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Environmental Protection Act

ONTARIO REGULATION 652/21

AIR POLLUTION - DISCHARGE OF SULPHUR DIOXIDE FROM NICKEL SMELTING AND REFINING FACILITIES IN THE SUDBURY AREA

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Interpretation

1. (1) In this Regulation,

“facility” means all plants, structures, equipment, apparatuses, mechanisms or things that function as a single integrated operation and that are,

- (a) owned or operated by the same person, and
- (b) located on the same site; ("installation")

"Glencore Sudbury smelting facility" means the nickel smelting facility located on the site known as the Sudbury Integrated Nickel Operations Smelter, located at 2 Longyear Drive in the City of Greater Sudbury; ("fonderie Glencore de Sudbury")

"licensed engineering practitioner" means a person who holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; ("praticien de l'ingénierie titulaire d'un permis")

"management method" means a method that prevents, minimizes or reduces the discharge of sulphur dioxide into the air and includes,

- (a) the use of one or more air pollution control devices,
- (b) the use of industrial ventilation to capture fugitive emissions and other discharges,
- (c) the selection and use of equipment, processes or materials that more effectively prevents, minimizes or reduces the discharge of sulphur dioxide than selecting or using other equipment, processes or materials,
- (d) the operation of a process or equipment in a manner that prevents, minimizes or reduces the discharge of sulphur dioxide into the air from the process or equipment,
- (e) the use of forecasting procedures to determine the best times to operate equipment to minimize the concentration of sulphur dioxide in the local community, and
- (f) the design, installation and operation of stacks in a manner that increases the dispersion of sulphur dioxide; ("méthode de gestion")

"operator", in relation to a facility, means a person who has charge, management or control of the facility; ("exploitant")

"point of impingement" has the same meaning as in Ontario Regulation 419/05 (Air Pollution — Local Air Quality) made under the Act; ("point de contact")

"pyrometallurgical vessel" includes converters, furnaces and roasters but does not include transfer ladles, slag pots or casting molds; ("réceptacle pyrométallurgique")

"site", with respect to a facility, means the property on which the facility is located; ("site")

"Vale Sudbury refining facility" means the nickel refining facility located on the site known as the Copper Cliff Nickel Refinery, located at 175 Industrial Road in the City of Greater Sudbury; ("affinerie Vale de Sudbury")

"Vale Sudbury smelting facility" means the nickel smelting facility located on the site known as the Copper Cliff Smelter, located at 18 Rink Street in the City of Greater Sudbury. ("fonderie Vale de Sudbury")

(2) In this Regulation, a reference to the Director means,

- (a) the Director appointed under section 5 of the Act in respect of the section of this Regulation in which the reference appears; or
- (b) if no Director described in clause (a) has been appointed in respect of a provision, any Director appointed under section 5 of the Act in respect of section 27.1 or paragraph 2 or 3 of subsection 11 (1) of Ontario Regulation 419/05 (Air Pollution — Local Air Quality) made under the Act.

(3) In this Regulation, a reference to a professional recommendation is a reference to a recommendation from one or more of the following sources:

1. An operations and maintenance manual, or other similar written instructions, provided by the manufacturer of a piece of equipment.
2. Written instructions provided by the supplier of a piece of equipment.
3. Written advice, including any supporting rationale, from a licensed engineering practitioner who has experience related to the relevant equipment.

Application

2. (1) This Regulation applies in respect of the Glencore Sudbury smelting facility on and after January 1, 2022, except for,

- (a) sections 4 and 5 which apply on and after July 1, 2024; and
 - (b) section 15 which applies on and after January 1, 2023.
- (2) This Regulation applies in respect of the Vale Sudbury smelting facility on and after July 1, 2023, except for sections 4 and 5 which apply on and after July 1, 2025.
- (3) This Regulation applies in respect of the Vale Sudbury refining facility on and after July 1, 2023, except for,
- (a) section 4 which applies on and after July 1, 2026; and
 - (b) section 5 which applies on and after July 1, 2025.

