



The Steel Company of Canada

Lake Erie Works Community Liaison Committee Meeting

11 December 2019

Agenda

1. Welcome and Safety Contact
2. Review and Approval of Agenda
3. Review and Approval of Minutes of 18 September 2019 Meeting
4. Performance under O.Reg. 419/05 Site Specific Standard Order–
Particulates
5. Capital Projects Update
6. BOF Slag Fines as a Phosphorus Removal Substrate
7. Community Concerns
8. Adjournment

Know Your Emergency Exits

Review Evacuation Routes of
the room you are located in



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Cokemaking Rehabilitation Project

- Work to-date:
 - Half of battery removed from service to undergo repairs
 - As a result, only half of the number of coke ovens in service → affects leak rates recorded in daily audits
 - Ministry of Environment has approved Stelco's plan to minimize emissions during rehabilitation program

Cokemaking Rehabilitation Project (2)

- MECP has accepted Stelco's plan to minimize emissions during the project
- Key aspects include:
 - Continue to conduct daily Method 303 battery audits
 - Continue to adhere to regular practices on operating side of battery, including
 - Installation of water -sealed standpipe caps to address potential leaks from cap
 - Continue to have maintenance crews to respond to leaks such as doors and refractory damage
 - Continue to conduct quarterly coke oven emission control program for workers' health and safety

Site-Specific Standard Order (Particulates): Performance Review – During Rehabilitation Project

Date	Doors (% Leaks)	Lids (% Leaks)	Off-takes (% Leaks)
2015 Limits (July 2 start)	54%	2%	NA
2016 Limits	32%	2%	NA
2017-2019 Limits	10%	2%	5%
2020 Limits	5%	1%	4%
Aug 1 – Nov 30, 2019 Range (Average)	0.0-10.00% (4.92%)	0.0 – 2.63% (0.13%)	0.0 – 18.42% (10.33%)

Daily Measurements Performed YTD

- All weekdays, except for holidays
- 9 Saturdays
- 9 Sundays

Aug 1 to Nov 30 Operational Adjustments

- 88 operational adjustments for offtakes during this time
- 1 operational adjustment for lids during this time

These results not reflective of typical performance due to on-going significant battery repairs.



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

Date	Doors (% Leaks)	Lids (% Leaks)	Off-takes (% Leaks)	Charging (sec) (log avg)
2015 Limits (July 2 start)	38%	0.8%	25%	12 sec
2016 Limits	22.5%	0.8%	15%	12 s
2017-2019 Limits	7%	0.8%	4.2%	12 s
2020 Limits	4%	0.4%	2.5%	12 s
Aug 1 – Nov 30, 2019 Range (Average)	4.35 – 5.46% (4.84%)	0.04 – 0.45% (0.19%)	4.52 – 11.65% (9.42%)	6.01 – 8.79s (7.62 s)

August 1 – November 30, 2019 Performance

- Off-takes 30 day rolling average over limit during rehabilitation work
- Ministry of Environment has approved Stelco's plan to minimize emissions during rehabilitation program

These results not reflective of typical performance due to on-going significant battery repairs.

Site-Specific Standard Order (Particulates): Performance Review – Daily Observations – During Rehabilitation Project

Date	Pushing Emission (opacity %)
2015 Limit (July 2 start)	$\geq 50\%$
2016 – 2018	$\geq 50\%$
2019	$\geq 40\%$
2020	$\geq 30\%$
Aug 1 – Nov 30, 2019 Range (Average)	0 – 78.33% (13.30%)

August 1 – November 30, 2019 Operational Adjustments

- 6 operational adjustments for this period

These results not reflective of typical performance due to on-going significant battery repairs.

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

- There were no community complaints for the period of August to November 2019 related to the Site-Specific Standard
- Additional:
 - 1 noise inquiry – related to backup safety alarm of front end loader vehicle
 - 1 dust inquiry – Nanticoke resident
- MECP to provide verbal comments

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Capital Projects

- Blast Furnace ReLine scheduled for Q2 2020
 - Modernization of LEW blast furnace
- Pig iron casting capabilities
 - Construction to coincide with blast furnace re-line
 - Cast excess pig iron into ingots and sell to other steelmakers and/or utilize internally
- Cogeneration
 - Utilization of existing by-product fuels, which are currently flared into the air, to generate electricity

