

**CCR COMPLIANCE  
GROUNDWATER MONITORING AND CORRECTIVE ACTION  
ANNUAL REPORT  
HUNTLEY LANDFILL AND SOUTH SETTLING POND**

Prepared for:

Huntley Power LLC  
Huntley Generating Station  
Tonawanda, New York

Prepared by:



Aptim Environmental & Infrastructure, Inc.  
Pittsburgh, Pennsylvania

January 2019

**Table of Contents**

---

List of Tables ..... iii

List of Figures ..... iii

1.0 Introduction ..... 1

2.0 South Settling Pond ..... 3

    2.1 Groundwater Monitoring Network ..... 3

    2.2 2018 Data Collection ..... 3

    2.3 2018 Monitoring Program Transitions..... 3

    2.4 2018 Corrective Actions ..... 3

    2.5 2019 Projected Activities ..... 4

3.0 Landfill ..... 5

    3.1 Groundwater Monitoring Network ..... 5

    3.2 2018 Data Collection ..... 5

    3.3 2018 Monitoring Program Transitions..... 5

    3.4 2018 Corrective Actions ..... 5

    3.5 2019 Projected Activities ..... 6

Tables

Figures

## *List of Tables*

---

Table 1	Huntley South Settling Pond Groundwater Analytical Data Summary—Appendix III Constituents
Table 2	Huntley South Settling Pond Groundwater Analytical Data Summary—Appendix IV Constituents
Table 3	Huntley Landfill Groundwater Analytical Data Summary—Appendix III Constituents
Table 4	Huntley Landfill Groundwater Analytical Data Summary—Appendix IV Constituents

## *List of Figures*

---

Figure 1	Huntley South Settling Pond—Location and Groundwater Monitoring System Map
Figure 2	Huntley Landfill—Location and Groundwater Monitoring System Map

## 1.0 Introduction

---

Title 40 Code of Federal Regulations (CFR) §257.90 mandates that existing Coal Combustion Residuals (CCR) landfills and surface impoundments, also known as CCR units, be subject to groundwater monitoring and corrective action requirements as further detailed in §257.91 through §257.98. These requirements are part of the overall CCR Rule (or Rule) which was published in the Federal Register on April 17, 2015 and which became effective on October 19, 2015. Specific obligations for Owners and Operators of existing CCR units regarding the preparation of “Annual Groundwater Monitoring and Corrective Action Reports (Annual Report)” are outlined in §257.90(e)(1-5). The first Annual Report was completed on January 31, 2018, and provided information, per the Rule to address the following aspects for the preceding calendar year:

- Document the status of the groundwater monitoring and corrective action program for the respective CCR units;
- Summarize key actions completed;
- Describe any problems encountered and actions taken to resolve the problems; and
- Offer a projection of key activities for the upcoming year.

At a minimum, the Annual Report must contain the following information to the extent applicable and available:

- A map, aerial image, or diagram showing the CCR unit and all background/upgradient and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program;
- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;
- In addition to all the monitoring data obtained under §257.90 through §257.98, a summary including the number of groundwater samples that were collected for analysis for each background/upgradient and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;
- A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and
- Any other information required to be included as specified in §257.90 through §257.98.

The Huntley Generating Station, owned by Huntley Power LLC, was a former coal-fired power plant located in Tonawanda, New York. The facility ceased electric generating operations on February 29, 2016, subsequent to the effective date of the Rule. The Rule applies to this facility due to the management/disposal of CCR materials resulting from the previous coal combustion activities. CCR units associated with station operations include the Huntley Landfill and the South Settling Pond. Each of these CCR units has a dedicated groundwater monitoring well network that meets the requirements of §257.91 with regard to number and appropriate locations of wells (certification previously provided under separate cover).

In summary, this Annual Report has been prepared to comply with the requirements of §257.90(e), addressing both of the Huntley Station's CCR Units with respect to the groundwater monitoring and corrective actions undertaken during Calendar Year 2018. This Annual Report and all subsequent reports thereto will be placed in the Station's operating record per §257.105(h)(1), noticed to the State Director per §257.106(h)(1), and posted to the publicly accessible internet site per §257.107(h)(1).

