6/1/02
~~6/25/02~~
SWMU 21-024(i)

TA21

COMPARISON OF SAMPLE VALUES TO HUMAN HEALTH SCREENING ACTION LEVELS

Date used in this screening came from the June 7, 2002 data pull.

ORGANICS

Data highlighted in **bold** exceed screening action level (SAL).

Analyte	Location ID	Sample ID	Sample Value (mg/kg)	Media	Begin Depth (ft)	SAL (mg/kg)
Acenaphthene	21-11192	MD21-01-0002	0.044 (J)	FILL	0.5	2800
Acetone	21-11192	MD21-01-0002	0.2	FILL	0.5	1600
Anthracene	21-11192	MD21-01-0002	0.045 (J)	FILL	0.5	22000
Aroclor-1254	21-10515	MD21-98-0035	0.11	QBT3	0	0.22
Benzo(a)anthracene	21-11192	MD21-01-0002	0.082 (J)	FILL	0.5	0.62
Benzo(a)pyrene	**21-11192**	**MD21-01-0002**	**0.074 (J)**	**FILL**	**0.5**	**0.062**
Benzo(b)fluoranthene	21-11192	MD21-01-0002	0.078 (J)	FILL	0.5	0.62
Benzo(k)fluoranthene	21-11192	MD21-01-0002	0.078 (J)	FILL	0.5	6.2
Benzoic Acid	21-11192	MD21-01-0002	0.18	FILL	0.5	100000
Bis(2-ethylhexyl)phthalate	21-11192	MD21-01-0002	0.055	FILL	0.5	35
Butanone[2-]	21-11192	MD21-01-0002	0.056	FILL	0.5	7300
Chrysene	21-11192	MD21-01-0002	0.089 (J)	FILL	0.5	62
DDT[4,4'-]	21-11220	MD21-01-0307	0.0028 (J)	FILL	2	1.7
Fluoranthene	21-10502	MD21-98-0048	0.57	ALLH	0	2300
Phenanthrene	21-10502	MD21-98-0048	0.66	ALLH	0	1800
Pyrene	21-10502	MD21-98-0048	0.52	ALLH	0	1800
Toluene	21-11192	MD21-01-0004	0.006	QBT3	3	180
Trichlorofluoromethane	21-11200	MD21-01-0054	0.0014	QBT3	8	390
Trimethylbenzene[1,2,4-]	21-11192	MD21-01-0004	0.003	QBT3	3	52

Only one organic chemical was detected at a concentration greater than SAL. Benzo(a)pyrene was only detected once and that was at location 21-11192. Benzo(a)pyrene is a polycyclic aromatic hydrocarbon (PAH), a product of incomplete combustion from vehicle exhaust. Location 21-11192 is downgradient from the dirt perimeter road.

10641

INORGANIC CHEMICALS

Data highlighted in **bold** exceed the maximum concentration in the background data set and, in the case of arsenic, exceeds the SAL.

