Form REP-703
Rev. 0, 4/2012

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
T: 614-836-4221, Audinet 210-4221
F: 614-836-4168, Audinet 210-4168
http://aepenv/labs

Water Analysis

Location: Mountaineer Plant ***Report Date: 9/11/2013***

CPS Influent

Sample Number: 133429-001 **Date Collected: 08/21/2013** **Date Received: 8/21/2013**

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	16.6	ug/L		0.050	0.010	DPC	09/05/2013 12:33	EPA 200.8
Arsenic, As	132	ug/L		0.10	0.030	DPC	09/05/2013 12:33	EPA 200.8
Barium, Ba	1010	ug/L		0.10	0.020	DPC	09/05/2013 12:33	EPA 200.8
Beryllium, Be	< 15	ug/L	U	50	15	DAM	08/29/2013 15:38	EPA 200.7
Cadmium, Cd	267	ug/L		0.050	0.010	DPC	09/05/2013 12:33	EPA 200.8
Chromium, Cr	722	ug/L		0.20	0.040	DPC	09/05/2013 12:33	EPA 200.8
Cobalt, Co	330	ug/L		0.020	0.0040	DPC	09/05/2013 12:33	EPA 200.8
Copper, Cu	377	ug/L		0.050	0.010	DPC	09/05/2013 12:33	EPA 200.8
Lead, Pb	191	ug/L		0.010	0.0020	DPC	09/05/2013 12:33	EPA 200.8
Mercury, Hg	194000	ng/L		5000	2000	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	302	ug/L		0.050	0.010	DPC	09/05/2013 12:33	EPA 200.8
Nickel, Ni	1690	ug/L		0.20	0.050	DPC	09/05/2013 12:33	EPA 200.8
Selenium, Se	949	ug/L		0.50	0.20	DPC	09/05/2013 12:33	EPA 200.8
Silver, Ag	0.435	ug/L		0.010	0.0020	DPC	09/05/2013 12:33	EPA 200.8
Thallium, Tl	13.0	ug/L		0.050	0.0020	DPC	09/05/2013 12:33	EPA 200.8
Tin, Sn	1010	ug/L		500	150	DAM	08/29/2013 15:39	EPA 200.7
Titanium, Ti	419	ug/L		100	15	DAM	08/29/2013 15:39	EPA 200.7
Zinc, Zn	3680	ug/L		0.50	0.10	DPC	09/05/2013 12:33	EPA 200.8
Aluminum, Al	56.6	mg/L		0.0010	0.0003	DPC	09/05/2013 12:33	EPA 200.8
Boron, B	461	mg/L		1.0	0.20	DAM	08/29/2013 15:38	EPA 200.7
Calcium, Ca	3730	mg/L		1.0	0.20	DAM	08/29/2013 15:38	EPA 200.7
Iron, Fe	223	mg/L		2.5	0.50	DAM	08/29/2013 15:38	EPA 200.7
Magnesium, Mg	4390	mg/L		0.50	0.10	DAM	08/29/2013 15:38	EPA 200.7
Manganese, Mn	87.1	mg/L		0.025	0.0050	DAM	08/29/2013 15:38	EPA 200.7
Potassium, K	91.3	mg/L		2.5	0.35	DAM	08/29/2013 15:37	EPA 200.7
Sodium, Na	346	mg/L		1.5	0.40	DAM	08/29/2013 15:37	EPA 200.7
Strontium, Sr	13.4	mg/L		0.050	0.015	DAM	08/29/2013 15:37	EPA 200.7
Ammonia, NH3, as N	2.27	mg/L		0.050	0.020	DMM	08/26/2013	EPA 350.1
Total Kjeldahl Nitrogen, TKN as N	0.96	mg/L		0.50	0.10	DMM	08/28/2013	EPA 351.2
Nitrate-Nitrite, NO3-NO2, as N	35.4	mg/L		0.10	0.020	DMM	08/27/2013	SM20 4500NO3 H

