

Table 1M
Mass of Chemicals Placed in CAMU Unit 2
HWD-5 Landfill and TTP Area Post-Closure Groundwater Monitoring - Fourth Quarter 2017
U.S. Steel - Gary Works
Gary, Indiana

Parameter	Location ID	HWD-5-06D	HWD-5-06D	HWD-5-06S	HWD-5-07D	HWD-5-07S	HWD-5-08D	HWD-5-08S	HWD-5-08S	HWD-5-09D	HWD-5-09S	HWD-5-10D	HWD-5-10S	HWD-5-14D	HWD-5-14SR	WE-MW-13D
	Sample Type	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular
	Sample Date	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/5/2017	12/5/2017	12/5/2017	12/5/2017	12/4/2017	12/4/2017	12/8/2017
	Units															
VOCs																
Benzene	ug/l	110	110	0.5	64	0.5	100	0.5	0.5	78	0.59	30	0.58	61	0.91	0.99
Ethylbenzene	ug/l	0.5	0.5	0.5	0.5	0.33	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
m&p-Xylene	ug/l	1	1	1	1	0.6	1	1	1	1	1	1	1	1	1	1
o-Xylene	ug/l	0.5	0.5	0.26	0.5	0.33	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Toluene	ug/l	0.97	0.95	0.43	0.61	0.35	0.72	0.5	0.5	0.73	0.5	0.34	0.5	0.58	10	0.5
Xylenes (total)	ug/l	1.5	1.5	1.5	1.5	0.93	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
PAHs																
Acenaphthene	ug/l	0.05	0.05	7	0.05	5.2	0.05	0.05	0.05	0.05	1.4	0.05	1.5	0.05	0.05	0.05
Acenaphthylene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.15	0.05	0.05	0.05	0.05	0.05
Anthracene	ug/l	0.05	0.05	0.05	0.05	0.75	0.05	0.05	0.05	0.05	0.26	0.05	0.05	0.05	0.05	0.05
Benzo(a)anthracene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(a)pyrene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(b)fluoranthene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(g,h,i)perylene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Chrysene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Dibenz(a,h)anthracene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluoranthene	ug/l	0.05	0.05	1.5	0.05	2.1	0.05	0.05	0.05	0.05	0.83	0.05	0.46	0.05	0.05	0.05
Fluorene	ug/l	0.05	0.05	3	0.05	4.5	0.05	0.05	0.05	0.05	1.5	0.05	1.1	0.05	0.35	0.05
Indeno(1,2,3-cd)pyrene	ug/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Naphthalene	ug/l	0.05	0.05	10	0.05	29	0.05	0.05	0.05	0.05	6.2	0.05	5.9	0.05	1.7	0.05
Phenanthrene	ug/l	0.05	0.05	5.4	0.05	7.8	0.05	0.05	0.05	0.05	2.6	0.05	1.7	0.05	0.05	0.05
Pyrene	ug/l	0.05	0.05	1	0.05	1.3	0.05	0.05	0.05	0.05	0.56	0.05	0.34	0.05	0.05	0.05
Metals																
Arsenic, dissolved	mg/l	0.044	0.043	0.0025	0.055	0.0025	0.022	0.02	0.02	0.018	0.0025	0.019	0.002	0.033	0.04	0.029
Cadmium, dissolved	mg/l	0.0032	0.0032	0.0017	0.0023	0.0014	0.0016	0.0015	0.0012	0.0014	0.0011	0.0012	0.00093	0.0017	0.002	0.005
Calcium, dissolved	mg/l	340	330	400	110	150	81	97	97	69	120	67	120	96	11	110
Chromium, dissolved	mg/l	0.0025	0.00024	0.00023	0.0025	0.00061	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.00018
Iron	mg/l	16	17	0.019	12	0.074	5.7	3.9	3.7	1.8	0.026	4.7	0.04	7.1	0.61	4.8
Iron, dissolved	mg/l	16	16	0.04	12	0.041	5.6	3.3	3.3	1.1	0.04	4.3	0.04	6	0.025	4.8
Lead, dissolved	mg/l	0.005	0.0059	0.0025	0.0075	0.0025	0.008	0.003	0.0036	0.0055	0.0025	0.0064	0.0025	0.0087	0.021	0.0081
Magnesium, dissolved	mg/l	110	110	0.1	38	0.1	28	17	17	11	0.1	16	0.1	29	0.1	35
Mercury, dissolved	mg/l	0.00003	0.0001	0.000078	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.000038	0.0001	0.000034	0.0001	0.000039	0.00003
Potassium, dissolved	mg/l	6.1	6	46	8	360	2	3.7	3.7	30	330	21	430	53	1100	1.7
Silicon, dissolved	mg/l	17	17	0.57	19	2.6	16	9.1	9.1	13	2	16	3.6	20	39	16
Sodium, dissolved	mg/l	670	650	23	130	200	25	22	22	130	200	80	250	100	970	38
Zinc, dissolved	mg/l	0.0023	0.0028	0.005	0.005	0.0026	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

