

REGULATION OF THE MINISTER OF ENVIRONMENT

Environmental Management Act

Ministerial Order No. M 260

I, Barry Penner, Minister of Environment, order that

- (a) the attached Code of Practice for Industrial Non-Hazardous Waste Landfills Incidental to the Wood Processing Industry is made, and
- (b) the Table in Schedule 2 of the Waste Discharge Regulation, B.C. Reg. 320/2004, is amended by adding "Code of Practice for Industrial Non-Hazardous Waste Landfills Incidental to the Wood Processing Industry" to Column 2 of item 13 opposite "Industrial Non-hazardous Waste Landfills" in Column 1.

Date

September 8, 2010

Minister of Environment



(This part is for administrative purposes only and is not part of the Order.)

Authority under which Order is made:

Act and section:- Environmental Management Act, S.B.C. 2003, c. 53, ss. 22 and 138

Other (specify):- Waste Discharge Regulation, B.C. Reg. 320/2004, s. 11; OIC 723/2004

July 28, 2010

Resub/R/235/2010/15

CODE OF PRACTICE FOR INDUSTRIAL NON-HAZARDOUS WASTE LANDFILLS INCIDENTAL TO THE WOOD PROCESSING INDUSTRY

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PART 1 – DEFINITIONS AND APPLICATION

Definitions and interpretation

1 In this code:

“**200 year floodplain**” means land where the chance of a flood occurring in any given year is at least one in 200;

“**Act**” means the *Environmental Management Act*;

“**aquifer**” has the same meaning as in the *Water Act*;

“**background concentration**” means the concentration of a substance in an environmental medium in a geographic area, but does not include any contribution from local human-made point sources;

“**cell**” means a compartment within a landfill;

“**conceptual closure plan**” means a plan that meets the requirements of section 3 (2);

“**design plan**” means a plan that meets the requirements of section 19 (2);

“**disease vector**” means a carrier organism that is capable of transmitting a pathogen from one facility, waste source, product or organism to another facility, waste source, product or organism;

“**dredgings**” means

(a) wood residue, and

(b) sand, gravel and rock,

gathered by dredging in water below the high water mark;

“**electronic waste**” means any waste from electronic products that are no longer in use, including television sets, computers, computer monitors and cell phones;

“**final closure plan**” means a plan that meets the requirements of section 15 (2), (4) and (5);

“**final closure report**” means a report referred to in section 16;

“**generic numerical water standard**” has the same meaning as in the Contaminated Sites Regulation, B.C. Reg. 375/96;

“**ground water**” has the same meaning as in the *Water Act*;

“**hazardous waste**” has the same meaning as in the Hazardous Waste Regulation, B.C. Reg. 63/88;

“**inert cover material**” means

(a) soil, gravel or rock, or

(b) any material that

(i) if discharged to a landfill, cannot reasonably be expected to undergo a physical, chemical or biological change that will result in an adverse effect on the environment or human health, and

(ii) is approved by a director for discharge to a landfill;

“**inert waste**” means any of the following materials that have been used by a wood processing industry:

- (a) cured concrete that has been used for structural or construction purposes and that consists of a mixture of Portland cement, sand and gravel with or without embedded wood or steel reinforcements;
- (b) asphaltic material, except asphaltic roofing material and road grindings, that has been used for structural or construction purposes and that consists of a mixture of petroleum asphalt, sand and gravel;
- (c) brick and masonry that have been used for structural or construction purposes;
- (d) ceramic material that has been produced from fired clay or porcelain;
- (e) glass, except glass derived from electronic waste;
- (f) stainless steel and aluminum;
- (g) any other material that
 - (i) if discharged to a landfill, cannot reasonably be expected to undergo a physical, chemical or biological change resulting in an adverse effect on the environment or human health, and
 - (ii) is approved by a director for discharge to a landfill;

“landfill” means the part of a landfill facility where solid waste referred to in section 8 is discharged;

“landfill facility” means a facility described in section 2;

“large landfill facility” means a landfill facility

- (a) the total capacity or designed total capacity of which is more than 5 000 cubic metres of waste, or
- (b) at which more than 500 cubic metres of solid waste is discharged per year or is specified in registration information provided under section 3 (1) (c);

