4.0  PULP AND PAPER – INDUSTRY STANDARD

Version 1.0 Created March 5, 2014

Preamble

- This technical standard is an industry standard as defined in section 1 of O. Reg. 419/05.

- With respect to facilities, this standard applies to every facility that is part of a class identified by NAICS code 3221 (Pulp, Paper and Paperboard Mills) but does not apply to pulp and paper facilities using an “acid-sulphite process”.

- With respect to contaminants, this standard applies to contaminants listed in Appendix A.

- Each source of contaminant associated with NAICS code 3221 that discharges a contaminant mentioned in the above bullet has been considered in development of this industry standard. As such, a person that meets the criteria set out in subsection 42 (1) or subsection 44 (1) of O. Reg. 419/05 is, in general, exempt from Part II of the Regulation in respect of the facility and contaminant(s) for which it is registered. In other words, there is no need to model, in a facility’s Emission Summary and Dispersion Modelling report, discharges of a registered contaminant from any source of contaminant associated with NAICS code 3221. (For more information, please see the Introduction to the Technical Standards Publication.)

- In accordance with subsection 38 (3) of O. Reg. 419/05, compliance with this industry standard, in accordance with subsection 42 (5) or subsection 44 (3), may reduce the regulatory burden applicable to facilities in this class.

- This standard contains requirements that relate to the following sources of contaminant:
  - digester systems
  - evaporator systems
  - turpentine recovery systems
  - steam stripper systems
  - systems that collect non-condensable gas
  - wastewater treatment systems
  - unbleached kraft linerboard paper machines
  - tall oil reactors
  - weak black liquor storage tank vents
  - black liquor salt cake mix tank vents
  - brownstock washers
  - oxygen delignification systems
  - bleach plant vents
  - thermo-mechanical pulping vents
  - large wood-fired combustors
  - slaker
  - smelt dissolving tank
  - recovery boiler
- lime kiln
- thermal oxidizer
- bleach plant chlorinated-stage washer hood
- bleach plant chlorine dioxide generator
- bleach plant chlorine dioxide storage vents

For this industry standard, with respect to total reduced sulphur (TRS) compounds, the publication of this industry standard indicates that the following criteria of paragraph 3 of subsection 38 (1) of O. Reg. 419/05 are met:

(a) with respect to at least two facilities located in Ontario to which this standard applies, it is not economically feasible to comply with section 20 of O. Reg. 419/05,

(b) compliance, in accordance with subsection 42 (5) of O. Reg. 419/05, with this standard,

(i) is technically and economically feasible with respect to at least one facility located in Ontario to which this industry standard applies, and

(ii) will permit efforts that would otherwise be made to comply with section 19 or 20 of O. Reg. 419/05 to be put to better use to protect the natural environment, having regard to clause (a), and

(iii) including this industry standard in the “Technical Standards to Manage Air Pollution” is more efficient than having the Director consider separate requests under section 32 of O. Reg. 419/05 to set site-specific standards for the contaminant that would otherwise apply to facilities in the class.
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**PART I – GENERAL**

Definitions

1. (1) For the purposes of this pulp and paper industry standard,

“acid-sulphite process” means a chemical pulping process that uses a mixture of sulphurous acid and bisulphites as the cooking liquid; this process may be in use at a facility in a class identified by the following NAICS codes: 322112, 322121, 322122 or 322130;

“activated sludge system” means a system for the secondary treatment of wastewater in which an aerated biological process that uses flocculated micro-organisms occurs and in which a portion of the resulting biomass settles out in a downstream sedimentation tank, a portion of the biomass is recycled to an aeration tank and a portion of the biomass is removed as excess sludge;

“Act” means the Environmental Protection Act, RSO 1990, c E.19;

“adsorption system” means a system that uses the technology of adsorbing a pollutant on the surface of a granule, bead, or crystal of adsorbent material;

“ADUP” means air-dried unbleached pulp;

“aerated stabilization basin system” means a system for the secondary treatment of wastewater that meets the following criteria:

1. A system that uses a series of aerated stabilization basins in which an aerated biological process occurs.
2. The process mentioned in paragraph 1 produces biomass that settles to the bottom of each basin.
3. The biomass mentioned in paragraph 2 is stabilized by microbial decomposition and is not recycled;

“aerated stabilization basin cell” means,

(a) if an area of an individual aerated stabilization basin is distinguishable from other areas within that basin due to physical separation of the area or a unique characteristic of the wastewater in the area, that area of the basin, or

(b) if there are no distinguishable areas within an aerated stabilization basin, the basin itself;

“air pollution control device” means a device that removes contaminants from air and includes electrostatic precipitators, scrubbers, baghouses, cyclones, adsorption systems, thermal oxidizers, biofilters and spray towers;

“average daily production rate” means the amount, in tonnes, of ADUP that the facility produces on average in one day and is calculated by summing the amount of ADUP that each digester at the facility typically produces in a 24-hour period;

“baghouse” means a device that uses fabric bags or cartridge filters to remove particulate from a gaseous stream prior to its discharge of the gaseous stream into the air;

“black liquor” means the aqueous solution, containing lignin residues and other compounds, which is separated from cellulose fibres during the process of digesting wood at a pulp and paper facility that uses the kraft process;

“BOD$_5$” means biochemical oxygen demand, a measure of the dissolved oxygen used by micro-organisms to decompose organic matter in water at 20°C over the course of five consecutive days;

“CAS No.” has the same meaning as in subsection 1 (1) of O. Reg. 419/05;
“closed system” means a system of piping, ductwork and connections that transmits a gas, vapour or liquid from a point of generation to another location without discharging the gas, vapour or liquid into the air;

“combustor” means a device in which combustible material is oxidized resulting in release of heat and products of combustion;

“commissioning period” means the 90-day period following the first start-up of a new or significantly modified large wood-fired combustor;

“concentrated NCG” means, subject to subsection 20 (6), a non-condensable gas generated by an evaporator system, digester system, turpentine recovery system or steam stripper system at a pulp and paper facility that uses the kraft process;

“daily production rate” means the amount, in tonnes, of ADUP produced by the facility in one day and is calculated by summing the amount of ADUP that each digester at the facility produces on that day;

“daily production rate capacity” means the amount, in tonnes, of ADUP that the facility is capable of producing in one day and is calculated by summing the amount of ADUP that each digester at the facility is designed to produce in a 24-hour period;

“defect” means a failure in a closed system that could result in the emission of gas, vapour or liquid into the air and includes,

(a) cracks, holes, or gaps in the ductwork or piping,
(b) loose connections, and
(c) broken or missing caps on closure devices;

“digester” means a pressurized tank that is used to cook and chemically treat wood chips either by batch or continuous process;

“digester system” means a system consisting of all associated digesters and equipment supporting the operation of the digester including, flash tanks, blow tanks, chip steamers, blow heat accumulators and relief gas condensers;

“dilute NCG” means a non-condensable gas that is not a concentrated NCG;

“dioxins, furans and dioxin-like PCBs” has the same meaning as in subsection 1 (1) of O. Reg. 419/05 and is calculated in accordance with subsection 1 (2.0.2) of O. Reg. 419/05;

“district manager” means, in respect of a facility, the district manager of the local Ministry office located closest to the facility;

“direct contact dryer” means a large wood-fired combustor that is used to dry wood material in a manner such that the flue gas from the combustor comes into direct contact with the wood material that is to be dried;

“ECA” means environmental compliance approval, as defined in subsection 1 (1) of the Act;

“electrostatic precipitator” means a device which removes dust or other finely divided particles from a gas by charging the particles inductively with an electric field then attracting them to highly charged collector plates;

“evaporator” means a device used to increase the solids content of the spent cooking liquor produced by the pulp washing system;

“evaporator system” means a system consisting of all associated evaporators and equipment supporting the operation of the evaporator including, pre-evaporators, multiple effects evaporators, concentrators, hotwells and surface condensers;

“existing large wood-fired combustor” means a large wood-fired combustor that has not undergone a significant modification and,

(a) construction of the large wood-fired combustor was completed or began on or before March 31, 2014, or
(b) an application was made on or before March 31, 2014 for an ECA in respect of the large wood-fired combustor;
“existing pulp and paper facility” means a pulp and paper facility,
(a) the construction of which was completed or began on or before March 31, 2014, or
(b) in respect of which an application was made on or before March 31, 2014 for an ECA;
“flue gas” means a gas that is generated by a combustion process;
“furnace” means a part of a combustor where combustion takes place;
“heat input capacity” means the ability of a large wood-fired combustor to combust a maximum amount of fuel based on the physical design of the large wood-fired combustor and is calculated by multiplying the flow rate of the fuel by the higher heating value of the fuel;
“higher heating value” means the amount of heat released during the complete combustion of a unit quantity of fuel. In contrast, the net or lower heating value is obtained by subtracting the latent heat of vaporization of the water vapor formed by the combustion;
“hogged wood fuel” means an unprocessed mix of coarse chips of bark and wood fibre generated by grinding or chipping action;
“industry standard” has the same meaning as in subsection 1 (1) of O. Reg. 419/05;
“kraft process” means a chemical pulping process that uses a mixture of sodium hydroxide and sodium sulphide as the cooking liquor; this process may be in use at a facility in a class identified by the following NAICS codes: 322112, 322121, 322122 or 322130;
“large wood-fired combustor” means, subject to subsection 3 (2), a combustor that has a heat input capacity of at least three megawatts and that is designed to burn wood fuel;
“lime kiln” means a combustion device used to calcine lime mud into calcium oxide;
“lime mud” means mud that consists primarily of calcium carbonate;
“mg/Rm³” means milligrams per cubic metre at reference conditions;
“Ministry” means the Ministry of the Government of Ontario responsible for the Act and its regulations and includes all officials, employees or other persons acting on its behalf;
“municipal waste” has the same meaning as in Ontario Regulation 347 R.R.O. 1990;
“MW” means megawatt and is equal to 3600 megajoules per hour;
“NAICS” has the same meaning as in subsection 1 (1) of O. Reg. 419/05;
“NCG” means a non-condensable gas, which is a gas that is not easily condensed by cooling;
“new large wood-fired combustor” means a large wood-fired combustor, the construction of which began after March 31, 2014 and no application was made on or before that day for an ECA in respect of the large wood-fired combustor;
“new pulp and paper facility” means a pulp and paper facility, the construction of which began after March 31, 2014 and no application was made on or before that day for an ECA in respect of the facility;
“O. Reg. 419/05” means Ontario Regulation 419/05 (Air Pollution – Local Air Quality) made under the Act;
“power boiler” means a device that has the primary purpose of recovering thermal energy in the form of steam through combustion of wood and other fuels;
“ppm” means parts per million and is a measure of concentration;
“primary treatment” means a process that,
(a) is located upstream of the secondary treatment process in a wastewater treatment system, and
(b) uses a basin or tank to settle out suspended solids in wastewater under the influence of gravity;
“process condensate stream” means a condensate stream that has come into contact with total reduced sulphur (TRS) compounds or turpentine and includes condensate streams from,
(a) evaporator systems, and
(b) any system that collects NCGs;

“process loss” means the loss of a material that would otherwise be used in a process at a pulp and paper facility and includes,

(a) black liquor, turpentine, and tall oil soap that enters the wastewater treatment system, and

(b) a process condensate stream that is required by this industry standard to be treated, for example transmitted to a steam stripper, but is instead enters the wastewater treatment system;

“provincial officer” has the same meaning as in the Act;

“pulp and paper facility” means a facility at which pulp, paper or paperboard is produced and which is part of a class identified by NAICS code 3221 (Pulp, Paper and Paperboard Mills), but for the purposes of this industry standard, does not include a facility that uses an acid-sulphite process;

“record” includes a written procedure, a measurement result, a written notification, a table, a report, a document, information provided to the highest ranking employee for review, a written practice, anything required by this industry standard to be recorded and an update to any of the preceding;

“recovery boiler” means a device, used at a pulp and paper facility that uses the kraft process, that has the primary purpose of recovering chemicals through burning black liquor;

“reference conditions” mean conditions at which the temperature is 25 degrees Celsius and the pressure is 101.3 kilopascals;

“refiner” means a device which mechanically separates wood chip fibre;

“registered contaminant” means a contaminant that is discharged into the air from a facility if a person is registered in respect of this industry standard, the facility and the contaminant;

“registration” means registration on the Ministry’s Technical Standards Registry – Air Pollution in respect of this industry standard;

“residence time” means the average amount of time that a gas spends in a furnace and is calculated by dividing the volume of the furnace by the volumetric flow rate of the gas through the furnace;

“secondary treatment” means a process that,

(a) occurs in a wastewater treatment system downstream of the primary treatment process, and

(b) uses micro-organisms and sedimentation to remove dissolved and suspended organic matter from wastewater under managed conditions;

“semi-chemical process” means a process that makes pulp by using chemical pre-treatments to soften the wood chips and mechanically separating the fibres in an atmospheric or pressurized refiner; this process may be in use at a facility in a class identified by the following NAICS codes: 322111, 322121, 322122 or 322130;

“shut-down” means an operating condition during which the operation of a source of contaminant is decreased from normal operating conditions to an inoperative state;

“significant modification” means a modification that,

(a) increased the intensity, measured as mass of emissions per unit heat input capacity, of emissions of suspended particulate matter or benzo-a-pyrene,

(b) increased the heat input capacity of the large wood-fired combustor,

(c) resulted in the large wood-fired combustor having a heat input capacity of greater than 20 MW, and

(d) began after July 1, 2015 and no application was made on or before that date with respect to the modification;

“significantly modified large wood-fired combustor” means a large wood-fired combustor that has undergone a significant modification;
“start-up” means an operating condition during which the operation of a source of contaminant is increased from an inoperative state to normal operating conditions;

“steam stripper” means a device that uses steam to remove contaminants from incoming streams of liquid;

“steam stripper system” means a system that consists of all associated steam strippers and equipment supporting the operation of the steam stripper, including steam stripper feed tanks, condensers, heat exchangers, and stripped condensate storage tanks;

“suspended particulate matter” means particulate matter that has an aerodynamic diameter of less than 44 microns;

“technical standard” has the same meaning as in subsection 1 (1) of O. Reg. 419/05;

“thermal oxidizer” means a device in which a combustible waste gas passes over or around a burner flame into a chamber where oxidation of the waste gas is completed;

“thermo-mechanical process” means a process that makes pulp by heating wood chips with steam and mechanically separating the fibres in a pressurized refiner; this process may be in use at a facility in a class identified by the following NAICS codes: 322111, 322121, 322122 or 322130;

“total reduced sulphur (TRS) compounds” has the same meaning as in subsection 1 (1) of O. Reg. 419/05;

“treatment”, with respect to a process condensate stream, means a process by which VOCs or total reduced sulphur (TRS) compounds, or both, are removed from a process condensate stream;

“turpentine recovery system” means a system that includes all equipment associated with recovering turpentine from the gas produced by the digesting process in a digester system, including decanters, condensers and storage tanks;

“VOCs” means volatile organic compounds, which are organic chemical compounds, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, whose composition makes it possible for them to evaporate under normal atmospheric conditions of temperature and pressure and includes the contaminants that are listed in Appendix D;

“wastewater treatment system” means a system at a pulp and paper facility that is a part of a sewage works as defined in the Ontario Water Resources Act, RS O 1990, c O.40 and includes all parts of the system upstream of the point of discharge of the sewage from the sewage works to the natural environment;

“weekday” means any Monday, Tuesday, Wednesday, Thursday or Friday that is not a holiday as defined in the Legislation Act, 2006, SO 2006, c 21, Schedule F;

“wet scrubber” means a device that is used to separate and collect gaseous, liquid and particulate pollutants from a gas stream into a water-based solution;

“woodchip” means a piece of wood of a defined size, cut or chipped from a larger piece of wood;

“wood fuel” means fuel comprised of one or more of the following materials: hogged wood fuel, wood chips, wood pellets, bark, sawdust, woodwaste, cellulosic plant material, paper and paper sludge;

“wood pellet” means a pellet made by compacting sawdust, woody cellulosic plant material or other woodwaste;

“woodwaste” has the same meaning as in Ontario Regulation 347 R.R.O. 1990.

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

(a) the Director appointed under section 5 of the Act in respect of the section of this industry standard in which the reference appears;

(b) if no Director described in clause (a) has been appointed in respect of subsection 49 (9), 53 (1), 54 (1), 57 (1) or 57 (3) of this industry standard, any Director appointed under section 5 of the Act in respect of paragraph 2 of subsection 11 (1) of O. Reg. 419/05; or
(c) if no Director described in clause (a) has been appointed in respect of a provision other than a provision mentioned in clause (b), any Director appointed under section 5 of the Act in respect of section 27.1 or paragraph 3 of subsection 11 (1) of O. Reg. 419/05.

(3) In this industry standard, reference to a concentration, as it relates to requirements for large wood-fired combustors, is a reference to a concentration by volume, on a dry basis, corrected to 11 per cent oxygen-dry in the flue gas.

