5000.	.4992E-02	1	2.8	2.8	896.0	.00	850.55	5000.00	NO
5500.	.4598E-02	1	2.8	2.8	896.0	.00	923.40	5000.00	NO
6000.	.4266E-02	1	2.8	2.8	896.0	.00	995.23	5000.00	NO
6500.	.3982E-02	1	2.8	2.8	896.0	.00	1066.12	5000.00	NO
7000.	.3737E-02	1	2.8	2.8	896.0	.00	1136.15	5000.00	NO
7500.	.3522E-02	1	2.8	2.8	896.0	.00	1205.38	5000.00	NO
8000.	.3333E-02	1	2.8	2.8	896.0	.00	1273.86	5000.00	NO

ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 200. M:

200. 2.069 1 2.8 2.8 896.0 .00 49.97 29.30 NO

USE DISCRETE DISTANCES? ENTER Y OR N:

Y

TO CEASE, ENTER A DISTANCE OF ZERO (0).

***** SCREEN DISCRETE DISTANCES *****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
402.	.4540	1	2.8	2.8	896.0	.00	93.12	71.78	NO

ENTER DISTANCE (M) (0 TO EXIT):

Stockpiling of Processed Materials

***** SCREEN3 MODEL *****
 ***** VERSION DATED 96043 *****

ENTER TITLE FOR THIS RUN (UP TO 79 CHARACTERS):
 industrial erosion 80tons

ENTER SOURCE TYPE: P FOR POINT
 F FOR FLARE
 A FOR AREA
 U FOR VOLUME

ALSO ENTER ANY OF THE FOLLOWING OPTIONS ON THE SAME LINE:

N - TO USE THE NON-REGULATORY BUT CONSERVATIVE BRODE 2
 MIXING HEIGHT OPTION.
 nn.n - TO USE AN ANEMOMETER HEIGHT OTHER THAN THE REGULATORY
 (DEFAULT) 10 METER HEIGHT.
 SS - TO USE A NON-REGULATORY CAVITY CALCULATION ALTERNATIVE
 Example - PN 7.0 SS (entry for a point source)

ENTER SOURCE TYPE AND ANY OF THE ABOVE OPTIONS:

a
 ENTER EMISSION RATE (G/(S-M**2)):
 .000144312

ENTER SOURCE RELEASE HEIGHT (M):

.1

ENTER LENGTH OF LARGER SIDE FOR AREA (M):

21.55

ENTER LENGTH OF SMALLER SIDE FOR AREA (M):

21.55

ENTER RECEPTOR HEIGHT ABOVE GROUND (FOR FLAGPOLE RECEPTOR) (M):

1.8

ENTER URBAN/RURAL OPTION (U=URBAN, R=RURAL):

r

SEARCH THROUGH RANGE OF DIRECTIONS TO FIND THE MAXIMUM?

ENTER Y OR N:

y

ENTER CHOICE OF METEOROLOGY:

1 - FULL METEOROLOGY (ALL STABILITIES & WIND SPEEDS)

2 - INPUT SINGLE STABILITY CLASS

3 - INPUT SINGLE STABILITY CLASS AND WIND SPEED

3

ENTER STABILITY CLASS, 1(<=A) TO 6(<=F):

1

ENTER ANEMOMETER HEIGHT WIND SPEED (M/S):

2.8

USE AUTOMATED DISTANCE ARRAY? ENTER Y OR N:

y

ENTER MIN AND MAX DISTANCES TO USE (M):