Pyrometallurgical vessels, off-gas collection systems

3. (1) The owner and the operator of a facility shall ensure that every pyrometallurgical vessel at the facility is fitted with a primary off-gas collection system.

(2) The owner and the operator of a facility shall ensure that a pyrometallurgical vessel at the facility is fitted with a secondary off-gas collection system if,

- (a) the vessel is installed in a converter aisle at the Glencore Sudbury smelting facility;
 - (b) the vessel is installed in a converter aisle at the Vale Sudbury refining facility on or after January 1, 2021; or
 - (c) the vessel is installed in a converter aisle at the Vale Sudbury smelting facility.
- (3) Clause (2) (b) does not apply in respect of a vessel that is a top-blown rotary converter installed to replace another top-blown rotary converter.
- (4) Clause (2) (c) does not apply in respect of a vessel that was installed before January 1, 2021 and is engaged in slag cleaning.

Note: On July 1, 2028, subsection 3 (4) of the Regulation is revoked. (See: O. Reg. 652/21, s. 19)

Pyrometallurgical vessels, pollution control

4. (1) The owner and the operator of a facility shall ensure that the discharges of sulphur dioxide captured by each off-gas collection system required under section 3 are sent to a baghouse that uses lime injection or to a wet scrubber.

(2) Subsection (1) does not apply in respect of discharges of sulphur dioxide captured by an off-gas collection system if,

- (a) the discharges of sulphur dioxide are sent to an acid plant;
 - (b) the discharges of sulphur dioxide that would otherwise be sent to an acid plant are discharged directly to air in accordance with subsection (3);
 - (c) a management method or a combination of management methods approved under section 6 is implemented in respect of the discharges of sulphur dioxide; or
 - (d) a request has been made under section 6 in respect of the discharges of sulphur dioxide, the request has not been refused under that section and fewer than six years have passed since the initial request was made.
- (3) Discharges of sulphur dioxide captured by an off-gas collection system required under section 3 that would otherwise be sent to an acid plant may be discharged directly to air if,
- (a) maintenance is being performed on,
 - (i) the acid plant, or
 - (ii) a pyrometallurgical vessel from which discharges of sulphur dioxide are sent to the acid plant;
 - (b) the concentration of sulphur dioxide in the discharges while the maintenance is performed is less than the minimum concentration required to operate the acid plant; and
 - (c) the procedure described in clause 8 (3) (b) is followed in relation to the maintenance.

(4) The minimum concentration of sulphur dioxide required to operate an acid plant shall be based on a professional recommendation, and the recommendation shall be included in the record referred to in section 8.

Single contact acid plants, pollution control

5. (1) The owner and the operator of a facility shall ensure that all discharges of sulphur dioxide from the main stack of each single contact acid plant at the facility are collected and sent to a wet scrubber.

(2) Subsection (1) does not apply in respect of discharges of sulphur dioxide from the main stack of a single contact acid plant if,

- (a) a management method or a combination of management methods approved under section 6 is implemented in respect of the discharges of sulphur dioxide; or
- (b) a request has been made under section 6 in respect of the discharges of sulphur dioxide, the request has not been refused under that section and fewer than six years have passed since the initial request was made.

Alternative equivalent methods, request to Director

6. (1) The owner or the operator of a facility may request that the Director approve the use of a management method or a combination of management methods to be used instead of a management method required under subsection 4 (1) or 5 (1).

(2) A request shall be made no later than two years after this Regulation first applies to the facility and shall include a plan prepared in accordance with section 7.

(3) No later than one year after the request is made, the Director shall,

- (a) approve the request if the Director is satisfied that the use of the management method or the combination of management methods is equivalent to or better than the use of the relevant method referred to in subsection (1) at preventing, minimizing or reducing the discharges of sulphur dioxide that are the subject of the request;
- (b) if fewer than six years have passed since the initial request was made, indicate that a revised request may be made; or
- (c) refuse the request.

(4) Subsection (3) applies, with necessary modifications, to a revised request.