(4) In this industry standard, reference to a percentage of oxygen is a reference to percentage oxygen by volume on a dry basis.

(5) If this industry standard requires a measurement of total reduced sulphur (TRS) compounds in process condensate or wastewater, the measurement shall be performed by one of the following methods:

1. The method entitled “Method RSC-02.02 Reduced Sulfur Compounds by Direct Injection GC/PFPD” published by the National Council for Air and Stream Improvement Inc., in March 2007, as amended from time to time.

2. If the concentration is being measured for the purpose of sections 40 or 46, the method entitled “A Method for the Analysis of Total Reduced Sulphur (TRS) Compounds in Kraft Mill Aqueous Process Streams. Pulp and Paper Report PPR 1300” published by Paprican, in July 1997, as amended from time to time.

3. A method of measurement that, in the opinion of the Director, would measure the concentration of total reduced sulphur (TRS) compounds at least as accurately as a method mentioned in paragraph 1 or 2.

(6) If a provision of this industry standard specifies a period of time over which a series of measurements of total reduced sulphur (TRS) compounds are required to be taken, one method mentioned in subsection (5) shall be used for all measurements in the series over the specified period of time.

(7) For further certainty, reference to a concentration of 27 ppb of total reduced sulphur (TRS) compounds in section 4, 5 and 61 may be expressed as 27 ppb or 40 µg/m³.

Facility Expansion

2. (1) No later than the date of registration, the owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the total amount of ADUP, in tonnes, that the facility is capable of producing in a one-year period calculated by summing the amount of ADUP that each digester at the facility is designed to produce is submitted, in writing, to the Director.

(2) If the facility mentioned in subsection (1) intends to increase the capacity of the facility to produce ADUP to a value that exceeds the value submitted under subsection (1), the owner and operator of the facility shall ensure that the Director is notified, in writing, of this intention no later than one year prior to the date when the increase is anticipated to be implemented.

(3) The notice required to be given under subsection (2) shall include,

(a) an indication of the amount of ADUP that the facility will be capable of producing when the increase is implemented;

(b) an explanation of the anticipated effect of the increase on the discharge of total reduced sulphur (TRS) compounds to the air from the facility; and

(c) a summary of actions that have been taken, or that will be taken, to inform the public of the anticipated effect mentioned in clause (b).

(4) The amount of ADUP indicated in clause (a) of subsection (3) shall, from the date the increase is implemented, be considered the amount for the purposes of subsection (1).

(5) If the Director is of the opinion that the actions summarized for the purpose of clause (c) of subsection (3) are inadequate to inform the public of the impact of the increase on discharges of contaminants to the air from the facility, the Director may give a person who is required to give notice under subsection (2) a notice specifying actions to be taken to explain the impact of the intended increase in capacity of the facility to produce ADUP on the discharge of contaminants to the air from the facility.
(6) Before the Director gives a person a notice under subsection (5), 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.

Application

3. (1) This industry standard applies, in accordance with subsections (2) to (11), to a person who is registered on the Ministry’s Technical Standards Registry – Air Pollution in respect of,

(a) this industry standard;
(b) a pulp and paper facility; and
(c) one or more of the contaminants listed in Appendix A.

(2) A person mentioned in subsection (1) may not register in respect of a pulp and paper facility and a contaminant listed in Appendix C if either of the following criteria is met:

1. The facility has a large wood-fired combustor that burns municipal waste that does not contain wood.
2. The facility has a large wood-fired combustor that burns municipal waste other than woodwaste and such waste comprises more than 7.5 per cent by weight of the fuel being burned.

(3) If the person mentioned in subsection (1) is registered with respect to a pulp and paper facility and one or more of the contaminants listed in Appendix A, the following sections apply in respect of the person: 1, 3, 28, 33, 35, 36, 37, 49, 58, 61, and 62.

(4) If the facility mentioned in subsection (3) has a large wood-fired combustor that does not burn municipal waste and the person mentioned in subsection (1) is registered with respect to that facility and one or more of the contaminants listed in Appendix B, the following sections apply with respect to the person: 7, 8, 9, 11, 12, 13, 14 as it relates to carbon monoxide, 15, 24, 25, 26, 27, 39, 53, 54, section 55 with respect to paragraphs 1 and 2 of subsection 55 (1), 56 and 57 in addition to the sections that apply to the person under subsection (3).

(5) If the facility mentioned in subsection (3) has a large wood-fired combustor that may burn municipal waste and the person mentioned in subsection (1) is registered with respect to that facility and one or more of the contaminants listed in Appendix B or C, the following sections apply with respect to the person: 7, 8, 9, 10, 11, 12, 13, 14 as it relates to carbon monoxide, 15, 24, 25, 26, 27, 39, 53-57 in addition to the sections that apply to the person under subsection (3).

(6) Subject to subsection (7), if a facility mentioned in subsection (3), (4) or (5) uses the kraft process and the person mentioned in subsection (1) is registered with respect to that facility and one or more contaminant set out in Column 1 of the Table to this section, the sections set out in Column 2 of the Table opposite the contaminant apply with respect to the person in addition to the sections that apply to the person under subsection (3), (4) or (5), as applicable.

(7) If the facility mentioned in subsection (6) does not have any aerated stabilization basins, the following sections set out in Item 1 of the Table to this section do not apply in respect of the facility: 4, 6, paragraphs 1 to 4 of subsection 14 (1), 41 (2), 46, 47, 48, clause (b) of subsection 50 (1), 51 and 52.

(8) If a facility mentioned in subsection (3), (4) or (5) uses the semi-chemical process and the person mentioned in subsection (1) is registered with respect to that facility and one or more contaminants listed in Appendix D, sections 18 and 19 apply with respect to the person in addition to the sections that apply to the person under subsection (3), (4) or (5), as applicable.

(9) If a facility mentioned in subsection (3), (4) or (5) uses the thermo-mechanical process, the following sections apply:

1. If the person mentioned in subsection (1) is registered with respect to that facility and one or more contaminants listed in Appendix D, section 31 applies with respect to the person in addition to the sections that apply to the person under subsection (3), (4) or (5), as applicable.
2. If the person mentioned in subsection (1) is registered with respect to that facility and acrolein, section 23 applies with respect to the person in addition to the sections that apply to the person under subsection (3), (4) or (5), as applicable.

(10) If a facility mentioned in subsection (3), (4) or (5) has an unbleached kraft linerboard paper machine and is registered with respect to that facility and acrolein, section 23 applies with
respect to the person in addition to the sections that apply to the person under subsection (3), (4) or (5), as applicable.

(11) A person mentioned in subsection (1) is required to comply with the sections of this industry standard that apply to the person in accordance with subsections (3) to (10) on or before the date the person registers on the Ministry’s Technical Standards Registry – Air Pollution unless a different date is specified in this industry standard.

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<td>Chlorine Dioxide</td>
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</tr>
<tr>
<td></td>
<td>Chloroform</td>
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<td>3.</td>
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<td>2, 20, 21, 59</td>
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<td>4.</td>
<td>Benzo(a)pyrene</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>34 with respect to Items 2, 7 and 8 of the Table to section 34</td>
</tr>
<tr>
<td>5.</td>
<td>Suspended particulate matter</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>34 with respect to Items 2, 3,7, and 8 of the Table to section 34</td>
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<tr>
<td>6.</td>
<td>Acrolein</td>
<td>2, 23</td>
</tr>
<tr>
<td>7.</td>
<td>Any contaminant listed in Appendix A</td>
<td>30, 32</td>
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</table>

**PART II – PERFORMANCE**

**Performance Limit – TRS Compounds in Wastewater Treatment System**

4. (1) Subject to subsections (2) and (3), no person shall cause or permit the daily loading of total reduced sulphur (TRS) compounds in the water entering the wastewater treatment system at a pulp and paper facility that uses the kraft process to exceed 0.335 kilograms of total reduced sulphur (TRS) compounds per tonne of ADUP.
(2) Subsection (1) does not apply to an existing pulp and paper facility during a period of time between,

(a) March 31, 2014 and July 1, 2015;

(b) July 1, 2015 and June 30, 2016 if during the period the daily loading of total reduced sulphur (TRS) compounds in the water entering the wastewater treatment system does not exceed 0.98 kilograms of total reduced sulphur (TRS) compounds per tonne of ADUP; or

(c) July 1, 2016 and June 30, 2020 if during the period the daily loading of total reduced sulphur (TRS) compounds in the water entering the wastewater treatment system does not exceed 0.658 kilograms of total reduced sulphur (TRS) compounds per tonne of ADUP.

(3) Subsection (1) does not apply during the 14-day period following the date on which a contravention of subsection (1) occurred, if, during the period, no wastewater ambient monitor identified as adequate under section 50 measures a concentration of total reduced sulphur (TRS) compounds that exceeds 27 ppb over a 10-minute averaging period.

Performance Limit – Community Ambient TRS Monitor

5. (1) Subject to subsection (2), no person shall discharge or cause or permit the discharge of total reduced sulphur (TRS) compounds into the air from a pulp and paper facility that uses the kraft process if the discharge results in the concentration of total reduced sulphur (TRS) compounds at a community ambient monitor identified as adequate under section 50 exceeding 27 ppb over a 10-minute averaging period more than two times in any six-month period.

(2) Subsection (1) does not apply to an existing pulp and paper facility if the date is before July 1, 2016 and the concentration of total reduced sulphur (TRS) compounds at the monitor described in subsection (1) does not exceed 27 ppb over a 30-minute averaging period more than two times in any six-month period.

Performance Limit – Wastewater TRS Monitor

6. (1) Subject to subsection (2), no person shall discharge or cause or permit the discharge of total reduced sulphur (TRS) compounds into the air from a pulp and paper facility that uses the kraft process if it is determined under section 52 that there has been a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at a wastewater ambient monitor identified as adequate under section 50.

(2) Subsection (1) does not apply if written notice has been given by the Director under subsection 52 (8).

Large Wood-fired Combustor - Carbon Monoxide Concentration Limit

7. (1) Subject to subsection (2), no person shall operate or cause or permit the operation of an existing large wood-fired combustor at a pulp and paper facility if the concentration of carbon monoxide in the flue gas of the combustor, averaged over a ten-day period, exceeds 500 ppm.

(2) Subsection (1) does not apply during a period between,

(a) March 31, 2014 and July 1, 2016; or

(b) July 1, 2016 and June 30, 2021, if during the period the concentration of carbon monoxide in the flue gas of the combustor, averaged over a ten-day period, does not exceed 800 ppm.

(3) No person shall operate or cause or permit the operation of a new or significantly modified large wood-fired combustor at a pulp and paper facility if the concentration of carbon monoxide in the flue gas of the combustor, averaged over a 24-hour period, exceeds 400 ppm.

Large Wood-fired Combustor - Nitrogen Oxides Concentration Limit

8. (1) Subject to subsection (2), no person shall operate or cause or permit the operation of a new large wood-fired combustor at a pulp and paper facility if the concentration of nitrogen oxides in the flue gas of the combustor, averaged over a 24-hour period, exceeds 198 mg/Rm³.
(2) Subsection (1) does not apply if the large wood-fired combustor has a heat input capacity of less than 100 MW.

**Large Wood-fired Combustor – Suspended Particulate Matter, Stack-Test Concentration Limit**

9. (1) Subject to subsection (4), no person shall, on or after July 1, 2016, operate or cause or permit the operation of an existing large wood-fired combustor at a pulp and paper facility if the testing required by sections 55 or 56 results in a measurement of suspended particulate matter that exceeds 120 mg/Rm$^3$.

(2) Subject to subsections (3) and (4), no person shall operate or cause or permit the operation of a new or significantly modified large wood-fired combustor at a pulp and paper facility if the testing required by sections 55 or 56 results in a measurement of suspended particulate matter that exceeds 25 mg/Rm$^3$.

(3) If the large wood-fired combustor mentioned in subsection (2) is a new large wood-fired combustor with a heat input capacity of 20 MW or less, subsection (2) does not apply,

   (a) with respect to a measurement obtained under section 55, if the measurement of suspended particulate matter does not exceed 50 mg/Rm$^3$; or

   (b) with respect to a measurement obtained under section 56, if the measurement of suspended particulate matter does not exceed 50 mg/Rm$^3$.

(4) If the large wood-fired combustor mentioned in subsections (1) or (2) is a direct contact dryer, subsections (1) and (2) do not apply,

   (a) with respect to a measurement obtained under section 55, if the measurement of suspended particulate matter does not exceed 250 mg/Rm$^3$; or

   (b) with respect to a measurement obtained under section 56, if the measurement of suspended particulate matter does not exceed 250 mg/Rm$^3$.

**Large Wood-fired Combustor – Dioxins etc., Stack-Test Concentration Limit**

10. No person shall operate or cause or permit the operation of a large wood-fired combustor at a pulp and paper facility if the testing required by sections 55 or 56 results in a measurement of dioxins, furans and dioxin-like PCBs that exceeds 80 pg/Rm$^3$.

**Large Wood-fired Combustor – Limit Exemptions**

11. Sections 7 to 10 do not apply during the following periods:

1. The commissioning period of the large wood-fired combustor.

2. The period during which the large wood-fired combustor is starting up or shutting down if,

   i. the shut-down does not last for more than six hours,

   ii. the start-up does not last for more than 24 hours,

   iii. the start-up or shut-down is conducted according to a written plan that minimizes discharges into the air during the period of start-up or shut-down,

   iv. if opacity is required to be measured by Item 4 of the Table to section 35, all measurements required by Item 5 of the Table to section 49 are recorded during the start-up or shut-down, and

   v. all measurements required by section 53 and 54 are recorded during the start-up or shut-down.

**Notification – Exceedence of Limit**

12. (1) The owner and operator of a pulp and paper facility shall ensure that, as soon as practicable, a provincial officer is notified in writing of any contravention of sections 4 to 10.
(2) No later than 30 days after notice is required to be given under subsection (1), the owner and operator shall ensure that the following information is submitted, in writing, to the district manager:

1. The date and time of the contravention.
2. The details of the contravention, including any measured or calculated values relating to an exceedence of a limit.
3. An explanation of suspected cause of the contravention, including the suspected cause of each exceedence of a limit.
4. A description of any steps taken, or that will be taken, to prevent or minimize the risk of future contraventions.

(3) Subject to subsection (4), if notice is required to be given under subsection (1) for a contravention of section 4 to 7, the steps required to be described in paragraph 4 of subsection (2) shall include:

1. A list of procedures that will be implemented as required by section 13.
2. Based on the time requirements set out under subsection 14 (4), for each listed procedure, an indication of the date by which each element of the procedure will be implemented.
3. A written explanation of how each of the listed procedures will prevent or minimize the risk of any future contraventions of the section.

(4) Subsection (3) does not apply if,

(a) the facility is an existing facility and the date is before July 1, 2015; or
(b) all of the information set out in subsection (3) has previously been submitted to the district manager and the district manager is satisfied that the suspected cause of the contravention and steps taken to prevent or minimize the risk of future contraventions would be the same as in the information previously submitted.

Implementation of Procedures

13. (1) Subject to subsection (4), if information is required to be submitted under subsection 12 (3), the owner and operator shall ensure that at least one of the procedures developed under subsection 14 (3) is implemented at the facility.

(2) Subject to subsection (3), the procedure required to be implemented under subsection (1) shall address the contravention for which the notice was given.

(3) If no procedure developed under subsection 14 (3) addresses the contravention, the owner and operator shall ensure that,

(a) no later than 15 days after the notice is required to be given, an action that addresses the contravention is identified under subsection 14 (1); and
(b) the procedures developed under subsection 14 (3) in relation to the action are implemented at the facility.

(4) This section does not apply if the facility is an existing facility and the date is before July 1, 2015.

Corrective Action Procedures

14. (1) Subject to subsection (6), for each of the following improvements, the owner and operator of a pulp and paper facility shall ensure that at least one action that could be taken to achieve the improvement is identified in a document entitled “Corrective Action Procedures”:

1. An increased removal of total reduced sulphur (TRS) compounds from process condensate streams.
2. A reduced loading of total reduced sulphur (TRS) compounds entering the wastewater treatment system.
3. A reduction in discharges into the air of total reduced sulphur (TRS) compounds from the wastewater treatment system.
4. A reduced concentration of total reduced sulphur (TRS) compounds at the wastewater ambient monitor.
5. A reduced concentration of total reduced sulphur (TRS) compounds at the community ambient monitor.
6. A reduced concentration of carbon monoxide in the flue gas of a large wood-fired combustor.

(2) The actions required to be identified under subsection (1) shall include the actions mentioned in the following subsections:
1. Subsection 41 (2).
2. Subsection 44 (3).

(3) For each action identified in subsection (1), the owner and operator shall ensure that a written procedure to implement the action is developed and included in the document entitled “Corrective Action Procedures”.

