# CCR COMPLIANCE
# GROUNDWATER MONITORING AND CORRECTIVE ACTION
# ANNUAL REPORT
# DUNKIRK LANDFILL

Prepared for:

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Dunkirk Generating Station
Dunkirk, New York

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# 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 Dunkirk Generating Station, owned by Dunkirk Power LLC, is a coal-fired power plant located in Dunkirk, New York. The facility was mothballed and ceased electric generating operations in early-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. Accordingly, the Station's captive disposal site, located in Pomfret, New York and identified as the Dunkirk Landfill, has been designated as an existing CCR unit. This unit 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) with respect to documenting the groundwater monitoring and corrective actions undertaken during Calendar Year 2018 for the Dunkirk Landfill CCR Unit. 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 Dunkirk Landfill

## 2.1 Groundwater Monitoring Network

The CCR groundwater monitoring system for the Dunkirk Landfill is comprised of five wells, including Well BR-14-UG (upgradient), and Wells BR-3-DG, BR-12-DG, BR-13-DG, and BR-20-DG (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 landfill. 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 Dunkirk Landfill 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 and October 2018 events were measured at concentrations representing a statistically significant level (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 Dunkirk Landfill will remain in Assessment Monitoring per §257.95(f).

## 2.3 2018 Monitoring Program Transitions

In 2018, the Dunkirk 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 four 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).

## 2.4 2018 Corrective Actions

During 2018, there were no corrective actions undertaken.