The previously prepared first Annual Report (covering the 2017 Calendar Year reporting period) was completed on January 31, 2018 and placed into the facility operating record on this same date. Subsequent notification to the State Director and posting to the publicly accessible website was completed on March 2, 2018.

## **2.0 South Settling Pond**

---

### **2.1 Groundwater Monitoring Network**

The CCR groundwater monitoring system for the Huntley South Settling Pond is comprised of four wells, including Well CCR-3 (upgradient), and Wells A-2, CCR-1, and CCR-2 (downgradient). The locations of the wells are shown on the attached Figure 1, along with depiction of the generalized groundwater flow direction in the area of the pond. Each of these wells was already existing, and no new wells were added nor were any existing wells abandoned/replaced during the 2018 reporting period.

### **2.2 2018 Data Collection**

During January 2018, the results from the October 2017 Detection Monitoring event were reviewed, and subsequent determination made that each of the downgradient wells showed one or more Appendix III constituents at levels representing a statistically significant increase (SSI) above corresponding background concentrations (see Table 1). Accordingly the South Settling Pond was transitioned into the CCR Assessment Monitoring Program, and an initial round of samples covering all Appendix IV constituents was collected in March 2018 (see Table 2) per §257.95(b). From these results, the detected Appendix IV constituents were carried forward and analyzed during continued Assessment Monitoring events conducted in May 2018 and October 2018. As shown in Table 2, none of the Appendix IV constituents from the May 2018 event were measured at concentrations representing a statistically significant level (SSL) above the corresponding site-specific groundwater protection standards. Data from the October 2018 event preliminarily shows arsenic at a concentration above the site-specific groundwater protection standard in one of the downgradient wells. This data will be further evaluated and a determination made in January 2019 as to possible identification of this value as a confirmed SSL, or to consider potential performance of an Alternate Source Demonstration.

### **2.3 2018 Monitoring Program Transitions**

In 2018, the South Settling Pond transitioned into the Assessment Monitoring Program based on review of the October 2017 Detection Monitoring results, and subsequent confirmation of Appendix III constituent concentrations representing SSIs above background in each of the three downgradient wells. The transition to the Assessment Monitoring Program was implemented during March-April 2018, including placement of an appropriate notification into the facility's operating record per §257.105(h)(5), notification to the State Director per §257.106(h)(4), and posting to the publicly accessible website per §257.107(h)(4).

### **2.4 2018 Corrective Actions**

During 2018, there were no corrective actions undertaken.

## **2.5 2019 Projected Activities**

An SSL evaluation for arsenic will be conducted in January 2019, with subsequent activities conducted accordingly, including possible performance of an Alternate Source Demonstration or initiation of a Corrective Measures Assessment. Other Assessment Monitoring efforts will also continue, as appropriate.

## **3.0 Landfill**

---

### **3.1 Groundwater Monitoring Network**

The CCR groundwater monitoring system for the Huntley Landfill is comprised of eight wells, including Well MW-12D (upgradient) and Wells CCR-4, CCR-5, CCR-6, MW-7D, MW-11D, MW-13D, and MW-14D (downgradient). The locations of the wells are shown on Figure 2, along with depiction of the generalized groundwater flow direction in the area of the disposal site. Each of these wells was already existing, and no new wells were added nor were any existing wells abandoned/replaced during the 2018 reporting period.

### **3.2 2018 Data Collection**

During January 2018, the results from the October 2017 Detection Monitoring event were reviewed, and subsequent determination made that each of the downgradient wells showed one or more Appendix III constituents at levels representing an SSI above corresponding background concentrations (see Table 3). Accordingly the Huntley Landfill was transitioned into the CCR Assessment Monitoring Program, and an initial round of samples covering all Appendix IV constituents was collected in April 2018 (see Table 4) per §257.95(b). From these results, the detected Appendix IV constituents were carried forward and analyzed during continued Assessment Monitoring events conducted in May 2018 and October 2018. As shown in Table 4, none of the Appendix IV constituents from the May and October 2018 events were measured at concentrations representing an SSL above the corresponding site-specific groundwater protection standards. Since detected concentrations of certain Appendix IV constituents do remain above calculated background, but below the groundwater protection standards, the Huntley Landfill will remain in Assessment Monitoring per §257.95(f).