200

8047

 *** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
200.	5.164	1	2.8	2.8	896.0	.10	8.
300.	2.226	1	2.8	2.8	896.0	.10	17.
400.	1.149	1	2.8	2.8	896.0	.10	14.
500.	.6416	1	2.8	2.8	896.0	.10	6.
600.	.3718	1	2.8	2.8	896.0	.10	9.
700.	.2340	1	2.8	2.8	896.0	.10	10.
800.	.1568	1	2.8	2.8	896.0	.10	10.
900.	.1101	1	2.8	2.8	896.0	.10	9.
1000.	.8033E-01	1	2.8	2.8	896.0	.10	9.
1100.	.6098E-01	1	2.8	2.8	896.0	.10	16.
1200.	.4900E-01	1	2.8	2.8	896.0	.10	9.
1300.	.4217E-01	1	2.8	2.8	896.0	.10	9.
1400.	.3828E-01	1	2.8	2.8	896.0	.10	7.
1500.	.3572E-01	1	2.8	2.8	896.0	.10	9.
1600.	.3370E-01	1	2.8	2.8	896.0	.10	16.
1700.	.3195E-01	1	2.8	2.8	896.0	.10	9.
1800.	.3039E-01	1	2.8	2.8	896.0	.10	7.
1900.	.2899E-01	1	2.8	2.8	896.0	.10	7.
2000.	.2772E-01	1	2.8	2.8	896.0	.10	11.
2100.	.2656E-01	1	2.8	2.8	896.0	.10	11.
2200.	.2550E-01	1	2.8	2.8	896.0	.10	11.
2300.	.2453E-01	1	2.8	2.8	896.0	.10	8.
2400.	.2364E-01	1	2.8	2.8	896.0	.10	11.
2500.	.2281E-01	1	2.8	2.8	896.0	.10	11.
2600.	.2204E-01	1	2.8	2.8	896.0	.10	11.
2700.	.2133E-01	1	2.8	2.8	896.0	.10	11.
2800.	.2066E-01	1	2.8	2.8	896.0	.10	8.
2900.	.2004E-01	1	2.8	2.8	896.0	.10	11.
3000.	.1946E-01	1	2.8	2.8	896.0	.10	11.
3500.	.1702E-01	1	2.8	2.8	896.0	.10	14.
4000.	.1516E-01	1	2.8	2.8	896.0	.10	9.
4500.	.1369E-01	1	2.8	2.8	896.0	.10	9.
5000.	.1250E-01	1	2.8	2.8	896.0	.10	9.
5500.	.1151E-01	1	2.8	2.8	896.0	.10	9.
6000.	.1068E-01	1	2.8	2.8	896.0	.10	9.
6500.	.9973E-02	1	2.8	2.8	896.0	.10	9.
7000.	.9358E-02	1	2.8	2.8	896.0	.10	9.
7500.	.8821E-02	1	2.8	2.8	896.0	.10	9.
8000.	.8347E-02	1	2.8	2.8	896.0	.10	9.

ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 200. M:
 200. 5.164 1 2.8 2.8 896.0 .10 8.

USE DISCRETE DISTANCES? ENTER Y OR N:

y

TO CEASE, ENTER A DISTANCE OF ZERO (0).

 *** SCREEN DISCRETE DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
402	1.135	1	2.8	2.8	896.0	.10	6.

ENTER DISTANCE (M) (0 TO EXIT):
 402
 ENTER DISTANCE (M) (0 TO EXIT):

APPENDIX **F**

Risk Characterization Spreadsheets

Current Processing Operations

CHILD RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Current Operations
Receptor:	Child Resident
Medium:	Dust from Current Operations
Exposure Pathway:	Inhalation

$C_{dust} = \text{Chemical Concentration in Air} = CS \times RP \times CF$
 $AT \text{ (noncancer)} = ED \text{ in years} \times 365 \text{ days/year} \times 24 \text{ hours/day}$
 $AT \text{ (cancer)} = \text{lifetime in years (70 years)} \times 365 \text{ days/year} \times 24 \text{ hours/day}$
 $EC \text{ (ug/m}^3\text{)} = \frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

$\text{Hazard Quotient (HQ)} = EC \text{ (ug/m}^3\text{)} / RfC \text{ (ug/m}^3\text{)}$
 $\text{Cancer Risk (ELCR)} = EC \text{ (ug/m}^3\text{)} \times IUR \text{ (ug/m}^3\text{)}^{-1}$