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Parameter	Location ID	HWD-5-06D	HWD-5-06D	HWD-5-06S	HWD-5-07D	HWD-5-07S	HWD-5-08D	HWD-5-08S	HWD-5-08S	HWD-5-09D	HWD-5-09S	HWD-5-10D	HWD-5-10S	HWD-5-14D	HWD-5-14SR	WE-MW-13D
	Sample Type	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Duplicate	Regular	Regular	Regular	Regular	Regular	Regular	Regular
	Sample Date	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017	12/5/2017	12/5/2017	12/5/2017	12/5/2017	12/4/2017	12/4/2017	12/8/2017
General Chemistry																
Alkalinity	mg/l	210	210	970	300	780	300	270	270	120	550	230	590	260	1,300	330
Alkalinity, Bicarb.(CaC03)	mg/l	210	210	5	300	5	300	270	270	120	5	230	5	260	5	330
Alkalinity, Carb. (CaC03)	mg/l	5	5	74	5	90	5	5	5	5	130	5	98	5	330	5
Ammonia as N	mg/l	9	9	1	17	4	3	0.86	0.87	6.8	4.8	7.4	5.1	8.8	15	3
Chloride	mg/l	1,600	1,600	13	350	330	40	27	27	310	330	150	440	290	1,200	67
Nitrate as N	mg/l	0.5	0.5	0.5	0.1	0.1	0.5	0.047	0.049	0.097	0.1	0.05	0.1	0.05	0.5	0.5
Sulfate	mg/l	86	86	90	1.2	43	4.2	57	59	58	150	0.64	130	0.49	96	32
Sulfide	mg/l	0.5	0.5	7	0.5	13	0.5	0.5	0.5	0.5	7.1	0.5	8.3	0.5	57	0.5

