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

Wheelabrator Technologies

WIN Waste Innovations — Performance for the Planet

**Date** 6/29/23

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 Hr Block |
| 6/29/2023 | 0 | 60 | 9.4 | | 140 | | 0 | | 47 | | 100 | | 4 | | | | 13 | | 309 | | 166.4 | |
| 6/29/2023 | 1 | 60 | 9.4 | | 140 | | 0 | | 41 | | 100 | | 4 | | | | 13 | | 310 | | 167.3 | |
| 6/29/2023 | 2 | 60 | 9.3 | | 132 | | 0 | | 54 | | 100 | | 5 | | | | 13 | | 310 | | 165.5 | |
| 6/29/2023 | 3 | 60 | 9.2 | | 136 | | 0 | | 57 | | 100 | | 4 | | 4 | | 13 | | 309 | 309 | 165.2 | 166.1 |
| 6/29/2023 | 4 | 60 | 9.0 | | 133 | | 0 | | 42 | | 100 | | 5 | | | | 13 | | 310 | | 167.5 | |
| 6/29/2023 | 5 | 60 | 9.1 | | 130 | | 0 | | 71 | | 100 | | 5 | | | | 13 | | 310 | | 164.3 | |
| 6/29/2023 | 6 | 60 | 9.1 | | 122 | | 0 | | 60 | | 100 | | 7 | | | | 13 | | 309 | | 162.6 | |
| 6/29/2023 | 7 | 60 | 9.5 | | 132 | | 0 | | 63 | | 100 | | 6 | | 6 | | 13 | 13 | 308 | 309 | 166.0 | 165.1 |
| 6/29/2023 | 8 | 60 | 9.6 | | 137 | | 0 | | 67 | | 99 | | 5 | | | | 13 | | 310 | | 163.7 | |
| 6/29/2023 | 9 | 60 | 9.7 | | 134 | | 0 | | 38 | | 100 | | 4 | | | | 13 | | 310 | | 166.8 | |
| 6/29/2023 | 10 | 60 | 10.0 | | 139 | | 0 | | 29 | | 100 | | 5 | | | | 13 | | 310 | | 167.4 | |
| 6/29/2023 | 11 | 60 | 9.7 | | 140 | | 0 | | 47 | | 100 | | 6 | | 5 | | 12 | | 310 | 310 | 164.1 | 165.5 |
| 6/29/2023 | 12 | 60 | 9.5 | | 135 | | 0 | | 42 | | 100 | | 6 | | | | 13 | | 310 | | 166.3 | |
| 6/29/2023 | 13 | 60 | 9.5 | | 134 | | 0 | | 34 | | 100 | | 5 | | | | 13 | | 309 | | 165.7 | |
| 6/29/2023 | 14 | 60 | 9.5 | | 136 | | 0 | | 31 | | 100 | | 6 | | | | 13 | | 309 | | 166.2 | |
| 6/29/2023 | 15 | 60 | 9.3 | | 130 | | 0 | | 33 | | 100 | | 6 | | 6 | | 13 | 13 | 310 | 309 | 166.0 | 166.0 |
| 6/29/2023 | 16 | 60 | 9.5 | | 137 | | 0 | | 40 | | 100 | | 4 | | | | 13 | | 309 | | 164.9 | |
| 6/29/2023 | 17 | 60 | 9.8 | | 135 | | 0 | | 24 | | 100 | | 3 | | | | 13 | | 310 | | 165.2 | |
| 6/29/2023 | 18 | 60 | 9.9 | | 141 | | 0 | | 22 | | 100 | | 4 | | | | 13 | | 309 | | 165.3 | |
| 6/29/2023 | 19 | 60 | 9.8 | | 140 | | 0 | | 39 | | 100 | | 4 | | 4 | | 13 | | 310 | 309 | 166.9 | 165.6 |
| 6/29/2023 | 20 | 60 | 9.9 | | 140 | | 1 | | 44 | | 98 | | 4 | | | | 13 | | 309 | | 165.1 | |
| 6/29/2023 | 21 | 60 | 9.8 | | 138 | | 6 | | 64 | | 90 | | 4 | | | | 13 | | 310 | | 167.4 | |
| 6/29/2023 | 22 | 60 | 9.7 | | 138 | | 1 | | 44 | | 99 | | 5 | | | | 13 | | 309 | | 165.4 | |
| 6/29/2023 | 23 | 60 | 9.5 | | 133 | | 0 | | 35 | | 100 | | 6 | | 5 | | 13 | 13 | 309 | 309 | 165.6 | 165.9 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Average:** | 136 | | | | 100 | see above | see above | see above | see above | see above |
| **Geometric Mean Average:** | | 0 | | | | | | | | |
| **Limit:** | ≤ 150 24-HR Block Avg. | ≤ 29 24-HR Geometric Mean | **OR** | | ≥ 80% Removal Efficiency | ≤ 69 ppmc 4-HR Block Average | ≥ 12 lb/hr 8-HR. Block Average | ≤ 345 °F 4-HR Block Average | ≤ 173 klb/hr 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