CPS Influent Dissolved

Sample Number: 133429-001A **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	1.58	ug/L		0.050	0.010	DPC	09/05/2013 12:38	EPA 200.8
Arsenic, As	3.82	ug/L		0.10	0.030	DPC	09/05/2013 12:38	EPA 200.8
Barium, Ba	68.9	ug/L		0.10	0.020	DPC	09/05/2013 12:38	EPA 200.8
Beryllium, Be	< 15	ug/L	U	50	15	DAM	08/29/2013 15:42	EPA 200.7
Cadmium, Cd	171	ug/L		0.050	0.010	DPC	09/05/2013 12:38	EPA 200.8
Chromium, Cr	1.2	ug/L		0.20	0.040	DPC	09/05/2013 12:38	EPA 200.8
Cobalt, Co	216	ug/L		0.020	0.0040	DPC	09/05/2013 12:38	EPA 200.8
Copper, Cu	9.21	ug/L		0.050	0.010	DPC	09/05/2013 12:38	EPA 200.8
Lead, Pb	0.885	ug/L		0.010	0.0020	DPC	09/05/2013 12:38	EPA 200.8
Mercury, Hg	67.8	ng/L		10	4.0	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	181	ug/L		0.050	0.010	DPC	09/05/2013 12:38	EPA 200.8
Nickel, Ni	1100	ug/L		0.20	0.050	DPC	09/05/2013 12:38	EPA 200.8
Selenium, Se	326	ug/L		0.50	0.20	DPC	09/05/2013 12:38	EPA 200.8
Selenite, Se+4 (Hydride)	230	ug/L		20	4.0	TLT	09/04/2013	AEP Method
Silver, Ag	0.019	ug/L		0.010	0.0020	DPC	09/05/2013 12:38	EPA 200.8
Thallium, Tl	7.00	ug/L		0.050	0.0020	DPC	09/05/2013 12:38	EPA 200.8
Tin, Sn	410	ug/L	J	500	150	DAM	08/29/2013 15:43	EPA 200.7
Titanium, Ti	< 15	ug/L	U	100	15	DAM	08/29/2013 15:42	EPA 200.7
Zinc, Zn	528	ug/L		0.50	0.10	DPC	09/05/2013 12:38	EPA 200.8
Aluminum, Al	0.0440	mg/L		0.0010	0.0003	DPC	09/05/2013 12:38	EPA 200.8
Boron, B	448	mg/L		1.0	0.20	DAM	08/29/2013 15:42	EPA 200.7
Calcium, Ca	822	mg/L		1.0	0.20	DAM	08/29/2013 15:42	EPA 200.7
Iron, Fe	< 0.50	mg/L	U	2.5	0.50	DAM	08/29/2013 15:43	EPA 200.7
Magnesium, Mg	3760	mg/L		0.50	0.10	DAM	08/29/2013 15:42	EPA 200.7
Manganese, Mn	79.4	mg/L		0.025	0.0050	DAM	08/29/2013 15:42	EPA 200.7
Potassium, K	74.9	mg/L		2.5	0.35	DAM	08/29/2013 15:41	EPA 200.7
Sodium, Na	341	mg/L		1.5	0.40	DAM	08/29/2013 15:41	EPA 200.7
Strontium, Sr	7.75	mg/L		0.050	0.015	DAM	08/29/2013 15:41	EPA 200.7

CPS Effluent

Sample Number: 133429-002 **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	1.24	ug/L		0.050	0.010	DPC	09/05/2013 12:43	EPA 200.8
Arsenic, As	3.42	ug/L		0.10	0.030	DPC	09/05/2013 12:43	EPA 200.8
Barium, Ba	77.3	ug/L		0.10	0.020	DPC	09/05/2013 12:43	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 15:47	EPA 200.7
Cadmium, Cd	0.25	ug/L		0.050	0.010	DPC	09/05/2013 12:43	EPA 200.8
Chromium, Cr	4.4	ug/L		0.20	0.040	DPC	09/05/2013 12:43	EPA 200.8
Cobalt, Co	0.860	ug/L		0.020	0.0040	DPC	09/05/2013 12:43	EPA 200.8
Copper, Cu	0.82	ug/L		0.050	0.010	DPC	09/05/2013 12:43	EPA 200.8
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Lead, Pb	0.233	ug/L		0.010	0.0020	DPC	09/05/2013 12:43	EPA 200.8
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Mercury, Hg	183	ng/L		20	8.0	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	211	ug/L		0.050	0.010	DPC	09/05/2013 12:43	EPA 200.8
Nickel, Ni	21.3	ug/L		0.20	0.050	DPC	09/05/2013 12:43	EPA 200.8
Selenium, Se	362	ug/L		0.50	0.20	DPC	09/05/2013 12:43	EPA 200.8
Silver, Ag	0.0030	ug/L	J	0.010	0.0020	DPC	09/05/2013 12:43	EPA 200.8
Thallium, Tl	1.10	ug/L		0.050	0.0020	DPC	09/05/2013 12:43	EPA 200.8
Tin, Sn	190	ug/L		100	30	DAM	08/29/2013 15:47	EPA 200.7
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 15:47	EPA 200.7
Zinc, Zn	5.5	ug/L		0.50	0.10	DPC	09/05/2013 12:43	EPA 200.8
Aluminum, Al	0.140	mg/L		0.0010	0.0003	DPC	09/05/2013 12:43	EPA 200.8
Boron, B	325	mg/L		0.20	0.040	DAM	08/29/2013 15:47	EPA 200.7
Calcium, Ca	810	mg/L		0.20	0.040	DAM	08/29/2013 15:47	EPA 200.7
Iron, Fe	0.26	mg/L	J	0.50	0.10	DAM	08/29/2013 15:47	EPA 200.7
Magnesium, Mg	2790	mg/L		0.10	0.020	DAM	08/29/2013 15:47	EPA 200.7
Manganese, Mn	37.6	mg/L		0.0050	0.0010	DAM	08/29/2013 15:47	EPA 200.7
Potassium, K	54.0	mg/L		0.50	0.070	DAM	08/29/2013 15:45	EPA 200.7
Sodium, Na	268	mg/L		0.30	0.080	DAM	08/29/2013 15:45	EPA 200.7
Strontium, Sr	6.18	mg/L		0.010	0.0030	DAM	08/29/2013 15:45	EPA 200.7
Ammonia, NH3, as N	13.6	mg/L		0.050	0.020	DMM	08/26/2013	EPA 350.1
Total Kjeldahl Nitrogen, TKN as N	4.34	mg/L		0.50	0.10	DMM	08/28/2013	EPA 351.2
Nitrate-Nitrite, NO3-NO2, as N	23.7	mg/L		0.10	0.020	DMM	08/27/2013	SM20 4500NO3 H