“local government” means

- (a) the council of a municipality, and
- (b) the board of a regional district;

“natural control landfill” means a landfill that relies on climatic and geologic conditions to renovate leachate in the subsurface;

“office or shop refuse” means waste originating from the office or shop of a wood processing industry, but does not include any of the following:

- (a) liquid waste;
- (b) putrescible waste;
- (c) electronic waste;
- (d) a product regulated under the Recycling Regulation, B.C. Reg. 449/2004;
- (e) hazardous waste;

“operational plan” means a plan that meets the requirements of section 20;

“qualified professional”, in relation to a duty or function under this code, means an individual who

- (a) is registered in British Columbia with a professional organization, is acting under that organization’s code of ethics and is subject to disciplinary action by that organization, and

- (b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function;
- “slope failure”** means a measurable downward or outward movement of soil, rocks, snow, ice, mud or debris caused by gravity acting on an unstable slope;
- “surface water”** means a natural watercourse, whether usually containing water or not, and includes
 - (a) a lake, river, creek, spring, ravine, stream, swamp, gulch and brook, and
 - (b) marine water;
- “unauthorized fire”** means a fire or burning that is not authorized by or under an enactment;
- “waste characterization report”** means a report that meets the requirements of section 5 (3);
- “Waste Discharge Regulation”** means the Waste Discharge Regulation, B.C. Reg. 320/2004;
- “wood processing industry”** means
 - (a) a wood processing industry-primary, and
 - (b) a wood processing industry-secondary,
 as defined in Schedule 2 to the Waste Discharge Regulation;
- “wood waste”** means wood residue, other than dredgings, that
 - (a) originates from a wood processing industry, and
 - (b) has not been treated with glue, paint or preservative,
 and includes bark, branches, broken logs, hog fuel, mill ends, wood chips, shavings and saw dust.

Application of code

- 2 This code applies to a person who conducts a wood processing industry and who operates, or proposes to operate, a landfill facility solely for the disposal of waste incidental to the wood processing operations of
 - (a) that person, or
 - (b) that person and one or more other persons, all of whom conduct a wood processing industry.

PART 2 – REGISTRATION FOR EXEMPTION UNDER THE WASTE DISCHARGE REGULATION

Registration requirements for all landfill facilities

- 3 (1) A person must register under section 4 of the Waste Discharge Regulation for the purposes of an exemption under that section in relation to this code and must provide, with the other information required under section 4 (2) of that regulation, the following information:

- (a) the source and composition of the solid waste discharged or proposed to be discharged to the landfill;
 - (b) the total capacity or designed total capacity of the landfill;
 - (c) the maximum volume of solid waste, in cubic metres per year, discharged or to be discharged to the landfill;
 - (d) the address of the location where the landfill facility records referred to in section 18 will be kept;
 - (e) subject to subsection (3), confirmation that the appropriate local government has been notified of the landfill facility at least 30 days before the date on which the registration is provided to a director under section 4 (3) of the Waste Discharge Regulation;
 - (f) confirmation that a conceptual closure plan that complies with subsection (2) has been prepared for the landfill facility.
- (2) The conceptual closure plan must
- (a) specify the final design elevations of the landfill,
 - (b) specify the maximum volume and area of the landfill at the time of closure,
 - (c) include the design of the final slope of the landfill and identify
 - (i) the vegetation cover, and
 - (ii) the inert cover material proposed for the landfill,
 - (d) identify the measures to be taken to prevent, or minimize the risk of, any of the following occurring after the closure of the landfill facility:
 - (i) an escape of leachate or waste from the landfill;
 - (ii) erosion of the landfill cover;
 - (iii) fire at the landfill facility;
 - (iv) water running onto the landfill facility,
 - (e) identify maximum periods following the final discharge of waste before the implementation of the plan is initiated, and
 - (f) include a site plan.
- (3) Confirmation is not required under subsection (1) (e) if
- (a) the registration relates to a landfill facility for which a permit has been issued before the date on which this section came into force, and
 - (b) the permit remains in force until the registration becomes effective.
- (4) In this section, “**appropriate local government**” means the local government for the area within which the landfill facility will be located.

