Stericycle®

Protecting People. Reducing Risk.™

Q4 2019

Incineration Report

Stericycle
Protecting People. Reducing Risk.

Stericycle, ULC
95 Deerhurst Drive
Brampton, ON
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Tel.: (905) 789-6008
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January 30th, 2020

District Manager
Ministry of the Environment, Conservation and Parks
Halton-Peel District Office
300-4145 North Service Road
Burlington, ON
L7L 6A3

Dear District Manger,

Re: Stericycle, ULC.
Certificate of Approval for a Waste Disposal Site No. A680324

As required by Condition 52 of the above mentioned Certificate of Approval, please find attached the incinerator quarterly report for the fourth quarter of 2019.

This is the second quarterly incineration report under the new performance conditions. During October 2019 there were only 4 occurrences of the 4 hour CO alarm. In November 2019 the incinerator began experiencing air flow issues due to the plugging of the carbon bed. This low air flow created a situation whereby the proper amount of draft could not be generated which led to an increase in CO alarms. November saw 12 occurrences of the 4 hour CO alarm and 4 occurrences of the 12 hour CO alarm. The issues with draft continued in December 2019 which led to 11 occurrences of the 4 hour CO alarm. New carbon has been purchased and the carbon was replaced in January 2020 during a scheduled maintenance shut-down. Stericycle will continue to work with the incinerator operators to further reduce the number of CO alarms.

At start up in Q4 2019 there was 1 alarm related to the 24 hour NOx average. This alarm was caused by a mechanical issue with the Urea feed system on the SNCR system. Maintenance corrected all the mechanical issues. There were no other NOX alarms in Q4 of 2019.

FOURTH QUARTER 2019
INCINERATOR QUARTERLY REPORT - SUPPLEMENTAL INFORMATION

- The Emergency Bypass stack was used two times in Q4 of 2019. A summary of the emergency bypass events is included below. Follow-up reports to the MECP and copies of email correspondence are included with this report.

- Throughout the quarter, minor issues with either the waste feed or the proper operation of certain pieces of equipment caused alarm conditions. In all cases, the problems were fixed and normal operations resumed. Corrective actions included adjustments to the waste feed mix and rate and corrective maintenance on affected systems.

- Throughout the fourth quarter of 2019, the incinerator was run by trained Stericycle operators Emilio Perez, McLaren Henville, Shayne Lewis & John Amissiah.

- There were no complaints received regarding the operation of the incinerator during the fourth quarter of 2019.

- Stericycle Inc. operated the incinerator on the following days during the fourth quarter:

Start-up	Shut-Down
9/27/2019 @13:19	10/6/2019 @09:42
10/21/2019 @ 11:19	11/1/2019 @ 18:23
11/1/2019 @ 22:28	11/6/2019 @ 16:00
11/6/2019 @ 20:18	11/10/2019 @ 10:20
11/11/2019 @ 09:34	11/21/2019 @ 03:01
11/21/2019 @ 08:27	11/24/2019 @ 13:40
11/24/2019 @ 14:02	11/28/2019 @ 12:28
11/28/2019 @ 17:34	12/9/2019 @ 12:20
12/9/2019 @ 16:40	12/24/2019 @ 10:58
12/30/2019 @ 11:58	

During Q4 of 2019 routine maintenance was performed on the incinerator during the scheduled shut-downs along with the following additional repairs:

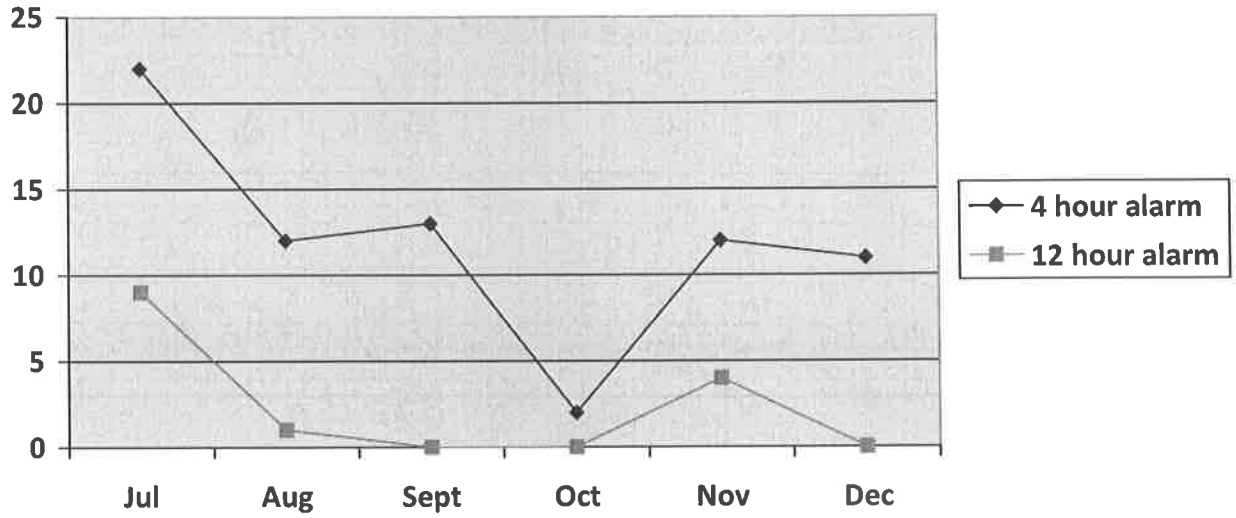
- Repair of the cooling tower
- Replacement of one atomizer

Q4 Emergency Bypass Event Summary

Date	Start Time	End Time	Duration	Emission Volume (m^3)	Reason	Corrective Action
11/7/2019	21:42	22:40	0:58	211.46	HMI (human/machine interface) panel lost power which in turn caused the cooling tower pumps to shut down. Stericycle maintenance put the incinerator into emergency bypass to prevent damage to the pollution control system due to lack of water from the cooling tower.	The electrical contractor was called in to repair the fault at the HMI panel. Once the repair was complete and the power restored to the panel, the cooling tower pumps restarted and the emergency bypass stack was closed.
12/9/2019	12:19	12:20	0:01	3.65	Local power failure that caused a "brown-out" followed by a full power failure caused the incinerators APC system to shut-down and the emergency bypass stack to open during the gap where the emergency generator was cycling up to power the facility.	The emergency generator came online, power to the APC was restored and the emergency bypass stack cap was closed. The incinerator was put into controlled shut-down until city power was restored to the facility at approximately 16:30. Once city power was restored and stable the incinerator was brought back into normal operation.

CO Alarm Chart Q4 2019

Month	4 Hour CO average alarms	12 Hour CO average alarms
July	22	9
August	12	1
September	13	0
October	2	0
November	12	4
December	11	0



Stericycle warrants that it has exercised best efforts to adhere to all of the applicable Terms & Conditions of its Waste Disposal Site Certificate of Approval including all inspection and reporting requirements through Q4 of 2019

Stericycle is very committed to the full compliance with all conditions of its Provisional Certificate of Approval, throughout the year, whenever a situation of possible non-compliance was identified; immediate actions were taken to ensure full compliance. Stericycle has mechanisms in place to ensure full compliance at all times. Employees are aware of their responsibilities and are trained appropriately.

Stericycle believes that the current monitoring program is sufficient and enables both Stericycle and the MECP to have a good understanding of the Site operations and to assess its compliance with the Certificate of Approval and all the relevant regulations.

However, Stericycle is very committed to looking for ways to improve its operations through better procedures, training, inspections and monitoring programs and will continue to do so.

I trust that this is the information required and that it meets with your approval. Should you have any questions or require additional information, please do not hesitate to contact me accordingly.

Regards,

Dan Kokol
ESH Specialist
Phone: 905-595-8532
Email: dkokol@stericycle.com

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November 12th, 2019

Christelle Broux Senior Environmental Officer
Ministry Of Environment, Conservation and Parks
Halton-Peel District Office
4145 North Service Road, Suite 300
Burlington, Ontario
L7L 6A3

Dear Christelle Broux,

RE: Stericycle Site Certificate of Approval No. A680324
Use of the Emergency Bypass Stack
Ref #: 7212-BD4LJB

On November 7th, 2019 at approximately 21:42 the emergency bypass stack was opened due to an electrical fault on the incinerators control panel.

As required by conditions 36 and 38(1) (b) & (2) of the above referenced ECA, the incinerator was brought into a controlled shutdown during this time. The emergency bypass stack was open for duration of fifty-eight (58) minutes. During this period no waste was injected into the incinerator and the upper chamber was maintained at 1000°C by natural gas only.

On November 7th, 2019 at approximately 21:45 a call was placed to the Spills Action Control center to report the use of the emergency bypass stack. At approximately 21:42 the HMI (human/machine interface) panel on the incinerator lost power due to an electrical fault. The loss of power to the HMI in turn caused the cooling tower pumps to shut down as well. The incinerator was placed into emergency bypass by Stericycle maintenance to prevent damage to the Air Pollution Control System due to over-heating from a lack of water from the cooling tower. An electrical contractor was called in to trouble shoot and repair the fault on the HMI. The electrical fault was repaired and an the power was restored to the HMI panel. The cooling tower pumps were restarted and the emergency bypass stack was closed.

During the bypass approximately 211.46m^3 of flue gases exited the emergency bypass stack.

If you require any additional information please do not hesitate to call me directly at (905) 595-8532.

Yours truly,

Dan Kokol

ESH Specialist
Stericycle ULC
905-595-8532
dkokol@stericycle.com

Kokol, Dan

From: Broux, Christelle (MECP) <Christelle.Broux@ontario.ca>
Sent: Tuesday, November 12, 2019 4:11 PM
To: Kokol, Dan
Subject: RE: Follow up - IR#4613-BHQ5DT

Thank you Dan, I have added the report to the file and noted that the electrical repairs have been completed.

I will wait to receive the compliance items re: the Wentworth site inspection later this week.

Regards,

Christelle Broux

Senior Environmental Officer (P.O. #1896)
Halton Peel District Office| Ministry of Environment, Conservation and Parks (MECP)
4145 North Service Rd, Suite 300 | Burlington, ON | L7L 6A3
christelle.broux@ontario.ca | **289-208-5057 ← PLEASE NOTE MY PHONE NUMBER HAS CHANGED**

Spills/After-Hours: 1-800-268-6060

From: Kokol, Dan <DKokol@STERICYCLE.com>
Sent: November-12-19 3:49 PM
To: Broux, Christelle (MECP) <Christelle.Broux@ontario.ca>
Subject: RE: Follow up - IR#4613-BHQ5DT

Hi Christelle,
Attached is the follow up report for the reported use of the emergency bypass stack on November 7th, 2019. The facility had not informed me that there was a use of the emergency bypass on November 7th.

RE: the outstanding compliance items from the Wentworth inspection. I will be sending you the requested documentation by the end of this week.

Dan Kokol
EHS Specialist
O: +1 905-595-8532 | M: +1 416-702-5470 | stericycle.ca | shredit.ca
95 Deerhurst Dr, Brampton, ON L6T 5R7

From: Broux, Christelle (MECP) [mailto:Christelle.Broux@ontario.ca]
Sent: Tuesday, November 12, 2019 11:43 AM
To: Kokol, Dan
Subject: Follow up - IR#4613-BHQ5DT

Hi Dan,

Please advise if a report is available re: the emergency shutdown reported to SAC last Thursday evening. Has the electrical issue at the Deerhurst site been resolved?

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December 10, 2019

Christelle Broux Senior Environmental Officer
Ministry Of Environment, Conservation and Parks
Halton-Peel District Office
4145 North Service Road, Suite 300
Burlington, Ontario
L7L 6A3

Dear Christelle Broux,

RE: Stericycle Site Certificate of Approval No. A680324
Use of the Emergency Bypass Stack
Ref #: 4581-BJPRJ3

On December 9th, 2019 at approximately 12:19 the emergency bypass stack was opened due to local power failure.