## *2.5 2019 Projected Activities*

It is anticipated that Assessment Monitoring activities will continue for the Dunkirk 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
## Dunkirk Power LLC
## Dunkirk 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 | | | | | | |
| | | 0.270 | 135 | 5.1 | 0.22 | 699 | 254 | 5.79-8.38 |
| BR-14-UG (Upgradient) | 17-Nov-15 | 0.183 | 100 | 3.6 | < 0.20 | 370 | 82 | 7.53 |
| | 9-Feb-16 | 0.200 | 89 | 3.4 | < 0.20 | 435 | 78 | 6.56 |
| | 11-May-16 | 0.164 | 86 | 3.1 | 0.22 | 430 | 73 | 7.24 |
| | 30-Aug-16 | 0.185 | 87 | 3.6 | < 0.20 | 470 | 87 | 6.98 |
| | 9-Nov-16 | 0.160 | 92 | 4.1 | < 0.20 | 575 | 159 | 7.33 |
| | 14-Feb-17 | 0.175 | 108 | 4.3 | < 0.20 | 480 | 133 | 7.17 |
| | 16-May-17 | 0.157 | 81 | 3.5 | < 0.20 | 460 | 91 | 7.42 |
| | 15-Aug-17 | 0.228 | 111 | 3.4 | 0.21 | 505 | 128 | 6.42 |
| | 2-Oct-17 | 0.154 | 103 | 4.0 | < 0.20 | 570 | 147 | 7.10 |
| | 9-May-18 | 0.121 | 80 | 2.5 | < 0.20 | 385 | 51 | 7.29 |
| | 9-Oct-18 | 0.199 | 81 | 3.4 | 0.22 | 440 | 78 | 7.29 |
| BR-3-DG (Downgradient) | 17-Nov-15 | 0.098 | 141 | 45.9 | < 0.20 | 545 | 159 | 7.23 |
| | 9-Feb-16 | 0.078 | 119 | 32.8 | < 0.20 | 590 | 155 | 7.50 |
| | 11-May-16 | 0.098 | 111 | 23.0 | < 0.20 | 560 | 137 | 7.16 |
| | 30-Aug-16 | 0.096 | 114 | 28.8 | < 0.20 | 585 | 159 | 7.01 |
| | 9-Nov-16 | 0.088 | 115 | 84.9 | < 0.20 | 705 | 152 | 7.13 |
| | 14-Feb-17 | 0.092 | 151 | 99.7 | < 0.20 | 590 | 161 | 7.19 |
| | 16-May-17 | 0.062 | 113 | 58.1 | < 0.20 | 580 | 150 | 6.55 |
| | 15-Aug-17 | 0.135 | 139 | 69.4 | 0.27 | 600 | 158 | 6.98 |
| | 2-Oct-17 | 0.095 | 134 | 77.4 | 0.38 | 700 | 165 | 7.32 |
| | 9-May-18 | 0.068 | 145 | 34.9 | < 0.20 | 585 | 147 | 7.12 |
| | 8-Oct-18 | 0.109 | 106 | 33.5 | 0.22 | 565 | 155 | 7.24 |
| BR-12-DG (Downgradient) | 17-Nov-15 | 0.163 | 197 | 319 | < 0.20 | 825 | 66 | 6.94 |
| | 9-Feb-16 | 0.104 | 177 | 263 | < 0.20 | 920 | 151 | 7.00 |
| | 11-May-16 | 0.083 | 156 | 158 | < 0.20 | 780 | 168 | 7.29 |
