

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT

BEING CHAPTER E-12 R.S.A. 2000 (the "Act")

Amendment No. 2 to

ENFORCEMENT ORDER NO. EPEA-EO-2018/02-RDNSR

Cherokee Canada Inc. ("Cherokee")
c/o Registered Office
141 Adelaide Street W., Suite 703
Toronto, ON M5H 3L5

1510837 Alberta Ltd. ("1510837")
c/o Registered Office
2500, 10175 – 101 Street NW
Edmonton, AB T5J 0H3

Domtar Inc. ("Domtar")
c/o Registered Office
395 de Maisonneuve Boulevard West
Montreal, QC H3A 3M1

(collectively, the "Parties")

WHEREAS on March 16, 2018, the Director issued Enforcement Order No. EPEA-EO-2018/02-RDNSR (the "Order"), to the Parties in respect of the Parcel Y Residential Area, which required them to submit and implement: a Parcel Y Residential Area Removal Action Plan, a Parcel Y Residential Area Phase 2 Environmental Site Assessment Plan, a Parcel Y Screening Level Human Health Risk Assessment Plan, and submit monthly progress reports in respect of the actions required by the Order;

WHEREAS on July 5, 2018, a designated Director under the Act issued a formal written request under section 111 of the *Environmental Protection and Enhancement Act* ("EPEA") to Cherokee and 1510837 for all sampling data collected by their consultant, Thurber Engineering Ltd. ("Thurber"), on the Parcel Y Residential Area following the issuance of the Order;

WHEREAS on July 13, 2018, the Director received Thurber's preliminary sampling results for the Parcel Y Residential Area from Cherokee and 1510837 that had been collected in the spring of 2018 (the "2018 Thurber Results");

WHEREAS Thurber's limited sampling program consisted of drilling 6 boreholes in close proximity to boreholes BHY17-35 and BHY17-41 that were sampled by Golder Associates Ltd. ("Golder")

on behalf of Alberta Environment & Parks ("AEP") in the fall of 2017 during its sampling program on the Site;

WHEREAS as described in the Order, Golder Borehole BHY17-35 had dioxins and furans of 284 ng/kg (at 0.5-1 meter below ground surface, or "mbgs"), which exceeds:

- the Tier 2 Guidelines for dioxins and furans of 4 ng/kg
- the Alberta Health (AH) and Alberta Health Services (AHS) screening level of 50 ng/kg level for dioxins and furans in soils
- the SWGCSA acute toxicity criteria of 230 ng/kg of dioxins and furans (above which a one-time exposure may result in acute human health effect) (the acute exposure criteria);

WHEREAS Golder Borehole BHY 17-41 (at 1.5-2.5m bgs) had dioxins and furans of 16 ng/kg which exceeds the Tier 2 Guidelines of 4 ng/kg;

WHEREAS Appendix A to the Order has been updated and attached hereto, and shows the location of the recent 2018 Thurber boreholes in addition to those of the 2017 Golder sampling;

WHEREAS in 5 of the 6 Thurber boreholes, dioxins and furans significantly exceed the 50 ng/kg screening level for soils, and the 230 ng/kg acute exposure criteria;

WHEREAS in all 6 Thurber boreholes, dioxins and furans exceed the 4 ng/kg *Alberta Tier 2 Soil and Groundwater Remediation Guidelines* (Tier 2) for dioxins and furans (see the 2018 Thurber Results in Table 1 below);

Table 1: Sampling Locations in Parcel Y Residential Area taken by Thurber Engineering in 2018 showing the applicable limits and screening values for dioxins and furans, and the actual sampling results obtained at different depths (Thurber, 2018)