As required by conditions 36 and 38(1) (b) & (2) of the above referenced ECA, the incinerator was brought into a controlled shutdown during this time. The emergency bypass stack was open for duration of one (1) minute. During this period no waste was injected into the incinerator and the upper chamber was maintained at 1000°C by natural gas only.

On December 9th, 2019 at approximately 15:00 a call was placed to the Spills Action Control center to report the use of the emergency bypass stack. At approximately 12:19 a local power failure that caused a "brown-out" followed by a full power failure which caused the incinerators APC system to shut-down and the emergency bypass stack to open during the gap where the emergency generator was cycling up to power the facility. The emergency generator came online within a minute and power to the APC was restored and the emergency bypass stack cap was closed. The incinerator was put into controlled shut-down until city power was restored to the facility at approximately 16:30. Once city power was restored and stable the incinerator was brought back into normal operation.

During the bypass approximately 3.65m^3 of flue gases exited the emergency bypass stack.

If you require any additional information please do not hesitate to call me directly at (905) 595-8532.

Yours truly,

Dan Kokol

ESH Specialist
Stericycle ULC
905-595-8532
dkokol@stericycle.com

Kokol, Dan

From: Broux, Christelle (MECP) <Christelle.Broux@ontario.ca>
Sent: Tuesday, December 10, 2019 11:40 AM
To: Kokol, Dan
Subject: RE: Emergency Bypass Follow-up Report Ref# 4581-BJPRJ3

Thanks Dan, I have noted and filed the bypass report.

Regards,

Christelle Broux
Senior Environmental Officer (P.O. #1896)
Halton Peel District Office| Ministry of Environment, Conservation and Parks (MECP)
4145 North Service Rd, Suite 300 | Burlington, ON | L7L 6A3
christelle.broux@ontario.ca | **289-208-5057 ← PLEASE NOTE MY PHONE NUMBER HAS CHANGED**

Spills/After-Hours: 1-800-268-6060

From: Kokol, Dan <DKokol@STERICYCLE.com>
Sent: December-10-19 11:20 AM
To: Broux, Christelle (MECP) <Christelle.Broux@ontario.ca>
Subject: Emergency Bypass Follow-up Report Ref# 4581-BJPRJ3

Good morning Chrystelle,

Attached is the follow-up report for the reported use of the emergency bypass stack on December 9th, 2019 at the 95 Deerhurst Drive location. A power "brown-out" followed by a complete power outage cause a slight delay in the start-up of the emergency generator and cycle up to full power. The delay caused 1 minute bypass.

Respect the unexpected, think through your risks; safety is a choice you make
Dan Kokol
EHS Specialist
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95 Deerhurst Dr, Brampton, ON L6T 5R7

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October 2019 Incineration Averages

TheDate		OX6min	COmin	NOXmin	Prime Temp °C	Secondary Temp °C	SNCR	Demister Temp °C	Carbon Temp °C	Diff Temp °C	ID Fan Temp °C	QunchPH	CondPH	AtomPH	AtomA	AtomB	HEPADP	OpMode
10/1/2019	Average	12.08	1.26	12.88	1031.66	1026.12	7.71	40.38	51.41	11.03	46.99	9.25	8.64	8.09	39.04	41.00	1	NORMAL(On)
	Min	9.94	0.00	7.95	841.83	887.83	7.11	34.56	44.88	1.08	44.49	8.30	7.77	6.18	37.77	40.58	1	
	Max	18.51	628.45	121.00	1102.88	1076.33	8.20	45.17	59.16	16.38	49.64	10.00	13.80	10.43	41.78	41.34	1	
10/2/2019	Average	12.87	2.03	14.83	908.55	989.56	7.05	36.58	48.47	11.89	42.23	9.17	8.10	8.11	41.94	40.74	1	NORMAL(On)
	Min	7.93	0.00	7.23	690.55	858.99	6.12	30.07	44.50	2.54	39.69	8.63	7.08	6.61	41.42	40.50	1	
	Max	16.74	533.70	118.80	1105.73	1036.18	7.89	42.76	51.58	18.02	46.93	9.60	8.98	9.40	42.41	41.00	1	
10/3/2019	Average	11.63	2.23	11.93	1073.04	1032.73	6.16	31.08	48.44	17.36	40.75	9.45	8.56	8.54	42.01	40.41	1	NORMAL(On)
	Min	9.78	0.00	8.29	1019.70	1028.23	6.00	27.89	46.31	13.51	38.39	8.75	7.68	6.35	41.58	40.19	1	
	Max	13.98	359.22	19.05	1109.93	1072.73	6.59	37.24	50.80	18.55	45.32	9.90	9.00	9.72	42.38	40.74	1	
10/4/2019	Average	12.12	1.69	12.70	1062.68	1034.14	6.15	32.22	49.99	17.77	44.39	9.74	8.73	8.46	41.25	39.99	1.14	NORMAL(On)
	Min	9.49	0.00	8.62	940.93	1018.15	5.93	28.69	49.99	13.92	44.39	8.57	7.25	5.80	40.66	39.75	1.00	
	Max	18.51	628.45	121.00	1141.91	1087.14	8.20	45.17	59.16	21.30	49.64	10.00	13.80	10.80	42.41	41.34	2.00	
10/5/2019	Average	12.24	1.81	12.85	1103.85	1031.27	6.00	31.51	49.99	18.48	44.39	9.74	8.78	8.25	40.50	39.74	1.89	NORMAL(On)
	Min	10.53	0.00	8.25	1040.94	1019.50	6.00	28.82	49.99	13.51	44.39	9.57	8.25	6.65	40.05	39.55	1.00	
	Max	14.85	397.02	23.32	1137.39	1054.78	6.00	36.48	49.99	21.18	44.39	9.93	9.12	9.83	40.87	39.95	2.00	
10/6/2019	Average	17.75	0.54	20.82	546.43	626.91	9.81	41.98	42.37	0.39	44.39	11.10	10.22	7.50	16.51	17.08	1.02	NORMAL(ON)/ SHUT-DOWN-OFF
	Min	10.68	0.00	0.00	197.17	174.39	6.00	23.61	22.11	-12.16	44.39	8.83	8.47	6.20	0.10	0.00	0.00	
	Max	20.41	446.92	121.00	1133.96	1051.50	12.19	61.03	62.78	24.11	44.39	13.67	12.36	9.27	40.05	39.60	3.00	
10/7/2019	Average	20.25	0.00	0.00	117.39	104.99	8.62	20.72	49.99	29.27	44.39	13.27	9.88	6.60	0.05	0.00	0.00	OFF
	Min	20.07	0.00	0.00	71.91	67.22	7.99	20.00	49.99	26.41	44.39	12.73	9.40	6.60	0.00	0.00	0.00	
	Max	20.42	0.00	0.00	196.98	174.44	9.49	23.59	49.99	29.99	44.39	13.85	10.20	6.60	0.10	0.00	0.00	
10/8/2019	Average	20.26	0.00	0.00	52.73	51.10	7.51	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.10	0.00	0.00	40.37	42.22	6.69	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	71.87	67.83	7.99	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/9/2019	Average	20.25	0.00	0.00	37.85	40.04	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/10/2019	Average	20.25	0.00	0.00	37.84	40.03	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/11/2019	Average	20.25	0.00	0.00	37.82	40.02	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/12/2019	Average	20.25	0.00	0.00	37.80	40.00	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/13/2019	Average	20.25	0.00	0.00	37.79	39.99	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/14/2019	Average	20.25	0.00	0.00	37.77	39.98	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/15/2019	Average	20.25	0.00	0.00	37.75	39.97	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/16/2019	Average	20.25	0.00	0.00	37.74	39.95	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/17/2019	Average	20.25	0.00	0.00	37.72	39.94	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	35.31	37.78	6.70	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/18/2019	Average	20.25	0.00	0.00	37.80	40.00	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	22.78	24.44	6.50	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/19/2019	Average	20.25	0.00	0.00	37.76	39.96	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	22.78	24.44	6.50	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	

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October 2019 Incineration Averages

TheDate		OX6min	COmin	NOXmin	Prime Temp °C	Secondary Temp °C	SNCR	Demister Temp °C	Carbon Temp °C	Diff Temp °C	ID Fan Temp °C	QunchPH	CondPH	AtomPH	AtomA	AtomB	HEPADP	OpMode
10/20/2019	Average	20.25	0.00	0.00	37.71	39.92	6.73	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	OFF
	Min	20.09	0.00	0.00	22.78	24.44	6.50	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.40	0.00	0.00	40.37	42.78	6.78	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/21/2019	Average	20.00	0.00	100.07	494.32	862.94	5.93	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	Start-Up
	Min	20.00	0.00	96.80	456.67	744.22	5.80	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
	Max	20.00	0.00	103.40	522.93	890.28	6.14	20.00	49.99	29.99	44.39	12.90	10.20	6.60	0.00	0.00	0.00	
10/22/2019	Average	20.00	0.00	104.25	547.57	902.83	6.42	20.60	49.99	29.40	44.39	12.70	12.40	7.16	0.05	0.00	0.00	Start-Up
	Min	20.00	0.00	97.90	523.03	794.78	6.14	19.31	49.99	28.07	44.39	12.50	10.20	6.60	0.00	0.00	0.00	
	Max	20.00	0.00	113.30	559.93	923.33	6.62	21.92	49.99	30.69	44.39	12.90	14.59	7.70	0.10	0.00	0.00	
10/23/2019	Average	16.49	0.17	83.44	674.56	955.32	6.58	20.84	49.99	29.16	44.39	11.67	12.79	7.63	9.64	10.34	0.24	Start-Up/Normal (ON)
	Min	5.95	0.00	6.46	559.23	850.56	6.50	16.88	49.99	18.03	44.39	7.73	7.57	6.86	0.10	0.00	0.00	
	Max	20.00	60.50	114.40	1068.92	1047.11	6.70	31.97	49.99	33.12	44.39	12.70	14.50	10.63	38.61	41.68	1.00	
10/24/2019	Average	11.32	1.62	10.71	1070.10	1035.49	6.60	31.11	49.99	18.88	44.39	9.00	8.13	7.70	41.13	42.19	1.46	Normal(ON)
	Min	9.02	0.00	7.60	1016.63	1023.06	6.59	26.52	49.99	14.67	44.39	8.56	7.80	7.42	38.28	41.67	1.00	
	Max	14.07	391.29	17.12	1139.61	1106.06	6.61	35.33	49.99	23.48	44.39	9.42	8.35	7.82	42.85	42.51	2.00	
10/25/2019	Average	11.83	2.15	11.27	1067.34	1034.82	6.60	33.11	49.99	16.88	44.39	9.14	7.93	7.48	43.21	42.45	2.49	Normal(ON)
	Min	10.15	0.00	8.00	1000.91	1023.11	6.59	30.38	49.99	14.67	44.39	8.78	7.67	6.92	42.63	42.34	2.00	
	Max	14.10	505.34	17.15	1102.77	1088.94	6.61	35.33	49.99	19.61	44.39	9.45	8.15	7.62	43.63	42.61	3.00	
10/26/2019	Average	13.84	1.21	16.33	920.56	1011.04	6.60	31.74	49.99	18.25	44.39	9.32	8.28	7.75	42.38	42.27	3.19	Normal(ON)
	Min	8.94	0.00	7.52	562.97	913.89	6.50	30.05	49.99	15.57	44.39	8.50	7.72	6.95	41.83	41.97	1.00	
	Max	18.00	540.83	35.94	1116.19	1051.94	6.70	34.43	49.99	19.94	44.39	9.66	12.30	9.97	42.66	42.58	5.00	
10/27/2019	Average	12.76	0.24	13.16	1032.12	1023.47	6.60	32.89	49.99	17.10	44.39	9.16	8.12	7.53	42.07	42.09	1.00	Normal(ON)
	Min	9.25	0.00	7.89	686.69	949.22	6.59	30.91	49.99	15.12	44.39	8.30	7.87	7.25	41.68	41.98	1.00	
	Max	16.39	139.67	23.02	1139.52	1045.94	6.63	34.88	49.99	19.09	44.39	10.40	12.40	7.80	42.29	42.19	1.00	
10/28/2019	Average	12.19	0.86	11.90	1076.91	1034.58	6.60	33.72	49.99	16.28	44.39	9.26	8.00	7.57	42.00	42.09	1.23	Normal(ON)
	Min	10.61	0.00	7.68	1018.32	1022.72	6.50	30.72	49.99	11.87	44.39	8.23	7.56	7.18	41.70	41.89	1.00	
	Max	13.69	458.12	33.81	1127.10	1076.33	6.61	38.12	49.99	19.27	44.39	9.52	9.73	7.64	42.19	42.25	2.00	
10/29/2019	Average	12.14	0.59	11.96	1051.54	1033.14	6.61	33.50	49.99	16.49	44.39	9.26	8.19	7.61	41.90	41.81	2.26	Normal(ON)
	Min	10.04	0.00	7.98	997.04	1020.50	6.58	31.50	49.99	13.67	44.39	8.23	7.17	6.93	41.33	41.53	2.00	
	Max	13.69	213.84	19.06	1184.74	1065.89	6.64	36.32	49.99	18.49	44.39	9.60	8.51	7.74	42.12	41.99	3.00	
10/30/2019	Average	12.35	2.45	12.34	1100.51	1032.92	6.60	34.07	49.99	15.92	44.39	9.36	8.10	7.62	41.56	41.48	2.83	Normal(ON)
	Min	10.44	0.00	7.63	993.93	1015.72	6.59	32.53	49.99	14.19	44.39	9.05	7.48	7.21	41.01	41.03	2.00	
	Max	15.31	633.17	20.38	1168.41	1098.67	6.61	35.81	49.99	17.46	44.39	9.63	8.55	7.77	41.90	41.69	4.00	
10/31/2019	Average	12.03	3.66	11.96	1070.77	1032.66	6.60	33.62	49.99	16.37	44.39	9.21	8.17	7.80	41.79	42.01	2.91	Normal(ON)
	Min	9.72	0.00	7.90	983.30	1015.83	6.59	31.56	49.99	12.43	44.39	8.64	7.74	7.03	38.34	39.05	2.00	
	Max	16.77	675.38	26.00	1141.51	1083.17	6.61	37.57	49.99	18.44	44.39	9.49	8.68	9.19	44.50	44.35	4.00	