| | 30-Aug-16 | 0.173 | 166 | 329 | < 0.20 | 1040 | 70 | 7.04 |
| | 9-Nov-16 | 0.179 | 222 | 375 | < 0.20 | 1260 | 62 | 7.00 |
| | 14-Feb-17 | 0.117 | 241 | 422 | < 0.20 | 1030 | 109 | 7.07 |
| | 16-May-17 | 0.068 | 160 | 299 | < 0.20 | 1100 | 139 | 6.54 |
| | 15-Aug-17 | 0.181 | 174 | 299 | < 0.20 | 1030 | 83 | 6.99 |
| | 2-Oct-17 | 0.163 | 196 | 421 | 1.04 | 1250 | 70 | 6.94 |
| | 9-May-18 | 0.061 | 205 | 260 | < 0.20 | 950 | 147 | 6.69 |
| | 8-Oct-18 | 0.169 | 171 | 382 | < 0.20 | 1120 | 71 | 6.91 |
| BR-13-DG (Downgradient) | 17-Nov-15 | 0.223 | 109 | 8.8 | < 0.20 | 495 | 67 | 7.23 |
| | 9-Feb-16 | 0.162 | 109 | 7.9 | < 0.20 | 560 | 129 | 7.25 |
| | 11-May-16 | 0.151 | 115 | 7.1 | < 0.20 | 620 | 161 | 7.23 |
| | 30-Aug-16 | 0.304 | 118 | 8.6 | < 0.20 | 560 | 59 | 7.09 |
| | 9-Nov-16 | 0.164 | 85 | 7.3 | < 0.20 | 560 | 127 | 7.20 |
| | 14-Feb-17 | 0.144 | 113 | 7.6 | < 0.20 | 545 | 140 | 7.21 |
| | 16-May-17 | 0.103 | 97 | 7.1 | < 0.20 | 585 | 142 | 6.79 |
| | 15-Aug-17 | 0.274 | 103 | 8.4 | 0.21 | 500 | 60 | 7.03 |
| | 2-Oct-17 | 0.240 | 96 | 8.4 | < 0.20 | 565 | 41 | 7.19 |
| | 9-May-18 | 0.109 | 131 | 6.7 | < 0.20 | 540 | 108 | 7.05 |
| | 8-Oct-18 | 0.252 | 89 | 8.9 | < 0.20 | 555 | 72 | 7.09 |
| BR-20-DG (Downgradient) | 17-Nov-15 | 1.42 | 26 | 2.8 | < 0.20 | 670 | 102 | 7.61 |
| | 9-Feb-16 | 1.40 | 24 | 12.2 | 0.35 | 725 | < 2.0 | 7.74 |
| | 11-May-16 | 1.44 | 22 | 33.0 | 0.35 | 720 | < 2.0 | 7.85 |
| | 30-Aug-16 | 1.39 | 24 | 25.4 | 0.36 | 685 | < 4.0 | 6.97 |
| | 9-Nov-16 | 1.35 | 19 | 15.5 | 0.22 | 675 | < 2.0 | 7.69 |
| | 14-Feb-17 | 1.56 | 25 | 16.5 | 0.39 | 635 | < 2.0 | 7.69 |
| | 16-May-17 | 1.37 | 21 | 15.5 | < 0.20 | 675 | < 2.0 | 7.71 |
| | 15-Aug-17 | 1.42 | 25 | 38.3 | 0.41 | 655 | < 2.0 | 7.58 |
| | 2-Oct-17 | 1.24 | 22 | 21.6 | 0.42 | 720 | < 4.0 | 7.32 |
| | 9-May-18 | 1.09 | 21 | 21.3 | 0.40 | 650 | < 4.0 | 7.49 |
| | 8-Oct-18 | 1.41 | 21 | 14.9 | 0.39 | 640 | < 2.0 | 7.58 |