(4) Each procedure developed under subsection (3) shall set out the time required to implement each element of the procedure.

(5) Actions identified with respect to the improvement mentioned in paragraph 5 of subsection (1) may include controlling discharges from lime kilns into the air and minimizing the discharge of NCGs into the air.

(6) This section does not apply if the facility mentioned in subsection (1) is an existing facility and the date is before July 1, 2015.

Order for Specified Corrective Action Procedures

15. (1) If the Director has reasonable grounds to believe that a person has contravened any of sections 4 to 7, the Director may order the person to take an action specified in the order to achieve one or more of the improvements mentioned in subsection 14 (1) that would address the contravention and to develop a written procedure to implement that action.

(2) The order mentioned in subsection (1) may specify the following:
1. The date by which the action must be implemented.
2. Elements of the procedure mentioned in subsection (1) and dates by which the elements shall be implemented.
3. An action that, in the opinion of the Director, may prevent or minimize the likelihood of an adverse effect.

PART III – OPERATIONAL PRACTICES

Steam Stripping of Process Condensate Streams

16. (1) No person shall transmit or cause or permit the transmission of any of the following streams at a pulp and paper facility that uses the kraft process unless the streams are collected in a closed system and transmitted to a steam stripper system:
1. Process condensate streams from the blow steam generated in a batch digester.
2. Process condensate streams from the gas released from a batch digester relief gas vent.
3. Process condensate streams from the flash steam generated in a continuous digester.
4. Underflow stream from a turpentine decanter.
5. Process condensate streams from a system that collects concentrated NCGs.

(2) No person shall transmit or cause or permit the transmission of a process condensate stream from an evaporator system at an existing pulp and paper facility that uses the kraft
process unless at least one of the process condensate streams is collected in a closed system and transmitted to a steam stripper system.

(3) No person shall transmit or cause or permit the transmission of a process condensate stream from an evaporator system at a new pulp and paper facility that uses the kraft process unless at least two of the process condensate streams are collected in a closed system and transmitted to a steam stripper system.

(4) A steam stripper system referred to in subsections (1) to (3) shall be capable of accommodating the volume of the streams that are required to be transmitted.

(5) The Director may order the owner and operator of a pulp and paper facility that uses the kraft process to remove total reduced sulphur (TRS) compounds from a process condensate stream if,

(a) the owner and operator were required to give notice with respect to the facility under subsection 2 (2);

(b) the Director is of the opinion that the process condensate stream is contributing to the discharge of total reduced sulphur (TRS) compounds into the air from the facility and that the discharge may cause an adverse effect; and

(c) the adverse effect mentioned in clause (b) may be better prevented, eliminated or ameliorated if total reduced sulphur (TRS) compounds were removed from the process condensate stream.

Steam Stripper System By-Pass – Notification

17. (1) The owner and operator of a pulp and paper facility that uses a kraft process shall ensure that a provincial officer is notified immediately if, for more than one hour, a process condensate stream is redirected from treatment, including if a process condensate stream is redirected from a steam stripper.

(2) No later than 30 days after the notice under subsection (1) is required to be given, the owner and operator shall ensure that the following information is submitted, in writing, to a provincial officer:

1. The date and time that the process condensate stream was redirected from treatment.

2. The duration of the redirection mentioned in paragraph 1.

3. An explanation of the suspected reason that the process condensate stream was redirected.

4. A description of any steps taken to prevent or minimize the risk of the process condensate stream being redirected in the future.

Incineration – Semi-Chemical Process

18. No person shall transmit or cause or permit the transmission of a gas from a steam reformer, sodium carbonate pellet cooling conveyer, sodium carbonate dissolving tank or a liquor concentrator at a pulp and paper facility that uses a semi-chemical pulp process, unless the following conditions are met:

1. The gas is collected and transmitted in a closed system.

2. The gas is incinerated by at least one of,
   i. a power boiler, or
   ii. a thermal oxidizer dedicated to the incineration of the gas.

Failure of Incineration Device Semi-Chemical Process - Notification

19. (1) The owner and operator of a facility mentioned in section 18 shall ensure that a provincial officer is notified immediately if both of the following circumstances occur:

1. The gas mentioned in section 18 is discharged into the air.
2. None of the devices mentioned in paragraph 2 of section 18 is available to incinerate the gas mentioned in section 18 and remains unavailable for more than one hour.

(2) No later than 30 days after the notice under subsection (1) is required to be given, the owner and operator shall ensure that the following information is submitted, in writing, to a provincial officer:

1. The date and time that the device mentioned in paragraph 2 of subsection (1) was unavailable.

2. The duration of the period that the device mentioned in paragraph 1 remained unavailable.

3. An explanation of the suspected reason that the device was unavailable.

4. A description of any steps taken to prevent or minimize the risk of,
   i. a future contravention of section 18, and
   ii. the gas being discharged into the air in the event of a future contravention of section 18.

Incineration of NCGs – Kraft Process

20. (1) Subject to subsections (2), (3) and (6), no person shall transmit or cause or permit the transmission of a concentrated NCG at a pulp and paper facility that uses the kraft process unless the following conditions are met:

1. The concentrated NCG is collected and transmitted in a closed system.

2. The concentrated NCG is incinerated by at least one of the following devices:
   i. A recovery boiler.
   ii. A lime kiln.
   iii. A power boiler.
   iv. A thermal oxidizer dedicated to the incineration of the gas.

3. No concentrated NCGs are discharged into the air.

(2) Subsection (1) does not apply if one of the devices in paragraph 2 of subsection (1) fails to operate and the concentrated NCG is treated by a scrubber that uses alkaline solution.

(3) Subsection (1) does not apply if the following conditions are met:

1. In addition to the device required by paragraph 2 of subsection (1), at least one of following devices capable of treating the concentrated NCG is also present at the facility:
   i. A recovery boiler.
   ii. A lime kiln.
   iii. A power boiler.
   iv. A thermal oxidizer dedicated to the incineration of the gas.
   v. A scrubber that uses alkaline solution to treat the gas.

2. The discharge of the concentrated NCG into the air is prevented or minimized in accordance with a written procedure.

3. The concentrated NCG is discharged into the air for no more than 88-hours in any one-year period.

4. The highest ranking employee is notified in writing as soon as practicable of the discharge of the concentrated NCG into the air.

(4) For the purpose of paragraph 3 of subsection (3), the discharge into the air of a concentrated NCG remaining in the connection between a device mentioned in paragraph 2 of subsection (1) and one of the additional devices mentioned in subparagraphs 1 i to iv of subsection (3) shall be deemed not to be a discharge into the air.
(5) For the purpose of paragraph 3 of subsection (3), the discharge into the air of a concentrated NCG from a defect shall be deemed not to be a discharge into the air if the defect is repaired by the date set out in section 37.

(6) The Director may give a written notice to the person mentioned in subsection (1) indicating that subsection (1) does not apply to the person in respect of a specified concentrated NCG, subject to such conditions as are specified by the Director, if,

(a) the person requests the notice in writing;

(b) the request mentioned in clause (a) identifies the source of contaminant that discharges the specified concentrated NCG into the air; and

(c) the Director is satisfied that no adverse effect is likely to occur if the specified concentrated NCG is not collected and incinerated in accordance with subsection (1).

(7) No person shall operate or cause or permit the operation of a new pulp and paper facility that uses the kraft process unless all dilute NCGs generated at the facility are collected in a closed system and incinerated.

(8) The Director may order the owner and operator of an existing pulp and paper facility that uses the kraft process to collect in a closed system and incinerate dilute NCGs generated at the facility if,

(a) the owner and operator were required to give notice with respect to the facility under subsection 2 (2);

(b) the Director is of the opinion that the dilute NCGs are contributing to discharges of total reduced sulphur (TRS) compounds into the air from the facility and that such discharges may cause an adverse effect; and

(c) the adverse effect mentioned in clause (b) may be better prevented, eliminated or ameliorated if the dilute NCGs were collected and incinerated.

**Failure of a Back-up Incineration Device (Concentrated NCG) Kraft Process – Notification**

21. (1) Subject to subsections (2) and (5), the owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a provincial officer is notified immediately if a concentrated NCG is discharged into the air for more than 10 minutes.

(2) If notice is required to be given under subsection (1) more than one time during a calendar day and a provincial officer has been notified of the discharge that first occurred in the calendar day in accordance with subsection (1), subsection (1) does not apply to the subsequent discharges that would require that notice be given under subsection (1) if, as soon as practicable after the end of the calendar day, a provincial officer is notified of the number of times that notice would have to have been given under subsection (1) were this subsection not to apply.

(3) If a discharge mentioned in subsection (1) continues for longer than a 24-hour period, the owner and operator shall ensure that a provincial officer is notified at least once in every 24-hour period that the discharge continues.

(4) No later than 10 days after the notice under subsection (1) is required to be given, the owner and operator shall ensure that the following information is submitted, in writing, to a provincial officer:

1. The date, time and duration of the discharge.

2. The total amount of time that concentrated NCGs have been discharged into the air in the preceding one-year period.

3. An explanation of the suspected reason for the discharge of the concentrated NCG into the air and why it was not collected and incinerated in accordance with subsection 20 (1).

4. A description of any steps taken to prevent or minimize the risk of,

   i. a future contravention of subsection 20 (1), and

   ii. the gas being discharged into the air in the event of a future contravention of subsection 20 (1).

(5) Subsection (1) does not apply if the only concentrated NCG discharged into the air is the gas remaining in the connection between a device mentioned in paragraph 2 of subsection 20
(1) and a device used in the event of a failure of a device mentioned in paragraph 2 of subsection 20 (1).

(6) Despite subsection (5), subsection (1) does apply if the device used in the event of a failure of a device mentioned in paragraph 2 of subsection 20 (1) is a wet scrubber that uses an alkaline solution.

(7) If the Director is of the opinion that the steps required to be described in paragraph 4 of subsection (4) are insufficient to prevent or minimize the risks described in that paragraph, the Director may order a person mentioned in subsection (1) to take steps to prevent or minimize the risks described in paragraph 4 of subsection (4).

Failure of an Incineration Device (Dilute NCG) Kraft Process - Notification

22. (1) If a dilute NCG is required by this industry standard to be incinerated, the owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a provincial officer is notified immediately if both of the following criteria are met:

1. The incinerator is unavailable to incinerate the gas for more than one hour.
2. The dilute NCG is discharged into the air.

(2) No later than 30 days after the notice under subsection (1) is required to be given, the owner and operator shall ensure that the following information is submitted, in writing, to a provincial officer:

1. The date and time that the incinerator was unavailable.
2. The duration of the period that the incinerator remained unavailable.
3. An explanation of the suspected reason that the incinerator was unavailable.
4. A description of any steps taken to prevent or minimize the risk of,
   i. the incinerator being unavailable in the future, and
   ii. the gas being discharged into the air in the event that the incinerator is unavailable in the future.

(3) If a dilute NCG is required by this industry standard to be treated using a method of treatment other than incineration, this section applies, with necessary modifications, to the other method of treatment.

Procedures to Minimize Acrolein

23. (1) The owner and operator of a pulp and paper facility shall ensure that procedures to prevent or minimize the discharge of acrolein into the air are developed and implemented with respect to each of the following sources of contaminant at the facility:

1. Unbleached kraft linerboard paper machine.
2. Tall oil reactor.
3. Weak black liquor storage tank vent.
4. Black liquor salt cake mix tank vent.
5. Brownstock washer.
6. Oxygen delignification system.
8. Thermo-mechanical pulping vent.

(2) For each source of contaminant listed in subsection (1) that is at the facility, the procedure mentioned in subsection (1) shall set out at least one method of preventing or minimizing the discharge of acrolein into the air.

(3) A method mentioned in subsection (2) may include,

(a) the use of an air pollution control device;
(b) the selection and use of a source of contaminant that more effectively prevents or minimizes the discharge of a registered contaminant than another source of contaminant; and

(c) the operation of a process in a manner that prevents or minimizes the discharge of acrolein into the air from one or more sources of contaminant.

(4) No person shall discharge or cause or permit the discharge of acrolein into the air from a source of contaminant listed in subsection (1) unless the discharge is made in accordance with the procedure required by subsection (1).

Large Wood-fired Combustors - Combustion Air Requirements

24. No person shall operate or cause or permit the operation of a large wood-fired combustor at a pulp and paper facility unless the air entering the furnace of the large wood-fired combustor is sufficient to maintain the following levels of oxygen in the flue gas of the combustor:

1. If the large wood-fired combustor uses suspension burners, an oxygen level of at least 1.5 per cent oxygen averaged over a three-hour period.

2. If the large wood-fired combustor does not use suspension burners, an oxygen level of at least 4.0 per cent oxygen averaged over a three-hour period.

Large Wood-fired Combustors - Air Pollution Control Devices

25. (1) If a large wood-fired combustor at a pulp and paper facility is attached to a baghouse, no person shall operate or cause or permit the operation of the baghouse unless it has at least one bag leakage detection monitor operating.

(2) If a large wood-fired combustor at a pulp and paper facility is attached to a wet scrubber, no person shall operate or cause or permit the operation of the wet scrubber unless it has at least one pressure drop monitor and at least one liquid flow monitor operating.

(3) If a large wood-fired combustor at a pulp and paper facility is attached to an electrostatic precipitator, no person shall operate or cause or permit the operation of the electrostatic precipitator unless it has at least one power input monitor operating.

Large Wood-fired Combustors - Fuel Management

26. (1) No person shall store or cause or permit the storage of wood fuel at a pulp and paper facility that has a large wood-fired combustor unless the wood fuel is stored in accordance with a written wood fuel management plan.

(2) The owner and operator of a facility mentioned in subsection (1) shall ensure that the wood fuel management plan mentioned in subsection (1) is developed and implemented.

(3) The wood fuel management plan mentioned in subsection (1) shall contain the following information:

1. A list of the types of wood fuel that may be stored at the facility.

2. For each type of wood fuel listed in paragraph 1, an identification of parameters that will demonstrate the storage quality of the wood fuel, including size and moisture content.

3. For each parameter identified under paragraph 2, a determination of a range of values within which the wood fuel will be considered of acceptable quality for storage at the facility.

4. A procedure to ensure that the wood fuel is tested to ensure that the value for each parameter identified under paragraph 2 is within the range determined under paragraph 3 for the parameter.
5. A procedure to ensure the wood fuel is inspected on a regular basis and that the inspection includes an inspection of the pile and of the feed system.

6. A procedure to ensure that wood fuel not considered acceptable for storage at the facility is rejected and not stored at the facility.

7. An indication of the maximum time that a wood fuel may be stored at the facility.

8. A pile turn-over procedure to ensure that wood fuel that has been at the facility longest is used first.

9. A procedure to ensure that records are prepared and retained at the facility that set out,
   i. the quantity of wood fuel purchased by the facility and the source from which it was purchased,
   ii. the quantity of wood fuel generated at the facility, and
   iii. the quantity of wood fuel rejected for storage at the facility, in accordance with paragraph 6, and the reasons for the rejection.

**New Large Wood-Fired Combustors - Residence Time & Temperature**

27. (1) Subject to subsection (2), no person shall operate or cause or permit the operation of a new large wood-fired combustor at a pulp and paper facility unless it is designed to operate in a manner that ensures the flue gas in the furnace attains a temperature set out in Column 1 of the Table to this section for a residence time of at least the period set out opposite the residence time in Column 2 of the Table.

(2) Subsection (1) does not apply if the new large wood-fired combustor incorporates fluidized-bed technology and is designed to operate in a manner that ensures the flue gas in the furnace attains a temperature of 800°C for a residence time of at least 1 second.

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<th>Item</th>
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<tr>
<td>3.</td>
<td>850 Degrees Celsius</td>
<td>2 seconds</td>
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**Thermal Oxidizers – Residence time**

28. (1) No person shall discharge or cause or permit the discharge of a gas from a thermal oxidizer at a pulp and paper facility into the air unless the gas in the thermal oxidizer attains a temperature of at least 760°C for a residence time of at least 0.75 seconds.

**Brownstock Shower Water**

29. (1) Subject to subsections (2) and (3), no person shall use or cause or permit the use of a process condensate stream as shower water in the last stage of washing in the brownstock washer at a pulp and paper facility that uses the kraft process.

(2) Subsection (1) does not apply if,

(a) the facility is an existing facility and the date is before January 1, 2015; or

(b) all dilute NCGs generated by the brownstock washer are collected and incinerated.

(3) The Director may give written notice to the person mentioned in subsection (1) indicating that subsection (1) does not apply to the person if,

(a) the person requests the notice in writing; and

(b) the Director is satisfied that the concentration of total reduced sulphur (TRS) compounds in the process condensate stream would not result in a significant discharge of total reduced sulphur (TRS) compounds into the air.
Bleaching of Pulp

30. No person shall use or cause or permit the use of elemental chlorine gas for the bleaching of pulp at a pulp and paper facility that uses the kraft process.