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October 2019 Incineration Feed Data

TheDate	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DailySum	Monthly total
10/1/2019	494.3	546.4	572	426.6	387	624.9	5	403.1	410.5	0	411.5	400.5	435	326.4	415	510.4	442.4	3	114.7	545.9	0	0	344.8	0	7819.4	
10/2/2019	0	0	0	0	0	0	0	0	0	0	456.5	403.5	419.8	0	408.2	544.1	533.6	534.4	588.3	594.7	567.1	550.2	0	384.3	5984.7	
10/3/2019	621.8	552	471.9	258.5	634.5	425.6	0	401.5	424	410.5	414.1	409.8	412	338	71	523.9	533.1	618.1	112.7	636.4	576.6	522	563.8	0	9931.8	
10/4/2019	576.1	577.2	442	508	502.9	520.1	0	410.5	417.8	417.5	420.5	420.5	410	435	93	566	587.5	586	557	559.5	439	359.5	154.4	0	10000	
10/5/2019	498.4	464.2	461.8	460.7	455	417.7	195	552.8	570.2	506	520.3	569.2	443.8	512.8	435.3	330.4	335.7	403.8	121	0	446	451.5	448.5	330.3	9930.4	
10/6/2019	447	421.9	196.6	20.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1086.2	
10/7/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/8/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/9/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/10/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/11/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/12/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/13/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/14/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	116,842
10/15/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/16/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/17/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/18/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/21/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/22/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/23/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	253.8	555.5	592.2	661.4	457	223	2742.9	
10/24/2019	435	153.4	665.7	631.8	482.2	284	521.9	418	429	1.1	419.5	422	530.8	417.5	0	598.1	524.5	561.5	596.7	524.1	528.5	664.5	0	0	9809.8	
10/25/2019	300	561.9	407.3	575.1	312	300.9	0	402.5	376	442.5	431.5	426	423	420	62.5	523.2	523.2	593.3	599.8	531.8	452.8	470.3	243	0	9378.6	
10/26/2019	504.5	446	446	532	431	426	0	71	0	0	0	463.5	275	433.5	574	212.5	0	0	0	0	0	0	427	447	5689	
10/27/2019	487.5	427.7	0	426.5	479.8	0	0	196.8	527.5	652.3	0	0	0	603.7	430	401.6	263.6	253.3	0	0	354.8	0	459.1	448.9	6413.1	
10/28/2019	0	565.8	616.8	465.6	624.1	286.5	27.5	402.5	418.4	423	438	414	412	474	73.5	525.2	586.3	592.6	659.5	542	433.3	296	203	0	9479.6	
10/29/2019	0	597.7	406.7	669.4	631.6	196.5	0	405.3	424.3	424.4	425	483.8	417.5	429.5	0	541.9	569.3	552.2	490.8	604.7	602.7	434.1	164.5	0	9471.9	
10/30/2019	642.5	558.5	444.5	358	421	354	0	416.8	410.5	477	0.1	281	256	428	178.5	592.6	584.3	580.5	548.7	587.5	524.5	606.2	308	0	9558.7	
10/31/2019	516	414.5	670	388	353.2	275	468.5	407.1	0	296	410.5	409	418.5	404.5	94	587.2	601.5	528.7	95.5	626	577.4	545.7	459.2	0	9546	

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October 2019 CEM Calibration Data

TheDate	COSpanRes	CO Calgas	COSpan%Drift	NOxSpanRes	NOX Calgas	NOxSpan%drift	O2SpanRes	O2 Calgas	O2SpanDrift	COZeroRes	COZero%Drift	NOxZeroRes	NOxZero%Drift	O2ZeroRes	O2 Zerogas	O2ZeroDrift	Comment
10/23/2019 20:10	0	90.4	0	10	750	74	0	8.08	0	0	0	0	0	0	0	0	

Carbon Monoxide > 8ppm 4 hour alarm

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Carbon Monoxide > 8ppm 4 hour alarm

Date	Start Time	Stop Time	Duration	Op. Mode	Stack CO @ 11% O2	Stack CO as mg/m^3	Explanation	Actions Taken
10/1/2019	17:00	21:00	4:00	Normal	8.32	9.6	High CO levels were caused by low upper chamber temperatures.	No waste was fed until the upper chamber temperature and CO levels returned to the normal operating range.
10/31/2019	5:00	9:00	4:00	Normal	11.7	13.5	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.

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Oxides of Nitrogen > 98ppm 24 hr average

	Start	Stop		Op.	Stack NOx	Stack NOx		Actions
Date	Time	Time	Duration	Mode	@ 11% O2	as mg/m^3	Explanation	Taken
10/23/2019	0:00	21:00	21:00	Normal	106.6	191.9	High NOx levels were caused by a mechanical failure of the urea pump.	Maintenance replaced the pump.

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Secondary Chamber Temperature < 1000°C

Date	Start Time	Stop Time	Duration	Op. Mode	Temp. °C	Explanation	Actions Taken
10/1/2019	20:00	20:30	0:30	Normal	997	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
10/1/2019	23:05	0:00	0:55	Normal	966	Low upper chamber temperaure was caused by an intermittent burner failure.	3rd party was called in to repair the burner. No waste was fed at this time.
10/2/2019	0:00	0:52	0:52	Normal	951	Low upper chamber temperaure was caused by an intermittent burner failure.	3rd party was called in to repair the burner. No waste was fed at this time.
10/2/2019	1:11	1:59	0:48	Normal	696	Low upper chamber temperaure was caused by an intermittent burner failure.	3rd party was called in to repair the burner. No waste was fed at this time.
10/2/2019	2:24	10:07	7:43	Normal	926	Low upper chamber temperaure was caused by an intermittent burner failure.	3rd party was called in to repair the burner. No waste was fed at this time.
10/2/2019	12:39	13:15	0:36	Normal	988	Low upper chamber temperaure was caused by an intermittent burner failure.	3rd party was called in to repair the burner. No waste was fed at this time.
10/6/2019	5:19	7:27	2:08	Normal	-18	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.

10/6/2019	8:26	13:37	5:11	Normal	738	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	No waste was fed. The incinerator was brought to a controlled shut-down.
10/26/2019	8:08	10:43	2:35	Normal	949	Low upper chamber temperatures were caused by intermittent burner failure.	Maintenance reset the upper chamber burner relay. No waste was fed during this period.
10/26/2019	17:34	20:38	3:04	Normal	973	Low upper chamber temperatures were caused by intermittent burner failure.	Maintenance reset the upper chamber burner relay. No waste was fed during this period.
10/27/2019	11:34	13:13	1:39	Normal	975	Low upper chamber temperatures were caused by intermittent burner failure.	Maintenance reset the upper chamber burner relay. No waste was fed during this period.

Atomizer pH out of Range (<6.4pH / > 10.4pH)

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Atomizer pH out of Range (<6.4pH / > 10.4pH)

Date	Start	Stop	Duration	Op.	Atomizer	Explanation	Action
10/1/2019	6:26	7:52	1:26	Normal	6.3	Waste fed into the incinerator caused a drop in the pH value.	Automated pH monitor corrected the pH in the atmoizer tanks.
10/6/2019	4:29	6:11	1:42	Normal	6.3	Waste fed into the incinerator caused a drop in the pH value.	Automated pH monitor corrected the pH in the atmoizer tanks.

Condenser pH out of range (<6.4pH / >10.4pH)

Condenser pH out of range (<6.4pH / >10.4pH)

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Date	Start Time	Stop Time	Duration	Op. Mode	Condenser pH	Explanation	Action Taken
10/6/2019	11:55	13:41	1:46	Shut-down	12.2	High pH caused by caustic feed pumps shutting down during the shut-down process.	Incinerator was going into shut-down, no waste fed during this period.

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Atomizer Amps < 36

Date	Start Time	Stop Time	Duration	Op. Mode	Atom. A amps	Atom. B amps	Explanation	Action Taken
6-Oct-19	1:27:00	9:26:00	7:59:00	Normal	25.3	27.3	Low atomizer amperage was caused by a mechanical failure in the gear box.	The incinerator was brought to a controlled shut-down.
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					

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Carbon Bed Temperature <57C

Date	Start Time	Stop Time	Duration	Op. Mode	Carbon bed inlet °C	Explanation	Actions Taken
10/6/2019	1:18	9:38	8:20	Normal	60.5	High temperature due to mechanical issues with the APC.	The incinerator was brought to a controlled shut-down.

Differential from Demister < 10 C

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Differential from Demister < 10°C

Date	Start Time	Stop Time	Duration	Op. Mode	Differential Temp Outlet °C	Explanation	Actions Taken
10/1/2019	19:35	22:25	2:50	Normal	6.7	Low differential temperature was caused by a lack of reheat steam in the carbon bed.	Maintenance corrected the re-heat steam feed to the carbon bed.
10/6/2019	3:04	9:37	6:33	Normal	1.3	Low differential temperature was caused by a high demister temperatures.	The incinerator was brought to a controlled shut-down.

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HEPA Filter Bed D.P. > 4" WC

Date	Start Time	Stop Time	Duration	Op. Mode	Explanation	Actions Taken
10/26/19	6:21:00	10:04:00	3:43:00	Normal	High Differential Pressure due to the carbon bed plugging up.	Maintenance rinsed the carbon to lower the differential pressure.
10/26/19	17:43:00	20:13:00	2:30:00	Normal	High Differential Pressure due to the carbon bed plugging up.	Maintenance rinsed the carbon to lower the differential pressure.