### **3.3 2018 Monitoring Program Transitions**

In 2018, the Huntley Landfill transitioned into the Assessment Monitoring Program based on review of the October 2017 Detection Monitoring results, and subsequent confirmation of Appendix III constituent concentrations representing SSIs above background in each of the seven downgradient wells. The transition to the Assessment Monitoring Program was implemented during March-April 2018, including placement of an appropriate notification into the facility's operating record per §257.105(h)(5), notification to the State Director per §257.106(h)(4), and posting to the publicly accessible website per §257.107(h)(4).

### **3.4 2018 Corrective Actions**

During 2018, there were no corrective actions undertaken.



### **3.5 2019 Projected Activities**

It is anticipated that Assessment Monitoring activities will continue for the Huntley Landfill during 2019, with continued review of Appendix III/Appendix IV constituent concentrations and comparison against calculated background and established groundwater protection standards.

*Tables*

---

**Table 1**  
**Huntley Power LLC**  
**Huntley South Settling Pond--Groundwater Analytical Data**  
**CCR Appendix III Constituents**

Monitoring Well	Date Sampled	Total Boron (mg/L)	Total Calcium (mg/L)	Total Chloride (mg/L)	Total Fluoride (mg/L)	Total Dissolved Solids (mg/L)	Sulfate (mg/L)	pH (S.U.)
		Calculated Background						
		2.41	715	286	0.24	2884	996	5.98-7.30
CCR-3 (Upgradient)	9-Dec-15	1.09	405	229	0.19	2230	602	7.08
	11-Mar-16	1.22	442	262	0.21	2590	855	6.38
	24-May-16	1.05	564	247	< 0.20	2600	739	6.93
	23-Sep-16	1.30	465	254	< 0.20	2600	732	6.83
	30-Nov-16	1.28	545	254	0.24	2530	687	6.75
	28-Mar-17	1.16	569	260	< 0.20	2720	836	6.64
	19-May-17	1.80	454	< 2	0.20	2680	896	6.80
	21-Sep-17	1.72	458	246	< 0.20	2680	802	6.83
	5-Oct-17	1.00	318	219	< 0.20	2430	615	6.70
	25-May-18	1.30	313	235	< 0.20	2640	808	7.02
3-Oct-18	1.22	354	243	< 0.20	2560	791	6.17	
A-2 (Downgradient)	9-Dec-15	0.85	599	134	0.53	2830	1900	7.20
	11-Mar-16	0.86	558	139	0.41	2900	1790	6.99
	24-May-16	1.09	756	124	0.23	3000	1450	7.63
	23-Sep-16	0.75	498	121	< 0.20	2900	1480	6.77
	30-Nov-16	0.82	705	123	0.46	2770	1610	6.77
	28-Mar-17	0.58	705	109	< 0.20	2720	1510	6.88
	19-May-17	0.72	753	121	0.54	2740	1610	6.80
	21-Sep-17	0.78	624	115	0.28	2660	1560	6.91
	5-Oct-17	0.49	369	103	0.30	2790	1560	6.71
	25-May-18	0.72	427	96	0.34	2660	1440	6.38
3-Oct-18	0.53	420	88	0.38	2400	1150	7.43	
CCR-1 (Downgradient)	9-Dec-15	< 0.20	39	21	0.17	179	40	8.20
	11-Mar-16	< 0.20	35	36	0.11	217	40	8.38
	24-May-16	< 0.05	45	28	< 0.20	150	27	8.07
	23-Sep-16	0.07	40	23	< 0.20	200	16	8.05
	30-Nov-16	< 0.05	38	26	< 0.20	155	27	8.17
	28-Mar-17	< 0.05	46	37	< 0.20	240	32	8.28
	19-May-17	0.51	55	34	< 0.20	245	41	8.16
	21-Sep-17	0.55	75	92	< 0.20	375	83	8.19
	5-Oct-17	0.18	42	117	< 0.20	430	48	8.10
	25-May-18	0.32	69	229	< 0.20	730	104	8.37
3-Oct-18	0.25	38	212	0.26	520	54	7.73	
CCR-2 (Downgradient)	9-Dec-15	6.97	193	36	0.48	912	444	7.86
	11-Mar-16	6.66	191	34	0.42	974	471	7.74
	24-May-16	6.32	207	34	0.34	910	440	8.25
	23-Sep-16	6.98	152	32	0.45	815	326	8.00
	30-Nov-16	7.36	142	32	0.46	775	279	8.07
	28-Mar-17	7.05	220	29	0.31	835	343	7.93
	19-May-17	6.87	167	29	0.43	755	300	8.09
	21-Sep-17	7.92	174	28	0.47	645	237	8.22
	5-Oct-17	6.11	108	29	0.45	730	220	8.23
	25-May-18	5.08	105	25	0.35	590	164	8.05
3-Oct-18	5.32	94	35	0.45	585	116	8.45	