Heat Recovery

31. No person shall discharge or cause or permit the discharge of a gas from a refiner at a pulp and paper facility that uses a thermo-mechanical process into the air unless the gas is at a temperature of less than 150°C.

New Pulp and Paper Facility that Uses the Kraft Process - Wastewater Treatment System

32. No person shall operate or cause or permit the operation of a new pulp and paper facility that uses the kraft process unless the wastewater generated by the facility is treated using an activated sludge system.

Air Pollution Control – Requirement to Continue

33. (1) For the purpose of this section, “source” means a thing that,
   (a) is a source of contaminant; or
   (b) would be a source of contaminant were it not attached to an air pollution control device into which contaminants have been discharged from that thing.
   (2) Subject to subsection (5), the owner and operator of a pulp and paper facility shall ensure that a table is prepared in the following manner:
      1. The Table shall, at a minimum, contain 2 columns.
      2. The first column shall be entitled “Technology”. The column shall list each method used at the facility to prevent or minimize the discharge of a registered contaminant.
      3. The second column shall be entitled “Associated Sources”. The column shall, opposite each method listed in Column 1, list each source at the facility that is associated with the method.
      (3) A method mentioned in paragraph 2 of subsection (2) includes a method such as,
         (a) the use of an air pollution control device;
         (b) the selection and use of a source that more effectively prevents or minimizes the discharge of a registered contaminant than another source; and
         (c) the operation of a process in a manner that prevents or minimizes the discharge of a registered contaminant into the air from one or more sources.
      (4) If a method mentioned in paragraph 2 of subsection (2) is the selection of a source in accordance with clause (3) (b), the source shall be listed as the method in Column 1 of the Table required by subsection (2) and as the source in Column 2 of the Table.
      (5) If a new facility is not constructed at the time of registration, the methods required to be listed in Column 1 and the sources required to be listed in Column 2 of the Table required by subsection (2) shall, until the construction is complete, be the proposed methods and sources.
      (6) Each method used by the facility to collect and treat dilute NCGs shall be listed in Column 1 of the Table required by subsection (2).
      (7) If a source that may discharge a registered contaminant is replaced or added to the facility, the owner and operator shall ensure that the following steps are performed:
         1. Determine if the replaced or added source is of a similar type to a source listed in Column 2 of the Table required by subsection (2).
         2. If the determination required by paragraph 1 is affirmative,
            i. identify the method listed in Column 1 opposite the source,
(8) No later than 30 days after any of the following changes occur, the owner and operator of a pulp and paper facility shall ensure that the Table required by subsection (2) is updated in the following manner:

1. If a new method to prevent or minimize the discharge of a registered contaminant is being used at the facility, the method shall be listed in Column 1 of the Table and each source associated with the method shall be listed opposite the method in Column 2 of the Table.

2. If the determination required by paragraph 1 of subsection (7) is affirmative, the source shall be listed in Column 2 of the Table and a method that is at least as effective as the method identified in paragraph 2 of subsection (7) shall be listed opposite the source in Column 1.

3. Subject to subsection (9), if there is a change to a method required to be listed in Column 1 of the Table, the change in method shall be listed in Column 1 of the Table.

4. If a source listed in Column 2 of the Table is removed from the facility, the source shall be removed from the Table.

5. If all sources associated with a method listed in Column 1 of the Table have been removed from the Table, the method shall be removed from the Table.

6. If a notice issued under subsection (11) indicates that a method is no longer necessary, the method shall be removed from Column 1 of the Table and the associated sources listed opposite the method shall be removed from Column 2 of the Table.

(9) A change mentioned in paragraph 3 of subsection (8) shall be one of the following changes:

1. A change to a method that results in a method that is at least as effective at preventing or minimizing the discharge of registered contaminants as the method that was previously listed in the Table.

2. A change to a method that is authorized by a notice issued under subsection (11).

3. A change to a method that is required by an order issued under subsection (12).

4. A change to a method that is required by a section of this industry standard, other than this section.

(10) Subject to subsection (11), no person shall operate or cause or permit the operation of a source required to be listed in Column 2 of the Table required by subsection (2) unless the discharge of registered contaminants from the source is prevented or minimized by a method that is at least as effective at preventing or minimizing the discharge into the air as the associated method listed opposite the source in Column 1 of the Table.

(11) The Director may give written notice to the person mentioned in subsection (2) indicating that a person may operate, in accordance with the notice, a source required to be listed in Column 2 of the Table required by subsection (2) if the discharge of registered contaminants from the source is prevented or minimized by a method that is less effective at preventing or minimizing the discharge into the air than the associated method listed opposite the source in Column 1 of the Table if,

(a) the person requests the notice in writing;

(b) the notice required by clause (a) contains a rationale for the request;

(c) the source specified in the request is not a source subject to a requirement under this industry standard, other than a requirement under this section; and

(d) the Director is of the opinion that,

(i) the specified source is controlled by a method that is less effective at preventing or minimizing the discharge of registered contaminants into the air than the method required to be recorded under subsection (2) and the effectiveness of the method is
comparable to the effectiveness of the method required to be recorded under subsection (2),

(ii) the specified source is controlled by a method that is less effective at preventing or minimizing the discharge of registered contaminants into the air than the method required to be recorded under subsection (2) and any adverse effect that may be caused by discharges of the contaminant from the specified source into the air would likely not be better prevented, eliminated or ameliorated if the method required to be recorded under subsection (2) were used,

(iii) no adverse effect is likely to occur if the specified source is not controlled by a method, or

(iv) the registered contaminants discharged from the specified source are discharged in an amount that is negligible.

(12) The Director may order the person mentioned in subsection (2) to use a specified method to prevent or minimize the discharge of a registered contaminant into the air from a source if,

(a) an assertion is made in accordance with subclause (16) (c) (i) in a notice required to be given under subsection (13) and the Director is of the opinion that the method is not as effective at preventing or minimizing the discharge into the air as the method previously listed in the Table; or

(b) the source is, or, in an earlier version has been, listed in Column 2 of the Table required by subsection (2) and the Director is of the opinion that the discharge may cause an adverse effect.

(13) No later than 30 days after a source that discharges a registered contaminant is replaced, or added to the facility, the owner and operator of a pulp and paper facility shall ensure that a provincial officer is notified in writing of the replacement or addition.

(14) Subsection (13) does not apply if the source discharges a registered contaminant in an amount that is negligible.

(15) If the notice required by subsection (13) is with respect to a source for which a determination required by paragraph 1 of subsection (7) is affirmative, the notice shall include,

(a) a description of the source;

(b) a description of the method required to be listed under paragraph 2 of subsection (8);

(c) a description of the method required to be identified in paragraph 2 of subsection (7);

(d) an explanation of how the method mentioned in clause (b) is at least as effective as the method mentioned in clause (c).

(16) If the notice required by subsection (13) is with respect to a source that is a method listed in Column 1 of the Table required by subsection (2), the notice shall include,

(a) a description of the method;

(b) a list of the sources set out in Column 2 of the Table opposite the method; and

(c) one of the following assertions,

(i) an explanation of how the method is at least as effective at preventing or minimizing the discharge of registered contaminants as the method that was previously listed in the Table,

(ii) a reference to the notice issued under subsection (11) that authorized the change in method,

(iii) a reference to the order issued under subsection (12) that required the change in method, or

(iv) a reference to the section of this industry standard that requires the change in method.

(17) No later than 30 days after a significant modification has been made to a large wood-fired combustor, the owner and operator of a pulp and paper facility shall ensure that,

(a) a provincial officer is notified in writing of the significant modification; and

(b) the notification required by clause (a) includes the following information,
(i) the intensity, expressed as a mass per unit heat input capacity, of the emissions of particulate and benzo(a)pyrene prior to the significant modification,

(ii) an estimate of the intensity, expressed as a mass per unit heat input capacity, of the emissions of particulate and benzo(a)pyrene after the significant modification is completed, and

(iii) a description of the significant modification and an explanation of how the modification resulted in an increase in the intensity of the emissions of particulate and benzo(a)pyrene.

Specified Air Pollution Control Devices

34. (1) No person shall operate or cause or permit the operation of a source of contaminant set out in Column 1 of the Table to this section at a pulp and paper facility that uses the kraft process unless all contaminants that may be discharged to the air generated by the source are collected and transmitted to the air pollution control device set out opposite the source of contaminant in Column 2.

(2) Subject to subsection (3) and for the purposes of subsection (1), the air pollution control device set out in Items 4, 5 and 6 of Column 2 of the Table to this section shall,

(a) remove at least 99 per cent of chlorine dioxide from the gas entering the device; or

(b) not discharge into the air a gas that contains more than 10 ppm of chlorine dioxide.

(3) Before July 1, 2015, the following provisions do not apply to an existing pulp and paper facility:

1. Subsection (1) with respect to Items 4, 5 and 6 of the Table to this section.

2. Subsection (2).

<table>
<thead>
<tr>
<th>Item</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Source of Contaminant</strong></td>
<td><strong>Air Pollution Control Device</strong></td>
</tr>
<tr>
<td>1</td>
<td>A tall oil reactor</td>
<td>A wet scrubber that uses an alkaline solution</td>
</tr>
<tr>
<td>2</td>
<td>A smelt dissolving tank</td>
<td>A wet scrubber that uses an alkaline solution or a recovery boiler</td>
</tr>
<tr>
<td>3</td>
<td>A slaker</td>
<td>A wet scrubber</td>
</tr>
<tr>
<td>4</td>
<td>A bleach plant chlorine dioxide storage vent</td>
<td>A wet scrubber that uses alkaline solution</td>
</tr>
<tr>
<td>5</td>
<td>A bleach plant chlorine dioxide generator</td>
<td>A wet scrubber that uses alkaline solution</td>
</tr>
<tr>
<td>6</td>
<td>A bleach plant chlorinated-stage washer hood</td>
<td>A wet scrubber that uses alkaline solution</td>
</tr>
<tr>
<td>7</td>
<td>A recovery boiler</td>
<td>An electrostatic precipitator</td>
</tr>
<tr>
<td>8</td>
<td>A lime kiln</td>
<td>An electrostatic precipitator or wet scrubber</td>
</tr>
</tbody>
</table>
Facility – Parameter Summary Table

35. (1) Subject to subsections (2) and (4), the owner and operator of a pulp and paper facility shall ensure that a table labelled “Parameter Summary Table” is prepared that reproduces the Table to this section in a manner that includes all technologies listed in Column 1 of the Table to this section that are at the facility and associated with a registered contaminant.

(2) Subject to subsection (3), the value in Columns 5 and 6 for Item 7 of the Table to this section shall be at least 80% solids in the black liquor for a recovery boiler if either of the following criteria is met:

1. The recovery boiler is part of a new pulp and paper facility.
2. The recovery boiler was installed at an existing facility after March 31, 2014.

(3) The Director may give written notice to the person mentioned in subsection (1) indicating that paragraph 2 of subsection (2) does not apply to the person if,

(a) the person requests the notice in writing; and
(b) the Director is satisfied that it is not feasible to operate the recovery boiler with at least 80% solids in the black liquor.

(4) Subject to subsection (5), a person who is required under subsection (1) to reproduce Item 4 in the Parameter Summary Table for the facility does not have to set out the information in Columns 3 to 7 of Item 4 of the Table to this section if the person sets out the information in the following manner:

2. Column 4: A location that would allow measurement of voltage and current from the field.
3. Column 5: A value that is consistent with professional recommendations.
4. Column 6: A value that does not meet the criteria set out in Column 5.
5. Column 7: In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period.

(5) Subsection (4) does not apply with respect to an electrostatic precipitator at the facility if,

(a) the electrostatic precipitator is associated with a large wood-fired combustor that has a heat input capacity greater than 50 MW;
(b) the large wood-fired combustor mentioned in clause (a) is not a direct contact dryer; and
(c) the date is on or after July 1, 2016.

(6) For the purpose of subsection (1), where the Table to this section refers to a parameter, location, or value that is to be consistent with a recommendation made by a professional, the owner and operator shall ensure that the Parameter Summary Table sets out the recommended parameter, location, or value and the source of the recommendation.

(7) If a range of values is provided by a professional pursuant to subsection (6), the range of values shall be considered the value for the purposes of this section.

(8) The source of the recommendation made by a professional mentioned in subsection (6) shall be one of the following documents:

1. The manufacturer’s operating manual.
2. A letter from the manufacturer, specifying the recommendation.
3. A letter from a professional engineer who has experience with the technology specifying a recommendation and the rationale for the recommendation.

(9) The person mentioned in subsection (1) shall ensure that the Parameter Summary Table is updated to reflect any of the following changes no later than 30 days after the change occurs:

1. A revision is made to a recommendation made by a professional.
2. A technology referred to in Item 10 of the Table to this section is added or changed, if the technology is associated with a registered contaminant.
3. A source of contaminant associated with a technology set out in Column 1 is added or replaced.
(10) If the Director has reasonable grounds to believe that a value recommended for the purposes of subsection (6) is inappropriate for proper operation of the technology, the Director may give written notice to the owner and operator of a pulp and paper facility specifying a different value.

(11) Before the Director gives a person notice under subsection (10), 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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
<th>Column 6</th>
<th>Column 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technology</td>
<td>Associated Sources</td>
<td>Parameter</td>
<td>Measurement Location</td>
<td>Normal Value</td>
<td>Deviation Value</td>
<td>Notification Value</td>
</tr>
<tr>
<td>1.</td>
<td>Wet scrubber</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Scrubbing liquid flow rate (L/min)</td>
<td>Inlet to the scrubber</td>
<td>A value that is consistent with professional recommendations</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pressure differential (inches of water)</td>
<td>1. Inlet to the scrubber</td>
<td>A value that is consistent with professional recommendations</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period</td>
</tr>
<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
<td>Column 5</td>
<td>Column 6</td>
<td>Column 7</td>
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<tr>
<td></td>
<td>Technology</td>
<td>Associated Sources</td>
<td>Parameter</td>
<td>Measurement Location</td>
<td>Normal Value</td>
<td>Deviation Value</td>
<td>Notification Value</td>
</tr>
<tr>
<td>2.</td>
<td>Wet scrubber – with alkaline solution</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Scrubbing liquid flow rate (L/min)</td>
<td>Inlet to the scrubber</td>
<td>A value that is consistent with professional recommendations</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pressure differential (inches of water)</td>
<td>1. Inlet to the scrubber</td>
<td>A value that is consistent with professional recommendations</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pH of scrubbing liquid</td>
<td>The locations required to be recorded under subsection 49 (5)</td>
<td>A value that is consistent with professional recommendations</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period</td>
</tr>
<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
<td>Column 5</td>
<td>Column 6</td>
<td>Column 7</td>
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</tr>
<tr>
<td>3.</td>
<td>Thermal oxidizer</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Temperature</td>
<td>At the point that represents a residence time of 0.75 seconds</td>
<td>A value that is consistent with professional recommendations. The recommendation shall be a temperature of at least 760°C</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5 averaged over a 12-hour period</td>
</tr>
<tr>
<td>4.</td>
<td>Electrostatic precipitator, subject to subsection (4)</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Opacity</td>
<td>Immediately before the outlet of the stack of the electrostatic precipitator</td>
<td>20% averaged over a six-minute averaging period</td>
<td>Opacity is greater than 20 per cent averaged over a six-minute period</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
<td>Column 5</td>
<td>Column 6</td>
<td>Column 7</td>
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<tr>
<td></td>
<td>Technology</td>
<td>Associated Sources</td>
<td>Parameter</td>
<td>Measurement Location</td>
<td>Normal Value</td>
<td>Deviation Value</td>
<td>Notification Value</td>
</tr>
<tr>
<td>5.</td>
<td>Lime kiln</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Percentage of the flue gas that is oxygen</td>
<td>Outlet of the kiln</td>
<td>1. If the lime kiln is incinerating concentrated NCGs, at least 1.5% oxygen by volume on a dry basis</td>
<td>2. If the lime kiln is only being used to calcine, at least 0.5% oxygen by volume on a dry basis</td>
<td>2. If the lime kiln is only being used to calcine, in each day of any three-day period, the per cent oxygen is less than 0.5% averaged over a three-hour period</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Percentage of sodium in lime mud</td>
<td>Kiln feed from the lime mud filter</td>
<td>No more than 1.5% sodium in lime mud</td>
<td>The per cent sodium exceeds 1.5%</td>
<td>In three days of any seven-day period, the per cent sodium in lime mud exceeds 1.5%</td>
</tr>
<tr>
<td>6.</td>
<td>Steam stripper</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Steam-to-condensate ratio</td>
<td>1. Steam inlet to steam stripper</td>
<td>At least 0.15 kg of steam / kg of condensate</td>
<td>The ratio of steam to condensate is less than 0.15 averaged over a one-hour period</td>
<td>In three days of any seven-day period, the ratio of steam to condensate is less than 0.15 averaged over a 12-hour period</td>
</tr>
<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
<td>Column 5</td>
<td>Column 6</td>
<td>Column 7</td>
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</tr>
<tr>
<td>7.</td>
<td>Recovery boiler, subject to subsection (2)</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>Percentage solids that is in black liquor</td>
<td>Black liquor feed at a point immediately before entering the boiler</td>
<td>At least 60% solids in the black liquor</td>
<td>Less than 60% solids in the black liquor, averaged over a one-hour period</td>
<td>N/A</td>
</tr>
<tr>
<td>8.</td>
<td>Aerated stabilization basin system</td>
<td>N/A</td>
<td>pH</td>
<td>Inlet to aerated stabilization basin system</td>
<td>6.8</td>
<td>pH is less than 6.8 averaged over a six-hour period</td>
<td>In three days of any seven-day period, pH is less than 6.8 averaged over a 12-hour period</td>
</tr>
<tr>
<td>9.</td>
<td>Wastewater treatment system</td>
<td>N/A</td>
<td>pH</td>
<td>Inlet to primary treatment</td>
<td>6.8</td>
<td>pH is less than 6.8 averaged over a six-hour period</td>
<td>In three days of any seven-day period, pH is less than 6.8 averaged over a 12-hour period</td>
</tr>
<tr>
<td>10.</td>
<td>Method required by s. 23 (1) or s. 33 (2)</td>
<td>Sources of contaminant that are controlled by the technology set out in Column 1.</td>
<td>A parameter consistent with professional recommendations</td>
<td>A location consistent with professional recommendations</td>
<td>A value that is consistent with professional recommendations</td>
<td>A value that does not meet the criteria set out in Column 5</td>
<td>In three days of any seven-day period, the parameter is a value that does not meet the criteria set out in Column 5</td>
</tr>
</tbody>
</table>

**Facility – Deviation from Operational Parameters**

36. (1) For each technology listed in Column 1 of the Parameter Summary Table required by section 35, the owner and the operator of a pulp and paper facility shall ensure that the information set out in subsection (2) is recorded if the value for a parameter set out in Column 3
of the Table opposite the technology, measured at each location set out in Column 4 of the Table opposite the parameter, deviates from the value set out in Column 6 of the Table.

