STELCO

The Steel Company of Canada

Hamilton Works
Community Liaison Committee Meeting

October, 2018 | Andy Sebestyen

Agenda

1. Welcome and Safety Contact
2. Review and Approval of Agenda
3. Review and Approval of Minutes of 20 June 2018
4. Performance under O.Reg 419/05 Site Specific Standard Order – Particulates
5. Monitoring Requirements under O.Reg 419/05 Site Specific Standard Order – Benzene
6. Technical Standard for Integrated Steel Plants
7. Community Concerns
8. Adjournment

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Know Your Emergency Exits

Review Evacuation Routes of the room you are located in

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Site-Specific Standard Order (Particulates): Performance Review – Daily

Date	Doors (% Leaks)	Lids (% Leaks)	Off-takes (% Leaks)
2017-2019 Limits	10%	2%	5%
2020 Limits	5%	1%	4%
June 11 to Sep 30, 2018 Range (Average)	0 – 3.24% (0.28%)	0 – 1.28% (0.15%)	0 – 3.85% (1.09%)
Jan. 1 to June 10, 2018 Range (Average)	0 – 4.23% (0.25%)	0 – 1.27% (0.10%)	0 – 5.13% (0.88%)

Daily Measurements Performed YTD
- All weekdays, except for holidays
- 8 Saturdays
- 9 Sundays

June 11 to Sept. 30, 2018 Operational Adjustments
- In compliance with 2018 limits

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Site-Specific Standard Order (Particulates): Performance Review – 30 Day Rolling Averages

Date	Doors (% Leaks)	Lids (% Leaks)	Off-takes (% Leaks)	Charging (sec) (log avg)
2017-2019 Limits	7%	0.8%	4.2%	12 s
2020 Limits	4%	0.4%	2.5%	12 s
June 11 to Sep 30, 2018 Range (Average)	0.19 – 0.35% (0.26%)	0.06 – 0.25% (0.15%)	0.76 – 1.41% (1.10%)	6.31–13.41 s (9.56 s)
Jan. 1 to June 10, 2018 Range (Average)	0.08 – 0.47% (0.25%)	0.06 – 0.15% (0.11%)	0.08 – 1.44% (0.79%)	3.02 – 6.32 s (4.14 s)

June 11 to Sept. 30, 2018 Operational Adjustments

- Charge leaks exceeded the limit from Aug. 1 to 13, 2018
- **Cause**: The By-Products Plant was not exhausting much COG to the bleeders despite only 1 boiler was able to take in COG. This resulted to high back pressure and more emissions during the charging operation in the Battery.
- **Corrective Measure**: Exhauster and bleeder setpoints were adjusted.

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Site-Specific Standard Order (Particulates): Performance Review – Daily Observations – Pushing Emissions

Date	Pushing Emission (opacity %)
2016 – 2018	⩾ 50%
2019	≥ 40%
2020	≥ 30%
June 11 to Sep 30, 2018 Range (Average)	0 – 51.67 % (10.88 %)
Jan. 1 to June 10, 2018 Range (Average)	0 – 45 % (10.97 %)

June 11 to Sept. 30, 2018 Operational Adjustments

- Exceedance on Aug. 24, 2018 from oven 738
- **Cause**: Inadequate heating of the pusher side of the oven due to plugged underfiring system
- **Corrective Measure**: Underfiring risers and orifices were inspected, rodded and brushed

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Site-Specific Standard Order (Particulates): Performance Review – Additional Items

Community complaints since the last CLC meeting :

A. Complaints registered with HIEA and MECP; shared cleanup costs
    1. Fallout (23 Bayfield Ave.) - July 31, 2018
    2. Fallout (2 Fourth Ave) - Aug. 18, 2018

B. Observations of Stelco emissions
    1. Black emissions during quenching on June 17, 2018 (L. Lukasik)
    2. CBS boiler stack emissions and noise on July 12, 2018 (Public)
    3. Black plume from CO stack on Sept. 28, 2018 at 2:45PM (Seen by a person while driving in the skyway bridge) – Camera review showed no such emissions from the coke oven stack from 2:15PM to 3:15PM.

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Road Dust Emission

March, 2018

Conclusion:

Dust from roadway

Probable Cause:

A gust of wind picked up some dust from the roadway between the coal piles, where the vehicles travel. The coal piles themselves were sealed off quite well.

Resolution:

The Operators, at the time, did react to the issue and had a water tanker wet down the roadway. Reviewing our controls and procedures to see if some “preventative” changes are possible – looking at sprinkler system.

Quenching Emission

June, 2018

Conclusion:

Inefficient removal of particulates during the quenching of coke.

Probable Cause:

As designed, the quench tower has baffles that capture most coke particulates. New baffles were completely installed May 2017. Green coke will also result in more fine dust in the coke, which has a tendency to be blown upward with the rising steam.

Resolution:

Clean the coke oven heating system to ensure that there are no cold spots in the oven, which can prevent fusing of coal into coke.

CBS boiler stack emissions

On the afternoon of Thursday, July 12, 2018, one of the boilers developed a large split in one of the boiler water tubes. This caused a large leak of boiler water into the boiler itself, and required the emergency shut-down of the boiler. During the shutdown process, the fuel/air ratio for the combustion system went “rich” and caused smoke. At the same time, one of the other boilers was under repair, and not able to be started. With only one other boiler operating, in combination with the low water pressure due to the large leak, the 450 psi steam pressure was reduced to 200 psi.

