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

Wheelabrator Technologies

WIN Waste Innovations — Performance for the Planet

Date 2/9/23

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
2/9/2023	0	60	11.1		197		23		81		72		6				14		310		165.5	
2/9/2023	1	60	11.1		195		24		86		72		6				14		309		166.0	
2/9/2023	2	60	10.8		190		39		133		71		7				14		309		165.9	
2/9/2023	3	60	10.7		195		23		79		71		5		6		14		309	309	166.9	166.1
2/9/2023	4	60	10.8		197		21		70		69		5				14		310		166.1	
2/9/2023	5	60	10.7		192		21		67		68		6				14		310		166.3	
2/9/2023	6	60	10.7		188		7		22		66		6				14		309		167.2	
2/9/2023	7	60	11.1		181		3		8		61		6		6		14	14	309	309	165.8	166.4
2/9/2023	8	60	11.2		179		4		8		41		6				14		309		166.3	
2/9/2023	9	60	11.6		184		4		13		70		5				15		309		163.0	
2/9/2023	10	60	11.3		200		22		29		24		5				14		309		166.5	
2/9/2023	11	60	11.3		192		20		34		40		6		6		14		310	309	166.6	165.6
2/9/2023	12	60	11.4		191		18		52		66		6				13		310		166.1	
2/9/2023	13	60	11.6		204		14		30		52		5				14		308		166.8	
2/9/2023	14	60	10.6		186		5		21		77		5				14		310		167.1	
2/9/2023	15	60	10.5		192		4		14		71		7		6		13	14	309	309	165.8	166.5
2/9/2023	16	60	10.4		186		11		45		76		7				14		309		163.8	
2/9/2023	17	60	10.5		193		19		49		60		6				13		309		165.1	
2/9/2023	18	60	10.6		190		21		38		44		6				14		309		167.3	
2/9/2023	19	60	10.5		193		26		67		61		7		6		13		309	309	165.4	165.4
2/9/2023	20	60	10.4		192		30		100		70		6				13		310		166.3	
2/9/2023	21	60	10.4		193		31		100		69		6				14		309		167.1	
2/9/2023	22	60	10.3		188		24		71		66		6				14		309		166.2	
2/9/2023	23	60	10.3		192		29		89		68		6		6		12	13	310	309	166.8	166.6
Average:					**191**										see above		see above		see above	see above	see above	
Geometric Mean Average:							**15**				**65**											
Limit:					**≤ 205** 24-HR Block Avg.		**≤ 29** 24-HR Geometric Mean		**OR**		**≥ 75%** 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 2/9/23

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
2/9/2023	0	60	10.7		197		23		95		75		8				14		310		166.1	
2/9/2023	1	60	10.7		199		12		56		78		9				14		310		167.0	
2/9/2023	2	55	8.9		145		8		57		85		12				14		311		142.1	
2/9/2023	3	0	18.8	ICF	287	ICF	15	ICF	7	IBF	0	IBCF	976	ICF	10		14		277	310	0.0	158.4
2/9/2023	4	0	14.9	IBCF	130	IBCF	30	IBCF	7	IBF	0	IBCF	690	IBCF			15		300		0.0	
2/9/2023	5	0	19.0	IF	311	IF	53	IF	97	IBCF	45	IBCF	2458	IF			15		295		0.0	
2/9/2023	6	0	19.8	IF	460	IF	154	IF	42	IBF	0	IBF	4716	IF			14		288		0.0	
2/9/2023	7	0	20.5	IF	15	IF	5	IF	47	IBF	89	IBF	127	IF	1998	IBCF	12	14	248	283	0.0	0.0
2/9/2023	8	0	20.6	IF	4	IF	7	IF	64	IBF	89	IBF	40	IF			0		199		0.0	
2/9/2023	9	0	20.6	IF	3	IF	7	IF	66	IBF	90	IBF	14	IF			0		173		0.0	
2/9/2023	10	0	20.7	IF	1	IF	7	IF	65	IBF	90	IBF	5	IF			0		143		0.0	
2/9/2023	11	0	20.7	IF	1	IF	7	IF	65	IBF	89	IBF	4	IF	16	IF	0		124	160	0.0	0.0
2/9/2023	12	0	20.7	IF	1	IF	7	IF	58	IBF	88	IBF	2	IF			0		118		0.0	
2/9/2023	13	0	20.7	IF	1	IF	7	IF	53	IBF	87	IBF	1	IF			0		117		0.2	
2/9/2023	14	0	20.7	IF	1	IF	7	IF	58	IBF	88	IBF	0	IF			0		115		0.3	
2/9/2023	15	0	20.7	IF	1	IF	7	IF	58	IBF	88	IBF	0	IF	1	IF	0	0	113	116	0.1	0.1
2/9/2023	16	0	20.7	IF	1	IF	7	IF	55	IBF	88	IBF	0	IF			0		109		0.0	
2/9/2023	17	0	20.7	IF	1	IF	7	IF	81	IBF	92	IBF	0	IF			0		106		0.0	
2/9/2023	18	0	20.7	IF	1	IF	6	IF	89	IBF	93	IBF	0	IF			0		103		0.1	
2/9/2023	19	0	20.7	IF	1	IF	6	IF	87	IBF	93	IBF	0	IF	0	IF	0		100	104	0.0	0.0
2/9/2023	20	0	20.7	IF	1	IF	7	IF	87	IBF	92	IBF	0	IF			0		96		0.0	
2/9/2023	21	0	20.7	IF	1	IF	8	IF	98	IBF	92	IBF	0	IF			0		94		0.0	
2/9/2023	22	0	20.7	IF	1	IF	8	IF	103	IBF	92	IBF	0	IF			0		91		0.0	
2/9/2023	23	0	20.7	IF	0	IF	7	IF	140	IBF	95	IBF	0	IF	0	IF	0	0	90	93	0.0	0.0

Average:	180			see above	see above	see above
Geometric Mean Average:		13				
Limit:	≤ 205 24-HR Block Avg.	≤ 29 24-HR Geometric Mean	**OR** ≥ 75% 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 09-Feb-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	2		2		2	2	3	3	2	2	2	3	2
1	2		2		2	2	2	2	2	2	2	2	2
2	2		2		2	2	3	3	3	2	2	3	2
3	2		2		2	2	2	2	2	2	2	2	2
4	2		2		2	2	3	3	2	2	2	3	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	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	1	1	1	1	1	1	2
13	1		1		1	1	1	1	1	1	1	1	1
14	1		1		1	1	1	1	2	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		2	1	1	1	1	1	1	1	1
23	1		1		1	1	1	1	1	1	1	1	1

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 09-Feb-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	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		2		1		1	IF	1
3	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
4	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
5	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
6	2	BCF	23	BCF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	3
7	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
8	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
9	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
10	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
11	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
12	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
13	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
14	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
15	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
16	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
17	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
18	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
19	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
20	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
21	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1
22	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	1	IF	0	IF	0	IF	1	IF	1
23	0	IF	0	IF	0	IF	0	IF	0	IF	0	IF	0	IF	0	IF	0	IF	0	IF	0

Status Flags

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