



# WHEELABRATOR NORTH ANDOVER A WIN-WASTE INNOVATIONS COMPANY COMPLIANCE SUMMARY REPORT



Date 4/13/22

Wheel Plant Wheelabrator North Andover  
Unit 1 Unit Unit 1  
Outlet Source Outlet

| Date      | Hour | On-Line Minutes | O2            |        | NOx             |        | SO2             |        |                |        |         | CO     |                 |        | Carbon Feed |        | FF Temp (deg F) |            | Steam KLbs/Hr |            |           |
|-----------|------|-----------------|---------------|--------|-----------------|--------|-----------------|--------|----------------|--------|---------|--------|-----------------|--------|-------------|--------|-----------------|------------|---------------|------------|-----------|
|           |      |                 | Out Vol % Dry | Status | Outlet ppm 7%O2 | Status | Outlet ppm 7%O2 | Status | Inlet ppm 7%O2 | Status | Removal | Status | Outlet ppm 7%O2 | Status | 4 Hr Block  | Status | Lbs/Hr Avg.     | 8 Hr Block | 1 Hr Avg.     | 4 Hr Block | 1 Hr Avg. |
| 4/13/2022 | 0    | 60              | 9.9           |        | 198             |        | 12              |        | 42             |        | 71      |        | 5               |        |             | 13     |                 | 309        |               | 169.4      |           |
| 4/13/2022 | 1    | 60              | 10.1          |        | 200             |        | 8               |        | 42             |        | 82      |        | 4               |        |             | 13     |                 | 309        |               | 168.2      |           |
| 4/13/2022 | 2    | 60              | 10.2          |        | 198             |        | 12              |        | 48             |        | 74      |        | 4               |        |             | 13     |                 | 309        |               | 165.6      |           |
| 4/13/2022 | 3    | 60              | 10.2          |        | 198             |        | 17              |        | 61             |        | 72      |        | 5               | 5      |             | 13     |                 | 309        | 309           | 165.8      | 167.3     |
| 4/13/2022 | 4    | 60              | 10.1          |        | 200             |        | 7               |        | 44             |        | 84      |        | 4               |        |             | 13     |                 | 309        |               | 166.5      |           |
| 4/13/2022 | 5    | 60              | 10.2          |        | 200             |        | 12              |        | 50             |        | 77      |        | 4               |        |             | 13     |                 | 309        |               | 165.4      |           |
| 4/13/2022 | 6    | 60              | 10.1          |        | 196             |        | 11              |        | 47             |        | 76      |        | 6               |        |             | 13     |                 | 309        |               | 166.0      |           |
| 4/13/2022 | 7    | 60              | 10.3          |        | 197             |        | 8               |        | 32             |        | 74      |        | 3               | 4      |             | 13     | 13              | 309        | 309           | 166.0      | 166.0     |
| 4/13/2022 | 8    | 60              | 10.3          |        | 197             |        | 17              |        | 39             |        | 57      |        | 4               |        |             | 13     |                 | 309        |               | 168.7      |           |
| 4/13/2022 | 9    | 60              | 10.4          |        | 199             |        | 21              |        | 80             |        | 73      |        | 5               |        |             | 13     |                 | 309        |               | 165.4      |           |
| 4/13/2022 | 10   | 60              | 10.1          |        | 200             |        | 17              |        | 59             |        | 71      |        | 5               |        |             | 13     |                 | 310        |               | 168.7      |           |
| 4/13/2022 | 11   | 60              | 10.3          |        | 198             |        | 20              |        | 52             |        | 61      |        | 5               | 4      |             | 13     |                 | 309        | 309           | 167.7      | 167.6     |
| 4/13/2022 | 12   | 60              | 9.9           |        | 198             |        | 14              |        | 67             |        | 80      |        | 5               |        |             | 13     |                 | 310        |               | 167.7      |           |
| 4/13/2022 | 13   | 60              | 10.2          |        | 199             |        | 13              |        | 49             |        | 73      |        | 5               |        |             | 13     |                 | 309        |               | 168.6      |           |
| 4/13/2022 | 14   | 60              | 10.5          |        | 196             |        | 11              |        | 39             |        | 72      |        | 4               |        |             | 13     |                 | 309        |               | 168.1      |           |
| 4/13/2022 | 15   | 60              | 10.4          |        | 199             |        | 11              |        | 39             |        | 72      |        | 4               | 4      |             | 13     | 13              | 310        | 309           | 167.2      | 167.9     |
| 4/13/2022 | 16   | 60              | 10.2          |        | 200             |        | 13              |        | 34             |        | 61      |        | 4               |        |             | 13     |                 | 309        |               | 169.2      |           |
| 4/13/2022 | 17   | 60              | 10.7          |        | 192             |        | 19              |        | 46             |        | 59      |        | 3               |        |             | 13     |                 | 309        |               | 164.6      |           |
| 4/13/2022 | 18   | 60              | 10.2          |        | 198             |        | 15              |        | 46             |        | 68      |        | 3               |        |             | 15     |                 | 310        |               | 167.0      |           |
| 4/13/2022 | 19   | 60              | 10.3          |        | 197             |        | 20              |        | 53             |        | 62      |        | 3               | 3      |             | 13     |                 | 309        | 309           | 166.1      | 166.7     |
| 4/13/2022 | 20   | 60              | 10.3          |        | 201             |        | 22              |        | 59             |        | 62      |        | 3               |        |             | 13     |                 | 310        |               | 168.5      |           |
| 4/13/2022 | 21   | 60              | 10.3          |        | 198             |        | 20              |        | 57             |        | 64      |        | 4               |        |             | 13     |                 | 309        |               | 168.7      |           |
| 4/13/2022 | 22   | 60              | 10.2          |        | 198             |        | 21              |        | 56             |        | 63      |        | 4               |        |             | 13     |                 | 309        |               | 167.5      |           |
| 4/13/2022 | 23   | 60              | 10.1          |        | 195             |        | 19              |        | 52             |        | 64      |        | 4               | 4      |             | 13     | 13              | 309        | 309           | 166.7      | 167.9     |