Wheelabrator Technologies

WIN Waste Innovations — Performance for the Planet

**Date** 6/29/23

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 Hr Block |
| 6/29/2023 | 0 | 60 | 10.9 | | 139 | | 3 | | 46 | | 94 | | 3 | | | | 12 | | 310 | | 167.1 | |
| 6/29/2023 | 1 | 60 | 10.8 | | 140 | | 4 | | 48 | | 93 | | 3 | | | | 12 | | 310 | | 166.9 | |
| 6/29/2023 | 2 | 60 | 10.8 | | 141 | | 12 | | 67 | | 82 | | 3 | | | | 13 | | 310 | | 167.5 | |
| 6/29/2023 | 3 | 60 | 10.8 | | 142 | | 7 | | 54 | | 87 | | 3 | | 3 | | 13 | | 310 | 310 | 165.5 | 166.7 |
| 6/29/2023 | 4 | 60 | 10.6 | | 141 | | 17 | | 78 | | 79 | | 5 | | | | 12 | | 310 | | 167.4 | |
| 6/29/2023 | 5 | 60 | 10.8 | | 139 | | 5 | | 55 | | 92 | | 4 | | | | 12 | | 310 | | 165.6 | |
| 6/29/2023 | 6 | 60 | 10.8 | | 142 | | 13 | | 77 | | 84 | | 4 | | | | 13 | | 310 | | 166.4 | |
| 6/29/2023 | 7 | 60 | 11.0 | | 140 | | 15 | | 78 | | 81 | | 5 | | 5 | | 13 | 13 | 310 | 310 | 165.9 | 166.3 |
| 6/29/2023 | 8 | 60 | 10.8 | | 141 | | 15 | | 93 | | 84 | | 5 | | | | 13 | | 310 | | 164.9 | |
| 6/29/2023 | 9 | 60 | 11.0 | | 141 | | 5 | | 59 | | 92 | | 5 | | | | 13 | | 310 | | 166.2 | |
| 6/29/2023 | 10 | 60 | 11.4 | | 139 | | 14 | | 61 | | 78 | | 5 | | | | 13 | | 310 | | 168.1 | |
| 6/29/2023 | 11 | 60 | 11.5 | | 138 | | 14 | | 63 | | 78 | | 7 | | 5 | | 13 | | 310 | 310 | 166.0 | 166.3 |
| 6/29/2023 | 12 | 60 | 10.7 | | 139 | | 1 | | 54 | | 98 | | 6 | | | | 12 | | 310 | | 166.3 | |
| 6/29/2023 | 13 | 60 | 11.1 | | 145 | | 10 | | 78 | | 87 | | 5 | | | | 13 | | 310 | | 167.1 | |
| 6/29/2023 | 14 | 60 | 11.5 | | 138 | | 4 | | 54 | | 93 | | 6 | | | | 13 | | 310 | | 166.2 | |
| 6/29/2023 | 15 | 60 | 11.2 | | 140 | | 1 | | 39 | | 97 | | 5 | | 6 | | 13 | 13 | 310 | 310 | 166.4 | 166.5 |
| 6/29/2023 | 16 | 60 | 11.2 | | 140 | | 3 | | 47 | | 94 | | 5 | | | | 13 | | 310 | | 166.9 | |
| 6/29/2023 | 17 | 60 | 11.1 | | 141 | | 4 | | 44 | | 92 | | 5 | | | | 13 | | 310 | | 166.0 | |
| 6/29/2023 | 18 | 60 | 11.0 | | 140 | | 3 | | 39 | | 92 | | 5 | | | | 13 | | 310 | | 164.8 | |
| 6/29/2023 | 19 | 60 | 10.6 | | 138 | | 6 | | 43 | | 86 | | 4 | | 5 | | 13 | | 310 | 310 | 165.2 | 165.7 |
| 6/29/2023 | 20 | 60 | 10.8 | | 139 | | 14 | | 59 | | 77 | | 4 | | | | 13 | | 310 | | 167.1 | |
| 6/29/2023 | 21 | 60 | 10.7 | | 139 | | 16 | | 66 | | 76 | | 4 | | | | 13 | | 310 | | 166.5 | |
| 6/29/2023 | 22 | 60 | 10.8 | | 140 | | 13 | | 51 | | 74 | | 4 | | | | 13 | | 310 | | 166.3 | |
| 6/29/2023 | 23 | 60 | 10.6 | | 140 | | 12 | | 44 | | 73 | | 4 | | 4 | | 12 | 13 | 310 | 310 | 167.0 | 166.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Average:** | **140** | | | | see above | see above | see above | see above |
| **Geometric Mean Average:** | | **7** | | **88** | | | | |
| **Limit:** | **≤ 150** 24-HR Block Avg. | **≤ 29** 24-HR Geometric Mean | **OR** | **≥ 80%** Removal Efficiency | **≤ 69** ppmc 4-HR Block Average | **≥ 12** lb/hr 8-HR. Block Average | **≤ 345** °F 4-HR Block Average | **≤ 173** klb/hr 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
# OPACITY REPORT

**Date** 29-Jun-2023

**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 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 3 | IC | 4 | IC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*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
# OPACITY REPORT

**Date** 29-Jun-2023

**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 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 2 | IBC | 4 | IBC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Status Flags*

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