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November 2019 Incineration Averages

TheDate		OX6min	COmin	NOXmin	Prime Temp °C	Sec Temp °C	SNCR	Dem Temp °C	Carb Temp °C	DiffTemp	ID Fan Temp °C	QunchPH	CondPH	AtomPH	AtomA	AtomB	HEPADP	Operating Mode
11/1/2019	average	13.19	2.16	19.47	1092.61	1020.78	6.60	34.54	50.52	15.98	38.59	9.32	8.19	7.67	42.20	42.57	1.84	Normal(ON)/Shut-down/Off/Start-Up
	min	10.27	0.00	0.00	738.95	818.70	6.58	28.64	43.59	7.62	25.61	8.67	7.23	7.28	20.84	21.07	1.00	
	max	20.20	596.20	114.40	1173.99	1069.50	6.67	36.87	51.30	20.37	40.83	9.95	9.04	8.24	43.38	43.40	5.00	
11/2/2019	average	17.40	6.56	75.34	758.61	916.17	6.32	25.89	30.49	4.60	20.64	11.28	9.93	7.25	13.88	13.43	0.28	Start-up/Normal(ON)
	min	9.22	0.00	6.98	627.26	831.91	6.00	18.26	18.05	-1.78	7.01	6.07	6.57	6.94	0.10	0.00	0.00	
	max	20.00	487.30	117.70	1121.61	1035.46	6.64	38.09	51.78	17.02	38.07	12.73	11.17	8.37	43.03	41.67	1.00	
11/3/2019	average	13.43	3.43	14.52	1033.89	1022.30	6.60	36.79	51.22	14.43	41.51	9.29	8.16	7.74	42.36	41.21	1.53	Normal(ON)
	min	10.19	0.00	6.52	791.59	977.79	6.55	33.46	50.06	12.94	37.43	8.93	7.10	6.97	41.79	40.84	1.00	
	max	17.03	638.48	45.32	1127.09	1065.78	6.70	38.41	52.00	18.33	43.26	10.87	9.83	8.37	42.79	41.47	2.00	
11/4/2019	average	12.99	1.64	13.53	1077.13	1028.25	6.60	35.48	51.16	15.68	42.85	9.34	8.18	7.72	42.60	42.60	2.68	Normal(ON)
	min	10.20	0.00	7.77	936.93	995.86	6.60	33.84	48.52	13.52	42.25	8.80	7.37	7.16	41.60	40.82	2.00	
	max	15.74	419.93	22.62	1134.43	1076.68	6.62	37.09	51.47	17.21	43.27	9.72	8.42	7.91	44.05	44.65	4.00	
11/5/2019	average	13.12	2.13	14.33	985.08	1021.14	6.60	33.86	50.88	17.01	39.85	9.27	8.10	7.78	42.34	43.17	2.99	Normal(ON)
	min	9.11	0.00	7.05	711.79	957.62	6.60	32.09	49.34	15.22	36.64	8.70	6.73	7.16	41.26	42.71	2.00	
	max	17.63	684.20	37.35	1150.79	1053.82	6.70	35.42	51.29	18.08	42.95	10.73	9.57	7.94	43.46	43.45	4.00	
11/6/2019	average	14.30	4.39	29.06	961.01	1010.24	6.61	33.78	49.14	15.36	37.02	9.23	8.33	7.70	38.64	38.70	2.85	Normal(ON)/Shut-down/Off/Start-up
	min	9.55	0.00	0.00	680.98	670.46	6.56	29.54	29.36	-2.15	18.40	8.34	7.44	7.10	0.10	0.00	0.00	
	max	20.36	911.56	115.50	1131.86	1087.58	6.70	36.47	51.52	18.38	42.07	9.59	12.05	7.91	42.97	42.81	4.00	
11/7/2019	average	17.61	33.84	77.36	731.52	928.66	6.64	30.02	32.97	2.95	23.36	8.51	9.80	7.26	11.75	11.51	0.13	Start-up
	min	5.85	0.00	0.00	605.02	859.92	5.80	14.02	13.55	-1.83	11.59	7.37	6.94	6.63	0.04	0.00	0.00	
	max	20.00	4765.20	124.30	1162.35	1039.07	11.72	72.93	76.64	16.66	64.52	12.67	12.30	8.30	39.70	41.59	1.00	
11/8/2019	average	13.81	5.55	16.37	854.12	1011.24	6.64	34.94	50.91	15.97	36.10	8.55	7.71	7.76	42.67	43.09	0.18	Start-up/Normal(ON)
	min	5.99	0.00	6.47	679.51	847.67	6.16	29.34	48.15	6.25	32.04	7.24	6.39	7.21	26.11	26.51	0.00	
	max	20.00	1089.00	113.30	1110.29	1061.88	9.29	48.70	54.95	21.11	39.09	12.27	9.53	9.70	44.25	44.63	1.00	
11/9/2019	average	12.94	4.92	14.45	954.53	1032.22	6.60	30.37	49.21	18.84	37.46	8.62	7.82	7.72	40.90	42.42	0.00	Normal(ON)
	min	5.79	0.00	6.19	730.90	1022.41	6.50	28.60	47.83	17.66	35.44	6.30	7.03	6.90	35.84	41.98	0.00	
	max	16.62	641.56	33.99	1101.69	1088.86	6.80	32.66	52.22	22.78	39.37	9.47	9.30	8.35	45.31	42.92	0.00	
11/10/2019	average	16.91	0.18	10.01	594.69	753.68	6.66	29.33	41.58	12.25	36.21	8.45	8.10	7.75	11.19	29.25	0.00	Normal(ON)/Shut-down/Off
	min	7.91	0.00	0.00	234.00	206.26	6.59	11.17	14.24	1.30	23.62	7.75	7.19	7.13	0.09	0.00	0.00	
	max	20.41	49.24	26.23	884.39	1047.86	6.80	40.35	51.73	18.84	42.22	9.43	9.89	8.11	40.05	44.01	0.00	
11/11/2019	average	19.57	2.32	59.61	374.80	561.16	6.55	12.81	15.09	2.28	16.83	7.62	8.69	7.06	1.67	1.47	0.00	Off/Start-up
	min	14.05	0.00	0.00	126.97	111.24	5.83	10.96	12.90	0.20	0.92	7.36	7.39	5.96	0.00	0.00	0.00	
	max	20.40	231.00	124.30	634.27	976.08	6.80	29.38	39.55	10.17	23.60	7.75	9.19	8.41	29.59	28.90	0.00	
11/12/2019	average	13.16	2.20	14.55	904.77	1026.78	6.59	35.81	50.98	15.17	38.77	8.70	7.60	7.82	41.80	42.22	0.22	Start-up/Normal(ON)
	min	8.18	0.00	7.00	634.76	976.53	6.06	29.47	39.73	9.72	23.36	6.90	6.30	7.13	29.81	29.13	0.00	
	max	15.98	287.91	23.85	1119.27	1041.83	6.73	41.68	53.89	19.44	42.66	9.63	8.59	9.34	43.34	43.55	1.00	
11/13/2019	average	13.50	1.79	15.22	1085.93	1029.30	6.60	38.87	50.54	11.67	39.45	8.97	7.43	7.78	42.05	42.55	1.00	Normal(ON)
	min	11.58	0.00	9.07	884.94	1011.67	6.50	35.56	37.22	1.11	36.67	6.90	6.10	7.49	39.21	41.56	1.00	
	max	17.78	109.54	122.10	1168.67	1061.99	6.62	41.29	54.63	17.96	41.05	10.97	9.33	8.49	44.20	43.68	1.00	
11/14/2019	average	13.29	2.29	13.96	1064.66	1028.15	6.60	37.74	53.32	15.58	40.45	9.04	7.32	6.92	43.50	44.93	1.00	Normal(ON)
	min	11.34	0.00	7.54	893.61	996.96	6.60	35.32	49.62	10.16	39.02	8.77	7.06	4.00	43.07	43.68	1.00	
	max	16.08	373.56	24.81	1124.06	1049.31	6.60	39.68	55.72	19.17	43.26	9.35	7.57	7.63	44.11	45.54	1.00	
11/15/2019	average	13.64	4.47	15.04	1050.82	1024.19	6.60	36.80	54.87	18.07	42.40	8.98	7.38	6.78	43.47	44.75	1.00	Normal(ON)
	min	11.78	0.00	7.73	877.48	947.90	6.55	34.54	53.56	13.19	40.97	8.50	6.83	6.62	42.95	43.27	1.00	
	max	17.56	491.36	34.36	1144.26	1040.07	6.62	41.45	55.63	20.59	44.88	10.40	9.70	6.94	43.80	45.88	1.00	
11/16/2019	average	14.36	4.04	17.22	916.85	1011.46	6.60	39.37	52.94	13.57	41.75	9.05	7.48	6.84	43.61	43.45	1.00	Normal(ON)
	min	11.06	0.00	8.25	725.01	943.03	6.59	36.95	50.82	10.48	40.47	8.71	6.85	6.65	43.32	43.30	1.00	
	max	17.93	220.59	66.87	1062.42	1034.68	6.60	41.19	54.47	16.51	42.70	9.56	8.14	6.95	43.88	43.55	1.00	
11/17/2019	average	14.19	5.17	16.20	976.23	1013.80	6.60	39.64	52.64	12.99	41.39	8.85	7.30	6.68	44.15	43.57	1.00	Normal(ON)
	min	9.27	0.00	8.09	674.62	956.24	6.40	34.94	50.84	10.00	38.26	6.40	4.00	6.45	43.42	43.34	1.00	
	max	16.77	264.34	25.05	1176.17	1043.89	6.80	44.16	54.91	16.08	44.78	9.47	11.73	8.83	45.30	43.93	1.00	
11/18/2019	average	13.40	4.60	14.04	1020.03	1026.50	6.60	38.14	51.02	12.87	40.69	8.40	7.50	6.61	42.35	42.36	1.00	Normal(ON)
	min	11.20	0.00	8.09	751.86	994.61	6.59	34.53	48.07	9.64	37.79	6.67	6.65	6.36	39.74	41.69	1.00	
	max	16.05	311.97	23.38	1145.43	1053.40	6.70	42.44	54.55	15.75	44.12	9.16	12.20	6.89	45.06	43.50	1.00	