|                                     |                                  |                                     |                                    |    |                                        |                                          |                                       |                                           |
|-------------------------------------|----------------------------------|-------------------------------------|------------------------------------|----|----------------------------------------|------------------------------------------|---------------------------------------|-------------------------------------------|
| Average:<br>Geometric Mean Average: | <b>198</b>                       | <b>14</b>                           | <b>71</b>                          | OR | see above                              | see above                                | see above                             | see above                                 |
| Limit:                              | <b>≤ 205</b><br>24-HR Block Avg. | <b>≤ 29</b><br>24-HR Geometric Mean | <b>≥ 75%</b><br>Removal Efficiency |    | <b>≤ 69</b> ppmc<br>4-HR Block Average | <b>≤ 12</b> lb/hr<br>8-HR. Block Average | <b>≤ 345</b> °F<br>4-HR Block Average | <b>≤ 173</b> klb/hr<br>4-HR Block Average |

**Status Flags**

- I - Invalid
- B - Bad
- C - Calibration
- M - Maintenance
- F - Offline
- P - Purge
- T - Out of Control
- E - Excluded
- ^ - Startup
- \* - Shutdown



# WHEELABRATOR NORTH ANDOVER A WIN-WASTE INNOVATIONS COMPANY COMPLIANCE SUMMARY REPORT



Date 4/13/22

Wheel Plant Wheelabrator North Andover  
Unit 2 Unit Unit 1  
Outlet Source Outlet