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
Cdust: Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			6							
AT: Averaging Time (hours) (noncancer)			52560							
AT: Averaging Time (hours) (cancer)			613200							
RfC: Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR: Inhalation Unit Risk Factor [(ug/m3)^-1]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			3.90E-05 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Bulk Material Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RFC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3)^-1	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	9.09E-09	1	8.71E-06	3.00E-02	2.90E-04	1	7.47E-07	4.30E-03	3.21E-09
Barium	2.04E+01	7.96E-10	1	7.63E-07	5.00E-01	1.53E-06	1	NA	NA	NA
Cadmium	5.50E+00	2.15E-10	1	2.06E-07	1.00E-02	2.06E-05	1	1.76E-08	1.80E-03	3.17E-11
Chromium VI*	1.20E+01	4.66E-10	1	4.47E-07	1.00E-01	4.47E-06	1	3.83E-08	8.40E-02	3.22E-09
Lead	3.16E+01	1.23E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	2.39E-12	1	2.29E-09	3.00E-01	7.64E-09	1	NA	NA	NA
Selenium	1.10E+01	4.29E-10	1	4.11E-07	2.00E+01	2.06E-08	1	NA	NA	NA
Silver	5.50E+00	2.15E-10	1	NA	NA	NA	1	NA	NA	NA
						3.17E-04	6.46E-09			

ADULT RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Current Operations
Receptor:	Adult Resident
Medium:	Dust from Current Operations
Exposure Pathway:	Inhalation

$C_{dust} = \text{Chemical Concentration in Air} = CS \times RP \times CF$
 $AT \text{ (noncancer)} = ED \text{ in years} \times 365 \text{ days/year} \times 24 \text{ hours/day}$
 $AT \text{ (cancer)} = \text{lifetime in years (70 years)} \times 365 \text{ days/year} \times 24 \text{ hours/day}$
 $EC \text{ (ug/m}^3\text{)} = \frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

$\text{Hazard Quotient (HQ)} = EC \text{ (ug/m}^3\text{)} / RfC \text{ (ug/m}^3\text{)}$
 $\text{Cancer Risk (ELCR)} = EC \text{ (ug/m}^3\text{)} \times IUR \text{ (ug/m}^3\text{)}^{-1}$

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
Cdust: Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			24							
AT: Averaging Time (hours) (noncancer)			210240							
AT: Averaging Time (hours) (cancer)			613200							
RfC: Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR: Inhalation Unit Risk Factor [(ug/m3)^-1]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			3.90E-05 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RFC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3)^-1	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	9.09E-09	1	8.71E-06	3.00E-02	2.90E-04	1	2.99E-06	4.30E-03	1.28E-08
Barium	2.04E+01	7.96E-10	1	7.63E-07	5.00E-01	1.53E-06	1	NA	NA	NA
Cadmium	5.50E+00	2.15E-10	1	2.06E-07	1.00E-02	2.06E-05	1	7.05E-08	1.80E-03	1.27E-10
Chromium VI*	1.20E+01	4.66E-10	1	4.47E-07	1.00E-01	4.47E-06	1	1.53E-07	8.40E-02	1.29E-08
Lead	3.16E+01	1.23E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	2.39E-12	1	2.29E-09	3.00E-01	7.64E-09	1	NA	NA	NA
Selenium	1.10E+01	4.29E-10	1	4.11E-07	2.00E+01	2.06E-08	1	NA	NA	NA
Silver	5.50E+00	2.15E-10	1	NA	NA	NA	1	NA	NA	NA
			3.17E-04				2.59E-08			

Mining Activities

CHILD RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Mining
Receptor:	Child Resident
Medium:	Dust from Mining Operations
Exposure Pathway:	Inhalation

$C_{dust} = \text{Chemical Concentration in Air} = CS \times RP \times CF$
 AT (noncancer)= ED in years x 365 days/year x 24 hours/day
 AT (cancer)= lifetime in years (70 years) x 365 days/year x 24 hours/day
 $EC \text{ (ug/m3)} = \frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

Hazard Quotient (HQ) = $EC \text{ (ug/m3)} / RfC \text{ (ug/m3)}$
 Cancer Risk (ELCR) = $EC \text{ (ug/m3)} \times IUR \text{ (ug/m3)}^{-1}$

