



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



Date 2/11/22

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. |
| 2/11/2022 | 0    | 60              | 10.3          |        | 191             |        | 25              |        | 86             |        | 71      |        | 7               |        |             | 13     |                 | 309        |               | 161.3      |           |
| 2/11/2022 | 1    | 60              | 10.5          |        | 196             |        | 22              |        | 66             |        | 66      |        | 8               |        |             | 13     |                 | 309        |               | 154.7      |           |
| 2/11/2022 | 2    | 60              | 10.4          |        | 196             |        | 21              |        | 74             |        | 71      |        | 7               |        |             | 13     |                 | 309        |               | 153.8      |           |
| 2/11/2022 | 3    | 60              | 10.3          |        | 197             |        | 10              |        | 31             |        | 67      |        | 7               | 7      |             | 13     |                 | 309        | 309           | 156.7      | 156.6     |
| 2/11/2022 | 4    | 60              | 10.4          |        | 189             |        | 8               |        | 23             |        | 64      |        | 8               |        |             | 13     |                 | 309        |               | 152.8      |           |
| 2/11/2022 | 5    | 60              | 9.9           |        | 195             |        | 10              |        | 29             |        | 65      |        | 7               |        |             | 13     |                 | 310        |               | 156.0      |           |
| 2/11/2022 | 6    | 60              | 9.8           |        | 191             |        | 14              |        | 33             |        | 57      |        | 6               |        |             | 13     |                 | 310        |               | 165.6      |           |
| 2/11/2022 | 7    | 60              | 9.9           |        | 187             |        | 7               |        | 17             |        | 57      |        | 7               | 7      |             | 13     | 13              | 309        | 309           | 165.9      | 160.1     |
| 2/11/2022 | 8    | 60              | 10.3          |        | 199             |        | 27              |        | 65             |        | 58      |        | 7               |        |             | 13     |                 | 309        |               | 163.7      |           |
| 2/11/2022 | 9    | 60              | 9.8           |        | 196             |        | 20              |        | 75             |        | 73      |        | 10              |        |             | 13     |                 | 309        |               | 164.0      |           |
| 2/11/2022 | 10   | 60              | 9.6           |        | 196             |        | 16              |        | 70             |        | 77      |        | 6               |        |             | 13     |                 | 310        |               | 165.9      |           |
| 2/11/2022 | 11   | 60              | 9.7           |        | 195             |        | 21              |        | 68             |        | 69      |        | 7               | 7      |             | 13     |                 | 309        | 309           | 165.7      | 164.8     |
| 2/11/2022 | 12   | 60              | 9.8           |        | 195             |        | 7               |        | 38             |        | 82      |        | 5               |        |             | 13     |                 | 310        |               | 166.7      |           |
| 2/11/2022 | 13   | 60              | 9.5           |        | 196             |        | 10              |        | 78             |        | 87      |        | 6               |        |             | 13     |                 | 310        |               | 166.5      |           |
| 2/11/2022 | 14   | 60              | 9.6           |        | 190             |        | 2               |        | 35             |        | 93      |        | 5               |        |             | 13     |                 | 308        |               | 164.9      |           |
| 2/11/2022 | 15   | 60              | 9.7           |        | 191             |        | 5               |        | 40             |        | 88      |        | 6               | 6      |             | 13     | 13              | 310        | 309           | 164.6      | 165.7     |
| 2/11/2022 | 16   | 60              | 9.7           |        | 196             |        | 7               |        | 40             |        | 83      |        | 6               |        |             | 13     |                 | 309        |               | 166.0      |           |
| 2/11/2022 | 17   | 60              | 9.8           |        | 189             |        | 18              |        | 60             |        | 71      |        | 5               |        |             | 13     |                 | 310        |               | 167.5      |           |
| 2/11/2022 | 18   | 60              | 9.9           |        | 196             |        | 24              |        | 73             |        | 68      |        | 7               |        |             | 14     |                 | 309        |               | 169.1      |           |
| 2/11/2022 | 19   | 60              | 9.9           |        | 195             |        | 15              |        | 40             |        | 63      |        | 5               | 6      |             | 13     |                 | 309        | 309           | 168.2      | 167.7     |
| 2/11/2022 | 20   | 60              | 9.9           |        | 199             |        | 16              |        | 40             |        | 60      |        | 6               |        |             | 13     |                 | 309        |               | 164.4      |           |
| 2/11/2022 | 21   | 60              | 9.9           |        | 199             |        | 21              |        | 51             |        | 59      |        | 6               |        |             | 13     |                 | 309        |               | 164.8      |           |
| 2/11/2022 | 22   | 60              | 9.8           |        | 198             |        | 18              |        | 56             |        | 67      |        | 6               |        |             | 13     |                 | 310        |               | 166.6      |           |
| 2/11/2022 | 23   | 60              | 9.8           |        | 196             |        | 16              |        | 48             |        | 66      |        | 6               | 6      |             | 14     | 13              | 309        | 309           | 164.8      | 165.2     |