CPS Effluent Dissolved

Sample Number: 133429-002A **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	1.22	ug/L		0.050	0.010	DPC	09/05/2013 12:47	EPA 200.8
Arsenic, As	3.17	ug/L		0.10	0.030	DPC	09/05/2013 12:47	EPA 200.8
Barium, Ba	69.7	ug/L		0.10	0.020	DPC	09/05/2013 12:47	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 15:56	EPA 200.7
Cadmium, Cd	0.08	ug/L		0.050	0.010	DPC	09/05/2013 12:47	EPA 200.8
Chromium, Cr	2.9	ug/L		0.20	0.040	DPC	09/05/2013 12:47	EPA 200.8
Cobalt, Co	0.387	ug/L		0.020	0.0040	DPC	09/05/2013 12:47	EPA 200.8
Copper, Cu	4.76	ug/L		0.050	0.010	DPC	09/05/2013 12:47	EPA 200.8
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Lead, Pb	0.502	ug/L		0.010	0.0020	DPC	09/05/2013 12:47	EPA 200.8
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Mercury, Hg	2.9	ng/L		2.0	0.80	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	194	ug/L		0.050	0.010	DPC	09/05/2013 12:47	EPA 200.8
Nickel, Ni	12.8	ug/L		0.20	0.050	DPC	09/05/2013 12:47	EPA 200.8
Selenium, Se	332	ug/L		0.50	0.20	DPC	09/05/2013 12:47	EPA 200.8
Selenite, Se+4 (Hydride)	321	ug/L		20	4.0	TLT	09/04/2013	AEP Method
Silver, Ag	< 0.0020	ug/L	U	0.010	0.0020	DPC	09/05/2013 12:47	EPA 200.8
Thallium, Tl	0.86	ug/L		0.050	0.0020	DPC	09/05/2013 12:47	EPA 200.8
Tin, Sn	174	ug/L		100	30	DAM	08/29/2013 15:56	EPA 200.7
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 15:56	EPA 200.7
Zinc, Zn	5.8	ug/L		0.50	0.10	DPC	09/05/2013 12:47	EPA 200.8
Aluminum, Al	0.0196	mg/L		0.0010	0.0003	DPC	09/05/2013 12:47	EPA 200.8
Boron, B	314	mg/L		0.20	0.040	DAM	08/29/2013 15:56	EPA 200.7
Calcium, Ca	777	mg/L		0.20	0.040	DAM	08/29/2013 15:56	EPA 200.7
Iron, Fe	< 0.10	mg/L	U	0.50	0.10	DAM	08/29/2013 15:56	EPA 200.7
Magnesium, Mg	2670	mg/L		0.10	0.020	DAM	08/29/2013 15:56	EPA 200.7
Manganese, Mn	36.1	mg/L		0.0050	0.0010	DAM	08/29/2013 15:56	EPA 200.7
Potassium, K	52.1	mg/L		0.50	0.070	DAM	08/29/2013 15:54	EPA 200.7
Sodium, Na	255	mg/L		0.30	0.080	DAM	08/29/2013 15:54	EPA 200.7
Strontium, Sr	5.89	mg/L		0.010	0.0030	DAM	08/29/2013 15:54	EPA 200.7