Stericycle®

November 2019 Incineration Averages

TheDate		OX6min	COmin	NOXmin	Prime Temp °C	Sec Temp °C	SNCR	Dem Temp °C	Carb Temp °C	DiffTemp	ID Fan Temp °C	QunchPH	CondPH	AtomPH	AtomA	AtomB	HEPADP	Operating Mode
11/19/2019	average	13.33	0.98	13.65	1013.51	1033.73	6.60	40.66	53.62	12.96	42.87	8.85	8.44	6.66	42.51	42.04	1.00	Normal(ON)
	min	10.21	0.00	7.86	853.38	1017.09	6.60	34.19	51.52	11.17	37.71	7.98	7.92	6.56	42.28	41.81	1.00	
	max	16.10	406.40	37.44	1115.36	1140.30	6.61	43.25	54.81	17.47	45.39	9.26	8.71	6.76	42.81	42.19	1.00	
11/20/2019	average	13.62	2.55	14.40	1073.87	1034.67	6.61	41.14	53.09	11.95	43.50	8.62	8.55	6.69	42.50	41.85	1.21	Normal(ON)
	min	9.52	0.00	7.55	983.67	1011.62	6.55	37.99	50.52	8.26	41.04	7.10	7.07	6.53	41.97	41.43	1.00	
	max	17.00	403.10	80.78	1229.92	1209.92	6.61	43.23	54.97	13.78	45.11	12.10	8.92	6.79	43.07	42.05	2.00	
11/21/2019	average	15.00	0.71	34.16	962.43	978.64	6.57	42.81	46.23	3.42	34.52	8.51	8.86	6.95	32.80	32.22	1.08	Normal(ON)/Shut-down/Off/Start-up/Normal(ON)
	min	9.50	0.00	0.00	677.56	539.27	6.00	34.93	19.68	-28.73	8.49	7.73	6.93	6.23	0.10	0.00	0.00	
	max	20.37	33.00	119.90	1114.92	1073.54	6.68	57.89	52.16	16.58	44.48	9.25	10.50	8.11	47.49	42.24	2.00	
11/22/2019	average	13.55	2.22	14.07	1079.92	1026.90	6.60	40.82	52.08	11.26	43.47	8.86	8.61	6.75	43.50	42.32	1.85	Normal(ON)
	min	10.85	0.00	7.84	990.08	1008.13	6.59	37.16	50.32	9.18	39.94	7.43	7.00	6.48	35.93	40.52	1.00	
	max	17.15	268.00	49.50	1170.48	1053.22	6.64	43.45	55.59	14.34	46.11	9.60	9.20	7.39	50.61	44.15	2.00	
11/23/2019	average	13.67	7.50	14.47	1090.10	1018.22	6.60	40.27	54.10	13.83	44.16	8.84	8.46	6.70	43.03	43.65	1.96	Normal(ON)
	min	5.88	0.00	6.08	832.85	898.04	6.50	27.78	51.74	11.47	36.56	6.50	7.10	6.40	42.75	43.10	1.00	
	max	16.68	619.96	24.52	1165.37	1094.76	6.70	43.33	55.62	24.44	47.47	10.60	9.77	7.03	43.93	44.63	3.00	
11/24/2019	average	14.96	60.70	28.00	1025.04	875.36	6.60	33.58	51.44	17.87	41.06	8.15	8.17	6.68	42.99	44.07	1.66	Normal(ON)/Shut-down/Start-up/Normal(ON)
	min	0.00	0.00	6.49	792.03	559.66	6.50	26.62	48.47	11.82	37.05	6.20	7.10	6.07	42.23	43.08	1.00	
	max	20.00	1587.98	118.80	1215.54	1174.86	6.80	42.35	54.74	23.89	46.11	12.10	12.27	7.32	43.60	44.24	3.00	
11/25/2019	average	13.39	3.41	13.91	1053.20	1031.07	6.60	37.20	52.57	15.37	43.84	8.72	8.46	6.73	42.22	41.94	2.88	Normal(ON)
	min	9.66	0.00	7.63	932.95	970.56	6.57	30.29	48.18	12.90	41.11	6.50	6.90	4.87	39.26	41.03	2.00	
	max	16.60	765.72	24.81	1128.98	1158.07	6.63	41.91	55.64	18.89	45.73	12.17	9.60	7.05	43.88	43.07	3.00	
11/26/2019	average	13.22	2.38	13.53	1070.24	1033.80	6.60	32.67	49.66	16.99	40.67	8.52	8.35	6.83	43.21	42.65	1.95	Normal(ON)
	min	10.45	0.00	8.60	928.22	963.90	6.60	29.81	47.81	14.20	37.54	8.10	8.08	6.64	42.11	42.37	1.00	
	max	16.84	577.64	31.68	1133.32	1123.82	6.61	36.46	50.74	18.18	43.63	9.21	8.60	7.06	43.78	42.79	3.00	
11/27/2019	average	12.88	4.03	13.33	1081.03	1033.35	6.60	30.50	49.16	18.66	41.29	8.37	8.27	6.84	42.47	42.54	2.03	Normal(ON)
	min	8.82	0.00	7.49	782.53	1009.70	6.60	25.22	47.22	14.71	39.18	7.82	7.79	6.76	41.98	42.25	2.00	
	max	16.06	803.40	23.62	1210.80	1096.48	6.61	35.71	50.56	22.36	43.37	8.83	8.75	7.04	43.23	42.81	3.00	
11/28/2019	average	13.60	4.15	-199.01	965.04	985.11	6.58	28.91	45.68	16.77	33.98	8.13	8.47	7.13	36.64	36.66	1.95	Normal(ON)/Shut-Down/Off/Start-up/Normal(ON)
	min	-0.48	0.00	-2750.00	598.73	520.21	6.36	25.30	31.39	-2.73	6.79	7.23	7.78	6.79	0.10	0.00	0.00	
	max	20.37	372.08	341.11	1169.61	1074.96	6.67	35.91	49.69	21.77	43.32	8.81	10.49	8.55	43.42	42.84	3.00	
11/29/2019	average	12.33	5.37	52.51	963.73	1021.56	6.60	30.23	48.29	18.06	36.92	7.98	8.00	6.91	43.19	42.48	1.49	Normal(ON)
	min	6.30	0.00	15.51	638.00	956.72	6.59	27.58	46.38	16.98	34.76	7.27	7.10	6.80	43.03	42.09	1.00	
	max	15.41	529.64	173.32	1170.00	1146.21	6.73	32.32	49.49	20.49	38.86	8.63	8.21	7.09	43.53	42.77	2.00	
11/30/2019	average	11.81	4.54	37.79	1041.82	1021.92	6.60	28.85	47.45	18.60	39.30	7.70	8.11	6.88	43.36	42.80	1.87	Normal(ON)
	min	8.18	0.00	14.82	785.64	985.42	6.59	27.50	46.24	18.20	37.69	7.35	7.88	6.77	43.25	42.37	1.00	
	max	15.15	667.26	116.34	1152.84	1080.78	6.61	30.33	48.65	18.95	41.29	8.05	8.31	7.09	43.51	42.91	2.00	

Stericycle

November 2019 Incinerator Feed Data

TheDate	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DailySum	Monthly total
11/1/2019	527.7	480.9	301.7	0	625.6	566.8	0	0	412	421.1	414.8	486.5	406	426.5	0	0	521	559.5	135.5	0	0	0	0	0	6286	
11/2/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	480.6	0	484.3	294	428	0	428	2115	
11/3/2019	0	662.8	447	279.4	447.3	534.9	0	484.5	483.3	516.3	133.7	610.7	512.8	532.3	408	202	357	200.6	0	0	442.8	332.8	0	288.3	7877	
11/4/2019	479.7	282	448.7	429.2	531	211	0	0	346.4	153.5	375	289.5	141.5	200	0	637.3	572.1	553.1	584.1	134	517.4	12.5	0	81.5	6982	
11/5/2019	442	458.2	0	84	57.5	535	0	0	6.5	87.2	384.5	274.5	155.5	191.5	25	573.6	587.4	503.5	580.7	0	620.8	458.2	434.4	0	6460	
11/6/2019	546.7	304	443.5	367.8	430.3	477.5	0	202.5	567.5	0	91.5	79	0	0	205.5	526	0	0	0	0	0	0	0	0	4242	
11/7/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/8/2019	394	357.9	501	587.5	365.5	0	0	0	0	0	0	0	0	594.9	590.8	517.5	599.8	489.7	573.1	12.5	585.3	564.9	362.1	0	7097	
11/9/2019	0	429.6	448.5	445.7	0	460.3	0	219.4	86.5	358.5	240.5	158.4	136.9	0	205	0	0	291.5	0	0	448.3	0	89.5	363.5	4382	
11/10/2019	0	0	334.6	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	526	
11/11/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/12/2019	0	0	0	0	0	0	558.5	93	175	337	312.5	220.5	199.5	92	522	553.3	577.8	499.9	498.9	266.1	520.3	471.5	447.5	331.8	6677	
11/13/2019	0	309	627	388.3	510	421.5	0	0	0	105	299.5	363	550	317	0	270.4	561.1	557.6	608.6	358.9	0	70	628.1	52	6997	
11/14/2019	496.4	440.2	463.4	569.4	649	296.5	117	334	670	448.5	492	0	89	42.4	104.5	619.5	429.8	221.4	623.8	557.9	588.6	512.4	445	53.5	9264	
11/15/2019	255.5	486	209	520.5	0	613	276.5	0	390.5	649.5	656.5	0	125	421.5	108.5	542.5	301.8	595.7	606.7	0	265.3	0	0	0	7024	175,144
11/16/2019	0	0	0	418.4	213.4	0	0	243.9	426	76.5	329	63.5	204	30	536.7	297.5	299.5	239.5	0	0	435.6	100	421	0	4335	
11/17/2019	441	194	0	380.4	0	444.4	0	548.1	251.9	567.6	204.4	227.4	221.9	203.6	260.4	282.9	167.2	384.7	357.5	0	0	0	0	338.5	5476	
11/18/2019	340	536	145.5	357.6	415	136	0	0	0	0	0	51.5	276.5	131.5	0	611.1	235.4	596.1	214.4	458.1	550.1	263.7	463.5	250.5	6033	
11/19/2019	580	521.5	458	243.5	667	453.5	0	51	0	0	0	154.5	307.5	342.5	0	607.5	478.8	610.8	483.5	595.2	523.5	150.7	555	256.5	8041	
11/20/2019	0	500	581.7	577	415	437	213.5	0	181.1	595.5	226.8	613.9	0	233.9	521.9	452.3	515.9	0	493.6	38.5	543.3	652.5	459	0	8252	
11/21/2019	0	608.3	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	663.9	520	582.9	461.8	228.5	3425	
11/22/2019	0	552	84.5	0	0	364.5	421	625.4	0	131	197	432.5	670	0	559.8	563.8	457.1	521.6	505.3	491.6	598.4	252.6	32	338.8	7799	
11/23/2019	478	450.8	447.9	448	453.2	441.6	0	122.5	390	218	0	0	0	10.5	590	631	427	305	0	647.5	486	208.5	0	561.4	7317	
11/24/2019	609.7	614.7	627.7	563.4	0	0	0	0	0	0	0	0	0	0	0	0	0	523.6	151.7	553	567.6	565.6	506.5	653	5937	
11/25/2019	429.5	419	432.8	515.3	580.6	475.7	284.5	382.8	292.5	420	408.7	425.8	419.5	315	180	0	520.9	521.5	256.3	0	224.3	0	0	0	7505	
11/26/2019	0	625	436.4	511.5	554.9	0	243.5	418.9	307	409.5	317.5	11.1	329.5	428	0	226.8	544.8	546.5	523.2	594.2	529.2	560.1	348.5	164.9	8631	
11/27/2019	0	646.4	637.7	388	536.1	0	261.5	405	417.8	416.5	435.3	435.5	430	410	192.5	0	0	0	0	556.8	551.5	582.3	460.5	114	7877	
11/28/2019	635.3	577	585.6	498	388.5	487.9	0	0	218	387.5	646	0	0	0	0	0	0	0	0	0	0	0	0	0	4424	
11/29/2019	267.5	597.5	519.4	432.8	382.5	84.5	242.5	419.8	413.5	417.5	424	405.3	424.8	0	0	0	0	0	0	542.4	513.8	419.3	6507			
11/30/2019	0	489.3	505.9	443.6	452.5	418.1	213.4	254	424	375	291.5	429.1	0	0	178	0	421.5	439.5	185.5	393	434.5	447.5	428.5	434.9	7659	

Stericycle

November 2019 CEM Calibration Data

TheDate	COSpanRes	CO Calgas	COSpan%Drift	NOxSpanRes	NOX Calgas	NOxSpan%drift	O2SpanRes	O2 Calgas	O2SpanDrift	COZeroRes	COZero%Drift	NOxZeroRes	NOxZero%Drift	O2ZeroRes	O2 Zerogas	O2ZeroDrift	Comment
11/24/2019 10:40	0	90.4	0	0	750	0	0	8.08	0	0	0	11	1.1	4.9	0	4.9	
11/24/2019 10:44	42	90.4	4.84	0	750	0	0	8.08	0	0	0	0	0	0	0	0	
11/28/2019 11:04	94	90.4	0.3599998	0	750	0	0	8.08	0	0	0	0	0	0	0	0	
11/28/2019 11:10	0	90.4	0	11	750	73.9	0	8.08	0	0	0	0	0	0	0	0	
11/28/2019 11:13	0	90.4	0	11	750	73.9	8.8	8.08	0.7200003	0	0	0	0	0	0	0	
11/28/2019 11:38	0	90.4	0	0	750	0	0	8.08	0	0	0	-250	-25	-0.2	0	0.2	
11/28/2019 11:43	0	90.4	0	0	750	0	0	8.08	0	0	0	-250	-25	-0.3	0	0.3	
11/28/2019 11:47	92	90.4	0.1599998	0	750	0	0	8.08	0	0	0	0	0	0	0	0	
11/28/2019 11:49	0	90.4	0	0	750	0	8.1	8.08	2.00E-02	0	0	0	0	0	0	0	
11/28/2019 19:05	0	90.4	0	0	750	0	0	8.08	0	2	0.6666667	6	0.6	0	0	0	
11/28/2019 19:13	0	90.4	0	748	750	0.2	0	8.08	0	0	0	0	0	0	0	0	

Stericycle

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O2 < 7.5

O2 < 7.5

Date	Start Time	Stop Time	Duration	Op. Mode	Stack O2 %	Explanation	Actions Taken
11/28/2019	11:07	11:12	0:05	Normal	7.20	O2 levels dropped during a 3 minute CO spike	No waste was fed during this period.
11/29/2019	22:48	22:56	0:08	Normal	7.40	O2 levels dropped during a 1 minute CO spike	No waste was fed during this period.