| Date      | Hour | On-Line Minutes | O2            |        | NOx             |        | SO2             |        |                |        |         | CO     |                 |        | Carbon Feed |        | FF Temp (deg F) |            | Steam KLbs/Hr |            |           |
|-----------|------|-----------------|---------------|--------|-----------------|--------|-----------------|--------|----------------|--------|---------|--------|-----------------|--------|-------------|--------|-----------------|------------|---------------|------------|-----------|
|           |      |                 | Out Vol % Dry | Status | Outlet ppm 7%O2 | Status | Outlet ppm 7%O2 | Status | Inlet ppm 7%O2 | Status | Removal | Status | Outlet ppm 7%O2 | Status | 4 Hr Block  | Status | Lbs/Hr Avg.     | 8 Hr Block | 1 Hr Avg.     | 4 Hr Block | 1 Hr Avg. |
| 4/13/2022 | 0    | 60              | 9.8           |        | 189             |        | 1               |        | 47             |        | 98      |        | 2               |        |             | 12     |                 | 310        |               | 167.3      |           |
| 4/13/2022 | 1    | 60              | 9.9           |        | 185             |        | 1               |        | 39             |        | 97      |        | 1               |        |             | 13     |                 | 310        |               | 167.2      |           |
| 4/13/2022 | 2    | 60              | 9.8           |        | 192             |        | 1               |        | 49             |        | 99      |        | 2               |        |             | 15     |                 | 310        |               | 168.0      |           |
| 4/13/2022 | 3    | 60              | 10.0          |        | 194             |        | 1               |        | 53             |        | 99      |        | 2               | 2      |             | 14     |                 | 310        | 310           | 167.2      | 167.4     |
| 4/13/2022 | 4    | 60              | 9.9           |        | 191             |        | 3               |        | 45             |        | 94      |        | 2               |        |             | 14     |                 | 310        |               | 168.5      |           |
| 4/13/2022 | 5    | 60              | 9.9           |        | 187             |        | 2               |        | 62             |        | 97      |        | 2               |        |             | 14     |                 | 310        |               | 167.8      |           |
| 4/13/2022 | 6    | 60              | 10.0          |        | 195             |        | 2               |        | 60             |        | 97      |        | 2               |        |             | 13     |                 | 310        |               | 167.3      |           |
| 4/13/2022 | 7    | 60              | 10.1          |        | 191             |        | 0               |        | 42             |        | 99      |        | 2               | 2      |             | 13     | 14              | 310        | 310           | 168.0      | 167.9     |
| 4/13/2022 | 8    | 60              | 10.4          |        | 190             |        | 2               |        | 66             |        | 97      |        | 2               |        |             | 13     |                 | 310        |               | 165.7      |           |
| 4/13/2022 | 9    | 60              | 10.4          |        | 196             |        | 2               |        | 81             |        | 97      |        | 2               |        |             | 14     |                 | 310        |               | 167.6      |           |
| 4/13/2022 | 10   | 60              | 9.8           |        | 187             |        | 4               |        | 86             |        | 95      |        | 2               |        |             | 14     |                 | 310        |               | 168.7      |           |
| 4/13/2022 | 11   | 60              | 10.0          |        | 188             |        | 2               |        | 67             |        | 98      |        | 1               | 2      |             | 13     |                 | 310        | 310           | 166.2      | 167.0     |
| 4/13/2022 | 12   | 60              | 9.7           |        | 189             |        | 1               |        | 86             |        | 98      |        | 2               |        |             | 13     |                 | 310        |               | 168.6      |           |
| 4/13/2022 | 13   | 60              | 9.8           |        | 199             |        | 1               |        | 67             |        | 99      |        | 2               |        |             | 13     |                 | 310        |               | 167.2      |           |
| 4/13/2022 | 14   | 60              | 10.0          |        | 187             |        | 3               |        | 68             |        | 96      |        | 1               |        |             | 14     |                 | 309        |               | 168.5      |           |
| 4/13/2022 | 15   | 60              | 9.9           |        | 189             |        | 1               |        | 65             |        | 98      |        | 1               | 1      |             | 13     | 13              | 310        | 310           | 167.6      | 168.0     |
| 4/13/2022 | 16   | 60              | 9.9           |        | 189             |        | 1               |        | 52             |        | 98      |        | 1               |        |             | 13     |                 | 310        |               | 168.6      |           |
| 4/13/2022 | 17   | 60              | 9.8           |        | 185             |        | 0               |        | 53             |        | 99      |        | 2               |        |             | 11     |                 | 310        |               | 166.0      |           |
| 4/13/2022 | 18   | 60              | 9.8           |        | 180             |        | 1               |        | 51             |        | 99      |        | 2               |        |             | 12     |                 | 310        |               | 168.2      |           |
| 4/13/2022 | 19   | 60              | 9.8           |        | 185             |        | 1               |        | 55             |        | 98      |        | 1               | 1      |             | 12     |                 | 310        | 310           | 167.3      | 167.5     |
| 4/13/2022 | 20   | 60              | 10.0          |        | 191             |        | 1               |        | 63             |        | 98      |        | 2               |        |             | 13     |                 | 310        |               | 166.4      |           |
| 4/13/2022 | 21   | 60              | 10.0          |        | 194             |        | 4               |        | 76             |        | 95      |        | 1               |        |             | 14     |                 | 310        |               | 166.9      |           |
| 4/13/2022 | 22   | 60              | 10.0          |        | 188             |        | 6               |        | 82             |        | 93      |        | 1               |        |             | 14     |                 | 310        |               | 168.1      |           |
| 4/13/2022 | 23   | 60              | 10.0          |        | 188             |        | 2               |        | 67             |        | 97      |        | 1               | 1      |             | 15     | 13              | 310        | 310           | 167.9      | 167.3     |