|                                     |                           |                              |           |                             |                                 |                                   |                                |                                    |
|-------------------------------------|---------------------------|------------------------------|-----------|-----------------------------|---------------------------------|-----------------------------------|--------------------------------|------------------------------------|
| Average:<br>Geometric Mean Average: | 195                       | 13                           | <b>OR</b> | 73                          | 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
- 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 2/11/22

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. |
| 2/11/2022 | 0    | 60              | 9.6           |        | 197             |        | 30              |        | 115            |        | 74      |        | 2               |        |             | 13     |                 | 303        |               | 165.1      |           |
| 2/11/2022 | 1    | 60              | 9.8           |        | 193             |        | 19              |        | 68             |        | 71      |        | 3               |        |             | 13     |                 | 305        |               | 159.8      |           |
| 2/11/2022 | 2    | 60              | 10.3          |        | 196             |        | 9               |        | 38             |        | 78      |        | 1               |        |             | 13     |                 | 305        |               | 156.1      |           |
| 2/11/2022 | 3    | 60              | 10.2          |        | 189             |        | 3               |        | 22             |        | 88      |        | 2               | 2      |             | 13     |                 | 305        | 304           | 155.3      | 159.0     |
| 2/11/2022 | 4    | 60              | 9.8           |        | 195             |        | 8               |        | 37             |        | 79      |        | 3               |        |             | 13     |                 | 305        |               | 161.1      |           |
| 2/11/2022 | 5    | 60              | 9.6           |        | 192             |        | 9               |        | 40             |        | 77      |        | 2               |        |             | 13     |                 | 305        |               | 164.9      |           |
| 2/11/2022 | 6    | 60              | 9.9           |        | 192             |        | 15              |        | 34             |        | 57      |        | 2               |        |             | 13     |                 | 305        |               | 165.3      |           |
| 2/11/2022 | 7    | 60              | 9.9           |        | 187             |        | 5               |        | 21             |        | 74      |        | 3               | 2      |             | 13     | 13              | 305        | 305           | 165.6      | 164.2     |
| 2/11/2022 | 8    | 60              | 9.8           |        | 191             |        | 15              |        | 39             |        | 61      |        | 2               |        |             | 13     |                 | 308        |               | 165.3      |           |
| 2/11/2022 | 9    | 60              | 9.8           |        | 194             |        | 21              |        | 78             |        | 73      |        | 2               |        |             | 13     |                 | 310        |               | 166.1      |           |
| 2/11/2022 | 10   | 60              | 10.0          |        | 195             |        | 17              |        | 57             |        | 70      |        | 4               |        |             | 13     |                 | 310        |               | 158.6      |           |
| 2/11/2022 | 11   | 60              | 9.3           |        | 194             |        | 7               |        | 61             |        | 89      |        | 3               | 3      |             | 13     |                 | 310        | 309           | 161.0      | 162.7     |
| 2/11/2022 | 12   | 60              | 9.3           |        | 195             |        | 2               |        | 32             |        | 93      |        | 1               |        |             | 13     |                 | 310        |               | 166.6      |           |
| 2/11/2022 | 13   | 60              | 9.1           |        | 192             |        | 3               |        | 44             |        | 94      |        | 1               |        |             | 13     |                 | 310        |               | 166.4      |           |
| 2/11/2022 | 14   | 60              | 9.2           |        | 194             |        | 2               |        | 39             |        | 94      |        | 1               |        |             | 13     |                 | 309        |               | 166.3      |           |
| 2/11/2022 | 15   | 60              | 9.3           |        | 193             |        | 5               |        | 52             |        | 90      |        | 1               | 1      |             | 13     | 13              | 310        | 310           | 166.3      | 166.4     |
| 2/11/2022 | 16   | 60              | 9.2           |        | 194             |        | 4               |        | 43             |        | 91      |        | 1               |        |             | 14     |                 | 310        |               | 167.0      |           |
| 2/11/2022 | 17   | 60              | 9.6           |        | 188             |        | 21              |        | 53             |        | 61      |        | 1               |        |             | 13     |                 | 310        |               | 167.4      |           |
| 2/11/2022 | 18   | 60              | 9.6           |        | 191             |        | 50              |        | 77             |        | 35      |        | 2               |        |             | 13     |                 | 310        |               | 165.8      |           |
| 2/11/2022 | 19   | 60              | 9.5           |        | 178             |        | 23              |        | 49             |        | 53      |        | 1               | 1      |             | 13     |                 | 310        | 310           | 166.1      | 166.6     |
| 2/11/2022 | 20   | 60              | 9.4           |        | 193             |        | 19              |        | 45             |        | 58      |        | 2               |        |             | 14     |                 | 310        |               | 166.4      |           |
| 2/11/2022 | 21   | 60              | 9.2           |        | 191             |        | 21              |        | 47             |        | 55      |        | 1               |        |             | 14     |                 | 310        |               | 166.8      |           |
| 2/11/2022 | 22   | 60              | 9.2           |        | 188             |        | 18              |        | 46             |        | 61      |        | 2               |        |             | 13     |                 | 310        |               | 167.0      |           |
| 2/11/2022 | 23   | 60              | 9.1           |        | 193             |        | 17              |        | 47             |        | 64      |        | 2               | 2      |             | 12     | 13              | 310        | 310           | 166.0      | 166.5     |