Carbon Monoxide > 8ppm 12 hour alarm

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Carbon Monoxide > 8ppm 12 hour alarm

Date	Start Time	Stop Time	Duration	Op. Mode	Stack CO @ 11% O2	Stack CO as mg/m^3	Explanation	Actions Taken
11/2/2019	18:00	21:00	3:00	Normal	10.07	11.6	High CO levels were caused by random spikes during start-up.	No waste was fed until the CO levels returned to the normal operating range.
11/8/2019	4:00	8:00	4:00	Normal	11.9	13.7	High CO levels were caused by random spikes during start-up.	No waste was fed until the CO levels returned to the normal operating range.
11/17/2019	19:00	20:00	1:00	Normal	8.1	9.3	High CO levels were caused by a CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
11/24/2019	4:00	0:00	20:00	Normal	32.1	37.0	High CO level readings were caused by an issue with the CO analyser (water in lines).	Maintenance trouble shot the issue and called in a 3rd party to repair the analyser. Repair was completed at 16:00.No waste was fed during this time. CO levels returned to the normal operating range at 17:00 howver the 12 hour average remained above the threshold due to the high CO reading earlier in the day.

Carbon Monoxide > 8ppm 4 hour alarm

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Carbon Monoxide > 8ppm 4 hour alarm

Date	Start Time	Stop Time	Duration	Op. Mode	Stack CO @ 11% O2	Stack CO as mg/m^3	Explanation	Actions Taken
11/3/2019	7:00	11:00	4:00	Normal	8.4	9.7	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
11/9/2019	8:00	12:00	4:00	Normal	11.37	13.1	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
11/15/2019	19:00	23:00	4:00	Normal	8.8	10.2	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
11/17/2019	4:00	8:00	4:00	Normal	10.1	11.7	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
11/18/2019	1:30	5:30	4:00	Normal	8.52	9.8	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
11/23/2019	21:00	1:00	4:00	Normal	28.8	33.2	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.

Carbon Monoxide > 8ppm 4 hour alarm

11/24/2019	2:00	6:00	4:00	Normal	233.1	269.0	High CO level readings were caused by an issue with the CO analyser (water in lines).	Maintenance trouble shot the issue and called in a 3rd party to repair the analyser. Repair was completed at 16:00.No waste was fed during this time. CO levels returned to the normal operating range at 17:00.
11/24/2019	6:00	10:00	4:00	Normal	51.5	59.4	High CO level readings were caused by an issue with the CO analyser (water in lines).	Maintenance trouble shot the issue and called in a 3rd party to repair the analyser. Repair was completed at 16:00.No waste was fed during this time. CO levels returned to the normal operating range at 17:00.
11/24/2019	10:00	14:00	4:00	Normal	70.2	81.0	High CO level readings were caused by an issue with the CO analyser (water in lines).	Maintenance trouble shot the issue and called in a 3rd party to repair the analyser. Repair was completed at 16:00.No waste was fed during this time. CO levels returned to the normal operating range at 17:00.
11/24/2019	14:00	17:00	3:00	Normal	15.9	18.3	High CO level readings were caused by an issue with the CO analyser (water in lines).	Maintenance trouble shot the issue and called in a 3rd party to repair the analyser. Repair was completed at 16:00.No waste was fed during this time. CO levels returned to the normal operating range at 17:00.
11/25/2019	19:00	23:00	4:00	Normal	18.2	21.0	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.

Carbon Monoxide > 8ppm 4 hour alarm

11/30/2019	10:00	14:00	4:00	Normal	8.8	10.2	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.

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Secondary Chamber Temperature < 1000°C

Date	Start Time	Stop Time	Duration	Op. Mode	Temp. °C	Explanation	Actions Taken
11/2/2019	18:22	19:32	1:10	Normal	992	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/3/2019	2:09	2:41	0:32	Normal	993	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/3/2019	19:10	20:02	0:52	Normal	997	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/5/2019	4:48	5:19	0:31	Normal	994	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/5/2019	6:30	9:14	2:44	Normal	982	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/8/2019	5:25	9:53	4:28	Normal	944	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.

11/8/2019	19:03	19:39	0:36	Normal	959	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/15/2019	21:46	0:22	2:36	Normal	978	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/16/2019	1:04	2:02	0:58	Normal	981	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/16/2019	2:38	3:34	0:56	Normal	973	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/16/2019	5:46	7:59	2:13	Normal	971	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/16/2019	21:20	21:50	0:30	Normal	988	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.

11/17/2019	2:14	2:54	0:40	Normal	992	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/17/2019	19:41	23:19	3:38	Normal	981	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/23/2019	10:50	13:06	2:16	Normal	966	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/23/2019	22:53	23:40	0:47	Normal	940	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/24/2019	3:11	16:41	13:30	Normal	759	Low upper chamber temperature was due to no waste being fed into the incinerator due to a problem with the CO analyser.	Third party was brought in to repair the anayler. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/24/2019	18:41	19:31	0:50	Normal	983	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.

11/25/2019	23:28	24:18:00	0:50	Normal	976	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/29/2019	15:35	17:23	1:48	Normal	977	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/29/2019	21:15	22:19	1:04	Normal	997	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
11/30/2019	15:06	15:45	0:39	Normal	993	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.

Atomizer pH out of Range (<6.4pH / > 10.4pH)

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Atomizer pH out of Range (<6.4pH / > 10.4pH)

Date	Start	Stop	Duration	Op.	Atomizer	Explanation	Action
11/14/2019	12:39	16:01	3:22	Normal	4.8	Low pH was caused by a malfunction of the caustic feed system.	Maintenance cleaned the pH probe and corrected the caustic feed system error.

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Atomizer Amps < 36

Date	Start Time	Stop Time	Duration	Op. Mode	Atom. A amps	Atom. B amps	Explanation	Action Taken
10-Nov-19	2:37:00	14:02:00	11:25:00	Normal	14.5	42.7	Low atomizer amperage was caused by a mechanical failure in the gear box.	The incinerator was brought to a controlled shut-down.
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					
			0:00:00					

Differential from Demister < 10 C

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Differential from Demister < 10°C

Date	Start Time	Stop Time	Duration	Op. Mode	Differential Temp Outlet °C	Explanation	Actions Taken
11/13/2019	20:23	21:46	1:23	Normal	4.28	Low differential temperature was caused by a lack of reheat steam in the carbon bed.	Maintenance corrected the re-heat steam feed to the carbon bed.
11/18/2019	1:56	3:31	1:35	Normal	9.98	Low differential temperature was caused by a lack of reheat steam in the carbon bed.	Maintenance corrected the re-heat steam feed to the carbon bed.
11/22/2019	1:40	4:59	3:19	Normal	9.49	Low differential temperature was caused by high demister temperatures.	Maintenance monitored the demister & differential temperatures.

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HEPA Filter Bed D.P. > 4" WC

Date	Start Time	Stop Time	Duration	Op. Mode	Explanation	Actions Taken
11/01/19	1:21:00	4:32:00	3:11:00	Normal	High Differential Pressure due to the carbon bed plugging up.	Maintenance rinsed the carbon to lower the differential pressure.
11/05/19	0:09:00	9:42:00	9:33:00	Normal	High Differential Pressure due to the carbon bed plugging up.	Maintenance rinsed the carbon to lower the differential pressure.

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December 2019 Incineration Averages