(2) For the purposes of subsection (1), the following information is required to be recorded:

1. The date, time and duration of the deviation.
2. The value measured for the parameter set out in Column 3 of the Parameter Summary Table required by section 35 and a comparison to the value set out in Column 5 of the Table.
3. An explanation of the suspected cause of the deviation.
4. A description of the operational adjustments made to correct the deviation and the dates the adjustments were made.
5. The names of the personnel assigned to make the operational adjustments.

(3) Subject to subsection (4), the owner and operator of a pulp and paper facility shall ensure that, as soon as practicable, a provincial officer is notified in writing if the value of a parameter listed in Column 3 of the Parameter Summary Table required by section 35 at a location set out opposite the parameter in Column 4 deviates from the value set out opposite in Column 7 of the Table.

(4) Subsection (3) does not apply with respect to the pH requirements set out in Item 8 or 9 of the Table to section 35 if,

(a) the result of the most recent calculation of the daily hydrogen sulphide loading determined in accordance with Item 10 of the Table to section 49, is less than 0.05 kg hydrogen sulphide per tonne of ADUP; or
(b) the facility is not pulping.

Inspection and Maintenance

37. (1) If one or more of the following technologies are associated with a registered contaminant, the owner and operator of a pulp and paper facility shall ensure the technology is inspected and maintained in accordance with a recommendation made by a professional:

1. Evaporator system.
2. Digester system.
3. Turpentine recovery system.
4. Steam stripper system.
5. System that collects NCGs.
6. Any technology listed in Column 1 of the Table to section 35.

(2) The source of the recommendation made by a professional mentioned in subsection (1) shall be one the following documents:

1. The manufacturer’s operating manual.
2. A letter from the manufacturer, specifying the recommended inspection or maintenance.
3. A letter from a professional engineer who has experience with the technology specifying recommended inspection or maintenance practices and the rationale for the specification.

(3) At least once in every 30-day period, the inspection required by subsection (1) shall include an inspection, for visible evidence of defects, of each duct, pipe, enclosure and connection in the following closed systems:

1. If section 18 applies in respect of the facility, each closed system required by section 18.
2. If section 20 applies in respect of the facility, each closed system required by section 20.
3. Each closed system recorded for the purpose of subsection 33 (6).

(4) Subject to subsection (5), if the facility is a pulp and paper facility that uses the kraft process, the owner and operator of the facility shall ensure that each defect observed as a result of the inspection required by subsection (3) is repaired no later than 15 days after the defect was observed.
(5) Subsection (4) does not apply if,
(a) a device connected to the closed system must be shut down in order to repair a defect; and
(b) the device is shut down and the repair is completed by the earlier of,
   (i) the date on which the device begins operation again, and
   (ii) a date specified in writing by the district manager.
(6) The person mentioned in subsection (1) shall ensure that the following information is recorded:
   1. The date and results of inspections and maintenance required by subsection (1).
   2. The source of the recommendation made by a professional required by subsection (2).

**Process Loss – Best Management Practices**

38. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that written practices to prevent or minimize process loss at the facility are prepared.
(2) No person shall act in a manner that is inconsistent with the practices required by subsection (1).
(3) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the practices required by subsection (1) are set out in a document entitled “Process Loss – Best Management Practices.”
(4) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the practices required by subsection (1) are updated to include,
   (a) as required by subsection 44 (4), any action identified in the report required by subsection 44 (1) that is reasonably feasible to implement at the facility;
   (b) any action identified in the report required by subsection 44 (1) that is implemented at the facility; and
   (c) any action required by an order issued under subsection 15 (1), if the action relates to the minimization of process loss.
(5) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the following information is recorded for any abnormal process loss:
   1. The date, time and duration of the process loss.
   2. A description and estimated amount of the process loss.
   3. An explanation of the suspected cause of the process loss.
   4. A description of the activities performed to address the process loss and the dates the activities were completed.
   5. The names of the personnel assigned to perform the activities mentioned in paragraph 4.

**Bi-Annual Adjustment of Large Wood-fired Combustor Operation**

39. (1) Subject to subsection (3), at least one time in every two-year period, the owner and operator of a pulp and paper facility with a large wood-fired combustor shall, for each large wood-fired combustor at the facility, ensure that the following actions are taken:
   1. Determine whether the large wood-fired combustor is operating properly by inspecting,
      i. fuel handling equipment,
      ii. fuel distribution equipment,
      iii. air dampers,
      iv. air measurement devices, and
      v. grates and burners.
   2. Conduct a combustion test that includes,
i. visually observing the combustion occurring in the large wood-fired combustor,
ii. measuring the amount of air entering the large wood-fired combustor,
iii. measuring the oxygen and carbon monoxide in the flue gas in accordance with section 54,
iv. determining the ratio of the amount of air entering the large wood-fired combustor to the amount of wood fuel entering the large wood-fired combustor,
v. comparing the ratio determined under paragraph iv with the ratio at which the large wood-fired combustor was designed to operate, and
vi. determining the ratio of energy output from the large wood-fired combustor to the heat input of the large wood-fired combustor, for example the steam flow to bark ratio.

3. Determine if the large wood-fired combustor is performing well by reviewing:
   i. the results of the combustion test required by paragraph 2,
   ii. the concentration of carbon monoxide and oxygen in the flue gas, measured in accordance with section 54, and
   iii. information, including any calibration information, to demonstrate whether the continuous emissions monitoring system required by subsection 54 (1) is operating in accordance with the manufacturer’s recommendations.

(2) If the determination required by paragraph 3 of subsection (1) indicates that the large wood-fired combustor is not performing well, the owner and operator shall ensure that the ratio mentioned in subparagraph 2 iv of subsection (1) is adjusted in a manner that will improve the performance of the large wood-fired combustor.

(3) If any of the requirements set out in subsection (1) conflict with a manufacturer’s recommendation, the requirement does not apply to the person mentioned in subsection (1) to the extent that it conflicts with the manufacturer’s recommendation.

(4) For greater certainty, subsection (1) does not replace any inspection or preventative maintenance program recommended by the manufacturer and such recommendations shall be implemented in addition to the requirements in subsection (1).

PART IV – OPERATIONAL OPTIMIZATION ASSESSMENTS

Treatment of Process Condensate Streams – Assessment Report

40. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a report is prepared that identifies all process condensate streams at the facility and the following information for each process condensate stream:

1. The source from which the process condensate stream originates.
2. Subject to subsection (2), the highest daily flow rate of the process condensate stream that would occur under normal operating conditions.
3. Subject to subsection (2), the concentration of total reduced sulphur (TRS) compounds in the process condensate stream, determined by,
   i. measuring, in accordance with subsection 1 (5), the concentration of total reduced sulphur (TRS) compounds at least once in every three-month period during a 12-month period,
   ii. for each day when a measurement is made under subparagraph i, recording the daily production rate,
   iii. subject to subparagraph iv, assigning the highest measurement taken under subparagraph i to be the concentration of total reduced sulphur (TRS) compounds in the process condensate stream, and
   iv. if the concentration assigned under subparagraph iii is not representative of the highest concentration of total reduced sulphur (TRS) compounds in the process
41. Subject to subsection (3), the owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a report is prepared that,

(a) ranks the process condensate streams identified in subsection 40 (1) based on the concentration of total reduced sulphur (TRS) compounds as determined under paragraph 3 of subsection 40 (1);

(b) ranks the process condensate streams identified in subsection 40 (1) based on the loading of total reduced sulphur (TRS) compounds as determined under paragraph 4 of subsection 40 (1);

(c) for each of the highly ranked streams under clause (a) and for each of the highly ranked streams under clause (b), identifies actions that could be taken to ensure the stream is treated, including at least one of,

(i) redirecting the process condensate stream to a steam stripper system identified in subsection 40 (3) as having unused capacity,

(ii) replacing a process condensate stream currently being treated by a steam stripper system with a process condensate stream that has a higher concentration or loading of total reduced sulphur (TRS) compounds.

(iii) increasing steam stripper system capacity, and

(iv) treating the process condensate stream by a method other than by a steam stripper system if the method would remove at least as much of the total reduced sulphur (TRS) compounds as a steam stripper system; and

(d) for each process condensate stream that is not being treated by a steam stripper system, provides reasons why the stream is not being treated, including whether the treatment is...
feasible for the stream and whether the stream is not being treated so that another process condensate stream can be treated instead.

(2) The owner and operator shall ensure that each action identified under clause (c) of subsection (1) is identified as an action under subsection 14 (1) and that procedures to implement the action are developed under subsection 14 (3).

(3) If the date of application for registration in respect of the facility mentioned in subsection (1) is on or before March 31, 2015, this section does not apply to the facility for the six-month period following the date of registration.

Steam Stripping Assessment and Optimization Update

42. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the reports required by sections 40 and 41 are updated in accordance with this section.

(2) Subject to subsection (7), the reports required by sections 40 and 41 shall be updated if,

(a) notice is required to be given under subsection 12 (1) of a contravention of sections 4, 5, or 6; and

(b) the procedure required to be implemented under subsection 13 (1) is one of the procedures mentioned in subsection 41 (2).

(3) The update required by subsection (2) shall be completed no later than six months after the last date specified in paragraph 2 of subsection 12 (3), and shall, at minimum, include updating the following information:

1. The destination of each process condensate stream at the facility as required by paragraph 5 of subsection 40 (1).

2. Actions that could be taken to treat process condensate streams as required by clause (c) of subsection 41 (1).

(4) Subject to subsection (5), at least one time in every four-year period all of the information in the reports required under subsection 40 and 41 shall be updated.

(5) The Director may give written notice to the person mentioned in subsection (1) indicating that subsection (4) does not apply to the person in respect of the facility mentioned in subsection (1) for a specified four-year period if the person requests the notice in writing no later than the first day of the fourth year in the four-year period and no earlier than the first day of the third year in the four-year period and,

(a) the person has not been given a notice under this section in respect of the previous four-year period and, at the time that the request is made, a procedure under subsection 41 (2) is being implemented at the facility; or

(b) in the two-year period preceding the date of the request, no notice has been required to be given under subsection 12 (1) of a contravention of sections 4, 5, or 6 and the Director is of the opinion that it is not necessary to identify additional actions under clause (c) of subsection 41 (1).

(6) In considering a request made under clause (a) of subsection (5), the Director may consider the number of previous requests made under subsection (4).

(7) This section does not apply if the facility mentioned in subsection (1) is an existing facility and the date is before July 1, 2015.

Process Loss Assessment Report

43. The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a report is prepared that contains the following information:

1. Identification of key process areas which have the potential to produce a process loss.

2. For each process area identified in paragraph 1, identification of equipment that may be the source of a process loss, including storage tanks and pipelines.

3. For each piece of equipment identified in paragraph 2, identification of controls and procedures that are in place to minimize process loss, including secondary containment, alarms, detection, and sumps.
Process Loss Minimization Report

44. (1) Subject to subsection (5), the owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a report is prepared that, based on the information contained in the report required by section 43, identifies actions that are different than or additional to those required by section 38 that would minimize the amount of process loss at the facility.

(2) The report required by subsection (1) shall identify the following actions:

1. Installing controls to prevent or minimize process loss from the equipment identified in paragraph 2 of section 43.

2. Installing instrumentation to monitor process loss.

3. Implementing procedures to ensure the instrumentation mentioned in paragraph 2 is calibrated and maintained on a regular basis.

4. Implementing procedures to alert personnel who operate the facility that process loss is imminent and to ensure that appropriate steps are taken to prevent, minimize or respond to the process loss.

5. Implementing procedures to educate operators, maintenance personnel and other technical and supervisory personnel at the facility with respect to the significance of process loss.

6. Implementing procedures to train operators, maintenance personnel and other technical and supervisory personnel at the facility in process loss prevention, minimization and response.

(3) The owner and operator shall ensure that each action identified in subsection (1) is identified as an action under subsection 14 (1) and that procedures to implement the action are developed under subsection 14 (3).

(4) Subject to subsection (5), the owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the best management practices required by section 38 include all actions identified in the report required by subsection (1) that are reasonably feasible to implement.

(5) If the date of application for registration in respect of the facility mentioned in subsection (1) is on or before March 31, 2015,

(a) Subsection (1) does not apply to the facility for the three-month period following the date of registration; and

(b) Subsection (4) does not apply to the facility for the six-month period following the date of registration.

Process Loss Assessment and Minimization Update

45. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the reports required by sections 43 and 44 are updated in accordance with this section.

(2) Subject to subsection (4), the reports required by sections 43 and 44 shall be updated if,

(a) notice is required to be given under subsection 12 (1) of a contravention of sections 4, 5, or 6; and

(b) the procedure required to be implemented under subsection 13 (1) is one of the procedures mentioned in subsection 44 (3).

(3) The update mentioned in subsection (2) shall be completed no later than six months after the last date specified in paragraph 2 of subsection 12 (3).

(4) If, during a three-year period, the reports required by sections 43 and 44 have not been updated, the reports shall be updated no later than the last day of the month that immediately follows the three-year period.