**Notes:**

- Cells with "<" are represented as non-detects. Values shown correspond to the laboratory reporting limit.
- Background values based on statistical evaluation of initial eight rounds (Dec. 2015 thru Sept. 2017) of groundwater sampling data for Well CCR-3.



**Table 3**  
**Huntley Power LLC**  
**Huntley Landfill--Groundwater Analytical Data**  
**CCR Appendix III Constituents**

Monitoring Well	Date Sampled	Total Boron (mg/L)	Total Calcium (mg/L)	Total Chloride (mg/L)	Total Fluoride (mg/L)	Total Dissolved Solids (mg/L)	Sulfate (mg/L)	pH (S.U.)
		Calculated Background						
		0.84	470	6.1	0.73	1021	225	6.19-7.78
12D (Upgradient)	9-Dec-15	0.58	46	4	0.61	718	171	7.74
	25-Jan-16	0.61	470	4	0.63	713	141	7.66
	25-Apr-16	0.65	63	4	0.53	910	163	7.45
	26-Jul-16	0.64	59	3	0.44	785	140	7.78
	27-Oct-16	0.65	48	3	0.41	730	150	7.58
	31-Jan-17	0.74	58	4	0.54	725	148	7.51
	24-Apr-17	0.52	67	4	0.58	760	167	6.19
	24-Jul-17	0.69	70	5	0.50	800	186	7.47
	9-Oct-17	0.72	71	4	0.52	795	191	7.58
	30-May-18	0.62	54	5	0.62	730	187	6.76
15-Oct-18	0.33	43	4	0.45	690	160	7.76	
7D (Downgradient)	9-Dec-15	1.36	475	5	0.95	2550	1780	7.65
	25-Jan-16	1.45	528	6	0.92	2600	1810	7.92
	25-Apr-16	1.33	595	5	0.55	2660	1720	7.77
	26-Jul-16	1.26	556	5	0.47	2750	1660	7.70
	24-Oct-16	1.56	712	5	0.77	2710	2000	7.60
	30-Jan-17	1.58	586	5	0.38	2740	1790	7.08
	24-Apr-17	1.42	421	5	0.34	2740	1750	7.98
	24-Jul-17	1.47	582	5	0.65	2780	1760	7.61
	9-Oct-17	1.19	686	5	0.56	2780	1750	7.63
	30-May-18	1.36	618	5	0.87	2680	1900	7.83
15-Oct-18	0.80	337	6	0.60	2490	1670	8.96	
11D (Downgradient)	9-Dec-15	1.23	290	9	0.60	1740	1170	7.72
	26-Jan-16	1.25	372	11	0.66	1750	1310	7.38
	25-Apr-16	1.19	390	9	0.45	1740	963	7.54
	26-Jul-16	1.14	310	9	0.33	1740	968	7.68
	24-Oct-16	1.49	452	13	0.62	2460	1710	7.31
	31-Jan-17	1.68	437	13	0.28	2420	1540	7.67
	25-Apr-17	1.22	338	14	0.24	2540	1520	7.42
	24-Jul-17	1.51	520	13	0.57	2490	1530	7.38
	9-Oct-17	1.25	416	13	0.46	2420	1560	7.28
	30-May-18	1.44	453	12	0.71	2420	1630	7.12
15-Oct-18	0.97	303	15	0.63	2380	1540	7.52	
13D (Downgradient)	9-Dec-15	1.86	495	35	0.74	2770	2060	7.56
	25-Jan-16	1.97	527	36	0.68	2720	1970	7.85
	25-Apr-16	1.89	657	36	0.41	2900	1880	7.55
	26-Jul-16	1.66	768	34	0.32	3000	1780	7.85
	25-Oct-16	2.10	480	36	0.29	3000	1840	7.87
	31-Jan-17	1.81	463	39	0.53	2940	2070	7.47
	25-Apr-17	1.60	349	43	0.63	2980	2130	7.40
	24-Jul-17	2.00	685	40	0.58	2950	1980	7.57
	9-Oct-17	1.83	576	37	0.42	2940	1920	7.46
	30-May-18	1.94	609	39	0.53	2910	2040	7.61
15-Oct-18	1.01	296	44	0.55	2940	1930	7.76	