Alternative equivalent methods plan

7. (1) If a request is made under subsection 6 (1) to use a management method or a combination of management methods instead of,

- (a) a management method required under subsection 4 (1), the plan required under subsection 6 (2) shall be entitled "Alternative Equivalent Methods Plan — Pyrometallurgical Vessel"; or
- (b) a management method required under subsection 5 (1), the plan required under subsection 6 (2) shall be entitled "Alternative Equivalent Methods Plan — Single Contact Acid Plant".

(2) The plan required under subsection 6 (2) shall include the following information:

1. A list of all management methods that are used by other persons, or are available for use, to reduce the discharges of sulphur dioxide associated with pyrometallurgical vessels or single contact acid plants, as applicable.
2. An analysis of the management methods identified under paragraph 1 or combinations of those management methods to determine which are technically feasible with respect to the pyrometallurgical vessel or single contact acid plant that is the subject of the request.
3. An analysis of the cost-effectiveness of the management methods and combinations that are determined under paragraph 2 to be technically feasible.
4. For each management method and combination determined to be cost-effective under paragraph 3, an assessment of,
 - i. the expected reduction in the amount of the discharges of sulphur dioxide that are the subject of the request, and

ii. the expected reduction in the concentration of sulphur dioxide at points of impingement.

5. An identification of the management method or combination that is proposed to be used in respect of the pyrometallurgical vessel or single contact acid plant instead of the method required under subsection 4 (1) or 5 (1), as applicable.
6. A determination of whether the management method or combination identified under paragraph 5 is equivalent to or better than the relevant method required under subsection 4 (1) or 5 (1) at preventing, minimizing or reducing the discharges of sulphur dioxide that are the subject of the request.
7. A plan to implement the management method or combination identified under paragraph 5.

(3) The determination under paragraph 6 of subsection (2) shall include a comparison of the following information in respect of the management method or combination identified under paragraph 5 of that subsection and the method required under subsection 4 (1) or 5 (1), as applicable:

1. The expected reduction in the amount of the discharges of sulphur dioxide that are the subject of the request.
2. The expected reduction in the concentration of sulphur dioxide at points of impingement.

Identifying managed sources

8. (1) The owner and the operator of a facility shall ensure that a written record is prepared and updated in accordance with this section.

(2) The record shall contain the following information:

1. A list of each piece of equipment at the facility that may discharge sulphur dioxide and the date on which the piece of equipment was installed.
2. For each piece of equipment referred to in paragraph 1, an indication of whether a management method is used in respect of the piece of equipment and if so, a description of each management method used, including,
 - i. the date on which the management method was implemented, and
 - ii. at least one professional recommendation in respect of the management method.

(3) If a management method under paragraph 2 of subsection (2) is the use of an acid plant, the description of the method under that paragraph shall include,

- (a) the manufacturer's equipment design specifications for the acid plant in respect of sulphur dioxide removal; and
- (b) with respect to periods when maintenance described in clause 4 (3) (a) is performed, an explanation of the procedure to be followed to reduce the concentration of sulphur dioxide, averaged over five-minute periods, at any monitors which are required to be operated and maintained in accordance with an environmental compliance approval issued in respect of the facility.

(4) The record is not required to contain information in respect of equipment used for slag pouring.

(5) The record shall be updated no later than 30 days after a change described in section 10 is made at the facility.

Requirement to continue managing sources

9. No person shall operate a piece of equipment required to be listed in the record referred to in section 8 unless each management method required to be identified in the record in respect of the piece of equipment is used in accordance with the professional recommendations required to be set out in the record.

Changes re managed sources

10. (1) In this section,

“managed source” means a piece of equipment required to be listed in the record referred to in section 8 for which a management method is required to be indicated in accordance with paragraph 2 of subsection 8 (2).

(2) No person shall change a management method used in respect of a managed source unless, in response to a request by the owner or the operator of the facility, the Director has given written notice to the owner or the operator that the new management method is at least as effective at preventing, minimizing or reducing the discharge of sulphur dioxide to the air as the previous management method.

(3) No person shall install a piece of equipment at the facility that is similar to a managed source unless a management method described in subsection (4) is used in respect of the piece of equipment.