(5) This section does not apply if the facility mentioned in subsection (1) is an existing facility and the date is before July 1, 2015.
Ontario Ministry of the Environment
<table>
<thead>
<tr>
<th>Item</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
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<tbody>
<tr>
<td></td>
<td>Operating Parameter</td>
<td>Measurement Location</td>
<td>Measurement Procedure</td>
</tr>
<tr>
<td>1.</td>
<td>Concentration of dissolved total reduced sulphur (TRS) compounds</td>
<td>Inlet to primary treatment</td>
<td>1. Measure the parameter in Column 1 on three consecutive days.</td>
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<td></td>
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<td>2. On each day, the measurement required by paragraph 1 shall be performed by taking at least two grab samples during daylight hours.</td>
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<td>3. There shall be at least five hours between the grab samples taken in paragraph 2.</td>
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<td>4. Analyse each grab sample to determine the value of the parameter in Column 1 in each grab sample.</td>
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<td>5. Calculate the average value for the parameter in Column 1 by averaging all of the values determined in paragraph 4.</td>
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<td>6. The analysis required by paragraph 4 shall identify the concentration of methyl mercaptan, dimethyl disulphide, dimethyl sulphone and total dissolved sulphide.</td>
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<td></td>
<td>For wastewater by-passing the primary treatment, the point where the wastewater discharges from the bypass to the aerated stabilization system</td>
<td></td>
<td>1. Measure the parameter in Column 1 on three consecutive days.</td>
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<td></td>
<td>The point of discharge from primary treatment to the aerated stabilization basin system</td>
<td>2. On each day, the measurement required by paragraph 1 shall be performed by taking at least one grab sample during daylight hours.</td>
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<td></td>
<td>Exit of each aerated stabilization basin cell</td>
<td>3. Analyse each grab sample to determine the value of the parameter in Column 1 in each grab sample.</td>
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<td></td>
<td>At least one point in each aerated stabilization basin cell. The point must be representative of the range of total reduced sulphur (TRS) compounds concentrations in the aerated stabilization basin cell. No point shall be in close proximity to an aerator.</td>
<td>4. Calculate the average value for the parameter in Column 1 by averaging all of the values determined in paragraph 3.</td>
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<td>5. The analysis required by paragraph 3 shall identify the concentration of methyl mercaptan, dimethyl disulphide, dimethyl sulphone and total dissolved sulphide.</td>
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<tr>
<td>2.</td>
<td>Concentration of dissolved oxygen</td>
<td>Exit of each aerated stabilization basin cell that contains an aerator.</td>
<td>1. Measure the parameter in Column 1 on three consecutive days.</td>
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<td></td>
<td>At least one point in each aerated stabilization basin cell. The point must be representative of the range of dissolved oxygen concentrations in the aerated stabilization basin cell. No point shall be in close proximity to an aerator.</td>
<td>2. On each day, the measurement required by paragraph 1 shall be performed by taking at least one grab sample or using in-situ testing with a luminescent probe.</td>
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<td>3. The measurements described in paragraph 2 shall be taken during daylight hours.</td>
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<td>4. Analyse each grab sample and probe result to determine the value of the parameter in Column 1.</td>
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<td>5. Calculate the average value for the parameter in Column 1 by averaging all of the values determined in paragraph 4.</td>
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<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
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<td></td>
<td>Operating Parameter</td>
<td>Measurement Location</td>
<td>Measurement Procedure</td>
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</table>
| 3.   | pH       | Inlet to primary treatment | 1. Measure the parameter in Column 1 continuously during the period of assessment mentioned in subsection (3).  
2. Calculate an average value for the parameter in Column 1 by averaging the values determined in paragraph 1 at least one time in every five-minute period.  
3. Calculate the average value for the parameter in Column 1 by averaging all of the values determined in paragraph 2. |
|      |          | For any wastewater by-passing the primary treatment, the point where the wastewater discharges from the bypass to the aerated stabilization system | Either of the following measurement procedures:  
1. A daily grab sample taken each day in a three-day period.  
2. Use of a probe to obtain an in-situ measurement taken each day in a three-day period. |
| 4.   | Temperature | Inlet to primary treatment | Either of the following measurement procedures:  
1. A daily grab sample taken each day for three days.  
2. Use of a probe to obtain an in-situ measurement taken each day in a three-day period. |
<p>|      |          | For any wastewater by-passing the primary treatment, the point where the wastewater discharges from the bypass to the aerated stabilization system | |
|      |          | The point of discharge from primary treatment to the aerated stabilization basin system | |
|      |          | At least one point in each aerated stabilization basin cell. The point must be representative of the range of pH concentrations in the aerated stabilization basin cell. No point shall be in close proximity to an aerator. | |
|      |          | The point of discharge from primary treatment to the aerated stabilization basin system | |
|      |          | At least one point in the aerated stabilization basin cell. The point must be representative of the range of temperature in the aerated stabilization basin cell. No point shall be in close proximity to an aerator. | |</p>
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<tr>
<th>Item</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
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<tr>
<td>5.</td>
<td>Operating Parameter</td>
<td>Measurement Location</td>
<td>Measurement Procedure</td>
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<td>Operating Parameter</td>
<td>Measurement Location</td>
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<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
</tr>
<tr>
<td>5.</td>
<td>Concentration of BOD$_5$ (total and soluble)</td>
<td>Inlet to primary treatment</td>
<td>1. Measure the parameter in Column 1 on three consecutive days.</td>
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<td>2. On each day, the measurement required by paragraph 1 shall be performed by taking samples at least every 20 minutes during daylight hours.</td>
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<td>3. The sample mentioned in paragraph 2 shall be obtained by taking fixed volume grab samples or by using a composite sampler.</td>
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<td>4. On each day, the samples required by paragraph 2 shall be combined to form a daily composite sample.</td>
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<td>5. Analyse each daily composite sample to determine the value of the parameter in Column 1 for each daily composite sample.</td>
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<td>6. The analysis required by paragraph 5 shall include the incubation of the daily composite sample for 5 days at 20°C.</td>
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<td>7. Calculate the average value for the parameter in Column 1 by averaging all of the values determined in paragraph 5.</td>
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<td>8. The parameter in Column 1 shall be expressed in mg of oxygen consumed per L of sample.</td>
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<td>For any wastewater by-passing the primary treatment, the point where the wastewater discharges from the bypass to the aerated stabilization system</td>
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<td></td>
<td>The point of discharge from primary treatment to the aerated stabilization basin system</td>
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<td>The exit of each aerated stabilization basin cell</td>
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<td>Outlet of the wastewater treatment system</td>
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<tr>
<td>6.</td>
<td>BOD$_5$ loading rate</td>
<td>The point of discharge from primary treatment to the aerated stabilization basin system</td>
<td>For each location set out in Column 2, calculate the parameter in Column 1 by multiplying the concentration measured in Item 5 of this Table for the corresponding location by the flow rate measured in Item 9 of this Table.</td>
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<tr>
<td>7.</td>
<td>Historical frequency of dredging</td>
<td>Primary settling basin</td>
<td>List the dates on which the basin was dredged in the last five years.</td>
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<td></td>
<td>Each aerated stabilization basin cell</td>
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<td>List the dates on which each cell was dredged in the last 20 years.</td>
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</tbody>
</table>
### Wastewater Treatment System – Optimization: Report & Implementation

47. (1) Subject to subsection (5), the owner and operator of a pulp and paper facility that uses the kraft process and that has an aerated stabilization basin shall ensure that a report is prepared that contains the following information:

1. Using the information set out in the report required by subsection 46 (5), the results of a predictive model that determines the daily emission rate of total reduced sulphur (TRS) compounds discharged into the air for the wastewater treatment system.

2. All operating scenarios that would reduce the emission rate determined under paragraph 1.

3. For each operating scenario set out under paragraph 2, a range of values for each operating parameter identified in clause (a) of subsection 46 (1) that is related to the operating scenario.

4. For each operating scenario set out under paragraph 2, the results of a predictive model that determines the daily emission rate of total reduced sulphur (TRS) compounds discharged into the air for the wastewater treatment system.

5. Using the results from the predictive modelling required by paragraph 4, a ranking of the operating scenarios set out under paragraph 2 based on the effectiveness of the scenario to prevent or minimize the discharge of total reduced sulphur (TRS) compounds into the air from the wastewater treatment system.

(2) The owner and operator shall ensure that at least one of the operating scenarios determined under subsection (1) is identified as an action under subsection 14 (1) and that procedures to implement the action are developed under subsection 14 (3).

(3) The operating scenarios mentioned in subsection (2) shall include the highest ranked operating scenario under paragraph 5 of subsection (1) that is feasible to implement at the facility.

(4) For each operating scenario that is determined not to be feasible for the purposes of subsection (3), the report required by subsection (1) shall include,

(a) an explanation of why the operating scenario is not feasible; and
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(b) the next highest ranked operating scenario under paragraph 5 of subsection (1) that is feasible to implement at the facility.

(5) If the date of application for registration in respect of the facility mentioned in subsection (1) is on or before March 31, 2015, this section does not apply to the facility for the six-month period following the date of registration.

Wastewater Treatment System Assessment and Optimization Update

48. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that the reports required by subsections 46 (5) and 47 (1) are updated in accordance with this section.

(2) Subject to subsection (7), the reports required by subsections 46 (5) and 47 (1) shall be updated if,

(a) notice is required to be given under subsection 12 (1) of a contravention of section 5 or 6; and

(b) the procedure required to be implemented under subsection 13 (1) is one of the procedures mentioned in subsection 47 (2).

(3) The update required by subsection (2) shall be completed no later than six months after the last date specified in paragraph 2 of subsection 12 (3), and shall, at minimum, include updating the information required by section 47.

(4) Subject to subsection (5), at least one time in every 10-year period all of the information in the reports required by subsections 46 (5) and 47 (1) shall be updated.

(5) The Director may give written notice to the person mentioned in subsection (1) indicating that subsection (4) does not apply to the person for a specified 10-year period if the person requests the notice in writing no later than the first day of the tenth year in the 10-year period and no earlier than the first day of the ninth year in the 10-year period, and;

(a) the person has not been given a notice under this section with respect to the previous 10-year period and, at the time that the request is made, a procedure under subsection 47 (2) is being implemented at the facility; or

(b) in the two-year period preceding the date of the request, no notice has been required to be given under subsection 12 (1) of a contravention of section 5 or 6 and the Director is of the opinion that it is not necessary to identify additional operating scenarios under paragraph 2 of subsection 47 (1).

(6) In considering a request made under clause (a) of subsection (5), the Director may consider the number of previous requests made under subsection (5).

(7) This section does not apply if the facility mentioned in subsection (1) is an existing facility and the date is before July 1, 2015.

PART V – MONITORING

In-Facility Monitoring

49. (1) The owner and operator of a pulp and paper facility shall ensure that measurements are taken and recorded in accordance with this section.

(2) Subject to subsection (3), for each technology listed in Column 1 of the Table to this section that is associated with a registered contaminant, the parameters set out in Column 2 of the Table to this section shall be measured at the locations set out opposite the parameter in Column 3 with the frequency set out in Column 4.

(3) If, in accordance with subsection 35 (4), Item 4 of the Parameter Summary Table refers to the parameter of Corona Power Input, Item 5 of the Table to this section shall be set out as follows:

Column 2: Voltage (V), Current (I)
Column 3: A location that would allow measurement of voltage and current from each field

Column 4: Continuously

Column 5: Calculate $V_{av}$ and $I_{av}$ averaged over a one-hour period; Calculate Corona Power Input = $\sum (V_{av} * I_{av})$ for each field.

(4) If, for the purpose of subsection 35 (1), a parameter was set out in the Parameter Summary Table with respect to Item 10 of the Table to section 35, the parameter shall be measured at a location and in a manner consistent with the recommendations made by a professional.

(5) The measurement locations of pH for the purposes of Item 2 of the Table to this section shall be recorded.

(6) The results of the measurements required under subsection (2) and (4) shall be recorded and used to determine the calculated parameter in Column 5 of the Table to this section.

(7) For each parameter required to be measured under subsections (2) and (4), a written procedure that will result in an accurate measurement shall be developed.

(8) If, having regard to subsection (3), opacity is required to be measured for the purpose of Item 5 of the Table to this section, the measurement shall be performed by a device installed in accordance with the document entitled, “Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation” (Report EPS 1/PG/7 December 2005), published by Environment Canada, as amended from time to time and operated in accordance with the manufacturer’s recommendations.

(9) A measurement is required by Item 3 of the Table to this section and a measurement of concentration required by Item 7 of the Table to this section shall be performed in accordance with a plan approved by the Director.

(10) If the Director has reasonable grounds to believe that a measurement required to be taken in subsection (2) or (4) is inaccurate, the Director may give written notice to the owner and operator of a pulp and paper facility requiring the use, in accordance with the notice, of,

(a) a specified type of monitor;

(b) procedures to be followed when taking the measurement; and

(c) a specified method of analysis of the measurement.

(11) Before the Director gives a person notice under subsection (10), 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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technology</td>
<td>Measured Parameter</td>
<td>Measurement Location</td>
<td>Measurement Frequency</td>
<td>Calculated Parameter</td>
</tr>
<tr>
<td>1.</td>
<td>Wet scrubber</td>
<td>Scrubbing liquid flow rate</td>
<td>Inlet to the scrubber</td>
<td>Continuously</td>
<td>Average flow rate calculated at least one time in every five-minute period</td>
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<tr>
<td></td>
<td></td>
<td>Pressure</td>
<td>1. Inlet to the scrubber</td>
<td>Continuously</td>
<td>1. Average pressure ($P_{av}$) calculated at least one time in every five-minute period</td>
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<tr>
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<td>Measured Parameter</td>
<td>Measurement Location</td>
<td>Measurement Frequency</td>
<td>Calculated Parameter</td>
</tr>
<tr>
<td>1.</td>
<td>Wet scrubber – with alkaline solution</td>
<td>Scrubbing liquid flow rate</td>
<td>1. Inlet to the scrubber</td>
<td>Continuously</td>
<td>Average flow rate calculated at least one time in every five-minute period</td>
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<td>Pressure</td>
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<td>Continuously</td>
<td>1. Average pressure (Pavg) calculated at least one time in every five-minute period</td>
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<td>pH of scrubbing liquid</td>
<td>At least one of: 1. Inlet to the scrubber 2. Outlet of the scrubber 3. The scrubber recirculation line</td>
<td>Continuously</td>
<td>Average pH calculated at least one time in every five-minute period</td>
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<td>2.</td>
<td>Wet scrubber – with alkaline solution at a bleach plant</td>
<td>Concentration of chlorine dioxide (ppm)</td>
<td>1. Inlet of the scrubber</td>
<td>At least one time in every 12-month period</td>
<td>Per cent removal of chlorine dioxide = [1 - (C_{\text{outlet}} / C_{\text{inlet}})]</td>
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<td>3.</td>
<td>Thermal oxidizer</td>
<td>Temperature</td>
<td>At the point that represents a residence time of 0.75 seconds</td>
<td>Continuously</td>
<td>Average temperature calculated at least one time in every five-minute period</td>
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<td>Electrostatic precipitator</td>
<td>Opacity</td>
<td>Immediately before the outlet of the stack of</td>
<td>Continuously</td>
<td>Average opacity calculated at least one time in</td>
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<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
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<td>Column 4</td>
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<tr>
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<td>Measurement Location</td>
<td>Measurement Frequency</td>
<td>Calculated Parameter</td>
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<td>6.</td>
<td>Lime kiln</td>
<td>Percentage of flue gas that is oxygen</td>
<td>Outlet of the kiln</td>
<td>Continuously</td>
<td>Average percentage oxygen calculated at least one time in every five-minute period</td>
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<td></td>
<td>Percentage of sodium in lime mud</td>
<td>Kiln feed from the lime mud filter</td>
<td>Continuously or at least one grab sample per day</td>
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<td>7.</td>
<td>Steam stripper</td>
<td>Mass flow rate of steam</td>
<td>Steam inlet to steam stripper</td>
<td>Continuously</td>
<td>1. Average mass flow rate of steam (Flow-avgsteam) calculated at least one time in every five-minute period</td>
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<td>Mass flow rate of process condensate</td>
<td>Condensate inlet to steam stripper</td>
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<td>2. Average mass flow rate of process condensate (Flow-avgcondensate) calculated at least one time in every five-minute period</td>
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<td>Concentration of total reduced sulphur (TRS) compounds</td>
<td>1. Inlet of the steam stripper</td>
<td>At least one time in every 12-month period</td>
<td>Per cent removal of TRS = [1 - \left( \frac{C_{\text{outlet}}}{C_{\text{inlet}}} \right) ]</td>
</tr>
<tr>
<td>Item</td>
<td>Column 1</td>
<td>Column 2</td>
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<td>Measurement Location</td>
<td>Measurement Frequency</td>
<td>Calculated Parameter</td>
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<td>8.</td>
<td>Recovery boiler</td>
<td>Concentration of methanol</td>
<td>1. Inlet of the steam stripper 2. Outlet of the steam stripper</td>
<td>At least one time in every 12-month period</td>
<td>Per cent removal of methanol = \left[1 - \left( \frac{C_{\text{outlet}}}{C_{\text{inlet}}} \right) \right]</td>
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<tr>
<td>9.</td>
<td>Aerated stabilization basin system</td>
<td>Percentage solids that is in black liquor</td>
<td>Black liquor feed at a point immediately before entering the boiler</td>
<td>Continuously</td>
<td>Average percentage solids that is in black liquor calculated at least one time in every five-minute period</td>
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<td>9.</td>
<td>Aerated stabilization basin system</td>
<td>pH</td>
<td>Inlet to aerated stabilization basin system</td>
<td>Continuously</td>
<td>Average pH calculated at least one time in every five-minute period</td>
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<td>10.</td>
<td>Wastewater treatment system</td>
<td>Dissolved oxygen (DO)</td>
<td>Outlet of each aerated stabilization basin that contains an aerator</td>
<td>At least one grab sample taken during daylight hours every weekday</td>
<td>Daily TRS Loading = \frac{C_{\text{TRS}} \times \text{Flow}}{\text{Daily Production Rate}}</td>
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<td>1. Concentration of total reduced sulphur (TRS) compounds, measured in a manner that also identifies the concentration of hydrogen sulphide</td>
<td>Inlet to primary treatment</td>
<td>At least one grab sample taken at least one time in every 3-month period, during daylight hours, including the second Tuesday of every 3-month period, unless the Director specifies another date in writing</td>
<td>Daily H₂S Loading = \frac{C_{\text{H₂S}} \times \text{Flow}}{\text{Daily Production Rate}}</td>
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<td>2. Flow rate of the wastewater</td>
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<td>At the time the concentrations in paragraph 1 of this Item were measured</td>
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<td>3. Daily Production Rate</td>
<td></td>
<td>On the day that the concentrations in paragraph 1 of this Item were measured</td>
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</table>
### Ambient Monitoring

50. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that,

(a) the concentration of total reduced sulphur (TRS) compounds discharged into the air from facility is effectively measured by one or more community ambient monitors that have been identified by the Director under subsection (5); and

(b) the concentration of total reduced sulphur (TRS) compounds discharged into the air from the wastewater treatment system is effectively measured by one or more wastewater ambient monitors that have been identified by the Director under subsection (5).