Maximum Sample Value Compared to Maximum of the Background Data Set and SAL

Analyte	Location ID	Sample ID	Sample Value (mg/kg)	Maximum Background (mg/kg)	Media	Begin Depth (ft)	SAL (mg/kg)
Aluminum	**21-10513**	**MD21-98-0037**	**25000**	**8370**	QBT3	0	74000
Antimony	**21-05418**	**0121-97-1241**	**7.3 (U)**	**1**	ALLH	0.5	30
Antimony	21-11220	MD21-01-0310	0.85 (U)	1	FILL	5	30
Antimony	21-11220	MD21-01-0307	0.85 (U)	1	FILL	2	30
Antimony	**21-11217**	**MD21-01-0308**	**0.89 (U)**	**0.5**	QBT3	8	30
Arsenic	21-10508	MD21-98-0042	8.3	9.3	ALLH	0	0.39
Arsenic	**21-10513**	**MD21-98-0037**	**8.2**	**5**	QBT3	0	**0.39**
Barium	21-05355	0121-97-1238	304	410	ALLH	0.5	5200
Barium	**21-11198**	**MD21-01-0017**	**160**	**51.6**	QBT3	2.33	5200
Beryllium	21-10513	MD21-98-0037	1.8	1.8	QBT3	0	150
Cadmium	21-05362	0121-97-1221	1 (J)	2.6	ALLH	0	70
Calcium	**21-01672**	**AAA4132**	**123000**	**14000**	ALLH	10	N/A[1]
Calcium	21-11194	MD21-01-0008	7700	14000	FILL	0.83	N/A
Calcium	**21-11198**	**MD21-01-0017**	**73000**	**2230**	QBT3	2.33	N/A
Chromium	**21-05362**	**0121-97-1221**	**42.5**	**36.5**	ALLH	0	210
Chromium	21-11191	MD21-01-0001	20	36.5	FILL	0.5	210
Chromium	**21-11217**	**MD21-01-0308**	**23.6**	**13**	QBT3	8	210
Cobalt	**21-10513**	**MD21-98-0037**	**5.7**	**3.14**	QBT3	0	4500
Copper	**21-05355**	**0121-97-1238**	**22.2**	**16**	ALLH	0.5	2800
Copper	**21-10513**	**MD21-98-0037**	**8**	**6.2**	QBT3	0	2800
Iron	21-10513	MD21-98-0037	17000	19500	QBT3	0	23000
Lead	**21-05362**	**0121-97-1221**	**144**	**28**	ALLH	0	400
Lead	**21-11191**	**MD21-01-0001**	**50**	**28**	FILL	0.5	400
Lead	**21-10513**	**MD21-98-0037**	**26**	**15.5**	QBT3	0	400
Lithium	**21-01672**	**AAA4129**	**14.8**	**NA**	ALLH	0	1600
Magnesium	21-01672	AAA4132	8840	10000	ALLH	10	N/A
Magnesium	**21-10513**	**MD21-98-0037**	**2900**	**2820**	QBT3	0	N/A
Mercury	**21-05355**	**0121-97-1238**	**14.7**	**0.1**	ALLH	0.5	23
Mercury	**21-11220**	**MD21-01-0310**	**0.63**	**0.1**	FILL	5	23
Mercury	21-11196	MD21-01-0013	**0.25**	**0.1**	QBT3	3	23

Molybdenum	**21-01672**	**AAA4129**	**7.2 (U)**	**N/a[2]**	ALLH	0	380
Nickel	**21-11217**	**MD21-01-0308**	**13.6**	**7**	QBT3	8	1500
Selenium	21-11192	MD21-01-0002	1.67	1.7	FILL	0.5	380
Selenium	**21-10504**	**MD21-98-0045**	**1.1 (U)**	**0.3**	QBT3	0	380
Selenium	**21-10507**	**MD21-98-0043**	**1.1 (U)**	**0.3**	QBT3	0	380
Selenium	**21-10510**	**MD21-98-0040**	**1.1 (U)**	**0.3**	QBT3	0	380
Selenium	**21-10513**	**MD21-98-0037**	**1.1 (U)**	**0.3**	QBT3	0	380
Silver	**21-10503**	**MD21-98-0047**	**2.3 (U)**	**1**	ALLH	0	380
Silver	**21-10504**	**MD21-98-0045**	**2.2 (U)**	**1.9**	QBT3	0	380
Silver	**21-10507**	**MD21-98-0043**	**2.2 (U)**	**1.9**	QBT3	0	380
Silver	**21-10510**	**MD21-98-0040**	**2.2 (U)**	**1.9**	QBT3	0	380
Silver	**21-10513**	**MD21-98-0037**	**2.2 (U)**	**1.9**	QBT3	0	380
Strontium	**21-01672**	**AAA4132**	**415**	**N/a**	ALLH	10	37000
Thallium	**21-10503**	**MD21-98-0047**	**2.3 (U)**	**1**	ALLH	0	6.1
Thallium	**21-10504**	**MD21-98-0045**	**2.2 (U)**	**1.7**	QBT3	0	6.1
Thallium	**21-10507**	**MD21-98-0043**	**2.2 (U)**	**1.7**	QBT3	0	6.1
Thallium	**21-10510**	**MD21-98-0040**	**2.2 (U)**	**1.7**	QBT3	0	6.1
Thallium	**21-10513**	**MD21-98-0037**	**2.2 (U)**	**1.7**	QBT3	0	6.1
Vanadium	**21-10513**	**MD21-98-0037**	**28**	**21**	QBT3	0	530
Zinc	**21-05355**	**0121-97-1238**	**316**	**75.5**	ALLH	0.5	23000
Zinc	**21-11191**	**MD21-01-0001**	**76**	**75.5**	FILL	0.5	23000
Zinc	**21-10507**	**MD21-98-0043**	**150**	**65.5**	QBT3	0	23000