See notes at end of table.

**Table 3 (cont'd)**  
**Huntley Power LLC**  
**Huntley Landfill--Groundwater Analytical Data**  
**CCR Appendix III Constituents**

Monitoring Well	Date Sampled	Total Boron (mg/L)	Total Calcium (mg/L)	Total Chloride (mg/L)	Total Fluoride (mg/L)	Total Dissolved Solids (mg/L)	Sulfate (mg/L)	pH (S.U.)
		Calculated Background						
		0.84	470	6.1	0.73	1021	225	6.19-7.78
14D (Downgradient)	9-Dec-15	1.08	388	34	0.55	2340	1670	7.73
	25-Jan-16	1.13	393	37	0.48	2220	1580	7.74
	25-Apr-16	1.04	349	33	0.29	2260	1450	7.58
	26-Jul-16	0.91	364	30	0.20	2250	1340	7.92
	24-Oct-16	1.15	597	38	0.42	2480	1770	7.51
	30-Jan-17	1.13	488	41	0.41	2500	1800	7.55
	24-Apr-17	1.13	444	35	< 0.20	2400	1480	7.88
	24-Jul-17	1.40	613	37	0.44	2410	1560	7.74
	9-Oct-17	0.98	395	38	0.30	2470	1550	7.47
	30-May-18	1.05	399	33	0.50	2320	1570	7.91
15-Oct-18	0.55	227	47	0.45	2500	1550	6.68	
CCR-4 (Downgradient)	9-Dec-15	1.60	548	37	0.77	2590	1970	7.48
	25-Jan-16	1.56	556	33	0.85	2700	1910	8.96
	25-Apr-16	1.59	707	31	0.41	3000	1800	6.05
	25-Jul-16	1.70	714	33	0.32	2960	1740	5.79
	25-Oct-16	1.60	553	35	0.32	2890	1610	7.47
	31-Jan-17	1.45	549	36	0.53	2890	2020	7.78
	25-Apr-17	1.28	413	35	0.21	2920	1780	7.29
	24-Jul-17	1.63	733	36	0.61	2870	1840	7.53
	9-Oct-17	1.69	725	34	0.43	2890	1820	7.31
	30-May-18	1.36	420	34	0.49	2870	1610	7.16
15-Oct-18	< 0.05	342	39	0.53	2770	1850	7.79	
CCR-5 (Downgradient)	9-Dec-15	1.46	544	28	0.79	2590	1930	7.44
	25-Jan-16	1.39	537	27	0.79	2570	1860	7.72
	25-Apr-16	1.39	649	32	0.48	2690	1730	6.60
	25-Jul-16	1.55	847	28	0.36	2920	1740	6.27
	25-Oct-16	1.50	594	29	0.31	2880	1750	7.82
	31-Jan-17	1.25	603	31	0.57	2830	1970	7.62
	25-Apr-17	1.04	479	41	0.28	2860	1690	7.09
	24-Jul-17	1.43	592	34	0.65	2790	1820	7.09
	9-Oct-17	1.57	742	29	0.44	2850	1800	7.24
	30-May-18	1.14	429	34	0.52	2710	1540	7.25
15-Oct-18	0.78	346	33	0.61	2820	1820	7.66	
CCR-6 (Downgradient)	9-Dec-15	1.56	537	26	0.76	2740	1930	7.48
	25-Jan-16	1.50	539	26	0.76	2670	1880	7.46
	25-Apr-16	1.29	581	28	0.46	2830	1780	7.03
	25-Jul-16	1.57	770	27	0.32	2900	1780	7.46
	25-Oct-16	1.63	760	27	0.34	2900	1730	7.63
	31-Jan-17	1.12	464	30	0.46	2570	1860	8.61
	25-Apr-17	1.15	336	30	< 0.20	2860	1700	7.21
	24-Jul-17	1.56	693	31	0.66	2900	1820	7.16
	9-Oct-17	1.72	893	27	0.46	2880	1800	7.26
	30-May-18	1.34	493	30	0.55	2860	1630	7.33
15-Oct-18	0.95	412	31	0.62	2820	1770	7.76	