Security requirements for landfill facilities – authorization to director

- 4 A director is authorized to require an owner or operator of a landfill facility to give security in the amount and form and subject to the conditions the director may specify.

Additional requirements for large landfill facilities

- 5 (1) In addition to the information required under section 3, if the registration under section 4 of the Waste Discharge Regulation relates to a large landfill facility,

confirmation must be provided that a waste characterization report, a design plan and an operational plan have been prepared for the landfill facility.

- (2) Confirmation is not required under subsection (1) if
 - (a) the registration relates to a large landfill facility for which a permit has been issued before the date on which this section came into force, and
 - (b) the permit remains in force until the registration becomes effective.
- (3) The waste characterization report for a large landfill facility must be prepared by a qualified professional and must
 - (a) identify the types of solid waste to be discharged to the landfill,
 - (b) specify the estimated volume of each type of waste that will be discharged annually,
 - (c) specify the physical properties and the chemical properties of each type of waste,
 - (d) indicate whether there is any possibility of landfill gas being generated at the landfill facility,
 - (e) include an analysis of total concentrations and leachable concentrations of substances referred to in paragraph (g) in representative waste samples,
 - (f) identify opportunities for the reduction, reuse or recycling of the types of solid wastes identified under paragraph (a), and
 - (g) identify, based on the information provided under paragraphs (a) to (c), any substances in each type of waste that may adversely affect the environment or human health.

PART 3 – SITING REQUIREMENTS

Siting requirements for all landfills

- 6 (1) In this section:
 - “**seasonally high water table**” means the highest level of rise of the free surface of water below the ground surface at any time during the year;
 - “**water supply well**” means a class of well for extracting and using ground water, but does not include a drainage well, dewatering well or remediation well.
- (2) At registration, a landfill
 - (a) must be located
 - (i) within a property so that there are at least 100 m between the property line and the boundary of the landfill,
 - (ii) so that there are at least 1.2 m between the seasonally high water table beneath the landfill and each of the bottommost cells of the landfill, and
 - (iii) so that there are at least 2 m of low permeability soil with a hydraulic conductivity of 1×10^{-6} cm/s or less below each of the bottommost cells of the landfill,
 - (b) must not be located within

- (i) 100 m of any land that is subject to slope failure,
 - (ii) 5 vertical metres of high tide line,
 - (iii) 100 m of any surface water,
 - (iv) 300 m of a water supply well, or
 - (v) 100 m of an existing residence,
- (c) must not be located within 300 m of the boundaries of
- (i) a national, Provincial, regional or municipal park,
 - (ii) a conservancy as defined in the *Park Act*,
 - (iii) a wildlife management area designated under section 4 of the *Wildlife Act*,
 - (iv) a critical wildlife area or wildlife sanctuary designated under section 5 of the *Wildlife Act*,
 - (v) any land acquired and administered under the *Wildlife Act*,
 - (vi) an ecological reserve designated under the *Ecological Reserve Act*,
 - (vii) a bird sanctuary designated under the regulations pursuant to the *Migratory Birds Convention Act (Canada)*, or
 - (viii) a wildlife area designated under the *Canada Wildlife Act (Canada)*.
- (3) At registration, a natural control landfill must not be located on land above an aquifer that is classified as a level IA or IIA aquifer by an aquifer classification system approved by a director.
- (4) The operator of a landfill must not increase the area of the landfill if the increase would contravene subsection (2) (b) or (c) or (3).

Additional siting requirements for large landfills

- 7 (1) In addition to meeting the requirements of section 6, at registration, a large landfill must not be located
- (a) in a 200 year floodplain, or
 - (b) within 1 000 m of a holocene fault as defined in the Hazardous Waste Regulation.
- (2) The operator of a landfill must not increase the area of the large landfill if the increase would contravene subsection (1).

PART 4 – OPERATIONAL AND OTHER REQUIREMENTS FOR ALL LANDFILL FACILITIES

Types of solid waste that may be discharged

- 8 (1) Subject to subsection (2), only the following solid wastes may be discharged to a landfill:
- (a) wood waste;
 - (b) dredgings;
 - (c) sand, gravel and rocks;

- (d) ash produced by burning of wood waste, except ash from wood that has been immersed in marine waters;
 - (e) inert waste;
 - (f) inert cover materials;
 - (g) other solid wastes approved by a director.
- (2) In addition, office or shop refuse may be discharged to a landfill, but only if the total volume of that refuse in the landfill does not exceed 1% of the total capacity or designed total capacity, in cubic metres, of the landfill.