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BOF Slag Fines as a Phosphorus Removal Substrate

December 11, 2019

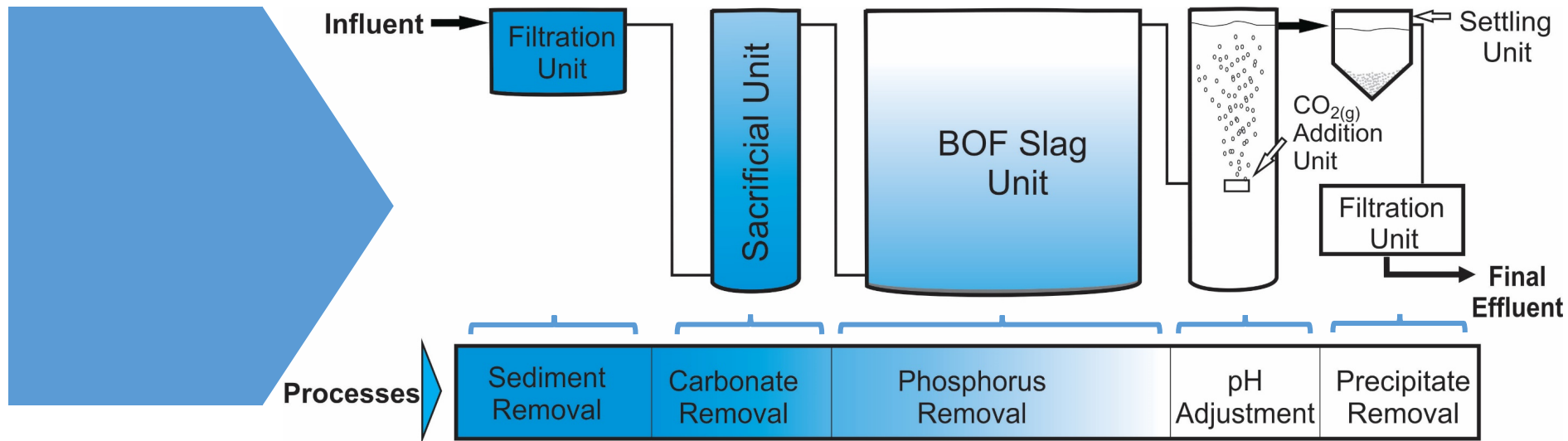
Sean McNamara

Phosphorus Contamination in Lake Erie





Barley Prize Phosphorus Treatment System



Holland Marsh drainage ditch in winter





Pumphouse

Holland River
to Cook's Bay

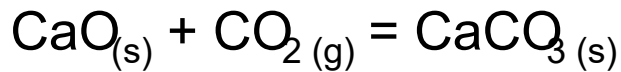
Drainage Ditch

Holland Marsh drainage ditch in summer

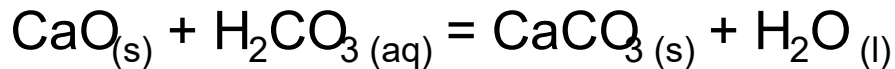


Solidification

The purpose of a sacrificial cell:



Calcium carbonate formation is increased in the filtration system as aqueous CO_2 reacts much more readily with solid lime vs gaseous CO_2