[1] N/A = Not Applicable
[2] N/a = Not available

ARSENIC was the only inorganic chemical detected at a concentration greater than its SAL. It was only detected above background in 3 Qbt samples. Two of those sample values, which were both 5.6 mg/kg, are essentially the same as the maximum concentration of arsenic in the background data set, which is 5.0 mg/kg. The third concentration of arsenic above background is less than twice background, at 8.2 mg/kg.

Analyte	Location ID	Sample ID	Sample Value	Maximum Bkgr	Media	Begin Depth	SAL
Arsenic	**21-10504**	**MD21-98-0045**	**5.6**	**5**	QBT3	0	**0.39**
Arsenic	**21-10507**	**MD21-98-0043**	**5.6**	**5**	QBT3	0	**0.39**
Arsenic	21-10510	MD21-98-0040	4.5	5	QBT3	0	0.39
Arsenic	**21-10513**	**MD21-98-0037**	**8.2**	**5**	QBT3	0	**0.39**
Arsenic	21-11198	MD21-01-0017	3.6	5	QBT3	2.33	0.39

HUMAN HEALTH HAZARD –Noncarcinogens are compared to SAL

Analyte	Location ID	Sample ID	Maximum Sample Value (mg/kg)	SAL (mg/kg)	Hazard
Acenaphthene	21-11192	MD21-01-0002	0.044 (J)	2800	1.57E-05
Acetone	21-11192	MD21-01-0002	0.2	1600	1.25E-04
Aluminum	21-10513	MD21-98-0037	25000	74000	0.034
Anthracene	21-11192	MD21-01-0002	0.045 (J)	16000	2.81E-06
Antimony	21-05418	0121-97-1241	7.3 (U)	30	0.243
Arsenic	21-10513	MD21-98-0037	8.2	22	**0.373**
Barium	21-11198	MD21-01-0017	160	5200	0.031
Benzoic Acid	21-11192	MD21-01-0002	0.18	100000	1.80E-06
Butanone[2-]	21-11192	MD21-01-0002	0.056	7300	7.67E-06
Chromium	21-05362	0121-97-1221	42.5	100000	0.0004
Cobalt	21-10513	MD21-98-0037	5.7	4500	0.001
Copper	21-05355	0121-97-1238	22.2	2800	0.008
Fluoranthene	21-10502	MD21-98-0048	0.57	2300	2.48E-04
Lead	21-05362	0121-97-1221	144	400	0.36
Lithium	21-01672	AAA4129	14.8	1600	0.009
Mercury	21-05355	0121-97-1238	14.7	23	**0.639**
Molybdenum	21-01672	AAA4129	7.2 (U)	380	0.019
Nickel	21-11217	MD21-01-0308	13.6	1500	0.009
Phenanthrene	21-10502	MD21-98-0048	0.66	1800	3.67E-04
Pyrene	21-10502	MD21-98-0048	0.52	1800	2.89E-04
Selenium	21-10504	MD21-98-0045	1.1 (U)	380	0.003
Silver	21-10503	MD21-98-0047	2.3 (U)	380	0.006
Strontium	21-01672	AAA4132	415	37000	0.011
Thallium	21-10503	MD21-98-0047	2.3 (U)	6.1	**0.377**
Toluene	21-11192	MD21-01-0004	0.006	180	3.33E-05
Trichlorofluoromethane	21-11200	MD21-01-0054	0.0014	390	3.59E-06
Trimethylbenzene[1,2,4-]	21-11192	MD21-01-0004	0.003	52	5.77E-05
Vanadium	21-10513	MD21-98-0037	28	530	0.053
Zinc	21-05355	0121-97-1238	316	23000	0.014
				Hazard Index	**2.19E+00**

Arsenic, mercury and thallium constitute 1.39 of the 2.19 hazard index. All other noncarcinogens constitute 0.8 of the hazard index.