Landfill Leachate

Sample Number: 133429-003 **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	11.8	ug/L		0.050	0.010	DPC	09/05/2013 12:52	EPA 200.8
Arsenic, As	44.8	ug/L		0.10	0.030	DPC	09/05/2013 12:52	EPA 200.8
Barium, Ba	29.4	ug/L		0.10	0.020	DPC	09/05/2013 12:52	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:05	EPA 200.7
Cadmium, Cd	1.88	ug/L		0.050	0.010	DPC	09/05/2013 12:52	EPA 200.8
Chromium, Cr	0.4	ug/L		0.20	0.040	DPC	09/05/2013 12:52	EPA 200.8
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Cobalt, Co	1.73	ug/L		0.020	0.0040	DPC	09/05/2013 12:52	EPA 200.8
Copper, Cu	0.66	ug/L		0.050	0.010	DPC	09/05/2013 12:52	EPA 200.8
Lead, Pb	0.041	ug/L		0.010	0.0020	DPC	09/05/2013 12:52	EPA 200.8
Mercury, Hg	46.6	ng/L		10	4.0	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	7550	ug/L		0.050	0.010	DPC	09/05/2013 12:52	EPA 200.8
Nickel, Ni	8.14	ug/L		0.20	0.050	DPC	09/05/2013 12:52	EPA 200.8
Selenium, Se	249	ug/L		0.50	0.20	DPC	09/05/2013 12:52	EPA 200.8
Silver, Ag	0.0030	ug/L	J	0.010	0.0020	DPC	09/05/2013 12:52	EPA 200.8
Thallium, Tl	3.00	ug/L		0.050	0.0020	DPC	09/05/2013 12:52	EPA 200.8
Tin, Sn	196	ug/L		100	30	DAM	08/29/2013 16:05	EPA 200.7
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:05	EPA 200.7
Zinc, Zn	2.6	ug/L		0.50	0.10	DPC	09/05/2013 12:52	EPA 200.8
Aluminum, Al	0.0211	mg/L		0.0010	0.0003	DPC	09/05/2013 12:52	EPA 200.8
Boron, B	59.3	mg/L		0.20	0.040	DAM	08/29/2013 16:05	EPA 200.7
Calcium, Ca	492	mg/L		0.20	0.040	DAM	08/29/2013 16:05	EPA 200.7
Iron, Fe	< 0.10	mg/L	U	0.50	0.10	DAM	08/29/2013 16:05	EPA 200.7
Magnesium, Mg	456	mg/L		0.10	0.020	DAM	08/29/2013 16:05	EPA 200.7
Manganese, Mn	0.718	mg/L		0.0050	0.0010	DAM	08/29/2013 16:05	EPA 200.7
Potassium, K	121	mg/L		0.50	0.070	DAM	08/29/2013 16:03	EPA 200.7
Sodium, Na	2010	mg/L		0.30	0.080	DAM	08/29/2013 16:03	EPA 200.7
Strontium, Sr	6.26	mg/L		0.010	0.0030	DAM	08/29/2013 16:03	EPA 200.7
Ammonia, NH3, as N	3.39	mg/L		0.050	0.020	DMM	08/26/2013	EPA 350.1
Total Kjeldahl Nitrogen, TKN as N	1.18	mg/L		0.50	0.10	DMM	08/28/2013	EPA 351.2
Nitrate-Nitrite, NO3-NO2, as N	4.14	mg/L		0.10	0.020	DMM	08/27/2013	SM20 4500NO3 H

Landfill Leachate Dissolved

Sample Number: 133429-003A **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	11.2	ug/L		0.050	0.010	DPC	09/06/2013 10:27	EPA 200.8
Arsenic, As	41.6	ug/L		0.10	0.030	DPC	09/06/2013 10:27	EPA 200.8
Barium, Ba	27.6	ug/L		0.10	0.020	DPC	09/06/2013 10:27	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:09	EPA 200.7
Cadmium, Cd	2.11	ug/L		0.050	0.010	DPC	09/06/2013 10:27	EPA 200.8
Chromium, Cr	0.6	ug/L		0.20	0.040	DPC	09/06/2013 10:27	EPA 200.8
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Cobalt, Co	1.45	ug/L		0.020	0.0040	DPC	09/06/2013 10:27	EPA 200.8
Copper, Cu	0.45	ug/L		0.050	0.010	DPC	09/06/2013 10:27	EPA 200.8
Lead, Pb	0.012	ug/L		0.010	0.0020	DPC	09/06/2013 10:27	EPA 200.8
Mercury, Hg	13.3	ng/L		2.0	0.80	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	7030	ug/L		0.050	0.010	DPC	09/06/2013 10:27	EPA 200.8
Nickel, Ni	7.10	ug/L		0.20	0.050	DPC	09/06/2013 10:27	EPA 200.8
Selenium, Se	229	ug/L		0.50	0.20	DPC	09/06/2013 10:27	EPA 200.8
Selenite, Se+4 (Hydride)	146	ug/L		20	4.0	TLT	09/04/2013	AEP Method
Silver, Ag	0.0040	ug/L	J	0.010	0.0020	DPC	09/06/2013 10:27	EPA 200.8
Thallium, Tl	2.77	ug/L		0.050	0.0020	DPC	09/06/2013 10:27	EPA 200.8
Tin, Sn	155	ug/L		100	30	DAM	08/29/2013 16:09	EPA 200.7
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:09	EPA 200.7
Zinc, Zn	2.7	ug/L		0.50	0.10	DPC	09/06/2013 10:27	EPA 200.8
Aluminum, Al	0.0075	mg/L		0.0010	0.0003	DPC	09/06/2013 10:27	EPA 200.8
Boron, B	58.7	mg/L		0.20	0.040	DAM	08/29/2013 16:09	EPA 200.7
Calcium, Ca	486	mg/L		0.20	0.040	DAM	08/29/2013 16:09	EPA 200.7
Iron, Fe	< 0.10	mg/L	U	0.50	0.10	DAM	08/29/2013 16:09	EPA 200.7
Magnesium, Mg	451	mg/L		0.10	0.020	DAM	08/29/2013 16:09	EPA 200.7
Manganese, Mn	0.663	mg/L		0.0050	0.0010	DAM	08/29/2013 16:09	EPA 200.7
Potassium, K	124	mg/L		0.50	0.070	DAM	08/29/2013 16:07	EPA 200.7
Sodium, Na	2050	mg/L		0.30	0.080	DAM	08/29/2013 16:07	EPA 200.7
Strontium, Sr	6.34	mg/L		0.010	0.0030	DAM	08/29/2013 16:07	EPA 200.7