Thurber Borehole (with nearest Golder Borehole)	Tier 1 and 2 Limit	SWGCSA Acute Exposure Criteria	Alberta Health (AH) and Alberta Health Services (AHS) Screening Level	Depth (mbgs)	Sample Results (at relative increasing depth)
BHY18-01 (Golder: BHY17-35)	4 ng/kg	230 ng/kg	50 ng/kg	0-0.3	1577 ng/kg
				0.5-0.7	3440 ng/kg
				1.3-1.5	50 ng/kg
BHY18-02 (Golder: BHY17-35)	4 ng/kg	230 ng/kg	50 ng/kg	0-0.3	38 ng/kg
				0.5 -0.8	9 ng/kg
BHY18-03 (Golder: BHY17-35)	4 ng/kg	230 ng/kg	50 ng/kg	0-0.3	484 ng/kg
				0.5 -0.8	2100 ng/kg
				0.5 -0.8	1840 ng/kg
BHY18-04 (Golder: BHY17-35)	4 ng/kg	230 ng/kg	50 ng/kg	0-0.3	559 ng/kg
				0.5 -0.8	236 ng/kg
BHY18-05 (Golder: BHY17-35)	4 ng/kg	230 ng/kg	50 ng/kg	0-0.3	565 ng/kg
				0.5 -0.8	274 ng/kg
BHY18-06 (Golder: BHY17-41)	4 ng/kg	230 ng/kg	50 ng/kg	0-0.3	2260 ng/kg

WHEREAS the Thurber Results listed in Table 1 show a number of high values for dioxins and furans at the surface (at 0-0.3m bgs, and 0.5-0.8m bgs) which creates a high potential for exposure to these hazardous substances;

WHEREAS the Director consulted with AH and AHS staff regarding the 2018 Thurber Results, and AH advised that the contamination of dioxins and furans at the 6 Thurber Borehole locations (except for BHY 18-02) are at levels at and above the acute exposure criteria;

WHEREAS the Director is of the opinion that similar contamination from dioxins and furans may be present at other unknown locations across Parcel Y Residential Area given the past industrial activities that were conducted on Parcel Y;

WHEREAS pursuant to a March 16, 2018 order issued by AHS under the *Public Health Act*, Cherokee and 1510837 installed temporary fencing around the Parcel Y Residential Area (and other areas of the Site);

WHEREAS the fencing has been breached at different locations at different times since its installation, resulting in the potential for human exposure through the direct contact pathway to dioxins and furans on the Parcel Y Residential Area, as well as to any additional and unknown other contaminants;

WHEREAS recent site inspections by AEP and AHS staff on July 9 and July 14, 2018, determined that areas of the Parcel Y Residential Area have not been successfully hydro-seeded and there are currently areas of exposed surface soils and a number of exposed soil piles of unknown origin that may have been sourced from the Southwest Corner of Parcel Y (located next to Parcel C which is being residentially developed) and that may contain dioxins and furans;

WHEREAS soil from these exposed piles and from bare areas on Parcel Y Residential Area may become mobilized by wind, resulting in the airborne transport of dioxins and furans via the dust pathway causing human exposure through inhalation and direct contact;

WHEREAS the Director is of the opinion, based on the 2018 Thurber Results, and the recent July 14, 2018 inspection of Parcel Y Residential Area, that an immediate and significant adverse effect to human health may occur, either through direct contact with contaminated soils by workers on Parcel Y, trespassers, or any other person(s) who may access Parcel Y, or via the dust transport pathway as described;

WHEREAS the Director, through its consultant Golder, commenced a new 2018 sampling program at Parcel Y Residential Area pursuant to an ongoing investigation and under the authorities provided in section 198 of *EPEA*;

WHEREAS until Parcel Y's Residential Area is fully characterized by this 2018 Golder sampling program, and a full understanding of the risks are determined, the Director is of the opinion that immediate emergency measures are warranted for the Site;

WHEREAS section 114 of *EPEA* permits the Director to issue an order for emergency measures, and section 115 of *EPEA* permits the Director to take any required emergency measures;

WHEREAS section 212 of *EPEA* authorizes the amendment of an enforcement order in the manner as set out in subsections (1) and (2);

WHEREAS the Director is of the opinion that the recent Thurber 2018 Results as shown in Table 1 may cause immediate and significant adverse effects which may occur to human health and the environment;

WHEREAS the Director is of the opinion that immediate removal actions are now required on the areas of Parcel Y Residential Area, based upon the 2018 Thurber Results, showing dioxins and furans at significant concentrations above all prescribed regulatory and health criteria present in shallow surface samples (at 0-0.8m bgs) as specific emergency measures contemplated under section 114 of *EPEA*;