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 (Nov. 2015 thru Aug. 2017) of groundwater sampling data for Well BR-14-UG.

# Table 2
## Dunkirk Power LLC
## Dunkirk Landfill--Groundwater Analytical Data
## CCR Appendix IV Constituents

| Monitoring Well | Date Sampled | Total Antimony (mg/L) | Total Arsenic (mg/L) | Total Barium (mg/L) | Total Beryllium (mg/L) | Total Cadmium (mg/L) | Total Chromium (mg/L) | Total Cobalt (mg/L) | Total Fluoride (mg/L) | Total Lead (mg/L) | Total Lithium (mg/L) | Total Mercury (mg/L) | Total Molybdenum (mg/L) | Total Selenium (mg/L) | Total Thallium (mg/L) | Total Radium-226 and 228 (pCi/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Calculated Background | | | | | | | | | | | | | | |
| | | 0.0025 | 0.009 | 0.68 | 0.004 | 0.005 | 0.005 | 0.05 | 0.22 | 0.005 | 0.05 | 0.000001 | 0.01 | 0.005 | 0.0007 | 1.25 |
| | | Groundwater Protection Standard | | | | | | | | | | | | | | |
| | | MCL | MCL | MCL | Background | MCL | MCL | Background | MCL | RSL | Background | MCL | RSL | MCL | MCL | MCL |
| | | 0.006 | 0.01 | 2 | 0.004 | 0.005 | 0.1 | 0.05 | 4.0 | 0.015 | 0.05 | 0.002 | 0.10 | 0.05 | 0.002 | 5 |
| BR-14-UG (Upgradient) | 17-Nov-15 | < 0.060 | 0.009 | 0.21 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.23 |
| | 9-Feb-16 | < 0.060 | < 0.005 | 0.33 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.24 |
| | 11-May-16 | < 0.060 | < 0.005 | 0.20 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | 0.22 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.18 |
| | 30-Aug-16 | < 0.060 | 0.008 | 0.24 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.25 |
| | 9-Nov-16 | < 0.060 | < 0.005 | 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.23 |
| | 14-Feb-17 | < 0.060 | < 0.005 | 0.09 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.22 |
| | 16-May-17 | 0.0010 | < 0.005 | 0.11 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0007 | 0.33 |
| | 15-Aug-17 | 0.0025 | < 0.005 | 0.10 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | 0.21 | < 0.005 | < 0.050 | < 0.0000010 | < 0.010 | < 0.005 | < 0.0007 | < 1.22 |
| | 29-Mar-18 | < 0.0004 | < 0.005 | 0.13 | < 0.0003 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0003 | 0.00 |
| | 9-May-18 | Not Analyzed | Not Analyzed | 0.12 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | < 0.20 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.29 |
| | 9-Oct-18 | Not Analyzed | Not Analyzed | 0.14 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 0.22 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.29 |
| BR-3-DG (Downgradient) | 17-Nov-15 | < 0.060 | 0.008 | 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | 0.006 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | 0.012 | 0.22 |
| | 9-Feb-16 | < 0.060 | < 0.005 | 0.04 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.22 |
| | 11-May-16 | < 0.060 | < 0.005 | 0.03 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.76 |
| | 30-Aug-16 | < 0.060 | 0.008 | 0.04 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.23 |
| | 9-Nov-16 | < 0.060 | < 0.005 | 0.03 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.28 |
| | 14-Feb-17 | < 0.060 | 0.006 | 0.04 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.31 |
| | 16-May-17 | 0.0016 | < 0.005 | 0.03 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0007 | 1.28 |
| | 15-Aug-17 | 0.0040 | < 0.005 | 0.05 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | 0.27 | < 0.005 | < 0.050 | < 0.0000010 | < 0.010 | < 0.005 | < 0.0007 | 1.23 |
| | 29-Mar-18 | < 0.0004 | < 0.005 | 0.04 | < 0.0003 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0003 | 0.00 |
| | 9-May-18 | Not Analyzed | Not Analyzed | 0.03 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | < 0.20 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.20 |
| | 8-Oct-18 | Not Analyzed | Not Analyzed | 0.03 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 0.22 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.58 |
| BR-12-DG (Downgradient) | 17-Nov-15 | < 0.060 | 0.006 | 0.07 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | 0.014 | 0.35 |
| | 9-Feb-16 | < 0.060 | < 0.005 | 0.06 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.16 |
| | 11-May-16 | < 0.060 | < 0.005 | 0.04 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.31 |
| | 30-Aug-16 | < 0.060 | 0.009 | 0.09 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.61 |
| | 9-Nov-16 | < 0.060 | < 0.005 | 0.08 | < 0.005 | < 0.005 | 0.045 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.45 |
| | 14-Feb-17 | < 0.060 | < 0.005 | 0.08 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.22 |
| | 16-May-17 | 0.0022 | < 0.005 | 0.04 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0007 | 0.22 |
| | 15-Aug-17 | 0.0045 | < 0.005 | 0.08 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000010 | < 0.010 | < 0.005 | < 0.0007 | 0.32 |
| | 29-Mar-18 | < 0.0004 | < 0.005 | 0.05 | < 0.0003 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0003 | 0.00 |
| | 9-May-18 | Not Analyzed | Not Analyzed | 0.04 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | < 0.20 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 0.32 |
| | 8-Oct-18 | Not Analyzed | Not Analyzed | 0.07 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | < 0.20 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.67 |
| BR-13-DG (Downgradient) | 17-Nov-15 | < 0.060 | < 0.005 | 0.08 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | 0.012 | 0.36 |
| | 9-Feb-16 | < 0.060 | < 0.005 | 0.08 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.45 |
| | 11-May-16 | < 0.060 | < 0.005 | 0.07 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.44 |
| | 30-Aug-16 | < 0.060 | 0.008 | 0.11 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.39 |
| | 9-Nov-16 | < 0.060 | < 0.005 | 0.05 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.33 |
| | 14-Feb-17 | < 0.060 | < 0.005 | 0.06 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.17 |
| | 16-May-17 | 0.0015 | < 0.005 | 0.05 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0007 | 0.24 |
| | 15-Aug-17 | 0.0030 | < 0.005 | 0.09 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | 0.21 | < 0.005 | < 0.050 | < 0.0000010 | < 0.010 | < 0.005 | < 0.0007 | 0.34 |
| | 29-Mar-18 | < 0.0004 | < 0.005 | 0.07 | < 0.0003 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0003 | 0.00 |
| | 9-May-18 | Not Analyzed | Not Analyzed | 0.06 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | < 0.20 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.37 |
| | 8-Oct-18 | Not Analyzed | Not Analyzed | 0.09 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | < 0.20 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 1.87 |