1st Stage Feed

Sample Number: 133429-004 **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	5.64	ug/L		0.050	0.010	DPC	09/06/2013 10:31	EPA 200.8
Arsenic, As	19.4	ug/L		0.10	0.030	DPC	09/06/2013 10:31	EPA 200.8
Barium, Ba	52.1	ug/L		0.10	0.020	DPC	09/06/2013 10:31	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:13	EPA 200.7
Cadmium, Cd	1.06	ug/L		0.050	0.010	DPC	09/06/2013 10:31	EPA 200.8
Chromium, Cr	2.7	ug/L		0.20	0.040	DPC	09/06/2013 10:31	EPA 200.8
Cobalt, Co	1.48	ug/L		0.020	0.0040	DPC	09/06/2013 10:31	EPA 200.8
Copper, Cu	0.74	ug/L		0.050	0.010	DPC	09/06/2013 10:31	EPA 200.8
Lead, Pb	0.132	ug/L		0.010	0.0020	DPC	09/06/2013 10:31	EPA 200.8
Mercury, Hg	115	ng/L		10	4.0	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	3340	ug/L		0.050	0.010	DPC	09/06/2013 10:31	EPA 200.8
Nickel, Ni	14.8	ug/L		0.20	0.050	DPC	09/06/2013 10:31	EPA 200.8
Selenium, Se	276	ug/L		0.50	0.20	DPC	09/06/2013 10:31	EPA 200.8
Silver, Ag	0.0040	ug/L	J	0.010	0.0020	DPC	09/06/2013 10:31	EPA 200.8
Thallium, Tl	1.82	ug/L		0.050	0.0020	DPC	09/06/2013 10:31	EPA 200.8
Tin, Sn	112	ug/L		100	30	DAM	08/29/2013 16:13	EPA 200.7
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:13	EPA 200.7
Zinc, Zn	3.9	ug/L		0.50	0.10	DPC	09/06/2013 10:31	EPA 200.8
Aluminum, Al	0.181	mg/L		0.0010	0.0003	DPC	09/06/2013 10:31	EPA 200.8
Boron, B	200	mg/L		0.20	0.040	DAM	08/29/2013 16:13	EPA 200.7
Calcium, Ca	656	mg/L		0.20	0.040	DAM	08/29/2013 16:13	EPA 200.7
Iron, Fe	0.34	mg/L	J	0.50	0.10	DAM	08/29/2013 16:13	EPA 200.7
Magnesium, Mg	1680	mg/L		0.10	0.020	DAM	08/29/2013 16:13	EPA 200.7
Manganese, Mn	20.3	mg/L		0.0050	0.0010	DAM	08/29/2013 16:13	EPA 200.7
Potassium, K	85.2	mg/L		0.50	0.070	DAM	08/29/2013 16:11	EPA 200.7
Sodium, Na	1080	mg/L		0.30	0.080	DAM	08/29/2013 16:11	EPA 200.7
Strontium, Sr	6.10	mg/L		0.010	0.0030	DAM	08/29/2013 16:11	EPA 200.7
Ammonia, NH3, as N	11.1	mg/L		0.050	0.020	DMM	08/26/2013	EPA 350.1
Total Kjeldahl Nitrogen, TKN as N	2.97	mg/L		0.50	0.10	DMM	08/28/2013	EPA 351.2
Nitrate-Nitrite, NO3-NO2, as N	14.8	mg/L		0.10	0.020	DMM	08/27/2013	SM20 4500NO3 H

1st Stage Feed Dissolved

Sample Number: 133429-004A **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	4.94	ug/L		0.050	0.010	DPC	09/06/2013 10:36	EPA 200.8
Arsenic, As	15.4	ug/L		0.10	0.030	DPC	09/06/2013 10:36	EPA 200.8
Barium, Ba	43.9	ug/L		0.10	0.020	DPC	09/06/2013 10:36	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:22	EPA 200.7
Cadmium, Cd	0.86	ug/L		0.050	0.010	DPC	09/06/2013 10:36	EPA 200.8
Chromium, Cr	1.7	ug/L		0.20	0.040	DPC	09/06/2013 10:36	EPA 200.8
Cobalt, Co	0.680	ug/L		0.020	0.0040	DPC	09/06/2013 10:36	EPA 200.8
Copper, Cu	0.39	ug/L		0.050	0.010	DPC	09/06/2013 10:36	EPA 200.8
Lead, Pb	0.034	ug/L		0.010	0.0020	DPC	09/06/2013 10:36	EPA 200.8
Mercury, Hg	5.0	ng/L		2.0	0.80	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	2880	ug/L		0.050	0.010	DPC	09/06/2013 10:36	EPA 200.8
Nickel, Ni	8.78	ug/L		0.20	0.050	DPC	09/06/2013 10:36	EPA 200.8
Selenium, Se	239	ug/L		0.50	0.20	DPC	09/06/2013 10:36	EPA 200.8
Selenite, Se+4 (Hydride)	236	ug/L		20	4.0	TLT	09/04/2013	AEP Method
Silver, Ag	0.0020	ug/L	J	0.010	0.0020	DPC	09/06/2013 10:36	EPA 200.8
Thallium, Tl	1.54	ug/L		0.050	0.0020	DPC	09/06/2013 10:36	EPA 200.8
Tin, Sn	131	ug/L		100	30	DAM	08/29/2013 16:22	EPA 200.7
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:22	EPA 200.7
Zinc, Zn	2.5	ug/L		0.50	0.10	DPC	09/06/2013 10:36	EPA 200.8
Aluminum, Al	0.0173	mg/L		0.0010	0.0003	DPC	09/06/2013 10:36	EPA 200.8
Boron, B	200	mg/L		0.20	0.040	DAM	08/29/2013 16:22	EPA 200.7
Calcium, Ca	656	mg/L		0.20	0.040	DAM	08/29/2013 16:22	EPA 200.7
Iron, Fe	< 0.10	mg/L	U	0.50	0.10	DAM	08/29/2013 16:22	EPA 200.7
Magnesium, Mg	1670	mg/L		0.10	0.020	DAM	08/29/2013 16:22	EPA 200.7
Manganese, Mn	20.2	mg/L		0.0050	0.0010	DAM	08/29/2013 16:22	EPA 200.7
Potassium, K	86.0	mg/L		0.50	0.070	DAM	08/29/2013 16:20	EPA 200.7
Sodium, Na	1090	mg/L		0.30	0.080	DAM	08/29/2013 16:20	EPA 200.7
Strontium, Sr	6.23	mg/L		0.010	0.0030	DAM	08/29/2013 16:20	EPA 200.7

