

**ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT**

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

**Amendment No. 9**

to

ENFORCEMENT EO NO. EO-2011/03-NR

Cleanit Greenit Composting System Inc.  
1300, 10020 – 101A Avenue NW  
Edmonton, Alberta  
T5J 3G2

[Cleanit Greenit]

-and-

Kirstin Castro-Wunsch  
7222-119 Street NW  
Edmonton, Alberta  
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[hereinafter collectively referred to as "the Parties"]

WHEREAS Enforcement Order No. EO-2011/03-NR [the "EO"] was issued to the Parties on December 13, 2011;

WHEREAS Amendment #1 to the EO was issued to the Parties on December 22, 2011;

WHEREAS on March 2, 2012, in response to a written request from Cleanit Greenit Composting System Inc. ["Cleanit Greenit"], Amendment #2 to the EO was issued to the Parties, amending the dates in Clauses 11 and 14 of the EO from March 16, 2012 to April 23, 2012;

WHEREAS on April 19, 2012, in response to a written request from Cleanit Greenit, Amendment #3 to the EO was issued to the Parties, further amending the dates in Clauses 11 and 14 of the EO from April 23, 2012 to May 25, 2012;

WHEREAS on May 30, 2012, in response to a written request from Cleanit Greenit, Amendment #4 to the EO was issued to the Parties, further amending the dates in Clauses 11 and 14 of the EO

from May 25, 2012 to June 29, 2012, and amending the dates in Clause 12(h) from June 29, 2012 to September 14, 2012;

WHEREAS based on the submissions made by the Parties at a June 29, 2012 meeting, the Director issued to the Parties Amendment #5 to the EO, amending the date in Clause 8(s) of the EO from June 29, 2012 to August 30, 2013;

WHEREAS due to changes that occurred since the EO was issued on December 13, 2011, plans presented by the Parties on October 11, 2012, and the information contained in a 2012 Aerated Windrows Transition Plan submitted to the Director by the Parties, the Director was of the belief that a further amendment to the EO was necessary, and Amendment #6 to the EO was issued January 8, 2013;

WHEREAS on May 24, 2013, in response to the Parties' written request, the Director removed clause 2 from the original EO through the issuance of Amendment #7;

WHEREAS in response to an August 15, 2013 written request from the Parties, the Director issued Amendment #8 to the Parties on September 12, 2013, changing the due date for the Soil Impact Delineation Report from June 28, 2013 to July 31, 2014;

#### **Volume of Material and Pile Heights**

WHEREAS on November 10, 2014, AEP commissioned a third party consultant to provide AEP with a report on the volume of Materials on the Lands;

WHEREAS on February 6, 2015, AEP received the third party consultant's Test Pitting Program Report [the "AMEC Report"], which indicated the following:

- The calculated volumes of compost material in the stockpiles was approximately 49,100 m<sup>3</sup>;
- In the area of the facility where compost material is present, the protective layer is approximately 20,000 sq.m, therefore the volume of protective compost material is an additional 26,800 m<sup>3</sup>;
- Based upon dimensions available from the as-built drawing, the approximate area inside the berm is 15,200 sq.m. Thus, the resulting volume of compost material below the top of the berm and contributing to the volume of protective layer material could be approximately 15,200m<sup>3</sup>;
- This volume of Material is 33,800m<sup>3</sup> more than the volume of Material on the Lands first estimated in 2009 by the EWMCE 2011 Report, just prior to the issuance of the EO on September 13, 2011;
- The stockpiles of compost material extend beyond the limit of the perimeter berm in the southern, north-western and north-eastern limits of the facility;
- The stockpile of compost material is approximately 20 m beyond the perimeter berm in the north-western section of the facility;
- The topsoil stockpile previously shown outside the perimeter berm has been covered by compost material or removed from the facility;

- The current boundaries of the detention pond exceed those of the design or as-constructed limits by approximately 20 m to the south;
- The level of liquid in the detention pond in December 2013 was determined by survey to be 696.92 masl which is approximately 3.6 m above the design level of 693.24 masl;
- The limits of the stockpiles of compost material constrained the selection of the location of the test pits which resulted in some of the test pits being advanced beyond the perimeter berm in the north western and north eastern portion of the facility and possibly advanced above the 1.0 m high berm on the west and east perimeters of the facility; and
- The perimeter berm was no longer visible.