ARSENIC contributes 0.37 to the hazard index. Of the 90 samples analyzed for arsenic, only 3 had sample values greater than the maximum of the background data set. No arsenic concentration was greater than the noncarcinogenic SAL.

Sample ID	Location ID	Depth (ft)	Media	Arsenic (mg/kg)
Qbt 2,3,4 Background Value				**5.0**
Noncarcinogenic SAL				**22**
MD21-98-0045	21-10504	0.00-0.50	Qbt 3	5.6
MD21-98-0043	21-10507	0.00-0.50	Qbt 3	5.6
MD21-98-0037	21-10513	0.00-0.50	Qbt 3	8.2

THALLIUM was not detected in the zero to 12 ft depth. Thallium detection limits were less than SAL.

Sample ID	Location ID	Depth (ft)	Media	Thallium (mg/kg)
Soil Background Value				**0.73**
Qbt 2,3,4 Background Value				**1.1**
SAL				**6.1**
0121-97-0902	21-05112	7.00-9.00	Soil	0.92 (U)
0121-97-0903	21-05113	7.00-9.00	Soil	0.93 (U)
MD21-98-0049	21-10501	0.00-0.50	Qbt 3	2 (U)
MD21-98-0048	21-10502	0.00-0.50	Soil	2.2 (U)
MD21-98-0047	21-10503	0.00-0.50	Soil	2.3 (U)
MD21-98-0045	21-10504	0.00-0.50	Qbt 3	2.2 (U)
MD21-98-0046	21-10505	0.00-0.50	Soil	2.2 (U)
MD21-98-0044	21-10506	0.00-0.50	Qbt 3	2.1 (U)
MD21-98-0043	21-10507	0.00-0.50	Qbt 3	2.2 (U)
MD21-98-0042	21-10508	0.00-0.50	Soil	2.2 (U)
MD21-98-0041	21-10509	0.00-0.50	Soil	2.2 (U)
MD21-98-0040	21-10510	0.00-0.50	Qbt 3	2.2 (U)
MD21-98-0039	21-10511	0.00-0.50	Qbt 3	2.1 (U)
MD21-98-0038	21-10512	0.00-0.50	Qbt 3	2 (U)
MD21-98-0037	21-10513	0.00-0.50	Qbt 3	2.2 (U)
MD21-98-0036	21-10514	0.00-0.50	Soil	2.2 (U)
MD21-98-0035	21-10515	0.00-0.50	Qbt 3	2 (U)
MD21-98-0034	21-10516	0.00-0.50	Soil	2.1 (U)
MD21-98-0050	21-10516	0.00-0.50	Soil	2.1 (U)

MERCURY contributes 0.64 to the hazard index. Most values of mercury are very close to the background value (which is also the detection limit) of 0.1 mg/kg. Six samples of mercury in Area 3 are elevated.