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
Cdust: Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			6							
AT: Averaging Time (hours) (noncancer)			52560							
AT: Averaging Time (hours) (cancer)			613200							
RfC: Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR: Inhalation Unit Risk Factor [(ug/m3)^-1]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			5.41E-05 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RfC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3)^-1	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	1.26E-08	1	1.21E-05	3.00E-02	4.03E-04	1	1.04E-06	4.30E-03	4.45E-09
Barium	2.04E+01	1.10E-09	1	1.06E-06	5.00E-01	2.12E-06	1	NA	NA	NA
Cadmium	5.50E+00	2.97E-10	1	2.85E-07	1.00E-02	2.85E-05	1	2.44E-08	1.80E-03	4.40E-11
Chromium VI*	1.20E+01	6.47E-10	1	6.20E-07	1.00E-01	6.20E-06	1	5.32E-08	8.40E-02	4.47E-09
Lead	3.16E+01	1.71E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	3.32E-12	1	3.18E-09	3.00E-01	1.06E-08	1	NA	NA	NA
Selenium	1.10E+01	5.95E-10	1	5.70E-07	2.00E+01	2.85E-08	1	NA	NA	NA
Silver	5.50E+00	2.97E-10	1	NA	NA	NA	1	NA	NA	NA
						4.40E-04	8.96E-09			

ADULT RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Mining
Receptor:	Adult Resident
Medium:	Dust from Mining Operations
Exposure Pathway:	Inhalation

$C_{dust} = \text{Chemical Concentration in Air} = CS \times RP \times CF$
 AT (noncancer)= ED in years x 365 days/year x 24 hours/day
 AT (cancer)= lifetime in years (70 years) x 365 days/year x 24 hours/day
 $EC \text{ (ug/m3)} = \frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

Hazard Quotient (HQ) = $EC \text{ (ug/m3)} / RfC \text{ (ug/m3)}$
 Cancer Risk (ELCR) = $EC \text{ (ug/m3)} \times IUR \text{ (ug/m3)}^{-1}$

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
Cdust: Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			24							
AT: Averaging Time (hours) (noncancer)			210240							
AT: Averaging Time (hours) (cancer)			613200							
RfC: Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR: Inhalation Unit Risk Factor [(ug/m3)^-1]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			5.41E-05 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RfC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3)^-1	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	1.26E-08	1	1.21E-05	3.00E-02	4.03E-04	1	4.14E-06	4.30E-03	1.78E-08
Barium	2.04E+01	1.10E-09	1	1.06E-06	5.00E-01	2.12E-06	1	NA	NA	NA
Cadmium	5.50E+00	2.97E-10	1	2.85E-07	1.00E-02	2.85E-05	1	9.78E-08	1.80E-03	1.76E-10
Chromium VI*	1.20E+01	6.47E-10	1	6.20E-07	1.00E-01	6.20E-06	1	2.13E-07	8.40E-02	1.79E-08
Lead	3.16E+01	1.71E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	3.32E-12	1	3.18E-09	3.00E-01	1.06E-08	1	NA	NA	NA
Selenium	1.10E+01	5.95E-10	1	5.70E-07	2.00E+01	2.85E-08	1	NA	NA	NA
Silver	5.50E+00	2.97E-10	1	NA	NA	NA	1	NA	NA	NA
			4.40E-04				3.59E-08			

Fine Shredding

CHILD RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Fine Shredding
Receptor:	Child Resident
Medium:	Dust from Fine Shredding Operations
Exposure Pathway:	Inhalation

Cdust = Chemical Concentration in Air = CS x RP x CF
AT (noncancer)= ED in years x 365 days/year x 24 hours/day
AT (cancer)= lifetime in years (70 years) x 365 days/year x 24 hours/day
EC (ug/m3) = $\frac{(Cdust \times ET \times EF \times ED)}{AT}$

Hazard Quotient (HQ) = EC (ug/m3) / RfC (ug/m3)
Cancer Risk (ELCR) = EC (ug/m3) * IUR (ug/m3)^-1