WHEREAS in the February 6, 2015 AMEC Report, AMEC completed a topographical survey at the facility and determined the calculated volume of Material in the stockpiles alone was approximately 49,100m<sup>3</sup>;

WHEREAS the calculations from the February 6, 2015 AMEC Report determined the total volume of Material on site is 60,500m<sup>3</sup>;

WHEREAS on August 20, 2015, AEP sent a letter titled "EO-2011/03-NR" and a copy of the 2015 AMEC Report to Cleanit Greenit identifying:

- The current volume of Material on site is approximately 60,500m<sup>3</sup>
- Compost material on the North-western perimeter exceeds the berm by approximately 20meters;
- The perimeter berm is no longer visible at the facility;
- Material extended beyond the property line of the Lands;
- Volume in the surface water storage pond exceeds the constructed limits by approx. 20 lateral meters to the south and 3.6 meters above the design level of 693.24 masl;

WHEREAS on September 8, 2015, AEP received a September 6, 2015 letter from Cleanit Greenit identifying their current volume calculations, stating that the road acts as an onsite berm, and stating the surface water storage pond will be returned back to the as-built state and a surveyor will confirm this;

WHEREAS in a letter dated September 23, 2015 to Cleanit Greenit, AEP outlined concerns relating to Cleanit Greenit's September 6, 2015 letter, and AEP requested the following:

- Clarification relating to how Cleanit Greenit made their calculations of the current volume of Material on the Lands;
- A second request was made to Cleanit Greenit to address the both the Materials exceeding the perimeter berm and that the active areas of the facility extend beyond the liner;
- AEP also requested that Cleanit Greenit notify all impacted landowners of the fact that Cleanit Greenit's Materials have crossed the property boundary, and provide proof of

removal; and

- a plan to restore the surface water storage pond to the as-built state;

WHEREAS on September 25, 2015, Cleanit Greenit submitted to AEP a worksheet showing their calculations in which they determined the total volume of Material on site at the end of August 2015 to be 30,084.90m<sup>3</sup>, half of the volume calculated by AEP's consultant;

WHEREAS on October 21, 2015, AEP sent a letter to Cleanit Greenit asking the following questions:

- Why the requirements to reduce the amount of Material on site were not met;
- That a survey report relating to the perimeter berm exceedance has not been received and a request how they will resolve the exceedance of the berm and the fact that the active areas of the facility extend beyond the liner;
- A survey to restore the surface water storage pond to the as-built state was requested again;

WHEREAS on April 14, 2016, AEP requested weigh scale tickets, scale calibrations and a copy of random samples/analytical results for all waste accepted in 2014 and 2015;

WHEREAS on September 23, 2019, AEP attended the Cleanit Greenit facility and flew a drone over the Lands to obtain aerial imagery;

WHEREAS from the September 23, 2019 drone imagery, the estimated volume of Material on the Lands, not including the protective layer base, is 53,951.38 m<sup>3</sup> and the estimated volume of Material in the protective layer base is an additional 19,556.47m<sup>3</sup>;

WHEREAS the total estimated volume of Material onsite on September 23, 2019 is 73,507.85m<sup>3</sup> (being approximately 51,455.50 tonnes) despite the requirements of clause 22(e) of the EO, as amended, which requires Cleanit Green it to commit to a maximum of 20,000 tonnes of Material at the facility;

WHEREAS on October 2, 2019, AEP sent an email to Ms. Castro-Wunsch advising that during the September 23, 2019 drone flight:

- the active Compost piles were exceeding the 4.3 meters maximum height to which Cleanit Greenit was required to commit under Clause 22(a)(ii) of the EO, as amended; and
- stagnant wet ponds were found on top of the compost piles, which is a contravention of the Operations Plan requirements set out in Clause 22(f) of the EO, as amended;

WHEREAS on October 8, 2019, in response to AEP's October 2, 2019 letter, Cleanit Greenit stated in a letter "the active composting piles have not been higher than 4.3m" and "site staff will submit photographs and measurements as soon as possible";

WHEREAS to date, Cleanit Greenit has never submitted the photographs of the active composting piles as the Operations/Site Manager stated they would on October 8, 2019;

WHEREAS on October 9, 2019, an AEP GIS Specialist analysed the mapping data from September 23, 2019, and concluded that the pile heights on the Lands are over 4.3 meters above ground

surface, and as high as 13.4 meters in some places;