(4) For the purpose of subsection (3), the management method must be at least as effective at preventing, minimizing or reducing the discharge of sulphur dioxide as,

- (a) the management method associated with the managed source, if the piece of equipment is similar to only one managed source; or
- (b) the most effective of the management methods associated with the managed sources, if the piece of equipment is similar to more than one managed source.

(5) At least 30 days before a piece of equipment that discharges sulphur dioxide is installed at a facility, the owner and the operator of the facility shall ensure that a provincial officer is notified of the proposed installation in writing, and the notice shall contain a description of the management methods to be used in respect of the piece of equipment, if any.

(6) Nothing in this section prevents the implementation of a management method or a combination of management methods approved under section 6.

Notification, root cause analysis, corrective and preventive actions

11. (1) The owner and the operator of a facility shall ensure that the Director and the medical officer of health in the health unit for the area where the facility is located are notified, in writing, as soon as practical if,

- (a) an environmental compliance approval issued in respect of the facility requires the operation and maintenance of a monitor that measures sulphur dioxide; and
- (b) the monitor measures an average concentration of sulphur dioxide of 250 parts per billion or greater over a one-hour period.

(2) No later than March 31 in each year, the owner and the operator of a facility shall ensure that the information set out in subsection (3) is submitted to the Director in respect of the previous calendar year if,

- (a) an environmental compliance approval issued in respect of the facility required the operation and maintenance of a monitor that measures sulphur dioxide during the previous calendar year; and
- (b) during the previous calendar year, the monitor measured an average concentration of sulphur dioxide of 120 parts per billion or greater over a one-hour period.

(3) The information referred to in subsection (2) is the following:

1. A list of the days during the previous calendar year on which the average concentration of sulphur dioxide measured by a monitor referred to in clause (2) (a) was 120 parts per billion or greater over a one-hour period.
2. For each day listed under paragraph 1, an identification of the start and end time of each period during which the hourly average concentration of sulphur dioxide was 120 parts per billion or greater.
3. For each period identified under paragraph 2, an indication of,
 - i. the maximum hourly concentration of sulphur dioxide that was measured during the period,
 - ii. the total number of complaints received by the facility in relation to the discharge of sulphur dioxide from the facility during the period, and
 - iii. the primary cause of the discharge that resulted in the exceedence and a detailed analysis of the cause.

4. An identification of the measures that are available to prevent or reduce the risk of a similar discharge happening again, including,
 - i. the probable effectiveness of each measure,
 - ii. if any of the measures have already been taken, the dates those measures were implemented,
 - iii. if there are plans to implement any of the measures in the future, the date those measures are expected to be implemented, and
 - iv. if there are measures to which subparagraphs ii and iii do not apply, the reasons for not having implemented and not having plans to implement those measures.
5. A comparison of the information in paragraphs 1, 2 and 3 to the information submitted to the Director in respect of those paragraphs in each of the previous 10 years in which information was required to be submitted.

Capture efficiency assessment

12. (1) No later than one year after this Regulation first applies to a facility, the owner and the operator of the facility shall ensure that a plan to assess the following, in respect of each building at the facility that has a converter aisle containing a pyrometallurgical vessel, is submitted to the Director:

1. The amount of fugitive emissions discharged from the building, expressed as an emission rate.
2. The capture efficiency of each off-gas collection system in the building.

(2) The plan shall contain the following information in respect of each building referred to in subsection (1):

1. A description of each pyrometallurgical process in the building, including process flow diagrams.
2. A drawing that identifies all openings in the building, including doors, windows, louvres and bays.
3. A list of all management methods used in the building in relation to the discharge of sulphur dioxide.
4. An explanation of the model or method that will be used in the assessment.
5. An indication of the parameters that will be measured in the assessment and the location of each measurement in the building.
6. A description of the range of operating conditions over which the assessment will be performed.
7. An explanation of the calculations that will be used in the assessment, including sample calculations and any assumptions made.

(3) The model or method referred to in paragraph 4 of subsection (2) shall be,

- (a) a physical model;
- (b) a computational fluid dynamic model; or
- (c) a method that incorporates the use of source testing and mass balance calculations.