The coke ovens operate “exhausters” which pull the coke oven gas from the coke battery into the by-products plant. These exhausters run on 450 psi steam, so when the steam pressure was reduced to 200 psi, the exhausters were not able to keep up to the coke gas generation at the battery, causing the coke gas pressure to increase. The coke battery has a safety system which directs the coke gas to flares if the gas pressure gets too high.

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CBS boiler stack emissions

Result

- As the flares open, an ignition system lights the gas to burn the gas. The coke battery was then placed on idle until the steam supply was restored.
- With only one boiler operating to consume the coke oven gas, the pressure in the gas coke ovens remained higher than normal, causing higher than normal charging emissions. This resulted in an exceedance of the 30-day average for charging emissions.

Corrective Action

- Investigation on the cause of the higher charging emissions showed a higher than normal oven pressure caused by the single boiler operation.
- The pressure was relieved by changing the coke oven gas flare pressure set point to flare more gas, thus reducing the pressure.

Effectiveness

- Charging emissions times were reduced, which also reduced the 30-day rolling average.

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Benzene

Sampling Strategy – Benzene

The goal is to identify additional fugitive sources of benzene to assess the quantity and frequency to answer the question, Is the source significant and can it be reduced?

- Monitor – Hand-held with Photoionization Detector for VOCs (specific for benzene)
- Monitor the process – upwind, downwind – fugitive and potential emission points such as valves, vents
- Benzene measurements were taken on July 30-31, Aug 13-14, Aug 30-31, Sep 4-5, Sept 11 and Sep 21, 2018.

Sampling Locations – Benzene

Sampling Locations – Benzene

1	#7 Battery Underfiring Waste Gas Tunnel	13	Flushing Liquor Sump	25	Light Oil Loading Pump	37	Process Water Decanter Sump
2	#7 Battery COG Line to Stack Burner	14	Excess Liquor Sump	26	Cold Wash Oil Decanter	38	Ammonia Plant Depurator
3	Coke Shed	15	#1 or #2 Tar Production Pump - behind no. 1 tar decanter	27	Light Oil Storage Tank 63	39	Ammonia Plant Rich Solution tank
4	Coke Shed Baghouse Hopper	16	# 1 or #2 Light Oil Scrubber	28	Light Oil Storage Tank 64	40	Ammonia Plant Froth tank
5	#7 Battery Fugitives - Charging Emissions	17	Light Oil Rectifier	29	Final Cooler	41	Low Pressure Bleeder Sump
6	#7 Battery Fugitives - Offtake/Standpipe Emissions	18	Light Oil Condenser	30	Tar Tank 27 (new)	42	#1 or #4 Tar Decanter Lugger Boxes
7	#7 Battery Fugitives - Pushing Emissions	19	Light Oil Separator	31	South Process Water Decanter Tank	43	#7 or #8 Exhauster Seal Pots or #9, 10, 11 Precipitator Seal Pots
8	#7 Battery Fugitives - Coke Side Door Leaks	20	Light Oil Storage Tank 61	32	Dissolved Air Clarifier	44	Booster Seal pots X2
9	#7 Battery Fugitives - Pusher Side Door Leaks	21	Light Oil Loading	33	Excess Ammonia Liquor Storage Tank T15	45	Booster seal pot sump - a.k.a. Hot Tar Well Sump
10	#1 Primary Cooler Vent	22	(North or South) Intercepting Sump	34	Muller Mixing of Coal Fines, Tar Sludge	46	New Tar Loading System
11	#1 or #4 Tar Decanter	23	Hot Wash Oil Decanter	35	Tar Contaminated Wastes Storage (at BP area)	47	Coal Handling Conveyor or Baghouse Stack
12	#1 or# 2 Tar Dehydrator	24	Wash Oil Circulation Tank	36	CO Quench Basin	48	WWTP AIS Tank Aerator

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Technical Standard for Integrated Steel Plants

Compliance options under O.Reg. 419:

- Meet the Point of Impingement (POI) limits for all the parameters being released
- Site Specific Standard (SSS) – POI limit specific to a facility based on the technical options available to reduce emissions
- Technical Standard – Detailed technical operating criteria to minimize emissions for a specific parameter(s)

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Technical Standard for Integrated Steel Plants

Technical Standard

A technical standard is a technology-based solution designed for two or more facilities in a sector that are not able to meet an air standard due to technical or economic limitations.

This approach can include technology, operation, monitoring and reporting requirements that are relevant to day-to-day activities at a facility.

Once the technical standard is published, any facility in the sector (that may or may not meet the air standard) may apply to be registered under this compliance approach.

Such registration would involve a posting on the Environmental Registry and may involve a public meeting.

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Technical Standard for Integrated Steel Plants

If the technical standards published address all sources of a contaminant from a facility, then the registered facility is exempt from the relevant air standard – and instead must abide by the requirements of the technical standard.

If the published technical standards do not address all sources of a contaminant from a facility, then only certain sources of the contaminant may be excluded from the Emission Summary and Dispersion Modelling (ESDM) report.

A facility can also choose which contaminants it registers.

A facility must abide by the relevant air standards for the contaminants that are emitted by the facility and not included in the technical standard.

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Technical Standard for Integrated Steel Plants

In the development of a technical standard, the Ministry of the Environment assesses all sources of a contaminant related to a North American Industry Classification System (NAICS) code, and makes a decision as to whether or not that source needs to be better controlled, monitored or managed.

Development of a technical standard includes:

- a better understanding of sources of the contaminant for that sector,
- benchmarking technology to address the sources of a contaminant,
- and consideration of economic issues.

Specific requirements are included in the technical standard for those major sources that are determined to need better management or control. Timeframes are specified for implementation of the requirements.

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Thank You.

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