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
Cdust: Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			6							
AT: Averaging Time (hours) (noncancer)			52560							
AT: Averaging Time (hours) (cancer)			613200							
RfC: Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR: Inhalation Unit Risk Factor [(ug/m3)^-1]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			9.08E-05 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RfC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3)^-1	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	2.12E-08	1	2.03E-05	3.00E-02	6.76E-04	1	1.74E-06	4.30E-03	7.48E-09
Barium	2.04E+01	1.85E-09	1	1.78E-06	5.00E-01	3.55E-06	1	NA	NA	NA
Cadmium	5.50E+00	4.99E-10	1	4.79E-07	1.00E-02	4.79E-05	1	4.10E-08	1.80E-03	7.39E-11
Chromium VI*	1.20E+01	1.09E-09	1	1.04E-06	1.00E-01	1.04E-05	1	8.93E-08	8.40E-02	7.50E-09
Lead	3.16E+01	2.87E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	5.57E-12	1	5.34E-09	3.00E-01	1.78E-08	1	NA	NA	NA
Selenium	1.10E+01	9.99E-10	1	9.58E-07	2.00E+01	4.79E-08	1	NA	NA	NA
Silver	5.50E+00	4.99E-10	1	NA	NA	NA	1	NA	NA	NA
						7.38E-04	1.50E-08			

ADULT RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario: Fine Shredding
Receptor: Adult Resident
Medium: Dust from Fine Shredding Operations
Exposure Pathway: Inhalation

C_{dust} = Chemical Concentration in Air = $CS \times RP \times CF$
 AT (noncancer)= ED in years x 365 days/year x 24 hours/day
 AT (cancer)= lifetime in years (70 years) x 365 days/year x 24 hours/day
 EC (ug/m3) = $\frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

Hazard Quotient (HQ) = EC (ug/m3) / RfC (ug/m3)
Cancer Risk (ELCR) = EC (ug/m3) * IUR (ug/m3)⁻¹

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
C_{dust} : Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			24							
AT: Averaging Time (hours) (noncancer)			210240							
AT: Averaging Time (hours) (cancer)			613200							
RfC : Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR : Inhalation Unit Risk Factor [(ug/m3) ⁻¹]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			9.08E-05 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RFC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3) ⁻¹	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	2.12E-08	1	2.03E-05	3.00E-02	6.76E-04	1	6.96E-06	4.30E-03	2.99E-08
Barium	2.04E+01	1.85E-09	1	1.78E-06	5.00E-01	3.55E-06	1	NA	NA	NA
Cadmium	5.50E+00	4.99E-10	1	4.79E-07	1.00E-02	4.79E-05	1	1.64E-07	1.80E-03	2.96E-10
Chromium VI*	1.20E+01	1.09E-09	1	1.04E-06	1.00E-01	1.04E-05	1	3.57E-07	8.40E-02	3.00E-08
Lead	3.16E+01	2.87E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	5.57E-12	1	5.34E-09	3.00E-01	1.78E-08	1	NA	NA	NA
Selenium	1.10E+01	9.99E-10	1	9.58E-07	2.00E+01	4.79E-08	1	NA	NA	NA
Silver	5.50E+00	4.99E-10	1	NA	NA	NA	1	NA	NA	NA
			7.38E-04				6.02E-08			

Stockpiling of Processed Materials

CHILD RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Stockpiling
Receptor:	Child Resident
Medium:	Dust from Stockpiling
Exposure Pathway:	Inhalation

$C_{dust} = \text{Chemical Concentration in Air} = CS \times RP \times CF$
 $AT \text{ (noncancer)} = \text{ED in years} \times 365 \text{ days/year} \times 24 \text{ hours/day}$
 $AT \text{ (cancer)} = \text{lifetime in years (70 years)} \times 365 \text{ days/year} \times 24 \text{ hours/day}$
 $EC \text{ (ug/m3)} = \frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

$\text{Hazard Quotient (HQ)} = \frac{EC \text{ (ug/m3)}}{RfC \text{ (ug/m3)}}$
 $\text{Cancer Risk (ELCR)} = EC \text{ (ug/m3)} \times IUR \text{ (ug/m3)}^{-1}$