TheDate		OX6min	COmin	NOXmin	PrimTemp °C	SecTemp°C	SNCR	DemTemp°C	CarbTemp°C	DiffTemp	IDFanTemp°C	QunchPH	CondPH	AtomPH	AtomA	AtomB	HEPADP	OpMode
12/1/2019	average	12.10	4.80	40.93	990.30	1022.93	6.60	27.97	46.69	18.72	39.22	7.95	8.23	6.94	43.26	42.74	2.77	Normal(ON)
	min	7.34	0.00	16.10	633.60	970.54	6.55	26.97	45.77	16.67	35.13	7.37	7.27	6.80	43.01	42.49	1.00	
	max	15.97	592.06	149.94	1134.92	1080.93	6.61	29.44	48.18	19.11	40.31	10.07	8.45	7.16	43.48	43.12	4.00	
12/2/2019	average	12.04	5.23	43.22	956.20	1024.63	6.60	27.33	46.03	18.70	36.11	7.72	8.01	6.89	41.46	41.90	1.36	Normal(ON)
	min	6.07	0.00	13.62	530.39	987.52	6.60	24.62	43.84	18.16	34.81	7.23	7.62	6.73	38.50	39.05	1.00	
	max	14.59	659.23	151.38	1138.84	1066.00	6.61	29.46	47.93	19.31	37.82	8.33	8.53	7.10	43.52	44.06	2.00	
12/3/2019	average	10.89	4.06	48.84	1062.40	1031.31	6.60	26.06	44.19	18.13	36.38	7.71	8.14	6.90	40.65	41.90	1.69	Normal(ON)
	min	7.98	0.47	14.95	822.26	1011.68	6.59	25.18	41.55	14.79	34.82	7.15	7.84	6.82	40.31	41.28	1.00	
	max	14.50	585.58	172.19	1165.58	1069.34	6.61	27.63	46.46	19.29	38.16	8.44	8.72	7.07	43.09	43.72	2.00	
12/4/2019	average	11.27	4.33	58.17	1034.20	1031.51	6.60	26.58	42.85	16.28	37.33	8.35	8.22	6.90	40.53	41.53	2.48	Normal(ON)
	min	8.20	0.10	13.10	709.02	1002.83	6.60	24.28	32.73	8.26	33.73	7.00	7.07	6.80	40.42	41.42	2.00	
	max	14.31	423.84	184.73	1142.80	1071.92	6.63	29.26	45.32	20.97	39.93	8.77	8.60	7.11	40.72	42.10	3.00	
12/5/2019	average	11.23	2.80	83.87	1099.65	1039.03	6.60	29.08	44.18	15.11	35.96	8.32	8.28	6.88	40.53	41.95	1.59	Normal(ON)
	min	8.76	0.00	19.74	1033.26	1019.29	6.59	24.33	43.42	10.42	33.03	7.79	7.90	6.84	40.39	41.81	1.00	
	max	14.20	495.93	198.52	1178.81	1077.26	6.63	33.01	45.03	20.58	38.71	8.84	8.69	7.03	40.70	42.08	4.00	
12/6/2019	average	11.70	3.65	49.15	1156.91	1031.34	6.60	28.56	44.04	15.48	35.58	8.35	8.19	6.92	40.46	41.71	1.53	Normal(ON)
	min	8.93	0.43	12.34	1038.42	1018.18	6.59	26.27	43.38	9.66	34.04	7.98	7.93	6.83	40.20	41.53	1.00	
	max	14.83	516.17	175.84	1230.17	1082.19	6.61	33.78	44.41	18.13	38.97	8.71	8.57	7.03	40.63	41.90	2.00	
12/7/2019	average	11.86	4.19	42.34	1055.12	1027.79	6.60	27.21	44.04	16.84	34.53	8.58	8.11	6.94	39.99	41.73	1.71	Normal(ON)
	min	7.68	0.77	11.57	845.72	1017.46	6.58	25.94	42.38	14.16	32.87	7.94	7.92	6.80	39.91	41.64	1.00	
	max	14.95	589.52	140.60	1178.93	1080.09	6.65	30.13	46.79	18.36	36.54	9.17	11.40	7.08	40.27	42.02	3.00	
12/8/2019	average	12.20	3.98	44.70	1056.99	1020.42	6.60	28.02	44.19	16.17	34.35	8.41	8.20	6.92	40.26	42.01	1.56	Normal(ON)
	min	8.16	0.00	14.05	547.60	953.48	6.60	26.68	43.96	13.59	33.37	7.78	7.84	6.80	40.09	41.82	1.00	
	max	14.89	696.49	142.92	1210.11	1053.34	6.61	30.43	44.38	17.58	35.52	9.10	8.44	7.15	40.48	42.17	2.00	
12/9/2019	average	10.68	2.31	52.68	1070.78	1033.19	6.60	27.14	44.32	17.18	35.83	8.40	8.02	6.88	40.52	42.25	1.14	Normal(ON)
	min	6.89	0.00	0.00	611.39	1013.27	6.13	24.44	40.00	14.99	33.69	6.80	7.79	6.79	40.00	41.94	1.00	
	max	15.58	646.77	177.36	1162.07	1081.27	6.61	29.31	46.29	20.74	39.44	10.90	10.33	7.63	41.23	43.04	2.00	
12/10/2019	average	11.39	3.16	58.46	1131.56	1031.98	6.60	29.06	44.34	15.28	36.27	8.51	8.36	6.88	41.47	43.26	1.86	Normal(ON)
	min	9.43	0.00	15.38	1069.32	1017.73	6.59	27.07	44.01	11.79	32.82	7.88	8.14	6.81	40.27	42.17	1.00	
	max	14.60	526.47	189.31	1203.03	1058.74	6.61	32.34	44.61	17.29	39.31	8.96	8.59	6.97	44.50	45.06	3.00	
12/11/2019	average	11.52	3.49	52.88	1153.03	1030.00	6.60	29.17	43.33	14.16	35.39	8.25	8.24	6.80	42.18	43.26	1.81	Normal(ON)
	min	9.10	0.45	16.07	1032.01	1018.56	6.59	28.43	42.96	12.81	33.32	7.88	7.99	6.72	40.72	42.91	1.00	
	max	15.05	470.38	149.09	1242.93	1054.74	6.61	31.19	44.05	14.82	36.91	8.67	8.41	6.99	44.08	43.54	3.00	
12/12/2019	average	11.48	3.85	64.01	1186.30	1036.47	6.60	29.99	43.66	13.68	35.00	8.22	8.33	6.78	43.27	43.04	1.55	Normal(ON)
	min	8.48	0.00	14.85	1132.71	1019.50	6.59	27.60	43.04	8.40	32.36	7.88	7.94	6.71	43.17	42.95	1.00	
	max	13.44	585.91	331.40	1239.08	1145.99	6.61	35.75	44.81	16.17	39.67	8.52	8.82	6.83	43.34	43.20	2.00	
12/13/2019	average	12.03	3.92	55.17	1075.78	1029.97	6.60	29.87	44.20	14.32	34.55	8.24	8.54	6.93	43.38	43.25	1.25	Normal(ON)
	min	8.09	0.00	10.82	704.88	987.31	6.60	27.98	42.72	5.52	32.52	7.50	8.27	6.69	43.28	43.15	1.00	
	max	15.24	520.97	231.88	1212.09	1085.79	6.61	37.26	44.79	16.48	39.88	9.01	9.11	7.15	43.51	43.43	2.00	
12/14/2019	average	11.91	4.34	46.08	1006.52	1018.76	6.60	28.86	44.43	15.57	36.99	8.10	8.66	6.94	43.37	43.01	2.08	Normal(ON)
	min	8.01	0.00	16.82	562.57	943.56	6.54	27.01	42.01	14.26	35.45	6.77	8.28	6.79	43.17	42.77	1.00	
	max	14.96	619.51	178.17	1186.07	1058.96	6.63	30.03	44.75	17.31	38.36	8.61	9.63	7.07	43.53	43.31	3.00	
12/15/2019	average	12.27	1.73	47.19	1027.27	1021.26	6.60	29.99	44.39	14.40	36.49	8.19	8.99	6.95	43.45	43.20	3.27	Normal(ON)
	min	7.80	0.00	19.37	615.16	957.40	6.60	28.04	43.97	12.36	33.10	7.84	8.64	6.78	43.25	42.96	3.00	
	max	15.43	423.81	228.99	1672.13	1076.38	6.60	31.62	44.56	16.50	39.42	8.58	9.49	7.16	43.62	43.37	4.00	
12/16/2019	average	11.83	4.31	56.99	1105.94	1031.97	6.60	29.07	44.47	15.40	33.88	8.09	8.61	6.86	43.41	43.20	2.87	Normal(ON)
	min	8.19	0.00	14.98	986.04	902.94	6.60	27.27	44.16	13.36	32.53	7.45	8.37	6.77	43.28	43.05	2.00	
	max	16.90	587.88	184.82	1191.32	1071.17	6.61	31.15	44.87	17.24	35.54	8.69	8.97	6.98	43.52	43.36	4.00	
12/17/2019	average	11.37	3.90	71.15	1166.11	1038.17	6.60	30.15	46.94	16.79	35.06	8.23	8.52	6.81	43.38	43.20	1.71	Normal(ON)
	min	8.81	0.00	10.58	1096.16	1018.96	6.59	27.20	43.21	8.78	31.76	7.59	8.08	6.75	43.30	43.08	1.00	
	max	14.04	604.41	228.34	1233.79	1173.03	6.61	34.54	50.91	22.98	40.47	8.75	8.98	6.90	43.49	43.34	3.00	
12/18/2019	average	11.87	3.12	60.39	1023.26	1027.45	6.60	29.46	50.63	21.17	34.27	8.42	8.55	6.87	43.39	43.21	1.96	Normal(ON)
	min	6.06	0.00	11.35	632.09	982.43	6.59	26.62	50.16	19.11	32.38	7.34	8.24	6.76	43.26	43.01	1.00	
	max	15.02	730.11	290.56	1181.69	1057.77	6.60	31.64	50.87	23.57	38.05	9.31	8.89	7.05	43.52	43.37	3.00	

Stericycle

December 2019 Incineration Averages

TheDate		OX6min	COmin	NOXmin	PrimTemp °C	SecTemp°C	SNCR	DemTemp°C	CarbTemp°C	DiffTemp	IDFanTemp°C	QunchPH	CondPH	AtomPH	AtomA	AtomB	HEPADP	OpMode
12/19/2019	average	11.41	4.30	75.54	1160.93	1035.72	6.60	29.63	50.42	20.79	35.85	8.38	8.49	6.96	43.69	43.33	2.02	Normal(ON)
	min	8.96	0.00	18.46	1085.95	1019.49	6.60	25.72	49.32	16.61	33.62	7.57	8.21	6.78	43.17	43.09	2.00	
	max	15.00	577.01	229.89	1207.88	1068.77	6.61	34.39	51.09	23.66	39.63	10.30	8.82	7.13	44.74	43.57	3.00	
12/20/2019	average	11.88	3.85	79.78	1149.64	1036.26	6.60	30.67	50.60	19.92	36.77	8.09	8.55	6.83	43.31	43.26	2.36	Normal(ON)
	min	8.38	0.00	24.30	1051.25	1019.48	6.59	26.91	50.17	15.32	33.11	7.24	8.11	6.72	43.19	43.16	1.00	
	max	14.61	572.81	215.24	1207.47	1093.99	6.61	35.72	51.08	23.29	40.40	8.62	9.00	6.93	43.44	43.36	3.00	
12/21/2019	average	12.10	0.62	58.79	1075.20	1028.44	6.60	29.75	50.67	20.92	33.98	7.91	8.55	6.89	43.36	43.42	2.03	Normal(ON)
	min	8.15	0.00	23.78	755.99	1006.00	6.60	28.13	50.40	17.66	32.49	7.41	8.25	6.81	43.27	43.21	1.00	
	max	15.24	221.58	166.30	1189.88	1078.83	6.61	33.37	51.04	22.49	36.93	8.28	9.01	7.06	43.44	43.55	3.00	
12/22/2019	average	11.97	1.18	52.32	1104.63	1026.85	6.60	28.28	50.44	22.16	34.62	8.07	8.54	6.87	41.78	42.94	1.01	Normal(ON)
	min	8.19	0.00	21.73	933.11	1016.60	6.59	27.36	50.06	20.88	32.89	7.88	8.36	6.79	41.34	42.69	1.00	
	max	15.02	637.40	153.72	1192.56	1149.16	6.61	29.67	50.81	22.82	37.15	8.20	8.78	6.97	43.26	43.40	2.00	
12/23/2019	average	11.63	2.28	53.26	1075.19	1027.39	6.60	27.64	50.06	22.43	36.08	7.77	8.44	6.84	41.29	43.26	1.00	Normal(ON)
	min	8.13	0.00	20.59	850.77	914.97	6.59	24.45	48.31	20.72	33.91	7.03	8.19	6.76	41.16	43.10	1.00	
	max	17.37	584.52	174.83	1182.41	1077.56	6.61	29.87	51.38	23.88	38.90	8.21	12.20	7.03	41.63	43.36	2.00	
12/24/2019	average	15.11	0.89	54.63	919.09	789.03	6.70	37.34	48.03	10.69	31.19	7.89	8.70	7.09	28.19	30.08	1.30	Normal(ON)/ Shut-down/Off
	min	9.68	0.00	0.00	345.76	231.49	6.60	28.24	42.22	-11.11	12.22	7.35	8.34	6.52	0.10	0.00	0.00	
	max	20.41	286.30	254.62	1193.82	1072.79	6.97	53.42	50.88	22.13	41.16	8.58	8.96	7.70	41.27	44.27	2.00	
12/25/2019	average	20.25	0.00	0.00	181.03	124.72	7.00	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	Off
	min	20.07	0.00	0.00	92.89	70.87	6.97	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
	max	20.42	0.00	0.00	345.36	231.30	7.00	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
12/26/2019	average	20.26	0.00	0.00	63.73	53.42	6.96	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	Off
	min	20.10	0.00	0.00	45.73	41.67	6.90	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
	max	20.40	0.00	0.00	92.83	70.94	7.00	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
12/27/2019	average	20.25	0.00	0.00	34.85	34.88	6.86	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	Off
	min	20.07	0.00	0.00	27.48	30.00	6.70	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
	max	20.44	0.00	0.00	45.72	43.08	7.00	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
12/28/2019	average	20.25	0.00	0.00	25.75	28.16	6.64	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	Off
	min	20.05	0.00	0.00	24.03	25.71	6.60	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
	max	20.43	0.00	0.00	28.74	32.73	6.70	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
12/29/2019	average	20.25	0.00	0.00	24.00	26.45	6.67	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	Off
	min	20.10	0.00	0.00	21.80	23.89	6.60	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
	max	20.42	0.00	0.00	25.33	28.96	6.70	53.33	42.22	-11.11	12.22	7.40	8.90	7.70	0.10	0.00	0.00	
12/30/2019	average	17.51	0.68	-13.17	206.43	420.27	6.48	45.50	44.20	-1.31	18.86	7.61	8.80	7.53	12.83	12.09	0.25	Off/Start-up
	min	6.97	0.00	-107.80	19.00	20.58	6.12	27.02	39.09	-12.33	12.14	7.40	8.50	7.08	0.10	0.00	0.00	
	max	20.41	51.58	95.00	612.76	978.71	6.61	53.33	50.67	22.36	37.94	8.30	8.91	7.74	42.43	40.34	1.00	
12/31/2019	average	10.69	0.66	81.44	1069.48	1028.30	6.60	29.07	50.51	21.44	40.23	8.07	8.45	6.95	42.58	40.00	0.68	Start-up/Normal(ON)
	min	6.47	0.00	1.09	612.98	978.90	6.60	26.68	50.11	19.04	37.95	7.78	8.20	6.85	42.40	39.81	0.00	
	max	13.10	82.41	259.30	1169.18	1055.61	6.61	31.76	50.83	23.52	41.32	8.38	8.64	7.11	42.79	40.21	1.00	