(2) Each ambient monitor mentioned in subsection (1) shall,

(a) measure and record the concentration of total reduced sulphur (TRS) compounds in the air every minute;

(b) meet the applicable requirements set out in the Operations Manual for Air Quality Monitoring in Ontario PIBS 6687e, as amended from time to time;

(c) if the monitor is a community ambient monitor, be located at a point that is not on the property of the facility.

(3) The person mentioned in subsection (1) shall ensure that each ambient monitor identified by the Director under subsection (5) effectively measures the concentration of total reduced sulphur (TRS) compounds discharged into the air.

(4) The person mentioned in subsection (1) shall ensure that a diagram, drawn to scale, that accurately depicts the location of all ambient monitors related to the facility, including all community ambient monitors and wastewater ambient monitors, is submitted to the Director.

(5) The Director may identify, in writing, which ambient monitors depicted in the diagram submitted for the purpose of subsection (4) or (9) are, in the opinion of the Director, adequate to effectively measure the concentration of total reduced sulphur (TRS) compounds discharged into the air.

(6) If the Director is of the opinion that an ambient monitor depicted in the diagram submitted for the purpose of subsection (4) or (9) is not adequate to effectively measure the concentration of total reduced sulphur (TRS) compounds discharged into the air, the Director may give written notice to the person mentioned in subsection (1) requiring steps to be taken, in accordance with the notice, including one or more of the following steps:

1. Relocate one or more ambient monitors.

2. Install an additional ambient monitor.

(7) Before the Director gives a person a notice under subsection (6), 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.

(8) The Director may indicate, in writing, that an ambient monitor is no longer identified for the purpose of subsection (5) if,

(a) the Director is of the opinion that the ambient monitor is not necessary to effectively measure the concentration of total reduced sulphur (TRS) compounds discharged into the air;

(b) at least one community ambient monitor remains identified under subsection (5); and
(c) at least one wastewater ambient monitor remains identified under subsection (5).

(9) If there is a change to any of the information contained in the diagram required by subsection (4), the person mentioned in subsection (1) shall ensure that the diagram is updated and the updated diagram is submitted to the Director no later than 30 days after the change occurs.

Baseline TRS Monitoring Data – Wastewater

51. (1) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a baseline is determined in accordance with this section.

(2) No later than March 31 in the year following the first full calendar year in which this section applies in respect of the facility mentioned in subsection (1), a baseline shall be determined by performing the following steps with respect to each wastewater ambient monitor identified as adequate under section 50:

1. For each day in the previous calendar year record one of the following,
   i. if the monitor indicates a measurement of a concentration of total reduced sulphur (TRS) compounds, use all of the measurements from the day to calculate and record the daily average concentration of total reduced sulphur (TRS) compounds, and
   ii. if the monitor indicates that all measurements of the concentration of total reduced sulphur (TRS) compounds for the day were below the detection limit of the monitor, record half of the detection limit of the monitor as the daily average concentration of total reduced sulphur (TRS) compounds.
   iii. if the monitor provides no indication of any measurements with respect to the concentration of total reduced sulphur (TRS) compound for the day, do not record a daily average concentration but instead record an explanation of why no measurements of total reduced sulphur (TRS) compound were taken.

2. Translate each daily average calculated in paragraph 1 to its equivalent natural logarithm.

3. Calculate the mean of all of the values translated in paragraph 2.

4. Calculate the square of the standard deviation of all of the values translated in paragraph 2 using the following equation:

\[ S^2 = \frac{1}{m-1} \sum (x_i - \bar{x})^2 \]

Where,

S is the standard deviation;

m is the number of daily average concentrations recorded in paragraph 1;

x_i is each value translated in paragraph 2; and

\( \bar{x} \) is the value calculated in paragraph 3.

(3) Subject to subsection (4), no later than March 31 in the year following the first full calendar year after an operating scenario determined under subsection 47 (1) has been implemented at the facility, the baseline mentioned in subsection (1) shall be re-determined by performing the steps set out in subsection (2) using concentrations of total reduced sulphur (TRS) compounds measured by the monitor in the previous calendar year.

(4) Subsection (3) does not apply if the concentration of total reduced sulphur (TRS) compounds measured by the monitor averaged over the calendar year mentioned in subsection (3) is higher than,
(a) if no re-determination has previously been made under subsection (3), the concentration of total reduced sulphur (TRS) compounds measured by the monitor averaged over the calendar year mentioned in subsection (2); or

(b) if a re-determination has previously been made under subsection (3), the concentration of total reduced sulphur (TRS) compounds measured by the monitor averaged over the calendar year associated with the most recent re-determination under subsection (3).

(5) The results of each step required to be performed under subsection (2) shall be recorded.

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Statistical Analysis of TRS Concentration from Wastewater Monitor

52. (1) For the purpose of this section, reference to a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds is a reference to the determination of whether the concentration of total reduced sulphur (TRS) compounds measured at a monitor during a calendar year is higher than the concentration of total reduced sulphur (TRS) compounds measured at the monitor during the year in which the most recent baseline was determined under section 51 and, if so, whether the increase in concentration is statistically significant.

(2) The owner and operator of a pulp and paper facility that uses the kraft process shall ensure that a determination of whether a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds has occurred in a year is made in accordance with this section.

(3) No later than March 31 in each year following the second full calendar year in which this section applies in respect of the facility mentioned in subsection (2), a statistical analysis shall be completed by performing the following steps with respect to each wastewater ambient monitor identified as adequate under section 50:

1. For each day in the previous calendar year record one of the following,
   i. if the monitor indicates a measurement of a concentration of total reduced sulphur (TRS) compounds, use all of the measurements from the day to calculate and record the daily average concentration of total reduced sulphur (TRS) compounds, and
   ii. if the monitor indicates that all measurements of the concentration of total reduced sulphur (TRS) compounds for the day were below the detection limit of the monitor, record half of the detection limit of the monitor as the daily average concentration of total reduced sulphur (TRS) compounds.
   iii. if the monitor provides no indication of any measurements with respect to the concentration of total reduced sulphur (TRS) compound for the day, do not record a daily average concentration but instead record an explanation of why no measurements of total reduced sulphur (TRS) compound were taken.

2. Translate each daily average calculated in paragraph 1 to its equivalent natural logarithm.

3. Calculate the mean of all of the values translated in paragraph 2.

4. Calculate the square of the standard deviation of all of the values translated in paragraph 2 using the following equation:

\[ S^2 = \frac{\sum (x - \bar{x})^2}{n-1} \]

Where,

\[ S \] is the standard deviation;

\[ n \] is the number of daily average concentrations recorded in paragraph 1;
5. Calculate the test statistic using the following equation:

\[
T = \frac{(Y - X)}{\sqrt{\left(\frac{S_1^2}{m} + \frac{S_2^2}{n}\right)}}
\]

Where,
- \( T \) is the test statistic;
- \( Y \) is the value calculated in paragraph 3;
- \( X \) is the most recent value calculated in paragraph 3 of subsection 51 (2);
- \( S_1 \) is the most recent value calculated in paragraph 4 of subsection 51 (2);
- \( S_2 \) is the value calculated in paragraph 4;
- \( m \) is the most recent number of values calculated in paragraph 1 of subsection 51 (2); and
- \( n \) is the number of values calculated in paragraph 1.

6. Calculate the degrees of freedom using the following equation:

\[
(v) = \frac{\left(\frac{S_1^2}{m} + \frac{S_2^2}{n}\right)^2}{\left[\frac{(S_1^2/m)^2}{(m-1)} + \frac{(S_2^2/n)^2}{(n-1)}\right]}
\]

Where
- \( (v) \) is the degrees of freedom; and
- \( S_1, S_2, m \) and \( n \) have the same meanings as set out in paragraph 5.

7. Find the value calculated in paragraph 6 in Column 1 of the Table to this section and determine the value set out opposite that value in Column 2.

8. Determine whether there has been a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor by assessing whether the value calculated in paragraph 5 exceeds the value determined under paragraph 7.

(4) If the value calculated in paragraph 5 of subsection (3) exceeds the value determined under paragraph 7 of subsection (3), the Director may, upon the written request of the person mentioned in subsection (2), give written notice to the person indicating that one or more of the following steps may be performed, in accordance with the notice, to determine whether there has been a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor:

1. Re-perform the steps set out in subsection (3) and when calculating each daily average concentration of total reduced sulphur (TRS) compounds under paragraph 1 of subsection (3), exclude concentrations that were measured when the wind was blowing from a
direction that did not pass over the wastewater treatment system before reaching the monitor.

2. When making the determination under paragraph 8 of subsection (3), use a statistical method other than the method set out in paragraphs 2 to 7 of subsection (3), if the Director is of the opinion that,
   i. the values translated under paragraph 2 of subsection (3) are not normally distributed, and
   ii. the other method would more accurately determine whether there has been a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor.

(5) A request for a notice under subsection (4) shall be made no later than March 1 of the year and shall contain the following information:

1. The statistical analysis performed in accordance with subsection (3).

2. If the request pertains to the step described in paragraph 1 of subsection (4),
   i. all relevant information regarding wind direction, including wind direction measurements taken by an anemometer located and operated in accordance with the Operations Manual for Air Quality Monitoring in Ontario PIBS 6687e, as amended from time to time, and
   ii. for each concentration that is proposed to be excluded, an indication of the cause of the measurement and a justification for the exclusion of the measurement.

3. If the request pertains to the step described in paragraph 2 of subsection (4),
   i. a description of the statistical method proposed to be used,
   ii. an explanation of why the proposed statistical method would more accurately determine whether there has been a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor than the statistical method set out in subsection (3), and
   iii. the statistical analysis performed in accordance with the proposed statistical method.

(6) If it is determined that there has been a statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor, the person mentioned in subsection (2) may submit, in writing, the following information to the Director:

1. Information indicating that the statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor for the previous calendar year is caused by a source of contaminant other than the wastewater treatment system.

2. A plan that will prevent or minimize discharges of total reduced sulphur (TRS) compounds into the air from each source of contaminant mentioned in paragraph 1.

3. Dates by which the plan mentioned in paragraph 2 will be implemented.

(7) The information mentioned in subsection (6) shall be submitted by the following date:

1. If no notice has been given under subsection (4) in respect of the previous calendar year, March 1 of the year.

2. If a notice has been given under subsection (4) in respect of the previous calendar year, no later than 30 days after the date the notice was given.

(8) If the Director is of the opinion that the information submitted under subsection (6) demonstrates that the statistically significant increase in the concentration of total reduced sulphur (TRS) compounds at the monitor is caused by a source of contaminant other than the wastewater treatment system, he or she may give a written notice to the person mentioned in subsection (2) indicating that subsection 6 (1) does not apply in respect of the statistically significant increase.

(9) The results of each step performed for the purpose of this section shall be recorded.
<table>
<thead>
<tr>
<th>Item</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Degrees of Freedom (v)</td>
<td>Test Statistic (T) with level of significance (%) = 0.0005</td>
</tr>
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Large Wood-fired Combustor - Continuous Monitoring – Nitrogen Oxides

53. (1) The owner and operator of a pulp and paper facility that has a new large wood-fired combustor with a heat input capacity of at least 100 MW shall ensure that the concentration of nitrogen oxides in the flue gas of the combustor is measured with a continuous emissions monitoring system at a point approved by the Director.

(2) The point of measurement mentioned in subsection (1) shall be a point between,

(a) the exit of the furnace; and

(b) a point immediately before the flue gas is discharged into the air.

(3) For further certainty, if a large wood-fired combustor is attached to an air pollution control device, the flue gas is discharged into the air when it exits the air pollution control device.

(4) The measurements required by subsection (1) shall be recorded at least every 15 minutes.

(5) The person mentioned in subsection (1) shall ensure that the continuous emissions monitoring system is selected, installed in accordance with the document entitled, “Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation” (Report EPS 1/PG/7 December 2005), published by Environment Canada, as amended from time to time and operated in accordance with the manufacturer’s recommendations.

Large Wood-fired Combustor - Continuous Monitoring – Carbon Monoxide, Oxygen and Temperature

54. (1) Subject to subsection (5), the owner and operator of a pulp and paper facility that has a large wood-fired combustor shall ensure that the following parameters in the flue gas of the combustor are measured with a continuous emissions monitoring system at a point approved by the Director:

1. The percentage of the flue gas that is oxygen.
2. The concentration of carbon monoxide.
3. Temperature.

(2) The point of measurement mentioned in subsection (1) shall be a point between,

(a) the exit of the furnace; and

(b) the exit of the large wood-fired combustor.
(3) The measurements mentioned in subsection (1) shall be recorded at least every 15 minutes.

(4) The person mentioned in subsection (1) shall ensure that the continuous emissions monitoring system is selected, installed in accordance with the document entitled, “Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation” (Report EPS 1/PG/7 December 2005), published by Environment Canada, as amended from time to time and operated in accordance with the manufacturer’s recommendations.

(5) This section does not apply to an existing large wood-fired combustor before July 1, 2016.

**Large Wood-fired Combustor - In-Stack Concentration Testing – After Commissioning Period**

55. (1) The owner and operator of a pulp and paper facility that has a new or significantly modified large wood-fired combustor shall ensure that, no later than 12 months after the end of the commissioning period, the flue gas of the combustor is tested to measure the concentration of the following contaminants:

1. The filterable portion of suspended particulate matter.
2. Benzo(a)pyrene.
3. Dioxins, furans and dioxin-like PCBs, reported as toxic equivalency.
4. All metals that may be present in the fuel.

(2) The measurements required by subsection (1) shall be made in accordance with section 57.

**Large Wood-fired Combustor - Periodic In-Stack Concentration Testing**

56. (1) Subject to subsection (2), the owner and operator of a pulp and paper facility that has a large wood-fired combustor shall ensure that at least once in a 12-month period the flue gas of the large wood-fired combustor is tested to measure the concentration of the following contaminants:

1. The filterable portion of suspended particulate matter.
2. Benzo(a)pyrene.
3. Dioxins, furans and dioxin-like PCBs, reported as toxic equivalency.
4. All metals that may be present in the wood.

(2) Subsection (1) does not apply to a large wood-fired combustor that does not burn municipal waste other than woodwaste if the person mentioned in subsection (1) ensures that at least once in a four-year period the flue gas of the combustor is tested to measure the concentration of the filterable portion of suspended particulate matter and benzo(a)pyrene.

(3) The measurements required by subsections (1) and (2) shall be made in accordance with section 57.

(4) If the Director has reasonable grounds to believe that discharges of a contaminant mentioned in subsection (1) into the air from a large wood-fired combustor may be causing an adverse effect, the Director may give written notice to the person required to perform the measurements required by subsection (1) and (2) requiring the person to take measurements, in accordance with the notice, at such regular intervals that may be specified by the Director.

(5) Before the Director gives a person 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.

**Large Wood-fired Combustor - In-Stack Testing Approval**

57. (1) The measurements required in sections 55 and 56 shall be obtained by performing the following steps:
1. Submit a stack-testing plan to the Director for approval at least 120 days before the measurements are proposed to be taken.

2. After receiving approval of the plan mentioned in paragraph 1, provide written notice to the Director at least 30 days before the measurements are taken.

3. Provide an opportunity for representatives of the Ministry to witness the taking of the measurements.

4. No later than four months after the measurements are taken, submit the measurements to the Director for approval as being an accurate reflection of concentrations of contaminants measured.

   (2) Subject to subsection (3), the plan mentioned in paragraph 1 of subsection (1) shall ensure that the measurements are taken,

   (a) comprehensively and across a range of operating conditions;

   (b) if the large wood-fired combustor is attached to an air pollution control device, at a point that is downstream of the device and that is immediately before the gas is discharged into the air;

   (c) if the large wood-fired combustor is not attached to an air pollution control device, at a point that is immediately before the gas is discharged into the air; and

   (d) at least three separate times and that an average concentration is calculated from the measurements.

   (3) The Director may deem a plan to meet the requirements of subsection (2) if, in the opinion of the Director, the plan sets out an alternate method of taking measurements that will result in an accurate reflection of concentrations of contaminants measured.