Parameter (units)	Value
EC: Exposure Concentration (ug/m3)	See Below
CS: Chemical Concentration in Bulk Material (mg/kg)	Chemical-Specific
C _{dust} : Concentration of dust-bound chemical in air (mg/m3)	Calculated
RAF: Relative Absorption Factor (Inhalation) (unitless)	Chemical-Specific
ET: Exposure Time - dust (hr/d)	24
EF: Exposure Frequency (days/year)	350
ED: Exposure Duration (years)	6
AT: Averaging Time (hours) (noncancer)	52560
AT: Averaging Time (hours) (cancer)	613200
RfC: Reference Concentrations Inhalation (ug/m3)	Chemical-Specific
IUR: Inhalation Unit Risk Factor [(ug/m3) ⁻¹]	Chemical-Specific
RP: Respirable particulate conc. in air (mg/m3)	2.27E-04 (SCREEN3 Results)
CF: Conversion Factor (kg/mg)	1.00E-06

Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RfC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3) ⁻¹	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	5.29E-08	1	5.07E-05	3.00E-02	1.69E-03	1	4.35E-06	4.30E-03	1.87E-08
Barium	2.04E+01	4.63E-09	1	4.44E-06	5.00E-01	8.88E-06	1	NA	NA	NA
Cadmium	5.50E+00	1.25E-09	1	1.20E-06	1.00E-02	1.20E-04	1	1.03E-07	1.80E-03	1.85E-10
Chromium VI*	1.20E+01	2.71E-09	1	2.60E-06	1.00E-01	2.60E-05	1	2.23E-07	8.40E-02	1.87E-08
Lead	3.16E+01	7.17E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	1.39E-11	1	1.33E-08	3.00E-01	4.45E-08	1	NA	NA	NA
Selenium	1.10E+01	2.50E-09	1	2.39E-06	2.00E+01	1.20E-07	1	NA	NA	NA
Silver	5.50E+00	1.25E-09	1	NA	NA	NA	1	NA	NA	NA

1.85E-03

3.76E-08

ADULT RESIDENT - DUST INHALATION
RISK CHARACTERIZATION
PVT LANDFILL

Scenario:	Stockpiling
Receptor:	Adult Resident
Medium:	Dust from Stockpiling
Exposure Pathway:	Inhalation

$C_{dust} = \text{Chemical Concentration in Air} = CS \times RP \times CF$
 AT (noncancer)= ED in years x 365 days/year x 24 hours/day
 AT (cancer)= lifetime in years (70 years) x 365 days/year x 24 hours/day
 $EC \text{ (ug/m}^3\text{)} = \frac{(C_{dust} \times ET \times EF \times ED)}{AT}$

Hazard Quotient (HQ) = $EC \text{ (ug/m}^3\text{)} / RfC \text{ (ug/m}^3\text{)}$
 Cancer Risk (ELCR) = $EC \text{ (ug/m}^3\text{)} * IUR \text{ (ug/m}^3\text{)}^{-1}$