2nd Stage Feed

Sample Number: 133429-005 **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	1.77	ug/L		0.050	0.010	DPC	09/06/2013 10:41	EPA 200.8
Arsenic, As	12.0	ug/L		0.10	0.030	DPC	09/06/2013 10:41	EPA 200.8
Barium, Ba	55.1	ug/L		0.10	0.020	DPC	09/06/2013 10:41	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:31	EPA 200.7
Cadmium, Cd	0.70	ug/L		0.050	0.010	DPC	09/06/2013 10:41	EPA 200.8
Chromium, Cr	1.4	ug/L		0.20	0.040	DPC	09/06/2013 10:41	EPA 200.8
Cobalt, Co	2.05	ug/L		0.020	0.0040	DPC	09/06/2013 10:41	EPA 200.8
Copper, Cu	0.19	ug/L		0.050	0.010	DPC	09/06/2013 10:41	EPA 200.8
Lead, Pb	0.011	ug/L		0.010	0.0020	DPC	09/06/2013 10:41	EPA 200.8
Mercury, Hg	7.3	ng/L	J	10	4.0	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	2310	ug/L		0.050	0.010	DPC	09/06/2013 10:41	EPA 200.8
Nickel, Ni	15.6	ug/L		0.20	0.050	DPC	09/06/2013 10:41	EPA 200.8
Selenium, Se	8.7	ug/L		0.50	0.20	DPC	09/06/2013 10:41	EPA 200.8
Silver, Ag	< 0.0020	ug/L	U	0.010	0.0020	DPC	09/06/2013 10:41	EPA 200.8
Thallium, Tl	0.93	ug/L		0.050	0.0020	DPC	09/06/2013 10:41	EPA 200.8
Tin, Sn	149	ug/L		100	30	DAM	08/29/2013 16:31	EPA 200.7
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:31	EPA 200.7
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Zinc, Zn	1.1	ug/L		0.50	0.10	DPC	09/06/2013 10:41	EPA 200.8
Aluminum, Al	0.570	mg/L		0.0010	0.0003	DPC	09/06/2013 10:41	EPA 200.8
Boron, B	207	mg/L		0.20	0.040	DAM	08/29/2013 16:31	EPA 200.7
Calcium, Ca	649	mg/L		0.20	0.040	DAM	08/29/2013 16:31	EPA 200.7
Iron, Fe	0.784	mg/L		0.50	0.10	DAM	08/29/2013 16:31	EPA 200.7
Magnesium, Mg	1720	mg/L		0.10	0.020	DAM	08/29/2013 16:31	EPA 200.7
Manganese, Mn	20.5	mg/L		0.0050	0.0010	DAM	08/29/2013 16:31	EPA 200.7
Potassium, K	76.6	mg/L		0.50	0.070	DAM	08/29/2013 16:29	EPA 200.7
Sodium, Na	879	mg/L		0.30	0.080	DAM	08/29/2013 16:29	EPA 200.7
Strontium, Sr	6.13	mg/L		0.010	0.0030	DAM	08/29/2013 16:29	EPA 200.7
Ammonia, NH3, as N	10.5	mg/L		0.050	0.020	DMM	08/26/2013	EPA 350.1
Total Kjeldahl Nitrogen, TKN as N	4.49	mg/L		0.50	0.10	DMM	08/28/2013	EPA 351.2
Nitrate-Nitrite, NO3-NO2, as N	< 0.020	mg/L	U	0.10	0.020	DMM	08/27/2013	SM20 4500NO3 H