WHEREAS the EO, Amendment 6 Clause 6(d) states the legal land location of where the waste was taken is to be provided to AEP and 6(e) states the a copy of each of the scale tickets obtained for all Material deposited at an approved waste management facility shall be submitted. None of this information has been provided to AEP;

WHEREAS on October 7, 2020, Cleanit Greenit submitted an Incoming Waste and Outgoing Material report that states 1724.19 cumulative tonnes of waste has been received from January to September in 2020 and 14,910 m3 of finished compost and 579 tonnes of non-compostable material was removed;

WHEREAS based on additional AEP drone footage obtained on October 28, 2020, AEP is of the belief that 19,556.47m3 (protective layer base) and 47,295.24m3 (volume above ground and inside pile base) of Material was at the facility, for a total volume of 66,851.71 m3 of Material (being approximately 46,796.20 tonnes);

WHEREAS on November 5, 2020, Cleanit Greenit submitted its October 2020 Incoming Waste and Outgoing Material report, which stated the following:

- 18,601.7 tonnes of waste was received from January to October 2020
- 2370 m3 of finished compost was removed:
- 447 tonnes of non-compostable material removed from the Lands and sent to landfill in October for a cumulative total of 2254 tonnes of non-compostable material in 2020;
- 1.2 tonnes of liquid waste has been accepted since January 2020; and
- 17,279.9 cm3 compost has been removed from the Lands since January 2020;

WHEREAS on November 9, 2020, Cleanit Greenit submitted their own drone footage to AEP, which indicates the volume of material on site to be: 4520.7m3 active, 17,293.5m3 curing and 5393.3m3 finished compost (total = 27, 207.5 m3);

WHEREAS on November 9, 2020, AEP EPO made an information request to CG for the following:

- All original weight scale documentation, including but not limited to tipping records and scale tickets for all waste accepted in 2019;
- All original weight scale documentation, including but not limited to tipping records and scale tickets for all waste accepted from January 1, 2020 to November 1, 2020;
- A copy of all outgoing compost sale records for 2019:
- A copy of all outgoing compost sale records from January 1, 2020 to November 1, 2020; and
- Onsite compost/waste product volume evaluations;

WHEREAS on November 16, 2020 AEP received from Cleanit Greenit some of the information from AEP's November 9, 2020 information request;

WHEREAS on November 23, 2020, an AEP GIS Specialist analysed additional AEP drone mapping data from October 28, 2020 and concluded that the pile heights on the Lands are over 4.3 meters above ground surface, and as high as 11.90 meters in some places;

WHEREAS on November 25, 2020, AEP made an information request for Cleanit Greenit's excel tracking weight scale documentation, tipping records and scale tickets, as well as the the hydraulic conductivity tests that were carried out on the groundwater monitoring wells and the analyses that were used for the 2017 Liner Investigation (described below);

WHEREAS on November 27, 2020 AEP received from Cleanit Greenit a digital excel document "Tonnage Tipping Rate Log" for 2019 and 2020 and the hydraulic conductivity tests, but not the analyses used in the 2017 Liner Investigation;

WHEREAS AEP completed a review of the 2019 and 2020 "Tonnage Tipping Rate Log" and found the following:

- 410 voided tickets;
- Inconsistency in what was reported in the "incoming" monthly waste reports and what was presented in the "Tonnage Tipping Rate log";
- Cleanit Greenit exceeded the legislative annual 20,000 tonne waste acceptance limit in 2000, as Cleanit Greenit accepted 20,334.3 tonnes in 2020;

### **Feedstock and Finished Compost Quality**

WHEREAS on January 7, 2019, pursuant to section 198(5)(l) of the *Environmental Protection and Enhancement Act*, AEP requested information from Cleanit Greenit about its current Operations Plan, Feedstock Sump (or Liquid Waste receiving area) sampling questionnaire for type 11 liquids (as indicated in Cleanit Greenit's 2014 Operations Plan), criteria and characterization used to determine acceptable feedstock, and documentation that shows all of Cleanit Greenit's feedstock generators, the type of material or liquids accepted, its origins and quantities from January 2018 to September 2018;

WHEREAS on January 23, 2019, Cleanit Greenit submitted a response to AEP's January 7, 2019 information request, which included a list of material and liquids accepted at the Cleanit Greenit facility, including, latex paint, bio solids, septic waste, sump, kitchen greases, hydro vac solids, sludge, hydro vac liquid, fertilizer, grease trap, catch basin, wash bay sump, chicken sump, milk waste, car wash, and sewage contaminated water;