Parameter (units)			Value							
EC: Exposure Concentration (ug/m3)			See Below							
CS: Chemical Concentration in Bulk Material (mg/kg)			Chemical-Specific							
Cdust: Concentration of dust-bound chemical in air (mg/m3)			Calculated							
RAF: Relative Absorption Factor (Inhalation) (unitless)			Chemical-Specific							
ET: Exposure Time - dust (hr/d)			24							
EF: Exposure Frequency (days/year)			350							
ED: Exposure Duration (years)			24							
AT: Averaging Time (hours) (noncancer)			210240							
AT: Averaging Time (hours) (cancer)			613200							
RfC: Reference Concentrations Inhalation (ug/m3)			Chemical-Specific							
IUR: Inhalation Unit Risk Factor [(ug/m3)^-1]			Chemical-Specific							
RP: Respirable particulate conc. in air (mg/m3)			2.27E-04 (SCREEN3 Results)							
CF: Conversion Factor (kg/mg)			1.00E-06							
Compound	Soil Concentration (mg/kg)	Chemical Concentration in Air (mg/m3)	Noncancer Hazard Quotient				Excess Lifetime Cancer Risk			
			Inhalation RAF (noncancer)	EC (noncancer) (ug/m3)	RfC (non-cancer) (ug/m3)	Soil-Dust HQ	Inhalation RAF (cancer)	EC (cancer) (ug/m3)	IUR (ug/m3)^-1	Soil- Dust Risk
METALS										
Arsenic	2.33E+02	5.29E-08	1	5.07E-05	3.00E-02	1.69E-03	1	1.74E-05	4.30E-03	7.48E-08
Barium	2.04E+01	4.63E-09	1	4.44E-06	5.00E-01	8.88E-06	1	NA	NA	NA
Cadmium	5.50E+00	1.25E-09	1	1.20E-06	1.00E-02	1.20E-04	1	4.10E-07	1.80E-03	7.39E-10
Chromium VI*	1.20E+01	2.71E-09	1	2.60E-06	1.00E-01	2.60E-05	1	8.93E-07	8.40E-02	7.50E-08
Lead	3.16E+01	7.17E-09	1	NA	NA	NA	1	NA	NA	NA
Mercury, Divalent	6.13E-02	1.39E-11	1	1.33E-08	3.00E-01	4.45E-08	1	NA	NA	NA
Selenium	1.10E+01	2.50E-09	1	2.39E-06	2.00E+01	1.20E-07	1	NA	NA	NA
Silver	5.50E+00	1.25E-09	1	NA	NA	NA	1	NA	NA	NA
			1.85E-03				1.50E-07			

APPENDIX **G**

PVT Proposed Waste Profile

Table 1
Proposed Material Mixtures

MATERIAL	TEST 1		TEST 2		TOTAL kg
	Percent	kg	Percent	kg	
<u>Wood</u>					
Untreated / Unpainted Wood	40.4%	311	42.8%	329	640
Painted / Stained Wood	8.0%	62	8.5%	65	127
Treated CCA	5.5%	42	0.0%	0	42
Treated Hi-Bor (may be untreated)	13.0%	100	13.8%	106	206
<u>Paper</u>					
Corrugated Cardboard	4.1%	32	4.3%	33	65
Other Waste Paper	1.7%	13	1.8%	14	27
<u>Yard Waste</u>					
Logs/stumps	2.4%	18	2.5%	20	38
Other yard waste	1.2%	9	1.3%	10	19
<u>Furniture</u>	9.5%	73	10.1%	77	151
<u>Plastic</u>					
HDPE, PET, misc.	7.1%	55	7.5%	58	113
PVC	2.0%	15	2.1%	16	32
Styrofoam	0.4%	3	0.4%	3	6
<u>Carpet</u>	4.0%	31	4.2%	33	63
<u>Rubber</u>	0.7%	5	0.7%	6	11
Total Material	100.0%	770	100%	770	1540

Relative percentages of various C&D waste accepted by PVT Landfill
Element Environmental. 2010. Waste Stream Analysis

Department of Business, Economic Development, & Tourism
State of Hawaii

Construction and Demolition Waste Composition Study

Final Report

April 1999

Report Prepared by

Cascadia Consulting Group, Inc.

