

Creating and Submitting an Industrial Source (Air Quality) Environmental Protection Plan (EPP): A How-To Guide

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Presentation Outline

Industrial Source (Air Quality) Chapter of SK Environmental Code

- ❑ Changes to air quality legislation in Saskatchewan
- ❑ Upcoming permit renewal deadline (**December 31, 2019**)
- ❑ Federal Regulations and MSAPR (**enacted June 29, 2016**)

Preparing an Environmental Protection Plan (EPP)

- ❑ Air Quality Assessment
 - Process flow diagrams and the emissions inventory
 - New or updated air quality modelling
 - Potential effects to air, water and soil quality
- ❑ Monitoring Programs and Reporting
 - Air emissions monitoring (CEMS and stack testing)
 - Ambient air quality monitoring
 - NPRI, GHGRP, and MOE Annual Reporting



Outline Cont'd

Preparing an Environmental Protection Plan (cont'd)

- ❑ Maintenance and Mitigation Programs
 - CEMS and stack testing
 - Maintenance schedules (e.g., emissions control devices)
 - Mitigation plans for fugitive sources (e.g., VOC's and/or dust)
- ❑ Emergency Response Planning
 - Failure of emissions control devices
 - Release of toxic chemicals or gases
 - Fire or explosion

EPP Submission and MOE Review

- ❑ Online portal
- ❑ Timeline
- ❑ Statement by a qualified person (QP)



Changes to SK Regulations

Repealed Legislation

- ❑ The Clean Air Act, including:
 - ❑ Clean Air Regulations; and
 - ❑ The Potash Refining Air Emissions Regulations.

New Legislation

- ❑ The Environmental Management and Protection Act, 2010
- ❑ Chapter E.1.2: Industrial Source (Air Quality) Chapter
- ❑ Saskatchewan Environmental Quality Guidelines, including:
 - ❑ Table 20: Saskatchewan Ambient Air Quality Standards (SAAQS)
 - ❑ Table 21: Saskatchewan Emissions Limit Standard (SEMLS)

(SEMLS) – Potash Mining: No person shall cause or allow the discharge of particulate matter into the ambient air from the product drying process of a plant in a concentration exceeding 0.57 grams per dry standard cubic metre.



Federal Regulations

CCME Emissions Guideline for Industrial Boilers and Heaters

- ❑ NO_x and CO emissions limits (g/GJ) based on boiler/heater size and type

CCME Emissions Guideline for Industrial Station Combustion Turbines

- ❑ Covers gas turbines and heat-recovery steam generators (HRSG's)
- ❑ NO_x, SO₂, and CO emissions limits (g/GJ) based on turbine size/configuration
- ❑ **CEMS (preferred); annual stack testing (minimum)**

NPRI (annual updates)

GHGRP (federal/Saskatchewan carbon tax) ?!



Federal Regulations (cont'd)

Multi-Sector Air Pollution Regulations (MSAPR) for Boilers and Heaters

- ❑ **Came into force June 29, 2016**
- ❑ **NO_x emissions limits (g/GJ) based on various parameters including:**
 - ❑ Boiler/heater size;
 - ❑ Original equipment, transitional equipment, new equipment?
 - ❑ Fuel type (natural gas, propane or “alternative gaseous fuels)?
- ❑ **Verification via stack testing, depends on equipment type/size:**
 - ❑ Original boilers and heaters = initial stack test or CEMS;
 - ❑ Modern or transitional >10.5 GJ/hr & < 265.5 GJ/hr = initial stack test plus CEMS; and
 - ❑ Modern or transitional > 265.5 GJ/hr = CEMS.



Preparing an EPP

Air Quality Assessment (3 main components)

- ❑ Air emissions inventory including:
 - ❑ Emission source type (stack, line area sources) and locations (site layout, including building heights); and
 - ❑ Emissions parameters (stack temperature and velocity; vehicle types and traffic volumes; and/or fugitive area emissions rates [mass/area/time]).
- ❑ New or updated air quality modelling
 - ❑ Criteria air contaminants (CO, NO_x, SO_x, PM etc., plus any other compounds specific to your operation: e.g., H₂S, HCl, hexane);
 - ❑ AERMOD or CALPUFF modelling conducted according to the 2012 *Saskatchewan Air Quality Modelling Guideline* (SAQMG, 2012); and
 - ❑ Qualified person.
- ❑ Potential effects to air, water and soil quality
 - ❑ Comparison to SAAQS; and
 - ❑ Qualified person.



Preparing an EPP (cont'd)

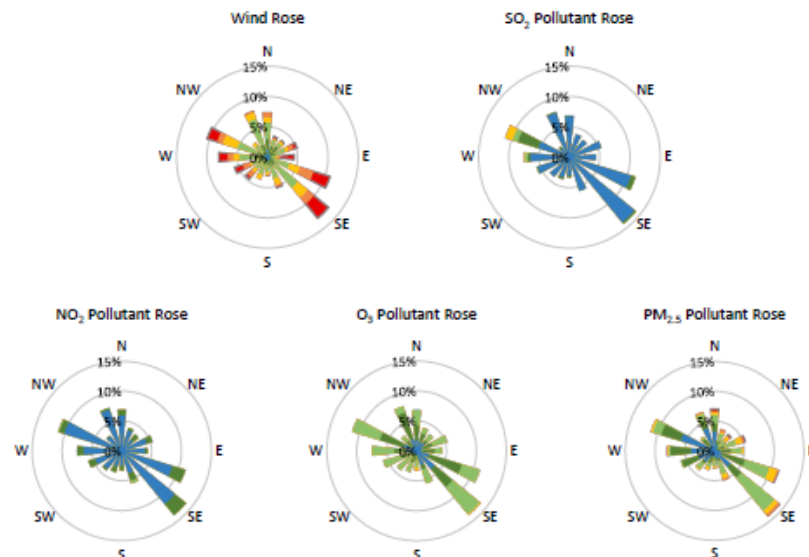
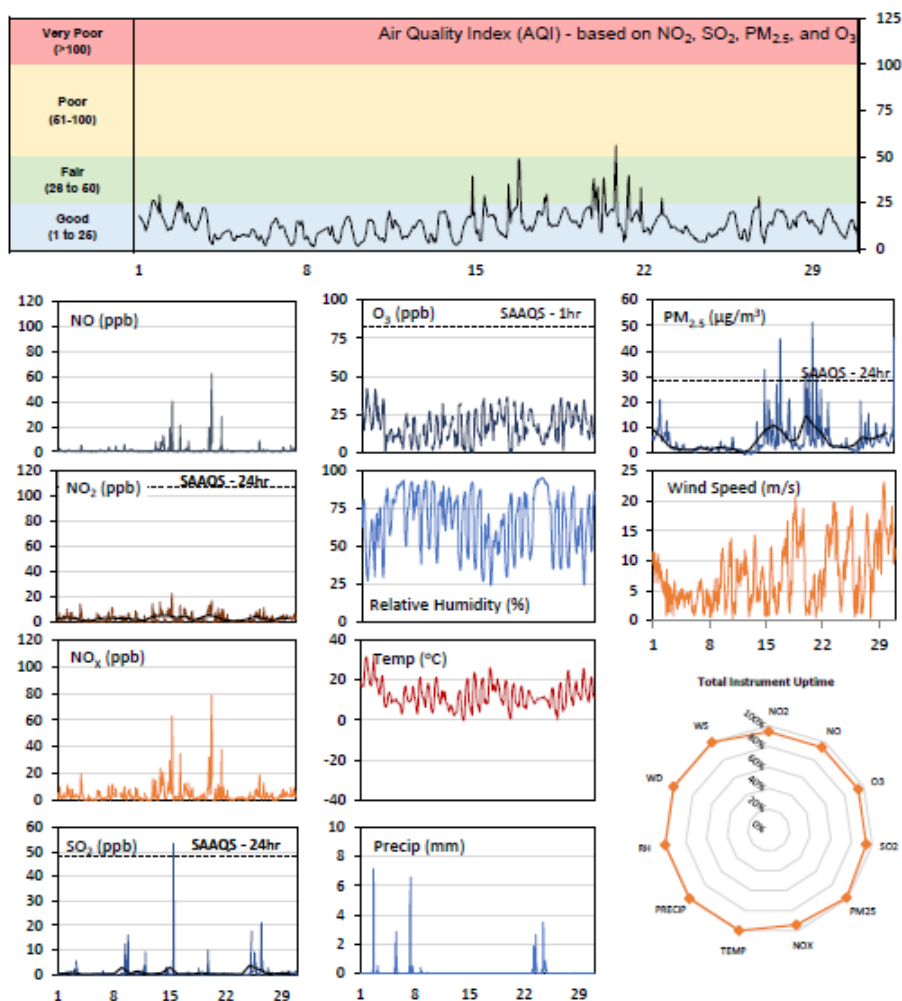
Monitoring Programs and Reporting

- ❑ Air emissions monitoring (CEMS and stack testing)
 - ❑ Boiler stacks (CEMS);
 - ❑ GT/HRSG (CEMS or stack testing after commissioning);
 - ❑ Potash dryer stacks (compliance with SEMLS) or
 - ❑ Cyclones, bag houses, EP's (stack testing).
- ❑ Ambient air quality monitoring
 - ❑ Are you joining your local Air Zone Association?
 - ❑ Yes, routine monitoring likely not required.
 - ❑ No, routine monitoring may be required by MOE.
 - ❑ Basic meteorology.
 - ❑ Do you have specific emissions of CACs that warrant monitoring due to potential effects (e.g., metals, VOCs, PACs).
- ❑ NPRI, GHGRP, and MOE Annual Reporting (“accurate and defensible”)



Pitch for the Air Zone Associations

Regional attainment is the goal, monitoring requirements bar has been raised.



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
SO ₂	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
NO ₂	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
O ₃	ppb	0 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 40	40 ≤ C < 60	60 ≤ C < 82	C ≥ 82
PM _{2.5}	µg/m ³	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

Monthly Update

- Achieved >98% of scheduled uptime for all parameters
- All compliance parameters are above 90% data validity
- Wind speed and direction data obtained from Regina airport from Sept 1 at 0:00 to Sept 8 at 23:00



Preparing an EPP (cont'd)

Maintenance and Mitigation Programs (Documentation)

- ❑ Maintenance Programs – highly specific to the facility
 - ❑ Inspections to identify and correct:
 - ❑ abrasive erosion of cyclones; or
 - ❑ fouling of wet scrubbers.
 - ❑ On-line monitoring of control device performance;
 - ❑ dust hopper totalizers; or
 - ❑ broken bag detectors and other alarms.
- ❑ Mitigation Programs – also highly specific to the facility
 - ❑ Routine housekeeping of:
 - ❑ conveyor transfer points; or
 - ❑ cyclone and baghouse hoppers.
 - ❑ Site policies, for example:
 - ❑ reducing speeds and enforcing limits on unpaved road surfaces; or
 - ❑ site watering June through October to reduce fugitive dust.



Preparing an EPP (cont'd)

Emergency Response Planning (Documentation)

- ❑ Failure of emissions control devices
 - ❑ Broken bag detectors and acid gas scrubber failures; and
 - ❑ What are your shutdown and restart procedures?
- ❑ Release of toxic chemicals or gases
 - ❑ Methane, propane, H₂S, denser-than-air gases, air-toxics;
 - ❑ Provide your emergency response plans (an Appendix or link to permanently archived plan for your facility); and
 - ❑ Do these plans include procedures that include notifying the MOE?
- ❑ Fire or explosion
 - ❑ Provide your emergency response plans (an Appendix or link to permanently archived plan for your facility); and
 - ❑ Do these plans include procedures that include notifying the MOE?



Submitting your EPP for MOE Review

EPP Submission and MOE Review

- ❑ Online portal (EA's, EPP's, annual reporting, spills reporting).
- ❑ Designate your consultant (i.e., let them deal with the bureaucracy)!

Project Administrator (you),
or your consultant (requires
your approval).

Status of pending and
completed actions.

Client and Project name and
MOE Tracking Reference #.

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		05/02/2016	07/26/2016	GDS - Scheduled Reporting		Approved

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Previous Next



Timelines and Statement by a QP

EPP Submission and MOE Review

□ Timeline

- Air emissions inventory (1 to 2 months) depends on the availability of this information within your organization.
- Air quality modelling (1 to 2 months), depends on the size of facility (e.g., number of sources by type) and complexity of the facility (e.g., generating facility versus a refinery).
- EPP document review (Client) and revisions (Golder) ~1 month.
- MOE Review = 1 to 2 months (currently – expecting bottlenecks starting in late 2018 to end of 2019).
- Total = 6 to 8 months depending on the facility.

□ Statement by a qualified person (QP)

- P.Eng. or P.Geo.
- As designated by the Ministry (via online portal).



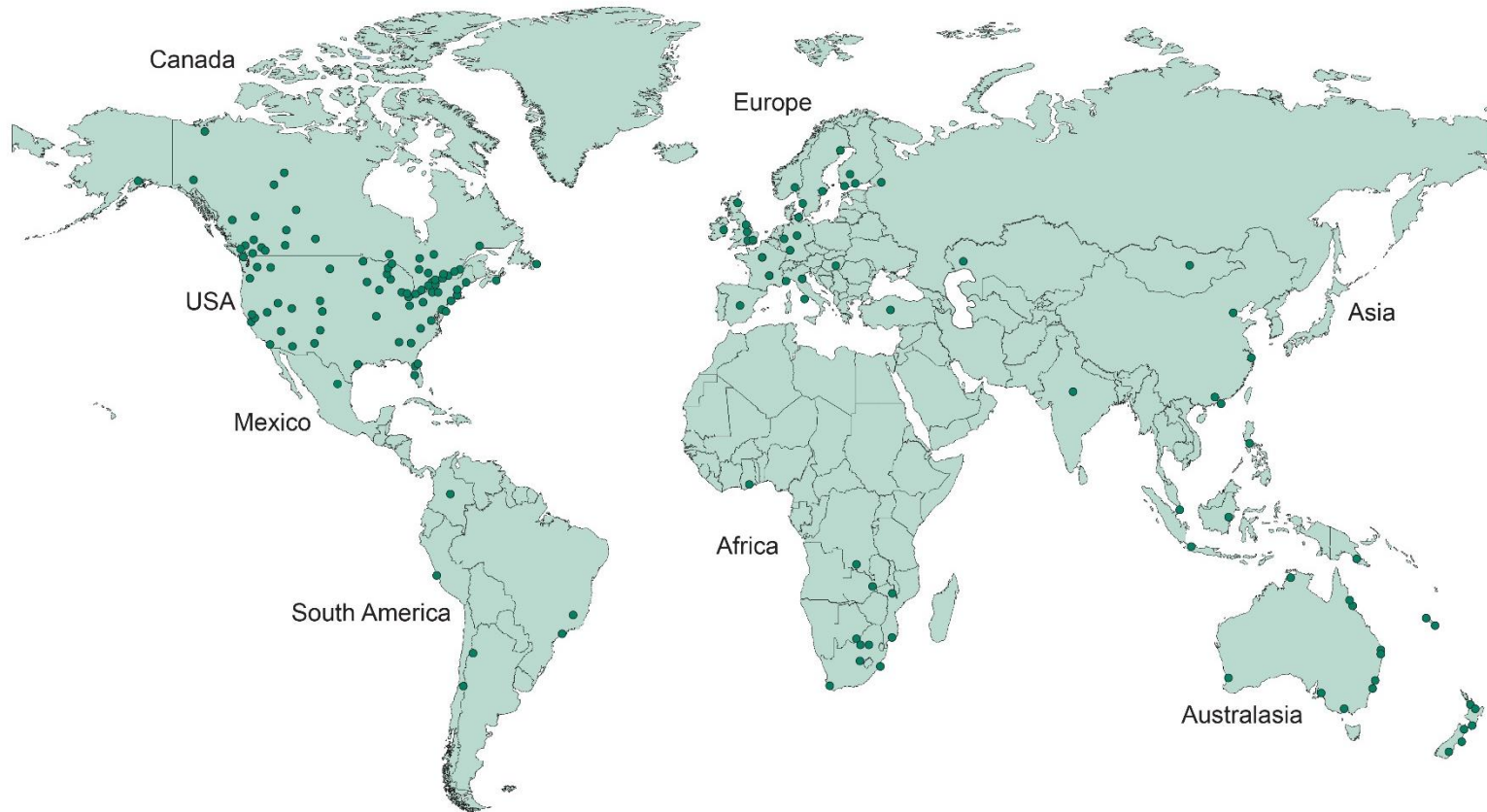
Why Choose Golder?

Golder's Experience

- ❑ Two completed and approved EPP submissions in last 6 months:
 - ❑ City of Regina Landfill Gas to Energy Project
 - ❑ K+S Potash Canada Legacy Mine
- ❑ Two EPP's in preparation:
 - ❑ 55 tonnes/day lightweight aggregate plant
 - ❑ 3000 tonnes/day canola processing facility
- ❑ Experienced Team
 - ❑ EA's, permitting and related assessments in Western Canada, the Arctic, and Nunavut.
 - ❑ Qualified Scientists and Professional Engineers holding advanced degrees (atmospheric science; civil and environmental engineering).
 - ❑ Excellent working relationships with regulators at MOE and the Air Zone Associations (SESAA, WYAMZ, GPAZ).



Engineering Earth's Development, Preserving Earth's Integrity



LEGEND

● Golder Office Locations

Golder Associates Office Locations 2016

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