Separation of certain materials

- 9 The following materials must be separated from other solid wastes and discharged at a location identified under section 17 (2) (b) in the annual report:
- (a) stainless steel and aluminum;
 - (b) material described in paragraph (g) of the definition of “inert waste” in section 1 if a director specifies that this section applies to that material.

Containment of discharged waste

- 10 Waste discharged to a landfill must be contained within a cell of the landfill.

Compaction and intermediate cover requirements

- 11 Waste discharged to a landfill must be compacted and covered with an inert cover material to a depth and at a frequency necessary to control the following:
- (a) dust;
 - (b) litter;
 - (c) disease vectors;
 - (d) fires;
 - (e) objectionable odours.

Maintenance of works

- 12 All works relating to a landfill facility must be maintained in good working order.

Unauthorized fires

- 13 An unauthorized fire in or adjacent to discharged waste at a landfill facility must be extinguished immediately on detection.

Emergency procedures

- 14 (1) If the occurrence of an emergency or condition prevents the operator of a landfill facility from complying with this code, the operator must
- (a) take remedial action that is appropriate in the circumstances,
 - (b) as soon as practicable but within 2 business days after becoming aware of the occurrence, notify a director, in the form and manner specified by the director, of the occurrence and the remedial action taken under paragraph (a), and
 - (c) take any further remedial action specified by the director.

- (2) In this section “**emergency**” includes, but is not limited to,
 - (a) an unauthorized fire at a landfill facility,
 - (b) an unplanned escape of leachate or another substance from a landfill,
 - (c) any subsidence or other sign of instability of a landfill, and
 - (d) any other occurrence at a landfill facility that poses a risk to the environment or human health.

Final closure plan

- 15 (1) The operator of a landfill facility must, at least 3 months before the intended closure of a landfill facility,
 - (a) notify a director in writing of the closure, and
 - (b) make available to the director a copy of the final closure plan for the landfill facility.
- (2) The final closure plan must be prepared by a qualified professional.
- (3) Before the final closure plan is prepared, the operator of a landfill facility must ensure that a qualified professional
 - (a) reviews the conceptual closure plan for the landfill facility, and
 - (b) if necessary, amends the conceptual closure plan to reflect any changes in the information provided in it arising, after the preparation or amendment of the conceptual closure plan, from the operation of the landfill facility or from site specific conditions.
- (4) The final closure plan for a landfill facility
 - (a) must
 - (i) specify the final design elevation of the landfill,
 - (ii) specify the area of the landfill,
 - (iii) identify the measures to be taken to prevent, or minimize the risk of,
 - (A) leachate or waste escaping from the landfill,
 - (B) erosion of the landfill cover,
 - (C) fire occurring in the closed landfill or its cover, or
 - (D) water running onto the closed landfill, and
 - (iv) identify maximum periods following the final discharge of waste before the implementation of the closure plan is initiated, and
 - (b) include the following information relating to the landfill facility:
 - (i) a description of the final cover of the landfill;
 - (ii) an estimate of the total volume of solid waste discharged to the landfill;
 - (iii) a survey of the location of the landfill, prepared by a land surveyor admitted as a land surveyor under the *Land Surveyors Act*;
 - (iv) a description of how the operator of the landfill facility has managed
 - (A) drainage restoration,
 - (B) soil replacement,

- (C) the slope of the final cover,
 - (D) erosion control, and
 - (E) re-vegetation and conditioning of the site;
- (v) a description of how the operator of the landfill facility will monitor the site of the landfill facility.
- (5) Subject to subsection (6), the final closure plan may not be implemented until it is approved by the director.
- (6) The final closure plan may be implemented after the date that is 45 days after the date the operator of a landfill facility makes available to the director a copy of the final closure plan under subsection (1) (b), unless the director notifies the operator that the director does not approve the plan.