PART VI – RECORDS AND REPORTING

Complaint Procedure

58. (1) The owner and operator of a pulp and paper facility shall ensure that the following steps are taken to properly respond to each complaint that relates to the discharge of a contaminant into the air from the facility:

   1. A prompt response is made to the person who made the complaint, if a response is requested by the person.

   2. Action is taken to remedy the cause of the complaint.

   3. A written record of the complaint is prepared that includes the following information,

      i. a description of the complaint,

      ii. the date and time that the complaint was received,

      iii. the date, time and suspected cause of the incident to which the complaint relates,

      iv. ambient temperature at the time of the incident to which the complaint relates, if relevant,

      v. the approximate wind direction and wind speed at the time of the incident to which the complaint relates, if relevant,

      vi. the general weather conditions at the time of the incident to which the complaint relates, if relevant, and

      vii. a description of any actions taken to address the incident to which the complaint relates and the date each action was completed.
(2) If a complaint is made that relates to a matter addressed in this industry standard, the owner and operator of a pulp and paper facility shall ensure that a provincial officer is notified of the complaint as soon as practicable after the complaint is made.

(3) No later than five days after a notice is required to be given under subsection (2), the owner and operator shall ensure that the following information is submitted, in writing, to a provincial officer:
   1. A description of the complaint.
   2. The time and date of the incident to which the complaint relates.
   3. A description of any actions taken, or that will be taken, to address the incident to which the complaint relates.
   4. The dates on which the actions mentioned in paragraph 3 were completed or are anticipated to be completed.

Removal Efficiency Report – Steam Stripper

59. (1) No later than March 31 in each year following the first full calendar year in which this section applies in respect of a pulp and paper facility that uses the kraft process, the owner and operator of the facility shall ensure that a report entitled “Removal Efficiency Report - Steam Stripper” is prepared that sets out the following information with respect to the concentration of total reduced sulphur (TRS) compounds measured in accordance with Item 7 of the Table to section 49:
   1. The concentration of total reduced sulphur (TRS) compounds measured at the inlet.
   2. The concentration of total reduced sulphur (TRS) compounds measured at the outlet.
   3. The per cent removal of total reduced sulphur (TRS) compounds.
   4. The date that each measurement mentioned in paragraphs 1 and 2 was taken.

(2) The report mentioned in subsection (1) shall also set out the information required by subsection (1), with necessary modifications, as it pertains to the concentration of methanol measured in accordance with Item 7 of the Table to section 49.

Removal Efficiency Report – Chlorine Dioxide Scrubber

60. No later than March 31 in each year following the first full calendar year in which this section applies in respect of a pulp and paper facility that uses the kraft process, the owner and operator of the facility shall ensure that a report entitled “Removal Efficiency Report - Chlorine Dioxide Scrubber” is prepared that sets out the following information with respect to the concentration of chlorine dioxide measured in accordance with Item 3 of the Table to section 49.
   1. The concentration of chlorine dioxide, in ppm, measured at the inlet.
   2. The concentration of chlorine dioxide, in ppm, measured at the outlet.
   3. The per cent removal of chlorine dioxide.
   4. The date that each measurement mentioned in paragraphs 1 and 2 was taken.

Annual Summaries

61. (1) The owner and operator of a pulp and paper facility shall ensure that annual summaries are prepared and reviewed in accordance with this section.

(2) A table entitled “Implementation Summary Table” shall be prepared that sets out the following information:
   1. A summary of the provisions of this industry standard that apply, in accordance with section 3.
   2. For each provision mentioned in paragraph 1,
i. an indication of whether the provision applies on the date of registration, on a date after the date of registration, or on a recurring basis,

ii. if the provision applies after the date of registration, an indication of the date by which compliance with the provision is required,

iii. if compliance with the provision has been achieved, an indication of the date on which compliance was achieved, and

iv. if the provision applies on a recurring basis, an indication of the date on which compliance was last achieved and an indication of the next date by which compliance with the provision is required.

(3) A table entitled “Performance Summary Table” shall be prepared that sets out the following information:

1. If, in accordance with section 3, one or more of sections 4 to 10 apply,
   i. the date and time of each contravention of each applicable section, and
   ii. the duration of each contravention mentioned in subparagraph i.

2. A description of the steps taken to address each contravention mentioned under paragraph 1, including each corrective action required to be implemented under subsection 13 (1).

3. The Order Number of each order issued under section 15 in respect of the facility, if any.

(4) If, in accordance with section 3, one or more of the following provisions apply, the information required by the applicable provision shall be made available to the highest ranking employee for review:

1. The information regarding failure of a back-up incineration device required by subsection 21 (4).

2. The information regarding the deviation of an operational parameter required by subsection 36 (2).

3. The information regarding process loss required by subsection 38 (5).

4. The measurements required by clause (a) of subsection 50 (2).

5. For each parameter required to be measured under sections 53 to 56 of this industry standard,
   i. the maximum measurement,
   ii. the minimum measurement, and
   iii. the average measurement.

6. The dates of each start-up or shut-down of a large wood-fired combustor, in accordance with paragraph 2 of section 11.

7. A summary of any deviations from the fuel management procedures required by section 26.

8. A summary of the results from the most recent bi-annual adjustment required under section 39.

9. For each air pollution control device associated with a source of contaminant addressed in this industry standard, the dates when the air pollution control device did not operate during a period when the source of contaminant was operating.

10. The information regarding complaints required by subsection 58 (3).

11. A summary of each notice required to be given under sections 2, 17, 19, 21, 22. 33 and 36.

12. A summary of the removal efficiencies set out in the reports required by sections 59 and 60.

(5) An annual summary shall be prepared and the summary shall include, at minimum, the following information:

1. With respect to the events mentioned in paragraphs 1 to 3, 6, 8 and 9 of subsection (4),
i. the number of times each of the events occurred at the facility during the calendar year,

ii. an indication of whether any of the occurrences mentioned in subparagraph i were of particular concern,

iii. an assessment of whether the number of occurrences mentioned in subparagraph i indicate a recurring issue, both in respect of the calendar year and in respect of previous calendar years, and

iv. an explanation of any actions taken to address the occurrences mentioned in subparagraph i.

2. For each community ambient monitor identified as adequate under section 50,

i. the number of 10-minute periods over which the average measurement of the concentration of total reduced sulphur (TRS) compounds exceeded 27 ppb and the date and time of each 10-minute period, and

ii. if the date is before July 1, 2016, the number of 30-minute periods over which the average measurement of the concentration of total reduced sulphur (TRS) compounds exceeded 27 ppb and the date and time of each 30-minute period.

3. For each wastewater ambient monitor identified as adequate under section 50, the measurement of the concentration of total reduced sulphur (TRS) compounds averaged over,

i. each day of the calendar year, and

ii. the calendar year.

4. The number of complaints mentioned in paragraph 10 of subsection (4) received by the facility during the calendar year and, for each complaint, a description of any actions taken to address the incident to which the complaint relates.

5. The number of notices mentioned in paragraph 11 of subsection (4) given in respect of the facility during the calendar year, and with respect to a notice required to be given under section 2, a summary of the information required by subsection 2 (3).

(6) The summary tables required by subsections (2) and (3) and the summary required by subsection (5) shall be completed, in hardcopy, no later than March 31 each year and the information therein shall pertain to the preceding calendar year.

(7) No later than March 31 each year, the highest ranking employee at the facility shall certify in writing that the summary tables required by subsections (2) and (3) and the summary required by subsection (5), have been prepared in accordance with this industry standard and that the information contained in the summaries is,

(a) accurate and complete; and

(b) true to the best of his or her knowledge.

(8) The summary tables required by subsections (2) and (3) and the information required by clause (a) of subsection 2 (3) shall be,

(a) made available for examination by any person, without charge, by posting it on the Internet or by making it available during regular business hours at the place to which the report relates; and

(b) given, without charge, to any person within 15 days after the person requests it.

Records

(1) Subject to subsection (2), the owner and operator of a pulp and paper facility shall ensure that a record required to be prepared by this industry standard is retained at the facility for at least five years and is made available to a provincial officer or Director upon request as soon as practicable.

(2) If a record mentioned in subsection (1) is a report required by sections 40 to 48, the owner and operator of a pulp and paper facility shall ensure that the report is retained for at least five years or until an update of the report is completed, whichever is later.
(3) For greater certainty, as set out in subsection 1 (1) every measurement result is a record for the purpose of this industry standard and is subject to the requirements set out in subsection (1).

(4) A person required to make a record available under subsection (1) shall make it available in a form approved by the Director, including, if required by the Director, an electronic format specified by the Director.

(5) In addition to the records mentioned in subsection (1), the owner and operator of a pulp and paper facility shall ensure that each document relating to the recommendations of the manufacturer for each device at the facility with respect to the use, operation and maintenance of the device is retained for the period during which the device is used or operated.

(6) If a record required to be prepared by this industry standard is required to be updated, it shall contain the date that the record was first prepared and all subsequent dates upon which it was updated.
## APPENDIX A

<table>
<thead>
<tr>
<th>Item</th>
<th>CAS No.</th>
<th>Contaminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>75-07-0</td>
<td>Acetaldehyde</td>
</tr>
<tr>
<td>2.</td>
<td>64-19-7</td>
<td>Acetic Acid</td>
</tr>
<tr>
<td>3.</td>
<td>67-64-1</td>
<td>Acetone</td>
</tr>
<tr>
<td>4.</td>
<td>107-02-8</td>
<td>Acrolein</td>
</tr>
<tr>
<td>5.</td>
<td>7664-41-7</td>
<td>Ammonia</td>
</tr>
<tr>
<td>6.</td>
<td>7440-38-2</td>
<td>Arsenic</td>
</tr>
<tr>
<td>7.</td>
<td>71-43-2</td>
<td>Benzene</td>
</tr>
<tr>
<td>8.</td>
<td>50-32-8</td>
<td>Benzo(a)pyrene [as a surrogate for total Polycyclic Aromatic Hydrocarbons (PAHs)]</td>
</tr>
<tr>
<td>9.</td>
<td>7440-41-7</td>
<td>Beryllium and Beryllium compounds</td>
</tr>
<tr>
<td>10.</td>
<td>92-52-4</td>
<td>Biphenyl</td>
</tr>
<tr>
<td>11.</td>
<td>71-36-3</td>
<td>Butanol, n-</td>
</tr>
<tr>
<td>12.</td>
<td>7440-43-9</td>
<td>Cadmium and Cadmium Compounds</td>
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<tr>
<td>13.</td>
<td>1305-78-8</td>
<td>Calcium Oxide</td>
</tr>
<tr>
<td>14.</td>
<td>124-38-9</td>
<td>Carbon Dioxide</td>
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<tr>
<td>15.</td>
<td>630-08-0</td>
<td>Carbon Monoxide</td>
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<tr>
<td>16.</td>
<td>56-23-5</td>
<td>Carbon Tetrachloride</td>
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<td>17.</td>
<td>7782-50-5</td>
<td>Chlorine</td>
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<td>18.</td>
<td>10049-04-4</td>
<td>Chlorine Dioxide</td>
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<td>19.</td>
<td>75-00-3</td>
<td>Chloroethane</td>
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<td>20.</td>
<td>67-66-3</td>
<td>Chloroform</td>
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<tr>
<td>21.</td>
<td>7440-47-3</td>
<td>Chromium and Chromium Compounds</td>
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<td>22.</td>
<td>7440-50-8</td>
<td>Copper and Copper compounds</td>
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<td>23.</td>
<td>1319-77-3</td>
<td>Cresols</td>
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<td>24.</td>
<td>110-82-7</td>
<td>Cyclohexane</td>
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<td>25.</td>
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<td>Dichloroethane, 1,1-</td>
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<td>Item</td>
<td>CAS No.</td>
<td>Contaminant</td>
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<tr>
<td>26.</td>
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<td>Dioxins and Furans and Dioxin-like PCBs</td>
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<td>27.</td>
<td>100-41-4</td>
<td>Ethyl Benzene</td>
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<td>107-06-2</td>
<td>Ethylene Dichloride</td>
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<td>29.</td>
<td>1309-37-1</td>
<td>Ferric Oxide</td>
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<td>30.</td>
<td>50-00-0</td>
<td>Formaldehyde</td>
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<td>64-18-6</td>
<td>Formic Acid</td>
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<td>110-54-3</td>
<td>Hexane, n-</td>
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<td>33.</td>
<td>7647-01-0</td>
<td>Hydrogen Chloride</td>
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<td>34.</td>
<td>98-82-8</td>
<td>Isopropyl Benzene (Cumene)</td>
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<td>35.</td>
<td>7439-92-1</td>
<td>Lead and Lead Compounds</td>
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<td>36.</td>
<td>1309-48-4</td>
<td>Magnesium Oxide</td>
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<td>37.</td>
<td>7439-96-5</td>
<td>Manganese and Manganese Compounds</td>
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<td>38.</td>
<td>7439-97-6</td>
<td>Mercury and Mercury Compounds</td>
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<td>39.</td>
<td>67-56-1</td>
<td>Methanol (Methyl Alcohol)</td>
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<td>74-87-3</td>
<td>Methyl Chloride</td>
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<td>78-93-3</td>
<td>Methyl Ethyl Ketone (2-Butanone)</td>
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<td>108-10-1</td>
<td>Methyl Isobutyl Ketone</td>
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<td>75-09-2</td>
<td>Methylene Chloride</td>
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<td>91-20-3</td>
<td>Naphthalene</td>
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<td>45.</td>
<td>7440-02-0</td>
<td>Nickel and Nickel compounds</td>
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<td>46.</td>
<td>139-13-9</td>
<td>Nitrilotriacetic Acid</td>
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<td>47.</td>
<td>10102-44-0</td>
<td>Nitrogen Oxides</td>
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<td>48.</td>
<td>108-95-2</td>
<td>Phenol</td>
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<td>49.</td>
<td>123-38-6</td>
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<td>51.</td>
<td>100-42-5</td>
<td>Styrene</td>
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<td>Sulphur Dioxide</td>
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<td>Item</td>
<td>CAS No.</td>
<td>Contaminant</td>
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<td>53.</td>
<td>7664-93-9</td>
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<td>54.</td>
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<td>Suspended Particulate Matter (&lt; 44 um Diameter)</td>
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<tr>
<td>55.</td>
<td>108-88-3</td>
<td>Toluene</td>
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<tr>
<td>56.</td>
<td></td>
<td>Total reduced sulphur (TRS) Compounds (facilities that are part of the class identified by NAICS code 3221 (Pulp, Paper and Paperboard Mills))</td>
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<tr>
<td>57.</td>
<td>79-01-6</td>
<td>Trichloroethylene (TCE)</td>
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<td>58.</td>
<td>95-63-6</td>
<td>Trimethylbenzene, 1,2,4- (individual isomer or trimethylbenzene mixture)</td>
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<td>59.</td>
<td>1330-20-7</td>
<td>Xylenes</td>
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## APPENDIX B

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<th>Number</th>
<th>CAS No.</th>
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<tr>
<td>1.</td>
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<td>Acrolein</td>
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<td>2.</td>
<td>50-32-8</td>
<td>Benzo(a)pyrene [as a surrogate for total Polycyclic Aromatic Hydrocarbons (PAHs)]</td>
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<tr>
<td>3.</td>
<td>630-08-0</td>
<td>Carbon Monoxide</td>
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<td>4.</td>
<td>10102-44-0</td>
<td>Nitrogen Oxides</td>
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<td>5.</td>
<td>-</td>
<td>Suspended Particulate Matter (&lt; 44 um Diameter)</td>
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## APPENDIX C

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<th>CAS No.</th>
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<td>1.</td>
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<td>7440-41-7</td>
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<td>3.</td>
<td>7440-43-9</td>
<td>Cadmium and Cadmium Compounds</td>
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<td>4.</td>
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<td>5.</td>
<td>7440-50-8</td>
<td>Copper and Copper compounds</td>
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<td>6.</td>
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<td>Dioxins and Furans and Dioxin-like PCBs</td>
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<td>7.</td>
<td>7647-01-0</td>
<td>Hydrogen Chloride</td>
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<td>8.</td>
<td>7439-92-1</td>
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<td>7439-96-5</td>
<td>Manganese and Manganese Compounds</td>
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<td>10.</td>
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<td>Mercury and Mercury Compounds</td>
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<td>11.</td>
<td>7440-02-0</td>
<td>Nickel and Nickel compounds</td>
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<tr>
<td>12.</td>
<td>7440-22-4</td>
<td>Silver and Silver compounds</td>
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## APPENDIX D

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<tr>
<td>1.</td>
<td>75-07-0</td>
<td>Acetaldehyde</td>
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<td>2.</td>
<td>64-19-7</td>
<td>Acetic Acid</td>
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<tr>
<td>3.</td>
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<td>Carbon Tetrachloride</td>
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<td>Cyclohexane</td>
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<td>Methyl Ethyl Ketone (2-Butanone)</td>
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<td>Trichloroethylene (TCE)</td>
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Record of Publication for Pulp and Paper - Industry Standard

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