In Association with

Sky Valley Associates

Solid Waste Associates

Printed on recycled paper

Table 3-1 Construction and Demolition Waste Composition Estimates, by Weight

Calculated at 90% confidence interval	Composition	
	Mean	+/-
Wood		
New Lumber	3.1%	2.0%
New Panelboard	1.2%	0.9%
Demo Lumber	5.7%	1.7%
Demo Panelboard	2.5%	0.9%
Remanufacturing Scrap	0.0%	0.0%
Pallets & Crates	3.6%	1.5%
Wood Roofing & Siding	1.8%	1.5%
Creosote Wood	0.1%	0.1%
Pressure Treated Wood	2.6%	2.0%
Painted/Stained Wood	8.1%	2.6%
Contaminated Demo Wood	1.2%	1.0%
Wood & Other Materials	0.6%	0.3%
Other Wood	0.1%	0.1%
Aggregates		
Asphalt Paving	1.3%	2.1%
Built-Up Roofing	5.2%	3.4%
Composition Shingles	0.4%	0.4%
Tarpaper/Asphalt Felt	0.9%	0.6%
Concrete with Rebar	2.2%	1.8%
Concrete without Rebar	9.1%	4.4%
Bricks	0.0%	0.0%
Concrete Masonry Unit	4.1%	2.4%
Masonry Tile	0.6%	0.9%
Mortar	0.7%	0.5%
Plaster	5.5%	6.9%
Clay Roofing Tile	0.1%	0.1%
Slate/Quarry Tile	0.1%	0.1%
New Gypsum Scrap	10.5%	5.3%
Mixed/Demo Gypsum Scrap	1.0%	0.7%
Metals		
Aluminum	0.2%	0.3%
Other Nonferrous	0.1%	0.1%
Tin Cans	0.0%	0.0%
Galvanized Steel	5.4%	4.0%
Other Ferrous	3.9%	1.5%
Mixed Metal/Other Materials	1.5%	0.8%
Paper		
Corrugated Cardboard	1.6%	0.6%
Tyvek Vapor Barrier	0.0%	0.0%
Other Paper	0.6%	0.2%
Yard Waste		
Logs/Stumps	0.0%	0.0%
Large Prunings	0.6%	0.5%
Other Yard Waste	1.0%	1.0%
Other Inorganics		
Sand/Soil/Dirt	3.6%	2.2%
Ceramic Products	0.9%	0.8%
Miscellaneous Inorganics	3.4%	2.1%
Other		
Furniture/Mattresses	0.3%	0.6%
Other Organics	1.4%	0.9%
Plastic	2.6%	1.0%
Glass	0.3%	0.2%
Hazardous/Chemical	0.1%	0.1%
Number of Samples	80	

Appendix A Sorting Categories and Definitions

1 Wood

New Lumber: New dimension lumber scraps. Includes materials such as 2x4's, 2x6's, 2x12's and other residual materials from framing and related construction activities.

New Panelboard: New scrap from sheet goods such as plywood, particle board, wafer board, oriented strand board and other residual materials used for sheathing and related construction uses.

Demo Lumber: Dimensional lumber resulting from demolition and/or remodeling activities. May be characterized by nails, paint, or other trace contaminants.

Demo Panelboard: Used sheet goods resulting from demolition and/or remodeling activities. May be characterized by nails, paint, or other trace contaminants.

Remanufacturing Scrap: Scrap from production of pre-fabricated wood products such as cabinets.

Pallets and Crates: Wood pallets, crates, and packaging lumber/panelboard.

Wood Roofing and Siding: New or used untreated wood that is commonly used for siding or roofing applications, such as cedar shingles or shakes. Commonly characterized by trace amounts of tarpaper and nails.

Creosote Wood: New and used lumber or panelboard that has been treated with creosote. May include railroad ties, marine timbers and pilings, some landscape timbers, and telephone poles.

Pressure Treated Wood: New and used lumber or panelboard which has been treated with pentachlorophenol, copper-chrome arsenate or other chemical preservatives. May be characterized by small linear indentations.

Painted/Stained Wood: New and used lumber or panelboard materials with a significant portion of their surface treated with paint or stain products.

Contaminated Demo Wood: Used wood contaminated with other wastes in such a way that they cannot easily be separated, but consisting primarily (over 50 percent) of wood. An examples is wood with sheetrock attached.

Wood & Other Materials: New wood or wood-related products contaminated with or containing other materials.

Other Wood: Products made primarily of wood, not otherwise classified above.

2 Aggregates

Asphalt Paving: Paving material for roads and other surfaces composed of aggregates and asphalt binders. Commonly known as "blacktop" pavement.

Built-Up Roofing: Roofing material composed of several layers of heavy asphalt-saturated felt. Includes torch-down and hot tar roofs.