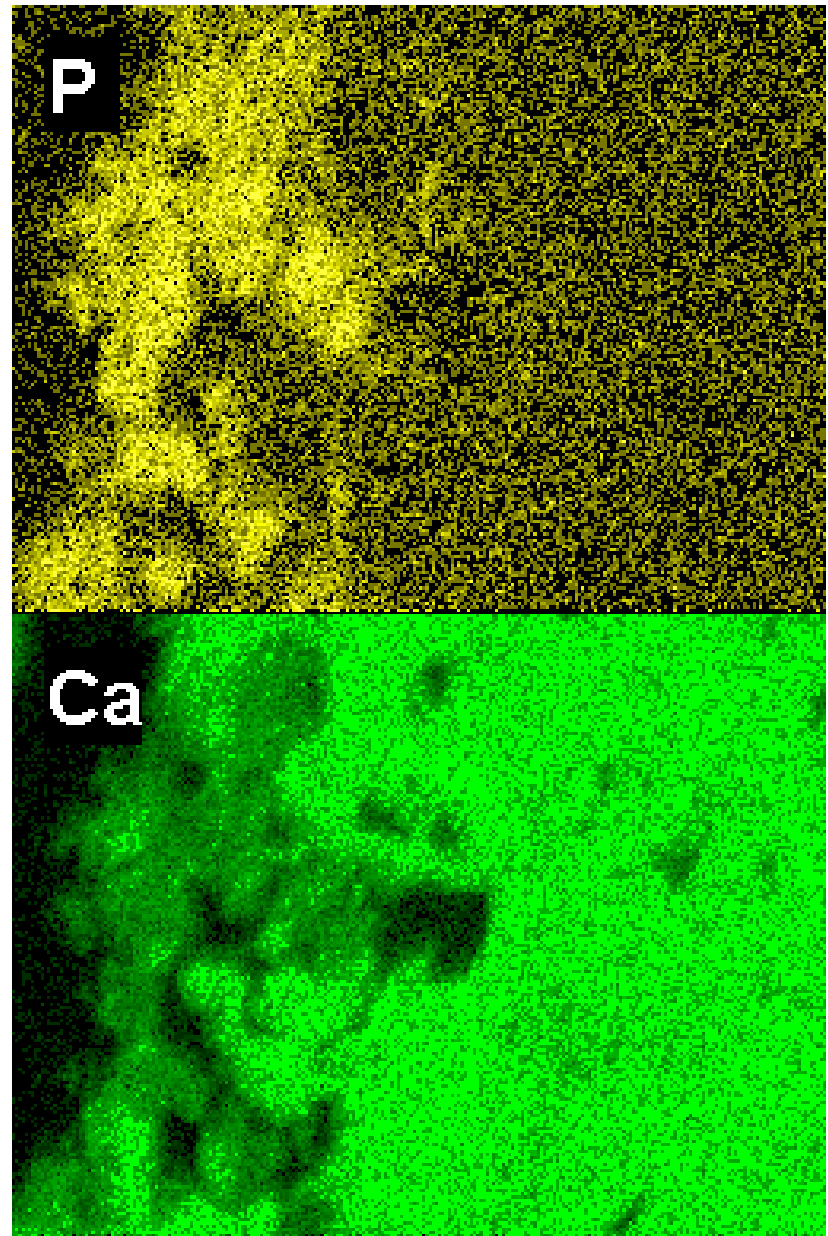
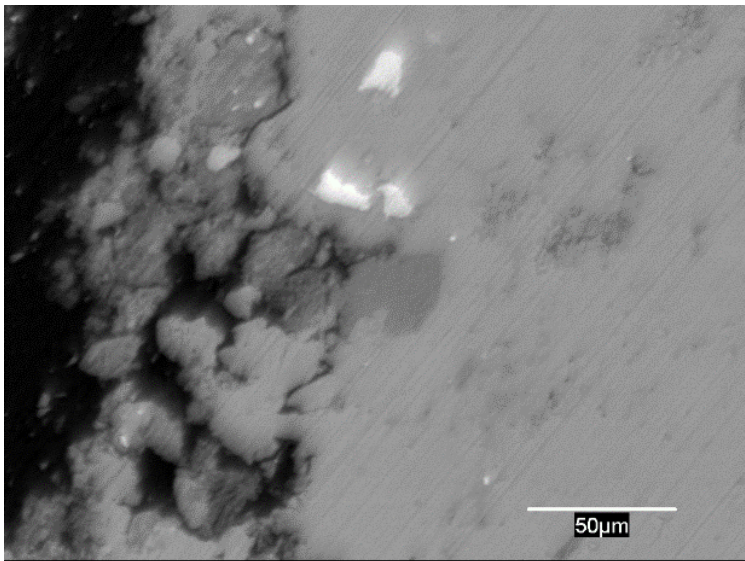


Slag replacement is performed based on unit backpressure



Phosphorus Removal

Excess lime (CaO) in the slag is highly reactive with a variety of phosphorus compounds, forming calcium phosphate, most of which are adsorbed to the slag substrate while some others precipitate out of solution



Performance

- Three month trial (March – May)
- Captured 81% of the total influent phosphorus load
- Lab trials have shown capture rates up to 99%





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Thank You.

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Proposed 2020 CLC Meeting Dates

Wed. Feb. 5

Wed. May 13

Wed. Aug. 12

Wed. Nov. 4

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