|                                     |                           |                              |           |                             |                                 |                                   |                                |                                    |
|-------------------------------------|---------------------------|------------------------------|-----------|-----------------------------|---------------------------------|-----------------------------------|--------------------------------|------------------------------------|
| Average:<br>Geometric Mean Average: | 190                       | 1                            | <b>OR</b> | 98                          | see above                       | see above                         | see above                      | see above                          |
| Limit:                              | ≤ 205<br>24-HR Block Avg. | ≤ 29<br>24-HR Geometric Mean |           | ≥ 75%<br>Removal Efficiency | ≤ 69 ppmc<br>4-HR Block Average | ≤ 12 lb/hr<br>8-HR. Block Average | ≤ 345 °F<br>4-HR Block Average | ≤ 173 klb/hr<br>4-HR Block Average |

**Status Flags**

- I - Invalid
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- ^ - Startup
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# WHEELABRATOR NORTH ANDOVER A WIN-WASTE INNOVATIONS COMPANY OPACITY REPORT



Date 13-Apr-2022

Plant Wheelabrator North Andover  
Unit Unit 2  
Source Outlet

Opacity is a measure of how much soot or smoke may be contained in stack emissions. The more smoke that is contained in the emissions the higher the level of opacity. Continuous opacity monitors located after all of the air pollution control equipment measure the opacity of the emissions from each boiler. Typically the human eye can not detect or see smoke that is less than 5% opacity. You won't see smoke from a modern trash-to-energy plant although in colder weather you will see water vapor condensation, similar to seeing your breath on a cold day. This is not considered opacity. We have a permit limit established by the Massachusetts Department of Environmental Protection of 10% opacity averaged every six (6) minutes.

Limit 10 %

| Time (hr) | 1-6 min | 7-12 min | 13-18 min | 19-24 min | 25-30 min | 31-36 min | 37-42 min | 43-48 min | 49-54 min | 55-60 min | Average |
|-----------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| 0         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 1         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 2         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 3         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 4         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 5         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 6         | 2       | IBC      | 6         | IBC       | 2         | 2         | 2         | 2         | 2         | 2         | 3       |
| 7         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 8         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 9         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 10        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 11        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 12        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 13        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 14        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 15        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 16        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 17        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 18        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 19        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 20        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 21        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 22        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 23        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |

**Status Flags**

I - Invalid                      C - Calibration                      F - Offline                      T - Out of Control                      ^ - Startup  
 B - Bad                            M - Maintenance                      P - Purge                            E - Excluded                            \* - Shutdown



# WHEELABRATOR NORTH ANDOVER A WIN-WASTE INNOVATIONS COMPANY OPACITY REPORT



Date 13-Apr-2022

Plant Wheelabrator North Andover  
Unit Unit 1  
Source Outlet

Opacity is a measure of how much soot or smoke may be contained in stack emissions. The more smoke that is contained in the emissions the higher the level of opacity. Continuous opacity monitors located after all of the air pollution control equipment measure the opacity of the emissions from each boiler. Typically the human eye can not detect or see smoke that is less than 5% opacity. You won't see smoke from a modern trash-to-energy plant although in colder weather you will see water vapor condensation, similar to seeing your breath on a cold day. This is not considered opacity. We have a permit limit established by the Massachusetts Department of Environmental Protection of 10% opacity averaged every six (6) minutes.

Limit 10 %

| Time (hr) | 1-6 min | 7-12 min | 13-18 min | 19-24 min | 25-30 min | 31-36 min | 37-42 min | 43-48 min | 49-54 min | 55-60 min | Average |
|-----------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| 0         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 1         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 2         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 3         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 4         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 5         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 6         | 2       | IC       | 6         | IC        | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 7         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 8         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 9         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 10        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 11        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 12        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 13        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 14        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 15        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 16        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 17        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 18        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 19        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 20        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 21        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 22        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 23        | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 2       |

**Status Flags**

I - Invalid                      C - Calibration                      F - Offline                      T - Out of Control                      ^ - Startup  
 B - Bad                            M - Maintenance                      P - Purge                      E - Excluded                      \* - Shutdown