Average:  
Geometric Mean Average:

Limit:

|                              |                                    |
|------------------------------|------------------------------------|
| 192                          | 10                                 |
| ≤ 205<br>24-HR<br>Block Avg. | ≤ 29<br>24-HR<br>Geometric<br>Mean |

OR

|                                |
|--------------------------------|
| 77                             |
| ≥ 75%<br>Removal<br>Efficiency |

|                                       |
|---------------------------------------|
| see<br>above                          |
| ≤ 69 ppmc<br>4-HR<br>Block<br>Average |

|   |
|---|
| see<br>above                            |
| ≤ 12 lb/hr<br>8-HR.<br>Block<br>Average |

|                                      |
|--------------------------------------|
| see<br>above                         |
| ≤ 345 °F<br>4-HR<br>Block<br>Average |

|  |
|--|
| see<br>above                             |
| ≤ 173 klb/hr<br>4-HR<br>Block<br>Average |

**Status Flags**

- I - Invalid
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- ^ - Startup
- \* - Shutdown



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



Date 11-Feb-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         | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 1         | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 2         | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 3         | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 4         | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 5         | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 6         | 2       | IC       | 5         | IC        | 1         | 1         | 1         | 1         | 1         | 1         | 2       |
| 7         | 1       | 1        | 1         | 1         | 1         | 1         | 2         | 2         | 1         | 1         | 1       |
| 8         | 2       | 2        | 2         | 2         | 2         | 2         | 2         | 1         | 1         | 2         | 1       |
| 9         | 1       | 1        | 1         | 1         | 1         | 1         | 2         | 2         | 2         | 1         | 1       |
| 10        | 2       | 1        | 2         | 2         | 1         | 1         | 2         | 2         | 1         | IM        | 1       |
| 11        | 2       | IM       | 2         | IM        | 2         | 1         | 1         | 1         | 1         | 1         | 1       |
| 12        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 13        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 14        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 15        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 16        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 17        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 18        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 19        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 20        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 21        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 22        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |
| 23        | 1       | 1        | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1       |

**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 11-Feb-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         | 2       |
| 7         | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 8         | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 9         | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 10        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | IM        | 2       |
| 11        | 2       | IM       | 2         | IM        | 2         | 2         | 2         | 2         | 2         |           | 2       |
| 12        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 13        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 14        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 15        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 16        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 17        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 18        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 19        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 20        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 21        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 22        | 2       |          | 2         |           | 2         | 2         | 2         | 2         | 2         | 2         | 2       |
| 23        | 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