2nd Stage Feed

Sample Number: 133429-005A **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	1.62	ug/L		0.050	0.010	DPC	09/06/2013 10:46	EPA 200.8
Arsenic, As	11.2	ug/L		0.10	0.030	DPC	09/06/2013 10:46	EPA 200.8
Barium, Ba	52.6	ug/L		0.10	0.020	DPC	09/06/2013 10:46	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:40	EPA 200.7
Cadmium, Cd	0.63	ug/L		0.050	0.010	DPC	09/06/2013 10:46	EPA 200.8
Chromium, Cr	1.3	ug/L		0.20	0.040	DPC	09/06/2013 10:46	EPA 200.8
Cobalt, Co	1.97	ug/L		0.020	0.0040	DPC	09/06/2013 10:46	EPA 200.8
Copper, Cu	0.17	ug/L		0.050	0.010	DPC	09/06/2013 10:46	EPA 200.8
Lead, Pb	0.010	ug/L		0.010	0.0020	DPC	09/06/2013 10:46	EPA 200.8
Mercury, Hg	2.8	ng/L		2.0	0.80	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	2200	ug/L		0.050	0.010	DPC	09/06/2013 10:46	EPA 200.8
Nickel, Ni	15.0	ug/L		0.20	0.050	DPC	09/06/2013 10:46	EPA 200.8
Selenium, Se	4.0	ug/L		0.50	0.20	DPC	09/06/2013 10:46	EPA 200.8
Selenite, Se+4 (Hydride)	< 1.0	ug/L	U	5.0	1.0	TLT	09/04/2013	AEP Method
Silver, Ag	< 0.0020	ug/L	U	0.010	0.0020	DPC	09/06/2013 10:46	EPA 200.8
Thallium, Tl	0.86	ug/L		0.050	0.0020	DPC	09/06/2013 10:46	EPA 200.8
Tin, Sn	111	ug/L		100	30	DAM	08/29/2013 16:40	EPA 200.7
Titanium, Ti	3.1	ug/L	J	20	3.0	DAM	08/29/2013 16:40	EPA 200.7
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Zinc, Zn	1.8	ug/L		0.50	0.10	DPC	09/06/2013 10:46	EPA 200.8
Aluminum, Al	0.537	mg/L		0.0010	0.0003	DPC	09/06/2013 10:46	EPA 200.8
Boron, B	207	mg/L		0.20	0.040	DAM	08/29/2013 16:40	EPA 200.7
Calcium, Ca	650	mg/L		0.20	0.040	DAM	08/29/2013 16:40	EPA 200.7
Iron, Fe	0.715	mg/L		0.50	0.10	DAM	08/29/2013 16:40	EPA 200.7
Magnesium, Mg	1730	mg/L		0.10	0.020	DAM	08/29/2013 16:40	EPA 200.7
Manganese, Mn	20.6	mg/L		0.0050	0.0010	DAM	08/29/2013 16:40	EPA 200.7
Potassium, K	77.0	mg/L		0.50	0.070	DAM	08/29/2013 16:38	EPA 200.7
Sodium, Na	866	mg/L		0.30	0.080	DAM	08/29/2013 16:38	EPA 200.7
Strontium, Sr	6.05	mg/L		0.010	0.0030	DAM	08/29/2013 16:38	EPA 200.7

Bioreactor Effluent

Sample Number: 133429-006 **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	0.08	ug/L		0.050	0.010	DPC	09/06/2013 10:51	EPA 200.8
Arsenic, As	1.19	ug/L		0.10	0.030	DPC	09/06/2013 10:51	EPA 200.8
Barium, Ba	64.1	ug/L		0.10	0.020	DPC	09/06/2013 10:51	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:49	EPA 200.7
Cadmium, Cd	< 0.010	ug/L	U	0.050	0.010	DPC	09/06/2013 10:51	EPA 200.8
Chromium, Cr	1.2	ug/L		0.20	0.040	DPC	09/06/2013 10:51	EPA 200.8
Cobalt, Co	0.068	ug/L		0.020	0.0040	DPC	09/06/2013 10:51	EPA 200.8
Copper, Cu	0.10	ug/L		0.050	0.010	DPC	09/06/2013 10:51	EPA 200.8
Lead, Pb	0.017	ug/L		0.010	0.0020	DPC	09/06/2013 10:51	EPA 200.8
Mercury, Hg	2.5	ng/L		1.0	0.40	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	10.1	ug/L		0.050	0.010	DPC	09/06/2013 10:51	EPA 200.8
Nickel, Ni	1.92	ug/L		0.20	0.050	DPC	09/06/2013 10:51	EPA 200.8
Selenium, Se	1.3	ug/L		0.50	0.20	DPC	09/06/2013 10:51	EPA 200.8
Silver, Ag	0.0040	ug/L	J	0.010	0.0020	DPC	09/06/2013 10:51	EPA 200.8
Thallium, Tl	0.015	ug/L	J	0.050	0.0020	DPC	09/06/2013 10:51	EPA 200.8
Tin, Sn	147	ug/L		100	30	DAM	08/29/2013 16:49	EPA 200.7
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:49	EPA 200.7
Zinc, Zn	1.2	ug/L		0.50	0.10	DPC	09/06/2013 10:51	EPA 200.8
Aluminum, Al	2.72	mg/L		0.0010	0.0003	DPC	09/06/2013 10:51	EPA 200.8
Boron, B	229	mg/L		0.20	0.040	DAM	08/29/2013 16:49	EPA 200.7
Calcium, Ca	663	mg/L		0.20	0.040	DAM	08/29/2013 16:49	EPA 200.7
Iron, Fe	0.792	mg/L		0.50	0.10	DAM	08/29/2013 16:49	EPA 200.7
Magnesium, Mg	1770	mg/L		0.10	0.020	DAM	08/29/2013 16:49	EPA 200.7
Manganese, Mn	20.7	mg/L		0.0050	0.0010	DAM	08/29/2013 16:49	EPA 200.7
Potassium, K	83.5	mg/L		0.50	0.070	DAM	08/29/2013 00:07	EPA 200.7
Sodium, Na	900	mg/L		0.30	0.080	DAM	08/29/2013 16:47	EPA 200.7
Strontium, Sr	6.51	mg/L		0.010	0.0030	DAM	08/29/2013 16:47	EPA 200.7
Ammonia, NH3, as N	23.2	mg/L		0.050	0.020	DMM	08/26/2013	EPA 350.1
Total Kjeldahl Nitrogen, TKN as N	4.15	mg/L		0.50	0.10	DMM	08/28/2013	EPA 351.2
Nitrate-Nitrite, NO3-NO2, as N	< 0.020	mg/L	U	0.10	0.020	DMM	08/27/2013	SM20 4500NO3 H