# Table 2
## Dunkirk Power LLC
## Dunkirk Landfill--Groundwater Analytical Data
## CCR Appendix IV Constituents

| Monitoring Well | Date Sampled | Total Antimony (mg/L) | Total Arsenic (mg/L) | Total Barium (mg/L) | Total Beryllium (mg/L) | Total Cadmium (mg/L) | Total Chromium (mg/L) | Total Cobalt (mg/L) | Total Fluoride (mg/L) | Total Lead (mg/L) | Total Lithium (mg/L) | Total Mercury (mg/L) | Total Molybdenum (mg/L) | Total Selenium (mg/L) | Total Thallium (mg/L) | Total Radium-226 and 228 (pCi/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Calculated Background | | | | | | | | | | | | | | |
| | | 0.0025 | 0.009 | 0.68 | 0.004 | 0.005 | 0.005 | 0.05 | 0.22 | 0.005 | 0.05 | 0.000001 | 0.01 | 0.005 | 0.0007 | 1.25 |
| | | Groundwater Protection Standard | | | | | | | | | | | | | | |
| | | MCL | MCL | MCL | Background | MCL | MCL | Background | MCL | RSL | Background | MCL | RSL | MCL | MCL | MCL |
| | | 0.006 | 0.01 | 2 | 0.004 | 0.005 | 0.1 | 0.05 | 4.0 | 0.015 | 0.05 | 0.002 | 0.10 | 0.05 | 0.002 | 5 |
| BR-20-DG (Downgradient) | 17-Nov-15 | < 0.060 | 0.006 | 1.50 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.53 |
| | 9-Feb-16 | < 0.060 | < 0.005 | 1.83 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | 0.35 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 1.71 |
| | 11-May-16 | < 0.060 | < 0.005 | 1.57 | < 0.005 | < 0.005 | 0.006 | < 0.050 | 0.35 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 2.13 |
| | 30-Aug-16 | < 0.060 | 0.006 | 1.93 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | 0.36 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 2.04 |
| | 9-Nov-16 | < 0.060 | < 0.005 | 1.25 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | 0.22 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 0.61 |
| | 14-Feb-17 | < 0.060 | < 0.005 | 1.88 | < 0.005 | < 0.005 | < 0.005 | < 0.050 | 0.39 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.010 | 2.20 |
| | 16-May-17 | 0.0014 | < 0.005 | 1.53 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | < 0.20 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0007 | 0.99 |
| | 15-Aug-17 | 0.0016 | < 0.005 | 1.84 | < 0.004 | < 0.005 | < 0.005 | < 0.050 | 0.41 | < 0.005 | < 0.050 | < 0.0000010 | < 0.010 | < 0.005 | < 0.0007 | 0.77 |
| | 29-Mar-18 | < 0.0004 | < 0.005 | 2.00 | < 0.0003 | < 0.005 | < 0.005 | < 0.050 | 0.36 | < 0.005 | < 0.050 | < 0.0000005 | < 0.010 | < 0.005 | < 0.0003 | 2.01 |
| | 9-May-18 | Not Analyzed | Not Analyzed | 1.51 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 0.40 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 2.02 |
| | 8-Oct-18 | Not Analyzed | Not Analyzed | 1.58 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 0.39 | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | Not Analyzed | 0.87 |

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 (Nov. 2015 thru Aug. 2017) of groundwater sampling data for Well BR-14-UG.
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.

# *Figures*


LEGEND:

BR-20-DG (614.04) — CCR GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION MEASURED ON OCTOBER 8-9, 2018

ACTIVE AREAS

GROUNDWATER FLOW DIRECTION

REFERENCE:

GOOGLE AERIAL PHOTOGRAPH, DATED 10/2016.

SCALE

0 400 800 FEET

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

DUNKIRK POWER LLC

# FIGURE 1
# CCR COMPLIANCE GROUNDWATER MONITORING WELL LOCATION MAP
# DUNKIRK LANDFILL
DUNKIRK GENERATING STATION
DUNKIRK, NEW YORK

| DRAWING NUMBER | APPROVED BY | CHECKED BY | DRAWN BY | DESIGNED BY | DATE |
|---|---|---|---|---|---|
| 631229736-B3 | -- | -- | -- | -- | 1/7/19 |

OFFICE: Pittsburgh, PA

File: O:\PROJECT\NRG DUNKIRK\631229736-B3.dwg
Plot Date/Time: Jan 23, 2019 - 8:49am
Plotted By: Greg.Jones
Xref: Image: photo 3.jpg PHOTO.JPG.jpg