Stericycle

December 2019 Incinerator Feed Data

TheDate	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	DailySum	Monthly total
12/1/2019	465.1	439.1	0	422.6	426.2	408.1	0	576.5	134.9	559.5	562	425	563.6	163.4	296.5	0	0	0	0	0	0	351.2	354.2	0	6147.9	
12/2/2019	0	309	0	351	303.5	428.5	229	106	425.8	416.5	412.8	405	405.8	307.5	0	0	0	0	0	0	0	0	528.5	272.5	4901.4	
12/3/2019	468.5	226.5	342	581.9	229.6	0	0	0	0	435.5	412	433.5	428.5	426	96	565.7	460.3	511.1	379	460.6	451.3	609.3	472.3	241.9	8231.5	
12/4/2019	512	515.2	175.4	481.4	456.9	384.7	196	327	0	0	0	0	0	435	108.5	490.1	535	551.5	519.4	576	523.3	646	0	0	7433.4	
12/5/2019	0	654.5	459.8	331	433.3	652.2	13.5	438	411.5	411	409.5	405.5	425	409	0	545.8	527.5	424.8	581.3	583	512.8	552.4	271	0	9452.5	
12/6/2019	0	600.1	637.5	0	315.5	102	100.5	416.5	407.5	414	410	405	420.5	443	63.5	254	240.3	138.5	95	142.5	203	513	0	239	6560.9	
12/7/2019	265	137	277.5	100	141.5	166.5	118	234.5	302	431	427.1	438.5	429.5	425.5	451.5	435.6	430	449.2	0	0	0	603	549.7	533.8	7346.4	
12/8/2019	509.9	536.5	512.5	550	574.5	547	439.5	138	195	426.5	425	255.5	0	420	421.5	266.5	0	556	233.5	0	0	0	0	226.8	7234.2	
12/9/2019	0	604.3	584.2	603.7	592.1	321	359.5	515.5	405.8	415.6	418.3	411.5	0	0	0	0	0	529.9	534.5	529.9	555.6	543	494.4	106.5	8525.3	
12/10/2019	0	488.2	418.8	368	157.5	641.5	262.5	240.5	0	0	0	436	415	426.5	34	591.4	603	581.6	526	551.3	488.3	553.7	261.5	449.8	8495.1	
12/11/2019	0	505.9	540.6	0	619	458.5	303.5	439	0	471.5	493.5	422	418.5	413.5	0	619.1	0	540	532.5	420.8	519.2	561.8	420.5	181.3	8880.7	
12/12/2019	356.3	583.8	495.4	653.6	261.9	0	0	405.5	446	412.5	412	409.5	71.4	390	565	583.7	508.1	524.1	610	513.7	504.5	579.5	463.5	2.5	9752.5	
12/13/2019	0	570.4	632.2	283	0	0	343	367.5	412	170	352.4	421	363.5	0	0	517.8	431.2	185.1	0	0	0	0	487.5	424.5	5961.1	
12/14/2019	0	455.5	469.9	448.7	0	432.5	244.5	362.4	597.3	201.8	586.8	441.3	525.3	570.7	491	0	0	0	0	0	0	0	433.6	443.8	6705.1	
12/15/2019	449	428.8	466	0	0	0	0	550	535.3	553.3	563	619.8	566.3	488	365.5	339.5	407	422.9	0	0	450.8	300.5	381.5	101.5	7988.7	
12/16/2019	0	667.2	578.3	0	0	196	217.5	0	0	410	387	332	62.5	90	251	552.1	532.3	574	541.3	591.6	473.4	546.5	372.3	271.5	7647	188,854
12/17/2019	0	530	600.1	508.8	0	241.5	333	418.5	442	378.5	0	442	444	443.5	0	612.5	510.2	508.3	541.3	527.6	546.3	540.4	576.3	0	9144.8	
12/18/2019	590.8	566	102	0	0	0	0	0	0	0	400	399	406	431.5	110	536.8	506.3	524.7	556.3	550.7	514.8	548	519	279.5	7541.6	
12/19/2019	0	570.5	605.5	527.6	451	134.5	164	185.5	292.5	373	310.5	374	324	375.5	0	486.5	0	561.8	352.6	639.8	553.8	526.4	559.5	207.7	8576.2	
12/20/2019	0	431.6	251.8	620.1	548.7	289.8	302	0	110.5	0	336.5	422	429	409	40.5	605.7	500	512.5	557	553.3	336.3	154.5	0	422.5	7833.3	
12/21/2019	0	438.3	426.2	0	0	0	0	149	477	300.4	418.5	435	423	455.2	446	433.5	0	439.5	0	372.8	428.3	423.9	419.4	0	6486	
12/22/2019	0	421.8	0	429	428.3	573	175.9	510.3	584	506.4	505.8	562.2	592.6	544	457.8	423.3	421	322	0	7	430.6	379.3	0	209.3	8483.6	
12/23/2019	0	205.5	604.1	256.3	323.5	425.7	157.5	342	400.5	0	378	401.5	402	402.5	208.5	0	0	0	625.3	155	0	0	451	121.3	5860.2	
12/24/2019	0	471.5	356	601.8	500	321	216.5	301	600.5	605.5	0	0	0	0	0	0	0	0	0	0	0	0	0	160.5	4134.3	
12/25/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/26/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/27/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/28/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/29/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/30/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/31/2019	0	582	591.5	649	586	316.5	152.5	373.5	402.5	379.8	405	401.5	407.5	428	157.5	543	632.3	584.6	425.3	582.6	546.6	383	0	0	9530.7	

Stericycle

December 2019 CEM Calibration Data

TheDate	COSpanRes	CO Calgas	COSpan%Drift	NOxSpanRes	NOX Calgas	NOxSpan%drift	O2SpanRes	O2 Calgas	O2SpanDrift	COZeroRes	COZero%Drift	NOxZeroRes	NOxZero%Drift	O2ZeroRes	O2 Zerogas	O2ZeroDrift	Comment
12/12/2019 9:23	0	90.4	0	0	750	0	0	8.08	0	0	0	-11	-1.1	0.1	0	0.1	
12/12/2019 9:26	92	90.4	0.1599998	0	750	0	0	8.08	0	0	0	0	0	0	0	0	
12/12/2019 9:29	0	90.4	0	0	750	0	8.2	8.08	0.1199999	0	0	0	0	0	0	0	
12/12/2019 9:32	0	90.4	0	696	750	5.4	0	8.08	0	0	0	0	0	0	0	0	
12/30/2019 19:44	0	90.4	0	0	750	0	0	8.08	0	0	0	-9	-0.9	0.1	0	0.1	
12/30/2019 20:01	0	90.4	0	0	750	0	0	8.08	0	0	0	2	0.2	0	0	0	
12/31/2019 8:31	0	90.4	0	0	750	0	0	8.08	0	0	0	4	0.4	0.1	0	0.1	
12/31/2019 8:34	0	90.4	0	0	750	0	0	8.08	0	1	0.3333333	2	0.2	0.1	0	0.1	
12/31/2019 8:38	92	90.4	0.1599998	0	750	0	0	8.08	0	0	0	0	0	0	0	0	
12/31/2019 8:41	0	90.4	0	0	750	0	8	8.08	8.00E-02	0	0	0	0	0	0	0	
12/31/2019 8:45	0	90.4	0	248	750	50.2	0	8.08	0	0	0	0	0	0	0	0	
12/31/2019 8:58	0	90.4	0	0	750	0	0	8.08	0	0	0	0	0	0.1	0	0.1	
12/31/2019 9:02	0	90.4	0	282	750	46.8	0	8.08	0	0	0	0	0	0	0	0	

Stericycle

Stericycle
Protecting People. Reducing Risk.

O2 < 7.5

O2 < 7.5

Date	Start Time	Stop Time	Duration	Op. Mode	Stack O2 %	Explanation	Actions Taken
12/2/2019	22:16	22:22	0:06	Normal	6.60	O2 levels dropped during a 1 minute CO spike	No waste was fed during this period.
12/18/2019	8:48	9:00	0:12	Normal	6.57	O2 levels dropped when volatile waste was fed into the incinerator	No waste was fed during this period.
12/18/2019	10:37	10:42	0:05	Normal	7.43	O2 levels dropped when volatile waste was fed into the incinerator	No waste was fed during this period.

Carbon Monoxide > 8ppm 4 hour alarm

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Carbon Monoxide > 8ppm 4 hour alarm

Date	Start Time	Stop Time	Duration	Op. Mode	Stack CO @ 11% O2	Stack CO as mg/m^3	Explanation	Actions Taken
12/1/2019	14:00	18:00	4:00	Normal	12.15	14.0	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/2/2019	9:00	14:00	5:00	Normal	9.5	11.0	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/3/2019	4:06	8:06	4:00	Normal	9.2	10.6	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/7/2019	7:56	11:56	4:00	Normal	8.5	9.8	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/8/2019	9:00	14:00	5:00	Normal	8.8	10.2	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/10/2019	0:00	4:00	4:00	Normal	8.4	9.7	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.

Carbon Monoxide > 8ppm 4 hour alarm

12/12/2019	12:30	16:30	4:00	Normal	9.8	11.3	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/13/2019	10:00	14:00	4:00	Normal	9.6	11.1	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/14/2019	8:00	18:00	10:00	Normal	8.8	10.2	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/17/2019	23:00	4:00	5:00	Normal	18.9	21.8	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.
12/19/2019	5:30	9:30	4:00	Normal	8.8	10.2	High CO levels were caused by a large CO spike that occurred after a load of waste was charged into the incinerator.	No waste was fed until the CO levels returned to the normal operating range.

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Secondary Chamber Temperature < 1000°C

Date	Start Time	Stop Time	Duration	Op. Mode	Temp. °C	Explanation	Actions Taken
12/1/2019	18:50	19:49	0:59	Normal	984	Low upper chamber temperature was caused by a low feed rate combined with a high draft setting.	Maintenance adjusted the draft setpoint. No waste was fed until the upper chamber temperature returned to the normal operating range.
12/8/2019	20:23	23:31	3:08	Normal	975	Low upper chamber temperature was due to the unit sitting idle and the draft not adjusted.	No waste was fed until the upper chamber temperature returned to the normal operating range.
12/14/2019	19:05	21:59	2:54	Normal	967	Low upper chamber temperature was due to the unit sitting idle and the draft not adjusted.	No waste was fed until the upper chamber temperature returned to the normal operating range.
12/15/2019	4:50	7:06	2:16	Normal	983	Low upper chamber temperature was due to the unit sitting idle and the draft not adjusted.	No waste was fed until the upper chamber temperature returned to the normal operating range.
12/28/2019	7:09	8:02	0:53	Normal	990	Low upper chamber temperature was due to the unit sitting idle and the draft not adjusted.	No waste was fed until the upper chamber temperature returned to the normal operating range.

Differential from Demister < 10 C

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Differential from Demister < 10°C

Date	Start Time	Stop Time	Duration	Op. Mode	Differential Temp Outlet °C	Explanation	Actions Taken
12/4/2019	10:49	12:28	1:39	Normal	9.7	Low differential temperature was caused by a lack of reheat steam in the carbon bed.	Maintenance corrected the re-heat steam feed to the carbon bed.
12/12/2019	4:09	5:53	1:44	Normal	9.15	Low differential temperature was caused by high demister temperatures.	Maintenance monitored the demister & differential temperatures.
12/13/2019	2:54	5:43	2:49	Normal	7.44	Low differential temperature was caused by high demister temperatures.	Maintenance monitored the demister & differential temperatures.
12/17/2019	3:15	4:49	1:34	Normal	9.34	Low differential temperature was caused by the low air flow through the carbon bed.	Maintenance rinsed the carbon to lower the differential pressure amd imcrease the differential temperature.

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HEPA Filter Bed D.P. > 4" WC

Date	Start Time	Stop Time	Duration	Op. Mode	Explanation	Actions Taken
12/05/19	2:08:00	3:28:00	1:20:00	Normal	High Differential Pressure due to the carbon bed plugging up.	Maintenance rinsed the carbon to lower the differential pressure.
12/16/19	1:36	3:56	2:20:00	Normal	High Differential Pressure due to the carbon bed plugging up.	Maintenance rinsed the carbon to lower the differential pressure.