THEREFORE, I, Michael Aiton, the Director, do hereby issue the following amendment to the Order pursuant to sections 114 (emergency measures), 210(1)(d), 210(1)(e), and 212 of *EPEA*, as follows:

1. By adding the following new clauses 25 to 32 to the Order:


Immediate Safety Measures for any Worker, Personnel or Other Person Entering Parcel Y Residential Area

25. All workers, personnel, or any person who enters the Parcel Y Residential Area to conduct work that may disturb soils, shall take safety precautions upon entering Parcel Y Residential Area, including, but without limitation:
 - a) appropriate personal protective equipment to prevent direct contact or offsite transport of the Substances;
 - b) ensure all personnel, vehicles, and equipment entering and exiting the site follow decontamination procedures (with appropriate waste disposal) to prevent offsite transport of the Substances; and
 - c) any other safety precautions required by Alberta Occupational Health and Safety about the health and safety procedures to be followed to protect workers at the Site;
26. No activity or actions shall be undertaken at Parcel Y Residential Area that will disturb soils without written authorization from the Director confirming the procedures to be followed to avoid mobilization and further release of dioxin and furan contamination.
27. Any exposed soil piles or other exposed areas of soil on the Parcel Y Residential Area that have not been successfully hydroseeded or otherwise contained, shall be wetted down, and/or immediately tarped, covered or otherwise secured from windborne transport of the substances in the soils on an ongoing basis, utilizing a method approved by Alberta Health Services staff.
28. Areas of exposed soil and soil piles shall be inspected on a weekly basis by the Parties to ensure the requirements of clause 27 are being met;

Immediate Removal Action Plan – Dioxins and Furans Identified In 2018 Thurber Sampling

29. The Parties shall, by **August 3, 2018**, submit a written Immediate Removal Action Plan to the Director for the immediate removal of dioxins and furans in all areas identified by the 2018 Thurber Results where shallow surface samples (0.3m bgs) exceed 50 ng/kg TEQ, to a depth of 1.5m bgs, and must include the following:
- i. where confirmatory sampling conducted in conjunction with removal action produces any results for dioxins and furans above 50 ng/kg TEQ, excavation shall continue from 1.5 mbgs to a maximum depth of 3.5 metres.
 - ii. for greater clarity, the Plan must ensure all soils above 230 ng/kg are removed,
 - iii. any proposed adjustments to the approach to confirmatory sampling and removal described above, while removal action is ongoing in the field, must be authorized in writing by the Director.
30. The Immediate Removal Action Plan for the immediate removal of soils in areas where shallow dioxins and furans exceed 50 ng/kg shall include all the substantive technical requirements as are found in sections 3.a., 3.b., 3.d., 3.e, 3.f, and 3.g. of the existing Order.
31. Actions under the Immediate Removal Action Plan will begin as soon as written authorization of the Plan by the Director is received by the Parties, and shall be implemented as soon as reasonably practicable thereafter;
32. In addition to the monthly reporting required by clause 24, the Parties shall produce a weekly status report, detailing the actions taken pursuant to Amendment No. 2, that will be submitted every Friday, starting with **July 27, 2018**;

DATED at the City of Edmonton in the Province of Alberta, this 19th day of July, 2018.



Michael Aiton
Regional Compliance Manager
Red Deer North Saskatchewan Region

Section 91 of the *Environmental Protection and Enhancement Act* provides for a right of appeal to the Alberta Environmental Appeals Board against the certain statutory decisions made pursuant to *EPEA*. There may be a strict time limit for filing such an appeal.

Please note that the Order is issued under sections 210(1)(d) and (1)(e) of *EPEA*, and its amendment(s) under section 212 of *EPEA*. Section 91(1)(e) provides a right

of appeal from an enforcement order issued under section 210(1)(a), (b) or (c) of *EPEA*.

Notwithstanding the above requirements, the Party(ies) shall obtain all necessary approvals in complying with this order.

Take notice that this enforcement order is a remedial tool only, and in no way precludes any enforcement proceedings being taken regarding this matter under this Act or any other legislation.

Appendix A - Domtar Site- Parcel Y- Proposed Residential Area



BHY17-41 (Golder) and
BHY18-6 (Thurber)

Date: 7/18/2018 1:3:847

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