Final closure report

- 16** The operator of a landfill facility must
- (a) comply with the final closure plan, and
 - (b) within 3 months after the closure,
 - (i) conduct the closure in accordance with the final closure plan, and
 - (ii) ensure that a final closure report is prepared
- and notify the director in writing that there has been compliance with both subparagraph (i) and (ii).

Annual report

- 17** (1) The operator of a landfill facility must ensure that an annual report is prepared in accordance with this section for each calendar year during any part of which the facility is in operation, beginning with the calendar year in which the registration under the Waste Discharge Regulation became effective in relation to the facility.
- (2) An annual report must include the following information:
- (a) the types and volumes of waste discharged to the landfill during the calendar year;
 - (b) the location where any material to which section 9 applies has been discharged during that year;
 - (c) any other information requested by a director.
- (3) If the annual report relates to a large landfill facility, the report must, in addition to the information required under subsection (2), include the following data and information:
- (a) data relating to the monitoring of ground water and surface water;
 - (b) data relating to the monitoring of landfill gas;
 - (c) data relating to the monitoring of any leachate from the landfill;
 - (d) interpretation of the data included under this subsection;
 - (e) information about any remedial action taken by the operator of the landfill facility in response to the data referred to in paragraphs (a) to (c).

- (4) An annual report must be available for inspection under section 18 (3) (b) by April 1 of the year following the calendar year to which the report relates.

Records

- 18**
- (1) The operator of a landfill facility must keep at the address provided under section 3 (1) (d) of this code or, if the address is changed, provided under section 4 (5) (b) (i) of the Waste Discharge Regulation, the following records:
 - (a) a record containing the registration number under the Waste Discharge Regulation for the facility;
 - (b) the conceptual closure plan, including any amendments;
 - (c) the final closure plan and the final closure report for the landfill facility;
 - (d) each annual report prepared under section 17.
 - (2) In addition to the records referred to in subsection (1), the operator of a large landfill facility must keep at the address referred to in that section the following records relating to the facility:
 - (a) the waste characterization report;
 - (b) the design plan, if applicable;
 - (c) the operational plan, if applicable;
 - (d) each record made under section 22 (4).
 - (3) The operator of a landfill facility must
 - (a) ensure that the records kept under this section are retained for 10 years after the final closure of that facility,
 - (b) subject to section 17 (4), make the records kept under this section available for inspection by a director or an officer, and
 - (c) provide to a director or an officer, within 7 business days of being requested by the director or officer to do so, a copy of any records kept under this section.

**PART 5 – ADDITIONAL REQUIREMENTS FOR
LARGE LANDFILL FACILITIES**

Design plan

- 19**
- (1) A large landfill facility must be located and constructed in accordance with the design plan for that facility.
 - (2) The design plan must be prepared by a qualified professional and must include the following information:
 - (a) an assessment of the climatic, geological and hydrogeological conditions at the landfill facility;
 - (b) an assessment of site specific conditions, including proximity to any sensitive area that may be adversely affected by the landfill;
 - (c) identification of siting and design measures necessary to minimize, limit, counteract or mitigate the effect of the landfill or landfill facility on the

- environment or human health, including its effect on any sensitive area or activity;
- (d) identification of the design elements necessary to ensure that the requirements of this code are met;
 - (e) plans and specifications for the construction of the landfill facility that reflect the design measures referred to in paragraph (c) and the design elements referred to in paragraph (d).
- (3) For the purpose of subsection (2) (b) and (c), “**sensitive area**” means any of the following:
- (a) a ground or surface water source;
 - (b) a sensitive watershed;
 - (c) an archaeological site;
 - (d) a seismic area;
 - (e) a floodplain;
 - (f) a residential property;
 - (g) a school;
 - (h) any other feature, area or activity that may be specified by the qualified professional who prepares the design plan.