**Notes:**


1. Cells with "<" are represented as non-detects. Values shown correspond to the laboratory reporting limit.
2. Background values based on statistical evaluation of initial eight rounds (Dec. 2015 thru July 2017) of groundwater sampling data for Well 12D.







**Table 4 (cont'd)**  
**Huntley Power LLC**  
**Huntley Landfill--Groundwater Analytical Data**  
**CCR Appendix IV Constituents**

 = Result from August 2, 2018 resampling; prior results from May 30, 2018 sampling showed confounding data from the sample (5.02 pCi/L) and the sample field duplicate (2.28 pCi/L). August 2018 resampling result deemed representative and consistent with historical values for this well.

Notes:

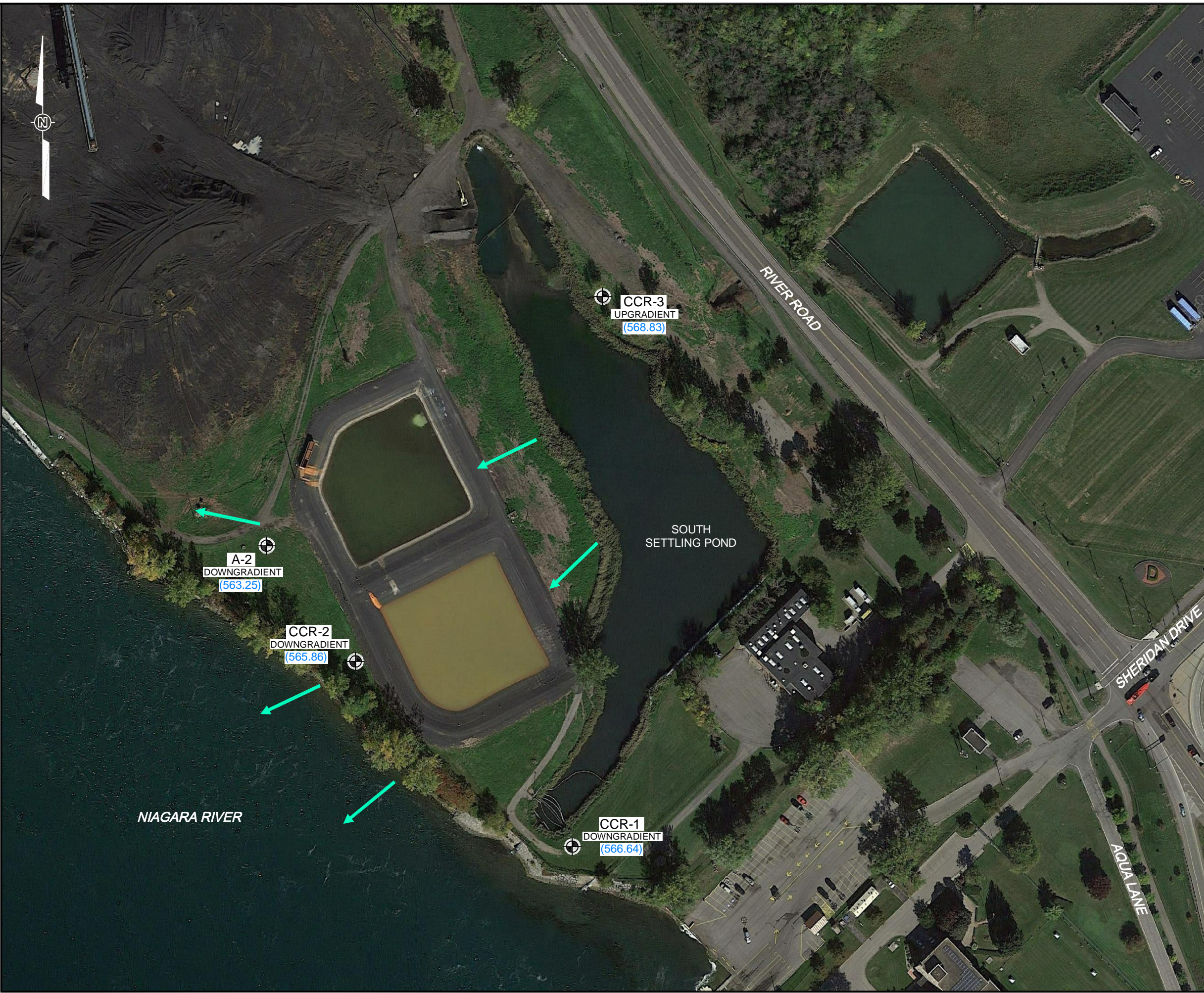
1. Cells with "<" are represented as non-detects. Values shown correspond to the laboratory reporting limit.
2. Background values based on statistical evaluation of initial eight rounds (Dec. 2015 thru July 2017) of groundwater sampling data for Well 12D.
3. As indicated, Groundwater Protection Standards are either published MCLs or risk-based Regional Screening Levels (RSLs). For constituents where calculated background exceeds either the MCL or RSL, the background value is used.
4. 4th QTR 2015 values for Antimony, Arsenic, Chromium, Molybdenum, and Selenium in Well 14D based on October 2015 sampling event.