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Parameter	Location ID	WE-MW-13S	WE-MW-4	WE-MW-5D	WE-MW-5S	Median Concentration	Median Concentration	Mass of Chemicals in HWD-2 Purge Water Placed in CAMU Unit 2 (Based on Median Concentration)		
	Sample Type	Regular	Regular	Regular	Regular					
	Sample Date	12/8/2017	12/5/2017	12/5/2017	12/5/2017					
	Units							mg/L	Milligrams	Kilograms
VOCs										
Benzene	ug/l	0.5	0.56	13	0.5	0.91	0.00091	0.104741	1.05E-07	2.30E-07
Ethylbenzene	ug/l	0.5	0.5	0.5	0.5	0.5	0.0005	0.05755	5.76E-08	1.27E-07
m&p-Xylene	ug/l	1	1	1	1	1	0.001	0.1151	1.15E-07	2.53E-07
o-Xylene	ug/l	0.5	0.5	0.5	0.5	0.5	0.0005	0.05755	5.76E-08	1.27E-07
Toluene	ug/l	0.5	0.59	0.5	0.5	0.5	0.0005	0.05755	5.76E-08	1.27E-07
Xylenes (total)	ug/l	1.5	1.5	1.5	1.5	1.5	0.0015	0.17265	1.73E-07	3.80E-07
PAHs										
Acenaphthene	ug/l	0.05	0.8	0.05	2.4	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Acenaphthylene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Anthracene	ug/l	0.05	0.21	0.05	0.55	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Benzo(a)anthracene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Benzo(a)pyrene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Benzo(b)fluoranthene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Benzo(g,h,i)perylene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Benzo(k)fluoranthene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Chrysene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Dibenz(a,h)anthracene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Fluoranthene	ug/l	0.05	0.31	0.05	1.2	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Fluorene	ug/l	0.05	0.76	0.05	1.8	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Indeno(1,2,3-cd)pyrene	ug/l	0.05	0.05	0.05	0.05	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Naphthalene	ug/l	0.05	4.2	0.05	4	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Phenanthrene	ug/l	0.05	1	0.05	4.5	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Pyrene	ug/l	0.05	0.25	0.05	0.86	0.05	0.00005	0.005755	5.76E-09	1.27E-08
Metals										
Arsenic, dissolved	mg/l	0.014	0.003	0.057	0.0025	0.02	0.02	2.302	2.30E-06	5.06E-06
Cadmium, dissolved	mg/l	0.005	0.0011	0.0019	0.0013	0.0016	0.0016	0.18416	1.84E-07	4.05E-07
Calcium, dissolved	mg/l	87	83	170	290	110	110	12661	1.27E-02	2.79E-02
Chromium, dissolved	mg/l	0.0025	0.0025	0.0025	0.0002	0.0025	0.0025	0.28775	2.88E-07	6.33E-07
Iron	mg/l	2.1	0.04	2.7	0.04	2.7	2.7	310.77	3.11E-04	6.84E-04
Iron, dissolved	mg/l	1.8	0.04	2	0.04	2	2	230.2	2.30E-04	5.06E-04
Lead, dissolved	mg/l	0.0046	0.0025	0.0043	0.0025	0.0046	0.0046	0.52946	5.29E-07	1.16E-06
Magnesium, dissolved	mg/l	12	0.1	1.3	0.1	12	12	1381.2	1.38E-03	3.04E-03
Mercury, dissolved	mg/l	0.000034	0.0001	0.0001	0.000036	0.0001	0.0001	0.01151	1.15E-08	2.53E-08
Potassium, dissolved	mg/l	6.2	190	52	130	30	30	3453	3.45E-03	7.60E-03
Silicon, dissolved	mg/l	9.2	5	12	0.77	12	12	1381.2	1.38E-03	3.04E-03
Sodium, dissolved	mg/l	43	160	290	100	130	130	14963	1.50E-02	3.29E-02
Zinc, dissolved	mg/l	0.005	0.005	0.005	0.005	0.005	0.005	0.5755	5.76E-07	1.27E-06

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Parameter	Location ID	WE-MW-13S	WE-MW-4	WE-MW-5D	WE-MW-5S	Median Concentration	Median Concentration	Mass of Chemicals in HWD-2 Purge Water Placed in CAMU Unit 2 (Based on Median Concentration)		
	Sample Type	Regular	Regular	Regular	Regular					
	Sample Date	12/8/2017	12/5/2017	12/5/2017	12/5/2017					
General Chemistry										
Alkalinity	mg/l	250	340	94	800	300	300	34530	3.45E-02	7.60E-02
Alkalinity, Bicarb.(CaC03)	mg/l	250	5	94	5	210	210	24171	2.42E-02	5.32E-02
Alkalinity, Carb. (CaC03)	mg/l	5	81	5	64	5	5	575.5	5.76E-04	1.27E-03
Ammonia as N	mg/l	0.35	8.0	14	3.0	5.1	5.1	587.01	5.87E-04	1.29E-03
Chloride	mg/l	15	300	820	140	300	300	34530	3.45E-02	7.60E-02
Nitrate as N	mg/l	0.5	0.1	0.26	0.05	0.1	0.1	11.51	1.15E-05	2.53E-05
Sulfate	mg/l	54	120	46	79	58	58	6675.8	6.68E-03	1.47E-02
Sulfide	mg/l	0.5	8	0.84	2.5	0.5	0.5	57.55	5.76E-05	1.27E-04

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Notes:
mg/l = milligrams per liter
ug/l = micrograms per liter
R = Reject data result
Bold font indicates positive detection
Italics and shading indicate a non-detect result; one-half the reporting limit was used for non-detect results
Samples collected from December 4 to December 8, 2017.
Per TRI Reporting guidance, the median value is used when a range of data values is present.
Volume of purge water place in CAMU = 30.37 gallons
Volume of purge water placed in CAMU (liters): (30.37 gal)(3.79 liter/gal) = 115.10 liters
Mass of individual chemicals placed in CAMU = (concentration)(volume of purge water)