Operational plan

- 20** (1) A large landfill facility must be operated in accordance with the operational plan for the landfill facility.
- (2) An operational plan must be prepared by a qualified professional and must include a description of the procedures for
- (a) covering waste with inert cover material,
 - (b) monitoring ground water,
 - (c) monitoring and managing surface water,
 - (d) monitoring and managing leachate,
 - (e) controlling dust, litter and disease vectors at the large landfill facility,
 - (f) controlling access to the large landfill by wildlife,
 - (g) accepting and diverting waste,
 - (h) responding to emergencies,
 - (i) monitoring and managing landfill gas, including by means of intercepting, venting, recovering or flaring,
 - (j) detecting and preventing the discharge of hazardous waste and other prohibited wastes, and
 - (k) doing anything else the qualified professional who prepares the plan considers necessary to meet the requirements of this code.
- (3) The procedures for monitoring ground water under subsection (2) (b) must
- (a) provide for

- (i) an assessment of the risk to ground water quality from the large landfill facility,
 - (ii) the detection of changes in ground water quality caused by the large landfill facility, and
 - (iii) sampling to measure seasonal variability,
 - (b) specify the number and location of monitoring locations for the monitoring network necessary to monitor ground water quality, based on
 - (i) the volume and characteristics of the waste to be discharged to the large landfill,
 - (ii) the location and capacity of the large landfill,
 - (iii) the use of ground water that can reasonably be expected to be made,
 - (iv) the hydrogeology of the area where the large landfill is located, and
 - (v) the direction, the horizontal and vertical gradient and the velocity of the ground water flow, and
 - (c) based on the substances that are identified in the waste characterization report in accordance with section 5 (3) (e), specify the water quality parameters to be measured and the sampling frequency.
- (4) The procedures for monitoring and managing surface water under subsection (2) (c) must
- (a) provide for
 - (i) an assessment of the risk to surface water quality from the large landfill facility, and
 - (ii) the detection of changes in surface water quality caused by the large landfill facility,
 - (b) specify the number and location of monitoring locations for the monitoring network necessary to monitor surface water quality, based on
 - (i) the volume and characteristics of the waste to be discharged to the large landfill,
 - (ii) the type of surface water in the vicinity of the large landfill,
 - (iii) the location and capacity of the large landfill, and
 - (iv) adjacent land uses and surface water receptors, and
 - (c) be based on the substances that are identified in the waste characterization report in accordance with section 5 (3) (e) and specify the water quality parameters to be measured and the sampling frequency.
- (5) In developing procedures for monitoring ground water and surface water, if the large landfill is located on land above an aquifer, a qualified professional must consider aquifer classification as set out in an aquifer classification system approved by a director.
- (6) A director may require the operator of a large landfill facility to undertake monitoring that is specified by the director and is additional to the monitoring required under the operational plan for that facility.

Water quality protection

- 21** (1) A large landfill facility must be operated and maintained so that
- (a) surface water entering the landfill facility does not contact any discharged waste,
 - (b) infiltration at the landfill of water from precipitation is minimized,
 - (c) discharged waste does not cause pollution of ground water or surface water,
 - (d) the ground water at the monitoring locations identified in the operational plan for the facility does not contain any substance with a concentration greater than
 - (i) the generic numerical water standard for that substance and the applicable water use, or
 - (ii) the background concentration of that substance in the ground water at the landfill facility if the background concentration exceeds the generic numerical water standard, and
 - (e) the surface water at the monitoring locations identified in the operational plan for the facility does not contain a substance
 - (i) with a concentration greater than a concentration approved by a director for that substance and the applicable water use, or
 - (ii) with a background concentration greater than the background concentration approved by a director.
- (2) A director may specify other numerical water quality standards and objectives that the operator of a landfill facility must meet if a substance has a concentration greater than the local background concentration of that substance in the ground water or surface water at the landfill facility.

Sampling and analysis of ground water and surface water

- 22** (1) The operator of a large landfill facility must ensure that ground water and surface water at the monitoring locations specified in its operational plan are sampled and analyzed in accordance with that plan and this section.
- (2) The sampling must be performed using procedures approved by a director.
 - (3) The analysis must be performed using procedures approved by a director.
 - (4) A record of the sampling and analysis must be made and it must include all of the following information:
 - (a) the name of the person performing the sampling and analysis;
 - (b) the name of the person making the record;
 - (c) the date of the sampling and the analysis;
 - (d) the date on which the record is made;
 - (e) the procedures used in performing the sampling or analysis, as the case may be;
 - (f) the results of the analysis with reference to the objective described in section 21 (1) (d) (ii) or (e) (ii) or specified by a director under section 21 (2), as the case may be.