Bioreactor Effluent Dissolved

Sample Number: 133429-006A **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Antimony, Sb	0.09	ug/L		0.050	0.010	DPC	09/06/2013 10:55	EPA 200.8
Arsenic, As	1.01	ug/L		0.10	0.030	DPC	09/06/2013 10:55	EPA 200.8
Barium, Ba	58.4	ug/L		0.10	0.020	DPC	09/06/2013 10:55	EPA 200.8
Beryllium, Be	< 3.0	ug/L	U	10	3.0	DAM	08/29/2013 16:58	EPA 200.7
Cadmium, Cd	< 0.010	ug/L	U	0.050	0.010	DPC	09/06/2013 10:55	EPA 200.8
Chromium, Cr	0.9	ug/L		0.20	0.040	DPC	09/06/2013 10:55	EPA 200.8
Cobalt, Co	0.074	ug/L		0.020	0.0040	DPC	09/06/2013 10:55	EPA 200.8
Copper, Cu	0.13	ug/L		0.050	0.010	DPC	09/06/2013 10:55	EPA 200.8
Lead, Pb	0.030	ug/L		0.010	0.0020	DPC	09/06/2013 10:55	EPA 200.8
Mercury, Hg	1.0	ng/L		0.50	0.20	TLT	09/03/2013	EPA 1631E
Molybdenum, Mo	7.55	ug/L		0.050	0.010	DPC	09/06/2013 10:55	EPA 200.8
Nickel, Ni	2.00	ug/L		0.20	0.050	DPC	09/06/2013 10:55	EPA 200.8
Selenium, Se	1.0	ug/L		0.50	0.20	DPC	09/06/2013 10:55	EPA 200.8
Selenite, Se+4 (Hydride)	0.084	ug/L	J	0.40	0.080	TLT	09/04/2013	AEP Method
Silver, Ag	0.0030	ug/L	J	0.010	0.0020	DPC	09/06/2013 10:55	EPA 200.8
Thallium, Tl	0.0090	ug/L	J	0.050	0.0020	DPC	09/06/2013 10:55	EPA 200.8
Tin, Sn	233	ug/L		100	30	DAM	08/29/2013 16:58	EPA 200.7
The dissolved result is significantly higher than the total recoverable result, indicating that there may be a matrix interference present.								
Titanium, Ti	< 3.0	ug/L	U	20	3.0	DAM	08/29/2013 16:58	EPA 200.7
Zinc, Zn	1.4	ug/L		0.50	0.10	DPC	09/06/2013 10:55	EPA 200.8
Aluminum, Al	2.41	mg/L		0.0010	0.0003	DPC	09/06/2013 10:55	EPA 200.8
Boron, B	227	mg/L		0.20	0.040	DAM	08/29/2013 16:58	EPA 200.7
Calcium, Ca	658	mg/L		0.20	0.040	DAM	08/29/2013 16:58	EPA 200.7
Iron, Fe	0.759	mg/L		0.50	0.10	DAM	08/29/2013 16:58	EPA 200.7
Magnesium, Mg	1760	mg/L		0.10	0.020	DAM	08/29/2013 16:58	EPA 200.7
Manganese, Mn	20.6	mg/L		0.0050	0.0010	DAM	08/29/2013 16:58	EPA 200.7
Potassium, K	83.2	mg/L		0.50	0.070	DAM	08/29/2013 16:56	EPA 200.7
Sodium, Na	883	mg/L		0.30	0.080	DAM	08/29/2013 16:56	EPA 200.7
Strontium, Sr	6.40	mg/L		0.010	0.0030	DAM	08/29/2013 16:56	EPA 200.7

Field Blank

Sample Number: 133429-007 **Date Collected:** 08/21/2013 **Date Received:** 8/21/2013

Parameter	Result	Units	Data Qual	RL	MDL	Analysis By	Analysis Date/Time	Method
Mercury, Hg	< 0.20	ng/L	U	0.50	0.20	TLT	09/03/2013	EPA 1631E

U: Analyte was analyzed and not detected at or above adjusted Method Detection Limit
J: Analyte was positively identified, though the quantitation was below Reporting Limit.

Brian Snyder, Chemist II

Email bssnyder@aep.com *Tel. 614-836-4224*

Fax 614-836-4168 *Audinet 210-4224*

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED.