CONCRETE PRODUCTION ENVIRONMENTAL REQUIREMENTS WEBINAR SERIES – AIR QUALITY

Facilitator

Oliver Xiao, P.Eng.

Technical Services Engineer

Concrete Ontario

oxiao@concreteontario.org

Housekeeping

- Approximately 40 minute webinar with Q & A at the end
- All participants are muted during the presentation
- Questions? Use the GoToMeeting ‘Questions’ function
- Webinar will be recorded and posted on the Concrete Ontario website along with a PDF copy of the presentation. https://www.rmcao.org/publications/webinar-presentations/

Speaker

Megan Ostronic, P.Eng.

Environmental Engineer

BCX Environmental Consulting

mostronic@bcxenvironmental.com

Speaker

Savio DeSouza, P.Eng.

CEO and Senior Principal Engineer

Bridge Check Canada Ltd.

sdesouza@bridgecheckcanada.com

Concrete Ontario

Concrete Production Environmental Requirements Webinar Series – Air Quality

Presenter: Megan Ostronic, M.A.Sc., P.Eng.
BCX Environmental Consulting
June 17, 2021

Outline

- Environmental Compliance Approvals
  - 2020 Air Requirement Overview
  - Does your facility meet the 2020 Requirements?
  - Scenarios of 2020 Compliance
  - Requirements for a Schedule 3 Compliance Assessment
- Environmental Activity and Sector Registry
- Environmental Registry of Ontario

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- **Environmental Compliance Approvals**
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2020 Air Requirement Overview – Regulatory Regimes

- In Ontario, any person that emits an air contaminant into the natural environment requires an environmental approval.
- Depending on the type of the facility, the facility may require an Environmental Compliance Approval (formerly called a Certificate of Approval) or an Environmental Activity and Sector Registry (EASR).
- An ECA is regulated under Ontario Regulation 419/05 (Reg 419).
- An EASR is regulated under Ontario Regulation 1/17 (Reg 1/17).
- Ready-mix concrete plants require an ECA. Mobile concrete supply operations require an EASR.

2020 Air Requirement Overview – Point-Of-Impingement (POI) Standards

- Under both ECAs and EASRs, a facility is required to meet Ontario's Ministry of the Environment, Conservation and Parks (Ministry) air quality standards, which are set out in the air contaminant benchmark (ACB) list.
- The facility must demonstrate compliance using a Ministry approved regulatory air dispersion model and show that under a maximum emissions scenario, "the maximum modelled **Point-Of-Impingement (POI)** concentrations" are below the air quality standards.
- For ready-mix plants and mobile concrete supply operations, the POI is normally at the facility property line.

2020 Air Requirement Overview – Emission Summary and Dispersion Modelling Report

- ECAs and EASRs are supported by an Emission Summary and Dispersion Modelling (ESDM) report (typically prepared by a qualified air consultant).
- This report describes the facility location and operations, defines the maximum emissions scenario, calculates emissions, summarizes the modelling setup and results and compares the results to the Ministry Standards.
- ESDM reports should be kept at the facility, along with the environmental approval.
- The ESDM report must be made available to a Ministry District Officer upon request. It is not required to be made available to the general public. Only the executive summary and emission summary table (EST) are required to be made available to the general public.

2020 Air Requirement Overview – New Standards

- Historically, facilities, such as ready-mix plants, could demonstrate compliance using the Ministry's simpler Ontario Regulation 346 (Reg 346) model and Schedule 2 Standards.
- **As of February 1, 2020**, the Ministry phased out the Reg 346 model and Schedule 2 Standards.
- All facilities that have an air permit are now required to use an advanced dispersion model such as AERMOD and compare POI concentrations to Schedule 3 Standards.
- If inspected, the Ministry District Officers will ask facilities to **confirm that they have assessed their facility to Schedule 3 standards**.
- Any new environmental applications or registrations will be required to use AERMOD and Schedule 3 Standards.

BCX

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Does your facility meet the 2020 Requirements?

- For ready mix plants that have not amended their approvals in the last few years, it is likely that the ESDM report that supports your approval, still assesses air emissions using the Reg 346 model and Ministry's Schedule 2 POI Standards.
- This can quickly be checked by looking at the Emission Summary Table in the ESDM (**Schedule 2 Standards have ½-hour averaging periods**).

Does your facility meet the 2020 Requirements? - Examples

Table ES-1: Emission Summary Table

Contaminant Name	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration (µg/m^3)	Averaging Period (hr)	MOE POI Limit (µg/m^3)	Limiting Effect	Regulation Schedule #	Percentage of MOE POI Limit (%)
Total Suspended Particulate	-	2.34E-01	Reg. 346	85.16	0.5	100	Visibility	2	85.2%
Nitrogen Oxides	10102-44-0	2.60E-02	Reg. 346	10.61	0.5	500	Health	2	2.1%

Schedule 2 **Actions Required**

Table ES-1: Emission Summary Table

Contaminant Name	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration (µg/m^3)	Averaging Period (hr)	Ministry POI Limit (µg/m^3)	Limiting Effect	Regulation Schedule #	Percentage of Ministry POI Limit (%)
Particulate Matter	-	6.22E-01	AERMOD	105.9	24	120	Visibility	3	88.3%
Respirable Crystalline Silica (quartz) (PM_{10})	14808-60-7	1.01E-03	AERMOD	1.8	24	5	Health	Guideline	35.1%
Portland Cement - PM Emission Factors	65997-15-1	1.05E-01	AERMOD	36.7	24	90	Health	SL-MD	40.8%
Slag	65996-69-2	3.45E-02	AERMOD	12.2	24	26	Health	SL-MD	47.0%
Calcium Oxide	1305-78-8	5.22E-03	AERMOD	1.8	24	10	Corrosion	3	18.4%
Nitrogen Oxides	10102-44-0	1.49E-01	AERMOD	112.1	24	200	Health	3	56.0%
Nitrogen Oxides	10102-44-0	1.49E-01	AERMOD	288.0	1	400	Health	3	72.0%

Schedule 3

My facility is still in Schedule 2, what now?

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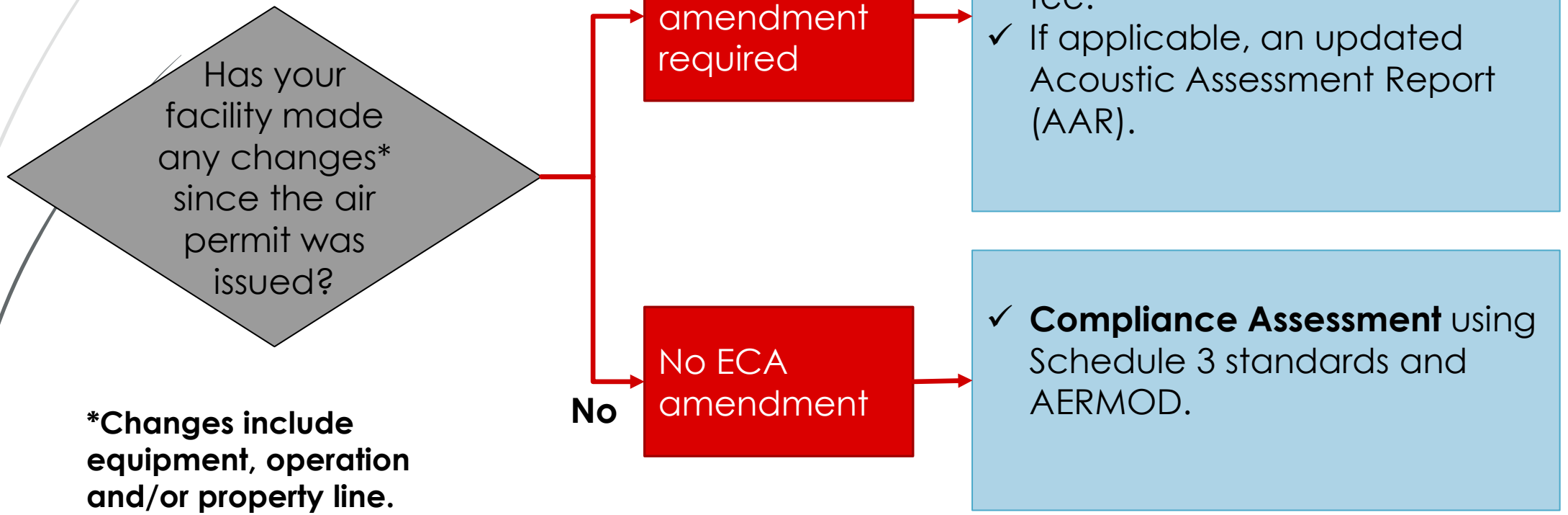
- Environmental Activity and Sector Registry
- Next Steps

Scenarios of 2020 Air Compliance



***Changes include equipment, operation and/or property line.**

Scenarios of 2020 Air Compliance – What about Noise?

- Environmental approvals may also require a noise assessment, based on the Ministry's noise screening form.
- Preparing a 2020 compliance assessment does not require an updated noise assessment, unless:
  - changes have been made that require an ECA amendment or EASR registration update; and
  - the changes to the facility result in a change in noise. E.g. operating schedule change from 7-7 to 24/7, addition of noise sources, increase in noise levels, etc.

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Requirements for a Schedule 3 Standard Compliance Assessment

- There are two components: (1) Emission Inventory and (2) Dispersion Modelling.
- Emission Inventory:
  - Since the averaging period for most of the Schedule 3 standards is 24 hours, the emission inventory is based on a daily maximum emission scenario.
  - For a facility that does not operate 24/7, the maximum daily emission rates will be lower than the hourly/30-min emission rates.
- Dispersion Modelling:
  - The regulatory model for Schedule 3 is an advanced dispersion model, AERMOD.
  - AERMOD allows site-specific inputs and has more options to characterize sources. The results are therefore more "representative" than the Reg 346 model.

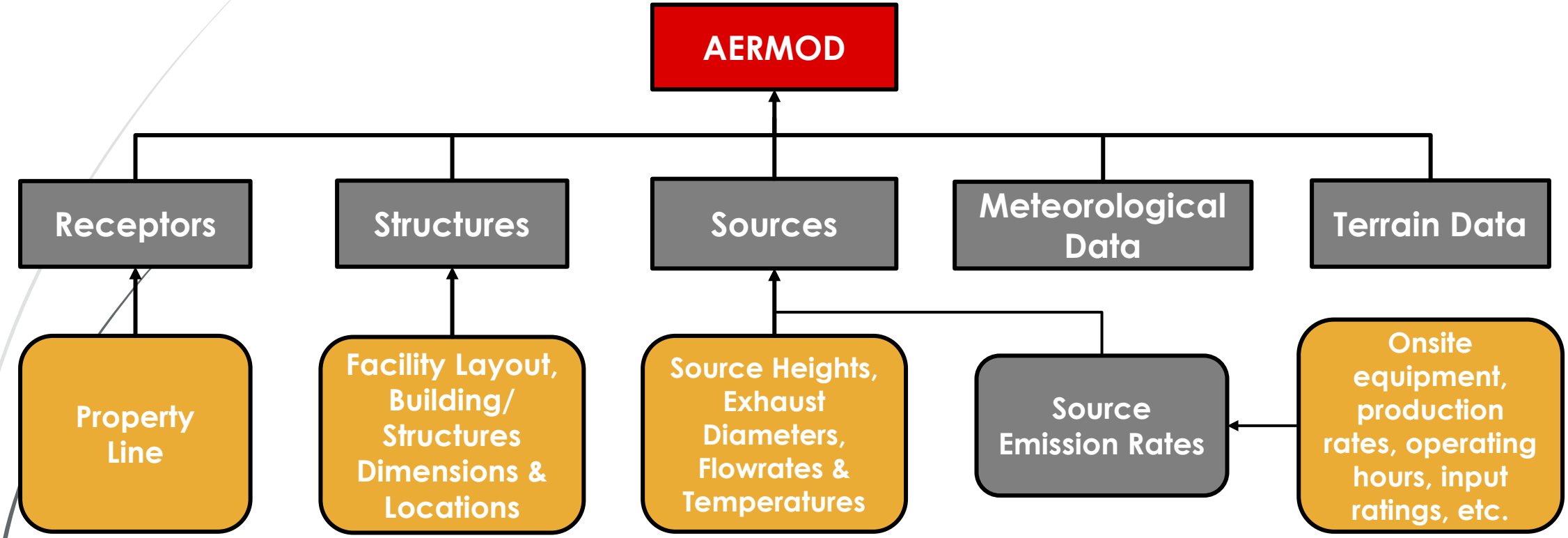
Reg. 346 Model vs. AERMOD Model

Item	Reg. 346 Model	AERMOD Model
POI Standards	Schedule 2	Schedule 3
Averaging Period	½ hour	1 hr, 24 hr, annual, 10 minute and 30 day
Types of Modelling Sources	Point Sources and Virtual Sources	Point, Volume, Area, Open Pit and Line Sources
Meteorology	Fixed conditions – stability classes C and D stability, 5 m/s wind speed	Uses Ministry approved regional or site specific 5 year met data
Terrain	No terrain, flat	Uses Ministry approved regional terrain data set

Reg. 346 Model vs. AERMOD Model

Item	Reg. 346 Model	AERMOD Model
Level of Training Required to Run Model Effectively	Days	Months to Years
Level of Detail	Simple	Complex
Time to Run	Fast	Takes hours or days
Time to Analyze Results	Fast	Longer
Cost to Run	Inexpensive	More expensive

Information Required for a Compliance Assessment – AERMOD Modelling Inputs



Provided by Client

Obtained/Developed by Consultant

Requirements for a Schedule 3 Standard Compliance Assessment – Additional Contaminants

- In the past few years, the Ministry has been requiring the assessment of respirable crystalline silica (RCS) in applications for environmental permits.
- Many older ESDM reports do not include an assessment of this contaminant.
- Compliance Assessments should consider assessing RCS where RCS is not expected to be insignificant.
- Historically, the Ministry did not have limits for Portland cement and slag. These were assessed as constituents of Portland cement and slag, e.g., magnesium carbonate, calcium carbonate, etc. It is reasonable to assess Portland cement and slag against the new limits for Portland cement and slag, only.

Compliance Assessment – Portable Plants

- Portable ready-mix plants are also required to demonstrate that they meet the Schedule 3 standards (i.e. that separation distances for air in their ECAs are still valid).
- The methodology (i.e. calculating maximum emissions and modelling using AERMOD) is the same as a stationary plant. However, unlike a stationary plant, portable plants can operate in a number of locations across Ontario.
- AERMOD uses site-specific or regional specific meteorological and terrain data. This means, for a portable plant to have maximum flexibility on where it can operate, the assessment must consider all weather and terrain conditions in Ontario.
- This can result in a more costly assessment.

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Environmental Activity and Sector Registry

- O. Reg. 1/17 → Identifies activities and/or operations that are not eligible to register to the EASR based on NAICS codes.
- If a facility is not eligible to register, they must apply for an ECA.
- Ready-mix concrete manufacturing is an activity listed as requiring an ECA (NAICS code 32732).
- Mobile concrete supply operations (i.e. volumetric, onsite mixing operations), fall under the NAICS code 327390, and therefore, are eligible and must register for an EASR.
- The primary differences between an ECA and an EASR are non-technical (i.e. the same technical work is required). However, an EASR is prepared by a licenced engineer and it is not submitted to and reviewed by the Ministry. Registrations are not prescriptive and once uploaded, are immediately in effect.
- For mobile concrete supply operations that already have an ECA (pre-2017), they do not register for an EASR until 2027, unless a change requiring an amendment is being made to your facility.

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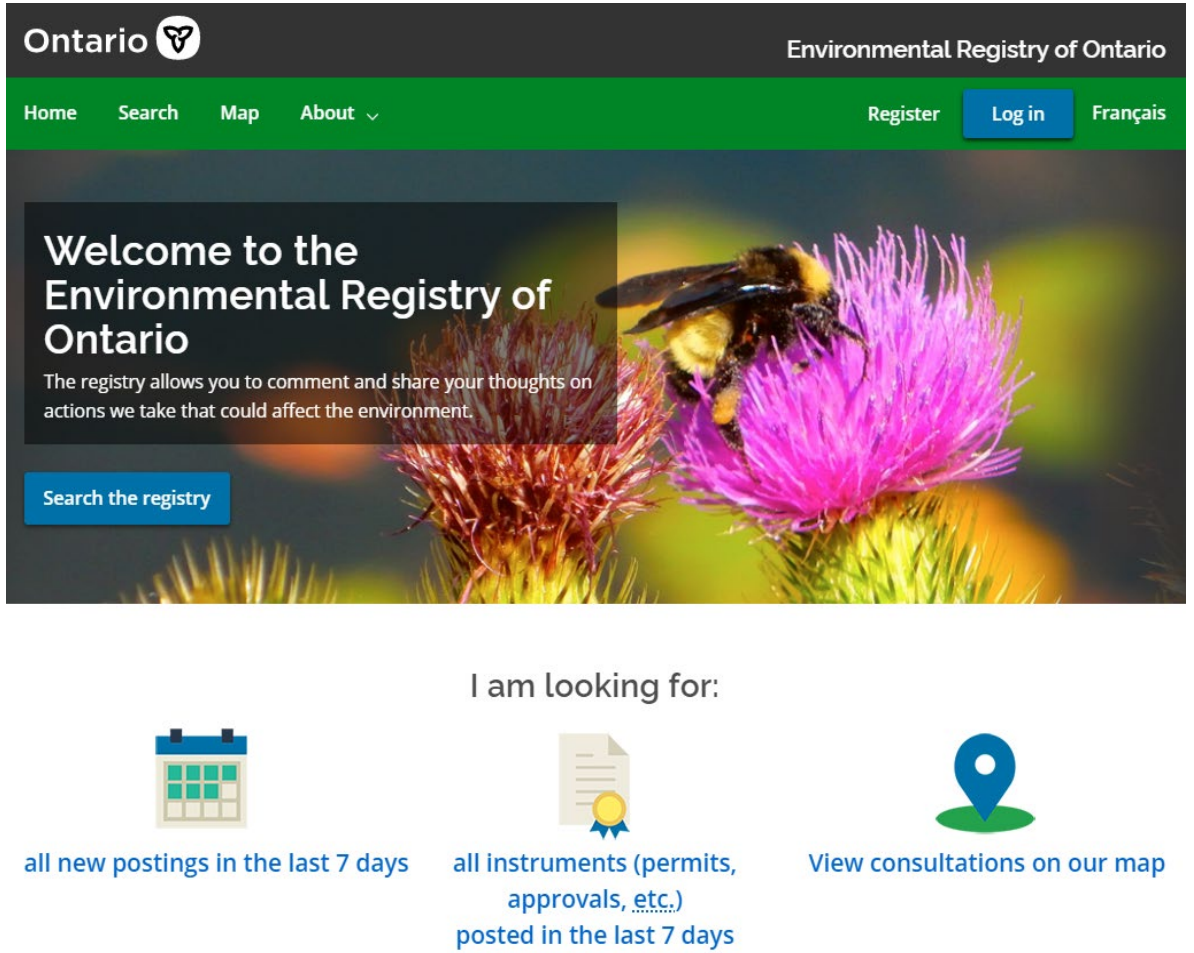
Environmental Registry of Ontario (ERO)

- Replaces the EBR
- The registry allows users to search, view and comment on permits, policies, regulations, etc.
- https://ero.ontario.ca/



Questions and Comments?

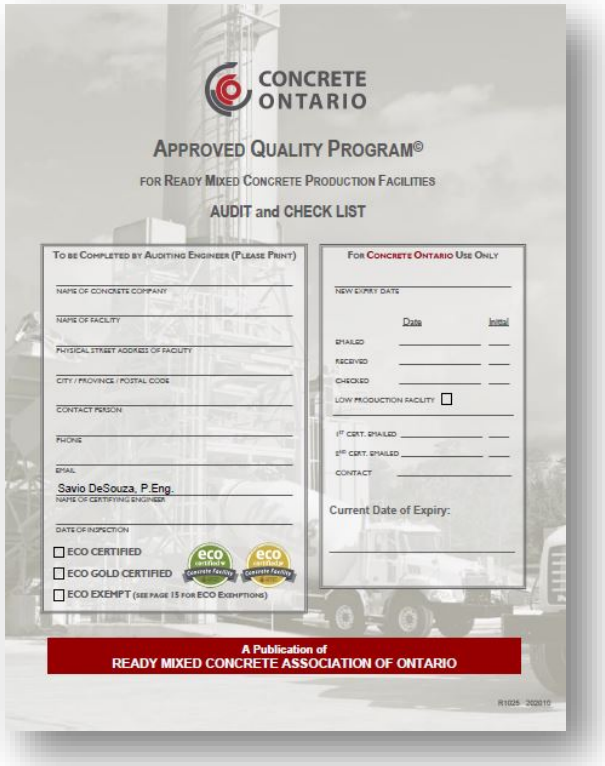
Please contact:

BCX Environmental Consulting
Megan Ostronic, P.Eng.
Email: mostronic@bcxenvironmental.com
905 235-4218

or

Concrete Ontario
Oliver Xiao, P.Eng.
Email: oxiao@concreteontario.org
905-564-5412

Concrete Ontario Approved Quality Program
What an Auditor Looks For…



Savio DeSouza, M.A.Sc., P.Eng.

CEO / Senior Principal Engineer

200 Viceroy Road, Unit 4, Vaughan, ON L4K 3N8
www.bridgecheckcanada.com

BRIDGE CHECK CANADA

Tel: 905-660-6608 Fax: 905-660-6609
info@bridgecheckcanada.com

Checklist for ECO Concrete Facility

a. **MANDATORY COMPLIANCE:** ***Part A****, Sustainable Sites* of ECO Audit and Check List containing *Section 1 – Facility Information* and *Section 2 – Facility Compliance*, became a mandatory PASS section for RMCAO Facility Certification, as of the first full Audit of that facility after January 1, 2013.

Facilities passing all of the requirements of the RMCAO Approved Quality Program Audit and Check List and ***Part A*** *of the ECO CONCRETE Facility Certification Audit and Check List, shall be designated as "****RMCAO ECO CONCRETE Facility Certified****".*

b. **OPTIONAL COMPLIANCE:** ***Part B*** *– Water Efficiency,* ***Part C*** *– Materials and Resources,* ***Part D*** *– Energy and Atmosphere,* and ***Part E*** *– Innovation and Design* of the ECO Audit and Check List, shall be designated as optional.

Facilities passing all of the requirements of the RMCAO Approved Quality Program Audit and Check List, the ***mandatory Part A*** *and* ***optional Parts B, C, D & E*** *of the ECO Concrete Facility Certification Audit and Check List, shall be designated "****RMCAO ECO GOLD CONCRETE Facility Certified****".*

Exemptions:

- Portable concrete facility with its own ECA permit can operate for up to one (1) year at a single site.
- A portable concrete facility that is located on an active construction site.
- The concrete plant is located on First Nations Land.

200 Viceroy Road, Unit 4, Vaughan, ON L4K 3N8
www.bridgecheckcanada.com

BRIDGE CHECK CANADA

Tel: 905-660-6608 Fax: 905-660-6609
info@bridgecheckcanada.com

Part I – Sustainable Sites (SS)

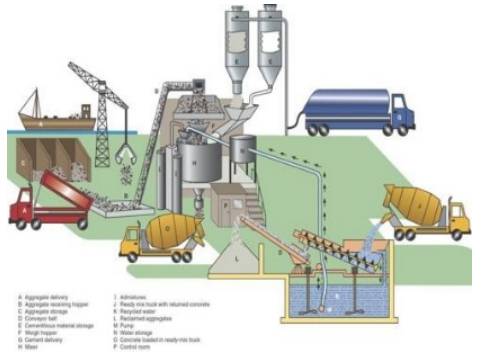
MANDATORY COMPLIANCE

NOTE: Items marked ① are Bonus points and are not counted against the section score. It is possible to obtain a score over 100%.

PART I – SUSTAINABLE SITES (SS) **MANDATORY COMPLIANCE**

1.1 Facility Compliance

		YES	NO	N/A
1.1.1	**Site Plan** Up to date Site Plan available Last updated: _____	[ ]	[ ]	
1.1.2	**Environmental Policy** Does the facility have a Company Environmental Policy?	[ ]	[ ]	
1.1.3	**Permits**			
a)	**Water – Permit To Take Water (PTTW)** *NOTE: If more than 50,000L of water per day is extracted in total from a well and/or surface water body(s), a PTTW is required.* *What is the water source?* *Municipal* □ *go to 1.1.3 (b)* *On-Site Well or Surface Water Body* □ *Do you extract less than 50,000L of water per day?* □ *go to 1.1.3 (b)* *Do you extract more than 50,000L of water per day?* □			
	If yes, are valid permits in place or has application for PTTW been made with the Ministry?	[ ]	[ ]	
	Permit No/Reference number _____			
b)	**Discharge (Process Water)** Is process water discharged from constructed works prevented from moving off-site?	[ ]	[ ]	
	If no, are valid Environmental Compliance Approval (ECA) in place or has application for ECA been made with the Ministry?	[ ]	[ ]	[ ]
	Provide permit numbers for current ECA or the MOE Reference number for applications on file with the MOE. *ECA No.* _____ *or* *Permit No.* _____			
c)	**Waste Generator** Does the site generate subject waste (liquid and hazardous)?	[ ]	[ ]	[ ]
	If yes, provide the Generator Registration No. _____ *If no, go to 1.1.3 (d)*			
	If yes, are copies of waste manifests available? *NOTE: Required only if waste is generated with the last 2 years (i.e. copy 2 & 6)*	[ ]	[ ]	



Ontario

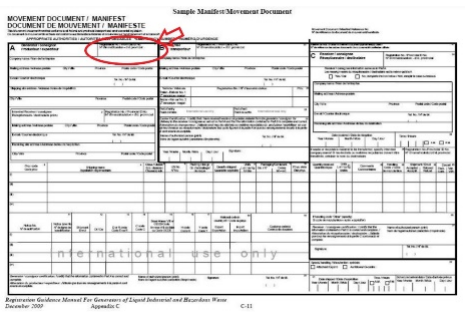
Ministry of the Environment
Ministère de l'Environnement

PERMIT TO TAKE WATER
Ground Water

Ontario

Ministry of the Environment
Ministère de l'Environnement

CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE WORKS



200 Viceroy Road, Unit 4, Vaughan, ON L4K 3N8
www.bridgecheckcanada.com

BRIDGE CHECK CANADA

Tel: 905-660-6608 Fax: 905-660-6609
info@bridgecheckcanada.com

Part I – Sustainable Sites (SS)

MANDATORY COMPLIANCE

	YES	NO	N/A
d) Air & Noise Is valid Environmental Compliance Approval (ECA) for Air and Noise in place or has application for ECA been made with the Ministry?	[ ]	[ ]	
Provide permit numbers for current Environmental Compliance Approval and/or Amendment or the MOE Reference number for applications on file with the Ministry.			
ECA No., or _____			
MOE Reference No. _____			
The company is aware that the production facility needs to meet the schedule 3 standards and AERMOD requirements as of Feb. 1, 2020.	[ ]	[ ]	
e) Facility Reporting			
Does the facility operate at 20,000 employee hours or more per year?	[ ]	[ ]	
If yes, does the facility assess under Environment Canada for National Pollutant Release Inventory (NPRI)? (See APPENDIX F for NPRI Sample Output)	[ ]	[ ]	[ ]

NOTE:
1. *All facilities are required to screen under Ontario Ministry of Environment's Ont. Regulation 127/01, and Environmental Canada NPRI. However, only facilities that exceed the reporting thresholds are required to report this information.*

	Pass	Fail
FULL COMPLIANCE REQUIRED FOR SECTION 1.1	____	____

Ontario

Ministry of the Environment | **Ministère de l'Environnement**

CERTIFICATE OF APPROVAL AIR

https://www.lioapplications.lrc.gov.on.ca/Access_Environment

APPENDIX F: NPRI Sample Output

NPRI Emissions Summary — Reporting Year: 2011

Site Name:

6-Digit NAICS Code: 327320 (Primary)

Indicate ("Y") if MPO >= MPO Thresholds (see note 4 for details)		Estimated Actual Emissions by Release Mode (tonne)										
Contaminant	CAS	Stack/ Point	Stor-age/ Han-dling	Fugitive	Spills	Other	Road Dust	Total Emis-sions (tonne)	Estimated MPO based on Raw Material Com-position (tonne)	Emissions from Com-bustion Sources (tonne) (see Note 5)	Stack Emis-sions from Mining Activi-ties (tonne) (see Note 6)	Fugitive Emis-sions from Mining Activi-ties (tonne) (see Note 6)
PART 1A Substances												
Acetaldehyde	75-07-0	0.000000		0.000000				0.000000	0.00			
Acetonitrile	75-05-8	0.000000		0.000000				0.000000	0.00			
Acetophenone	98-86-2	0.000000		0.000000				0.000000	0.00			
Acrolein	107-02-8	0.000000		0.000000				0.000000	0.00			
Acrylamide	79-06-1	0.000000		0.000000				0.000000	0.00			
Acrylic acid (and its salts)	79-10-7	0.000000		0.000000				0.000000	0.00			
Acrylonitrile	107-13-1	0.000000		0.000000				0.000000	0.00			

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Part II – Water Efficiency (WE)

PART II – WATER EFFICIENCY (WE) **OPTIONAL COMPLIANCE**

1.1 Water Management

		YES	NO	N/A
1.1.1	**Water Use** Does facility quantify annual potable water usage?	[ ]	[ ]	
	Is facility able to demonstrate water use ratio per cubic metre of concrete used annually? Total water _____L (A) Total cubic metres of concrete _____m³ (B)	[ ]	[ ]	
	What is your water use ratio? (A/B) _____ L/m³	[ ]	[ ]	
1.1.2	**Manufacturing and Operations**			
	a) **Truck Wash-Down after Loading**			
	Is the water being directed and captured in a containment area?	[ ]	[ ]	
	Is recycled water being used in truck wash-down?	[ ]	[ ]	
	b) **Chemical Washing of Trucks at Facility**			
	NOTE: If trucks are not stationed at site, this section is N/A – go to 2.1.2 (c)			
	Is the chemical solution washing of trucks directed and captured in a containment area?	[ ]	[ ]	[ ]
	Are the chemicals environmentally friendly? Describe _____	[ ]	[ ]	[ ]
	Is recycled water being used in this process?	[ ]	[ ]	[ ]
	c) **Boiler Blow-Down Water for Production of Steam for Heating Materials**			
	NOTE: Applies to winterized facilities only			
	Is the water being directed and captured?	[ ]	[ ]	[ ]
	d) **Slurry and Process Water** Is Slurry and/or Process Water being recycled in the manufacturing process?	[ ]	[ ]	
	e) **Water Conservation**			
	Are the following water conservation measures used?			
	• hose shutoff valves or timers used for truck tank fill?	[ ]	[ ]	
	• employees trained in water conservation?	[ ]	[ ]	
	• dry wash (i.e. dry aggregate) used for drum washout, or multiple small volume rinses used for drum washout?	[ ]	[ ]	
①	• pressure washers (i.e. truck wash-down) used to conserve water?	[ ]	[ ]	

① Bonus point

4.1. **Compressive Strength** – Water of unknown quality shall not be used in concrete unless it produces a 28 day concrete strength, equal to at least 90% of a control mixture. The control mixture shall be produced using the same materials, proportions, and a known acceptable water. The mixture used to assess the mix water shall be designed for a strength of 25 MPa or greater at 28 days of age, and utilize a representative sample of the water in question.

4.2. **Concrete Set Times** – Water of unknown quality shall not be used in concrete unless it produces initial and final concrete set times between 1 hour earlier or 1.5 hours later than a control mixture. The control mixture shall be the same mixture as described in clause 4.1.

4.3. **Chemistry** – Water of unknown quality shall be tested in accordance with Table 1 and records shall be made available to owners upon request.

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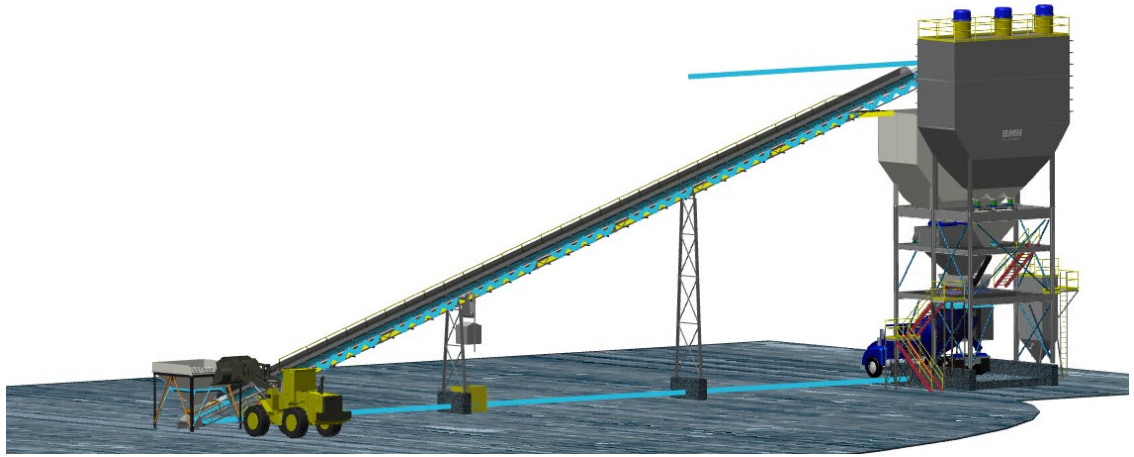
Part II – Water Efficiency (WE)

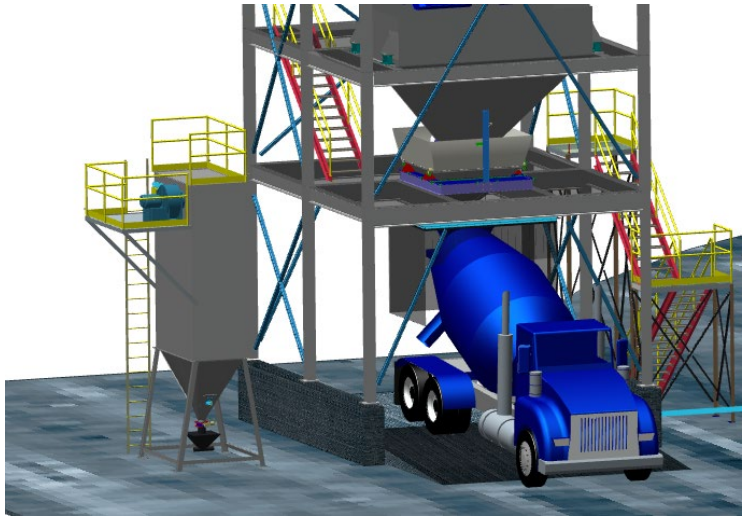
		YES	NO	N/A
1.1.3	**Stormwater Management** Is all Stormwater flowing through process areas (i.e. washouts, material loading points, sludge area, slump racks or other high pH areas) captured and recycled?	[ ]	[ ]	

TOTAL SECTION 2.1 _____ / _____

NOTE: *If trucks are stationed at the site - **13-14***
*If trucks are not stationed at the site - **10-11***

Section 2.1 10-14 Points Available Pass = 57%





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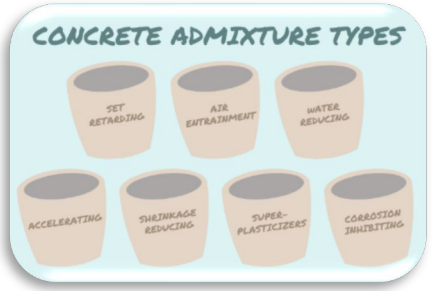
info@bridgecheckcanada.com

Part III – Materials and Resources (MR)

PART III – MATERIALS AND RESOURCES (MR) — **OPTIONAL COMPLIANCE**

3.1 Manufacturing

	YES	NO	N/A
3.1.1 Materials Reduction			
Does the facility have practices to reduce:			
• total amount of potable water required to manufacture concrete by:	[ ]	[ ]	
- water reducing admixtures – mid range, high range, VMA			
- contain and reuse waste (non-potable) water as wash water			
- contain and recycle slurry or waste water in manufacturing process			
• total amount of new aggregates by using crushed concrete or reclaimed aggregates	[ ]	[ ]	
- aggregates to reduce natural resource consumption, transportation issues, truck emissions and traffic congestion			
• the carbon footprint by reducing total amount of Portland cement	[ ]	[ ]	
- use SCMs such as fly ash, slag and/or silica fume			
▪ normal replacement – i.e.. 10% to 35%			
▪ High Volume SCM 1, 2 as per CSA A23.1-14 clause 8.7.1			
▪ use of Portland Limestone Cement (GUL) or other materials to reduce CO_2			
3.1.2 Delivery			
Does the facility have a policy to:			
• clean trucks before leaving the facility	[ ]	[ ]	
• capture chute washout water at the jobsite (i.e. contractor-approved environmental area, enviroguard, etc.)	[ ]	[ ]	
3.1.3 Returned Concrete/Solid Materials Management			
Is returned concrete suitably contained at the production facility before being processed?	[ ]	[ ]	
Is returned concrete being treated by one or more of the following methods? i.e. Reclaimed (source separated reclaimers) or recycled (blocks, crushing, road base)	[ ]	[ ]	
Are manufacturers/suppliers contacted for removal of solid waste material? (i.e. lubricants, tires, batteries)	[ ]	[ ]	[ ]
Are solid waste materials (i.e. lubricants, tires, batteries) stored in, or moved to a suitable area?	[ ]	[ ]	[ ]
3.1.4 Washout Solids/Returned Concrete			
Are adequate containment facilities available for washout solids from the process water systems? (i.e. are materials adequately contained and removed from the site if required?)	[ ]	[ ]	
3.1.5 Chemical Management			
NOTE: Does not include concrete admixtures			
a) Storage			
Does the site have proper storage (i.e. containment systems, etc.) for all chemicals and waste chemicals?	[ ]	[ ]	
Has the facility confirmed that there are no incompatible chemicals stored in same containment area (as per MSDS advisory)?	[ ]	[ ]	
b) Spills			
Does the site have at least one emergency "Spills Kit"?	[ ]	[ ]	
Location in facility _____			



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Part III – Materials and Resources (MR)

3.1.5 Chemical Management (continued)	YES	NO	N/A
Does the facility have the following?			
• Current Spills Response Procedure	[ ]	[ ]	
• Current Spills Prevention Plan	[ ]	[ ]	
• Does the facility train personnel for spills?	[ ]	[ ]	

TOTAL SECTION 3.1 ____ / ____ (14-16)

Bulk Storage Tanks – Information Only (Move to Appendix G)

A Bulk Storage Tank Inventory plan may include the following:

Tank #	Product	Above/Below Ground	Age [Yrs]	Capacity [Litres]	Type* [S,P,F,SS]	Cathodic Protection?	Cathodic Protection Checked?
1							
2							
3							
4							
5							

* S = Steel P = Plastic F = Fibreglass SS = Stainless Steel

NOTE: Bulk Storage Tanks shall be 170 litres or larger in size.

Section 3.1 14-16 Points Available Pass = 60%

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Part III – Materials and Resources (MR)

3.2 Chemical Management

3.2.1 Chemical Storage

Indicate: Y = Yes N = No N/A = Not Applicable

	Gasoline*	Diesel*	Waste Oil*	Fuel Oil*	Oil/* Lubricants	Acids	Solvents*	Anti-Freeze	Concrete Admix	Requirements Met*** Y / N / N/A
1. Bulk storage tanks are in good condition										
2. Bulk storage area is impact protected										
3. Bulk storage tamper resistant (i.e. locked)										
4. Secondary containment of adequate volume and soundly constructed**										
5. Bulk storage inventory control										
6. Are visible pipes regularly inspected										
7. All tanks labelled clearly with WHMIS labels with MSDS available upon request										

Notes:
* Flammable liquids
** Plugs must be properly installed and in good condition, etc.
*** Requirements cannot be met with any "No" responses in any row.

TOTAL SECTION 3.2 ____ (7)

Section 3.2 7 Points Available Pass = 57%

Part IV – Energy and Atmosphere (EA)

Part IV – ENERGY AND ATMOSPHERE (EA) — **OPTIONAL COMPLIANCE**

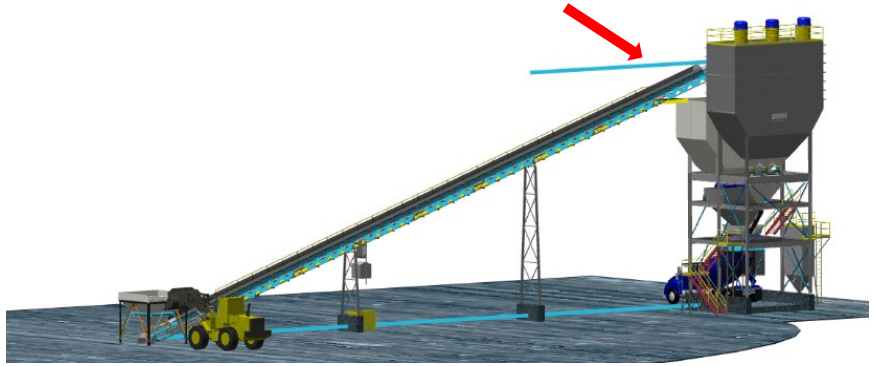
4.1 Air Quality Management

4.1.1 Air Management	YES	NO	N/A
a) Baghouse – on cementitious materials silos			
Is maintenance schedule in place for bag houses? *If yes, how often maintained?* _____	[ ]	[ ]	
Are maintenance activities recorded?	[ ]	[ ]	
b) Batch Facility			
Is batch point enclosed (i.e. at least 2 sides + roof)?	[ ]	[ ]	
Are dust control measures being employed? • collection and filter system (i.e. loading point dust collector)	[ ]	[ ]	
Is process water heating system regularly maintained?	[ ]	[ ]	[ ]
c) Facility Site			
Is there a fugitive dust management plan for paved and unpaved areas? Describe _____	[ ]	[ ]	
Are entrance/exit traffic areas paved?	[ ]	[ ]	
Are speed limit signs posted to reduce yard traffic emissions?	[ ]	[ ]	
d) Combustion Equipment			
Are mobile equipment engines, including diesel generators maintained regularly?	[ ]	[ ]	
Are pollution control devices connected and working properly?	[ ]	[ ]	
① Are alternate fuels used (i.e. bio fuels)?	[ ]	[ ]	
Is there a truck idling policy when in the yard? Describe Policy _____	[ ]	[ ]	
e) Aggregate Drop Points			
Is the number of drop points minimized? Describe _____	[ ]	[ ]	
Are drop points protected, partially enclosed, or is dust collected?	[ ]	[ ]	

① Bonus point

TOTAL SECTION 4.1 _____ / _____ (12-13)

Section 4.1 12-13 Points Available Pass = 60%



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Part IV – Energy and Atmosphere (EA)

4.2 Community and Social Impact

		YES	NO	N/A
4.2.1	**Noise**			
	a) **Facility Noise Reduction**			
	Are there exhaust muffler systems on cementitious material delivery trucks or are they provided for use at the facility or have a dedicated facility-based blower?	[ ]	[ ]	
	Are signal lights used in place of facility horns?	[ ]	[ ]	
	Is delivery of materials (i.e. cement, aggregates) limited to the hours of 7am to 7pm?	[ ]	[ ]	
	b) **Truck and Loader Engine Noise Reduction**			
	Are the trucks and loaders regularly maintained to ensure low-level operating noise?	[ ]	[ ]	
	Are proper truck and loader exhaust mufflers installed and maintained?	[ ]	[ ]	
	Are back-up alarms automated to minimize noise pollution on trucks and loaders?	[ ]	[ ]	
4.2.2	**Energy**			
	a) **Facility Energy Use Reduction**			
	Does the facility:			
	• automatically shut off the majority of lights when not needed in facility, garage, office and/or yard?	[ ]	[ ]	
	• have programmable thermostats in heated/cooled areas?	[ ]	[ ]	
	• have a high efficiency boiler (i.e. Energy Star Rated)?	[ ]	[ ]	[ ]
	• use energy efficient light bulbs?	[ ]	[ ]	
	• turn off pumps/motors when not in use?	[ ]	[ ]	
	• turn off conveyors when not in use?	[ ]	[ ]	
	• use timers for all truck block heaters in winter?	[ ]	[ ]	[ ]
	Is the water for concrete production heated only when necessary?	[ ]	[ ]	[ ]
	Is the aggregate for concrete production heated only when necessary?	[ ]	[ ]	[ ]
	① Do you generate on-site power (i.e. wind/solar)?	[ ]	[ ]	
4.2.3	**Facility Aesthetics**			
	Does the facility and surroundings include aesthetic enhancements such as landscaping, sound walls, hedge rows, and earth berms?	[ ]	[ ]	

① Bonus points

TOTAL SECTION 4.2 ____ / ____ (12-16)

Section 4.2 12-16 Points Available Pass = 60%

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info@bridgecheckcanada.com

Part V – Innovation and Design (ID)

Part V – INNOVATION AND DESIGN - ID **OPTIONAL COMPLIANCE**

5.1 Product and Service Suppliers

Does the facility:	YES	NO	N/A
• Promote environmental sustainability with suppliers of products and services such as minimized travel delivery distance, just in time delivery, off peak delivery, reduced packaging, chemical substitutes, etc.? (i.e. Portland cement, Portland Limestone Cement, SCM, admixture, aggregate, colour agents, fibres, fuels, lubricants, parts, etc.) How _____	[ ]	[ ]	
• Work with suppliers to drive innovation for product conservation or other performance characteristics to reduce environmental impact? (i.e. SCMs, admixtures, etc.) How _____	[ ]	[ ]	
• Work with customers to drive innovation for product conservation or other performance characteristics to reduce environmental impact? How_____	[ ]	[ ]	
Does the company promote the use of innovative products such as Self Consolidating Concrete for reduced labour or Pervious Pavement for Stormwater Management? Describe _____	[ ]	[ ]	
Does the company use innovative technologies such as Global Positioning Systems for dispatch and delivery scheduling minimizing road congestion, driving distances, delivery times and job site emissions; truck idling or truck wash water capture and recycling equipment? Describe _____	[ ]	[ ]	
① Does the company have LEED Certified personnel on staff?	[ ]	[ ]	
Does the company promote the use of innovative practices not addressed in this Check List to reduce environmental impact? Describe _____	[ ]	[ ]	

① Bonus point

TOTAL SECTION 5.1 _____ / _____ (6)

Section 5.1 6 Points Available Pass = 57%

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Tel: 905-660-6608 Fax: 905-660-6609
info@bridgecheckcanada.com

Questions and Comments?

Please contact:

Bridge Check Canada Ltd.
Savio DeSouza, P.Eng.
Email: sdesouza@bridgecheckcanada.com
905-660-6608 ext.23

or

Concrete Ontario
Oliver Xiao, P.Eng.
Email: oxiao@concreteontario.org
905-564-5412

Questions?

Next Environmental Requirements Webinar:

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Webinar Series – Water Quality

- Join us on **July 8th, 2021**
  12:00 pm – 1:00 pm

Thank you!