Sample ID	Location ID	Depth (ft)	Media	Mercury (mg/kg)
Soil & Fill Background Value				**0.1**
Qbt 2,3,4 Background Value				**0.1**
SAL				**23**
0121-97-0902	21-05112	7.00-9.00	Soil	0.46
0121-97-0903	21-05113	7.00-9.00	Soil	1.7
0121-97-0904	21-05114	8.00-10.00	Soil	0.11 (U)
0121-97-0905	21-05115	8.00-10.00	Soil	0.11 (U)
0121-97-1236	21-05355	0.00-0.50	Soil	**5.5**
0121-97-1238	21-05355	0.50-1.00	Soil	**14.7**
0121-97-1221	21-05362	0.00-0.50	Soil	**9.1**
0121-97-1223	21-05362	0.50-1.00	Soil	**5.1**
0121-97-1224	21-05379	0.00-0.50	Soil	**7.2**
0121-97-1225	21-05379	0.50-1.00	Soil	**2.4**
0121-97-1230	21-05389	0.00-0.50	Soil	0.27
0121-97-1229	21-05389	0.50-1.00	Soil	0.17
0121-97-1228	21-05404	0.00-0.50	Soil	0.16
0121-97-1227	21-05422	0.00-0.50	Soil	0.78
0121-97-1240	21-05422	0.50-1.00	Soil	0.2
0121-97-1232	21-05425	0.00-0.50	Soil	0.11
MD21-98-0049	21-10501	0.00-0.50	Qbt 3	0.12
MD21-98-0048	21-10502	0.00-0.50	Soil	0.13
MD21-98-0047	21-10503	0.00-0.50	Soil	0.11 (U)
MD21-98-0045	21-10504	0.00-0.50	Qbt 3	0.13
MD21-98-0046	21-10505	0.00-0.50	Soil	0.16
MD21-98-0043	21-10507	0.00-0.50	Qbt 3	0.11 (U)
MD21-98-0042	21-10508	0.00-0.50	Soil	1.7
MD21-98-0041	21-10509	0.00-0.50	Soil	0.14
MD21-98-0040	21-10510	0.00-0.50	Qbt 3	0.11 (U)
MD21-98-0037	21-10513	0.00-0.50	Qbt 3	0.18
MD21-98-0036	21-10514	0.00-0.50	Soil	0.11 (U)
MD21-98-0034	21-10516	0.00-0.50	Soil	0.22
MD21-98-0050	21-10516	0.00-0.50	Soil	0.23
MD21-01-0001	21-11191	0.50-1.17	Fill	0.45
MD21-01-0002	21-11192	0.50-1.00	Fill	0.11 (J)
MD21-01-0013	21-11196	3.00-3.50	Qbt 3	0.25
MD21-01-0307	21-11220	2.00-3.00	Fill	0.36
MD21-01-0310	21-11220	5.00-6.00	Fill	0.63

HUMAN HEALTH RISK –Carcinogens

Analyte	Location ID	Sample ID	Sample Value	Media	SAL	Risk
Aroclor-1254	21-10515	MD21-98-0035	0.11	QBT3	1.1	1.00E-07
Arsenic	21-10513	MD21-98-0037	8.2	QBT3	0.39	2.1E-05
Benzo(a)anthracene	21-11192	MD21-01-0002	0.082 (J)	FILL	6.2	1.32E-08
Benzo(a)pyrene	21-11192	MD21-01-0002	0.074 (J)	FILL	0.062	1.19E-06
Benzo(b)fluoranthene	21-11192	MD21-01-0002	0.078 (J)	FILL	6.2	1.26E-08
Benzo(k)fluoranthene	21-11192	MD21-01-0002	0.078 (J)	FILL	62	1.26E-09
Bis(2-ethylhexyl)phthalate	21-11192	MD21-01-0002	0.055	FILL	35	1.57E-09
Chromium	21-05362	0121-97-1221	42.5	ALLH	210	2.02E-07
Chrysene	21-11192	MD21-01-0002	0.089 (J)	FILL	61	1.46E-09
DDT[4,4'-]	21-11220	MD21-01-0307	0.0028 (J)	FILL	17	1.65E-10
					Carcinogenic Risk	**2.26E-05**

Arsenic contributes 2.1x10-5 of the 2.26 x10-5 risk. All other carcinogens contribute 0.16x10–5 (or 1.6x10-6) to the overall risk.

ARSENIC. Of the 90 samples analyzed for arsenic, only 3 had sample values greater than the maximum of the background data set. The carcinogenic arsenic SAL is less than background.

Sample ID	Location ID	Depth (ft)	Media	Arsenic (mg/kg)
Qbt 2,3,4 Background Value				**5.0**
Carcinogenic SAL				**0.39**
MD21-98-0045	21-10504	0.00-0.50	Qbt 3	5.6
MD21-98-0043	21-10507	0.00-0.50	Qbt 3	5.6
MD21-98-0037	21-10513	0.00-0.50	Qbt 3	8.2