(4) The Director may, by written notice, extend the date by which the plan is required to be submitted and may require the owner or the operator of the facility, or both, to do any or all of the following:

1. Include additional information in the plan.
2. Make changes to the plan, if the Director is of the opinion that the changes are necessary to carry out an accurate assessment under subsection (1).
3. Carry out the assessment set out in the plan in accordance with the notice and submit the results of the assessment by the date set out in the notice.

4. After the results of the assessment have been submitted, perform additional steps, such as measurements or calculations, if the Director is of the opinion that the additional steps are necessary to carry out an accurate assessment under subsection (1).
5. Submit the results of the additional steps by the date set out in the notice.

(5) The owner and the operator of the facility shall ensure that the Director is notified in writing at least 30 days before any measurement is taken in carrying out the assessment and must give representatives of the Ministry an opportunity to witness each measurement being taken.

(6) Before the Director gives a person a notice under subsection (4), the Director shall give the person a draft of the notice and an opportunity to make written submissions to the Director during the period that ends 30 days after the draft is given.

Action plan, effectiveness report

13. (1) No later than one year after this Regulation first applies to a facility, the owner and the operator of the facility shall ensure that a report is submitted to the Director that sets out the effectiveness of the measures to reduce the concentration of sulphur dioxide at points of impingement that were implemented at the facility during the period starting January 1, 2016 and ending on the day this Regulation first applies to the facility.

(2) The report shall include an explanation of the approach used to assess the effectiveness of the measures, including sample calculations and any assumptions made.

Management measures, effectiveness report

14. (1) If any of the following management measures are implemented at a facility, the owner and the operator of the facility shall, no later than one year after the management measure is implemented, ensure that a report is submitted to the Director that sets out the effectiveness of the management measure at preventing, minimizing or reducing the discharge of sulphur dioxide:

1. A primary or secondary off-gas collection system fitted to a pyrometallurgical vessel.
2. A baghouse or wet scrubber that treats discharges of sulphur dioxide from a pyrometallurgical vessel.
3. A wet scrubber that treats discharges of sulphur dioxide from the main stack of a single contact acid plant.
4. A management method or a combination of management methods approved under section 6.

(2) The report shall include an explanation of the approach used to assess the effectiveness of the management measure, including sample calculations and any assumptions made.

(3) For the purpose of subsection (1), if a combination of management methods is approved under section 6, a separate report shall be submitted to the Director in respect of each management method in the combination.

Summary reports

15. (1) No later than March 31 in each year, the owner and the operator of a facility shall ensure that a report is prepared that contains the following information in respect of the previous calendar year:

1. A table entitled "Implementation Summary Table" containing a summary of the provisions of this Regulation that apply to the facility, and for each provision that applies,
 - i. the date on which the provision first applied to the facility, and
 - ii. if compliance with the provision has been achieved, the date on which compliance was achieved.
2. A summary of any updates required by subsection 8 (5) to the record under that section.
3. If a request is approved by the Director under section 6, a summary of any steps taken during the calendar year to implement the management method or combination of management methods.

(2) The owner and the operator of a facility shall ensure that a copy of the table referred to in paragraph 1 of subsection (1) is made available for examination by any person, without charge, by posting it on the facility's website and by making it available at the facility during regular business hours.

Retention of records, etc.

16. The owner and the operator of a facility shall ensure that,

- (a) a copy of each plan, report, request and all other records governed by this Regulation is kept at the facility for at least five years; and
- (b) on request, a copy of a record referred to in clause (a) is immediately submitted to the Director or to a provincial officer.

Compliance with notice

17. A person who is required to do something by a notice given by the Director under this Regulation shall comply with the requirement.

Form of submissions

18. A person who is required to submit anything to the Director or a provincial officer under this Regulation shall submit it in a form approved by the Director, including, if required by the Director, an electronic format specified by the Director.

19. OMITTED (PROVIDES FOR AMENDMENTS TO THIS REGULATION).

20. OMITTED (PROVIDES FOR COMING INTO FORCE OF PROVISIONS OF THIS REGULATION).

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