## *Figures*



---

OFFICE Pittsburgh, PA DATE 1/10/19 DESIGNED BY DRAWN BY CHECKED BY APPROVED BY DRAWING NUMBER 631229737-B5

File: O:\PROJECT\NRG-HUNTLY\631229737-B5.dwg Xref: Plot Date/Time: Jan 23, 2019 - 8:53am Image: photo 3.jpg Plotted By: Greg Jones



**LEGEND:**

-  A-2 (563.25) CCR GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION MEASURED ON OCTOBER 3, 2018
-  GROUNDWATER FLOW DIRECTION

**REFERENCE:**  
GOOGLE AERIAL PHOTOGRAPH, DATED 10/2016.



	500 Penn Center Boulevard, Suite 900 Pittsburgh, Pennsylvania 15235
---	---

HUNTLEY POWER LLC

**FIGURE 1**  
CCR COMPLIANCE GROUNDWATER MONITORING WELL LOCATION MAP  
SOUTH SETTLING POND  
HUNTLEY GENERATING STATION  
TONAWANDA, NEW YORK

File: O:\PROJECT\NRG-HUNTLEY\631229737-B6.dwg Xref:   
 Plot Date/Time: Jan 23, 2019 - 8:56am   
 Plotted By: Greg Jones   
 image: photo 2.jpg

OFFICE Pittsburgh, PA DATE 1/10/19 DESIGNED BY -- DRAWN BY -- CHECKED BY -- APPROVED BY -- DRAWING NUMBER 631229737-B6



**LEGEND:**

- MW-12D (573.70) CCR GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION MEASURED ON OCTOBER 15, 2018
- GROUNDWATER FLOW DIRECTION

REFERENCE:  
 GOOGLE AERIAL PHOTOGRAPH, DATED 10/2016.



**APTIM** 500 Penn Center Boulevard, Suite 900, Pittsburgh, Pennsylvania 15235

HUNTLEY POWER LLC

**FIGURE 2**  
 CCR COMPLIANCE GROUNDWATER MONITORING WELL LOCATION MAP  
 HUNTLEY LANDFILL  
 HUNTLEY GENERATING STATION  
 TONAWANDA, NEW YORK