WHEREAS on February 1, 2019, AEP sent an email to Cleanit Greenit requesting that Cleanit Greenit clarify the following:

- the document Cleanit Greenit submitted identifies feedstock sources, but does not include feedstocks from oilfield services, chemical manufacturing and laundry/drycleaners companies as indicated in Cleanit Greenit's September 2015 Operations Plan;

- Identify the companies and the type of feedstock accepted under Cleanit Greenit's Type II waste classification as identified in the September 2015 Operations Plan from the past 3 years;
- An explanation of the statement in the September 2015 Operations Plan under 1.2.2 ii) 4) indicating that Cleanit Greenit accepts up to a maximum of 10 tonne/month of hazardous waste;
- Provide written authorization given to accept this hazardous waste;
- Provide the "Chart of analytical results from 3rd party laboratory" for the feedstock accepted under your Type II classification (referring to oilfield services, chemical manufacturing, laundry/drycleaners and hazardous waste);
- In the September 2015 Operations Plan Cleanit Greenit indicates that finished compost is stored offsite. Identify the location where finished compost is being stored;
- Provide an electronic copy of the submitted "Tonnage data showing feedstocks generators and the type of material or liquids accepted, its origins and its quantities from Jan 2018 to Sept 2018";

WHEREAS on October 26, 2020, an AEP Senior Waste Policy Advisor reviewed Cleanit Greenit's 2020 Operation Plan and concluded that Cleanit Greenit is likely accepting a number of wastes that are not organic material and have no biological/microbial benefit for use in a composting process including:

- Gypsum wallboard (drywall);
- Hydrovac Waste;
- Greywater from cleaning services, municipalities, passenger car wash bays, passenger car service shops (materials from catch basins, sumps, and pooled liquids);
- Used activated carbon;

WHEREAS the AEP Senior Waste Policy Advisor is of the belief that the practice by Cleanit Greenit to circulate the fluids from the Surface Water Storage Pond and leachate water back onto the composting piles is one of the root causes of offensive odours and the presence of hydrocarbons, chlorides and other contaminants in their finished compost;

WHEREAS on November 27, 2020, AEP received a letter from the Canadian Food Inspection Agency (CFIA) which contained a 95 page document that contained analytical results from Cleanit Greenit Composting System Inc. titled "Report of Analysis for Fertilizer Submission";

WHEREAS on November 30, 2020, an AEP Senior Waste Policy Advisor reviewed the CFIA report and found the following:

- The compost samples analyzed in 2005 and 2010 were not compliant with CFIA guidelines specifically for Ni (2010) and Pb, Co, Ni, and Zn (2005);
- In September 2018, the total dioxins and furans concentration were more 400 times the Tier

1 guidelines for fine soils for agricultural, residential/parkland, commercial, and industrial applications.

- In October 2018, the total dioxins and furans concentration were more than 600 times the Tier 1 guidelines for fine soils for agricultural, residential/Parkland, Commercial, and Industrial applications;

### Site Liner

WHEREAS on May 31, 2016, AEP sent a letter to CG requesting that, by August 1, 2016, a site delineation study be submitted to AEP to determine the current as-built state of the liner, and based on this information, determine the maximum site capacity, being the maximum volume of Material that the facility can handle at a single point in time, and still meet all the regulatory requirements;

WHEREAS on August 31, 2016, AEP sent an email to Cleanit Greenit requesting a status update on the site liner delineation, which was due on August 1, 2016;

WHEREAS on September 1, 2016, Cleanit Greenit advised they are waiting for clarification regarding methodologies for the liner delineation from some consultants before they chose one and hope to have selected a consultant by the end of September, 2016;

WHEREAS on September 20, 2016, Cleanit Greenit submitted a report from a consultant titled "Plan of Action-Soil, groundwater and Liner Investigation Soil Composting facility";

WHEREAS on October 28, 2016, AEP requested further information from Cleanit Greenit on the "Plan of Action-Soil, groundwater and Liner Investigation Soil Composting facility" report including questions relating to groundwater users, historical liquid waste receiving area/wet bunker information and soil compaction on the site from heavy equipment;

WHEREAS on November 10, 2016, AEP received an email from Cleanit Greenit that contained a consultant's written response to AEP's October 28, 2016 questions;

WHEREAS on January 24, 2017, AEP advised Cleanit Greenit that AEP staff are still reviewing the "Plan of Action-Soil, groundwater and Liner Investigation Soil Composting facility" report and supplemental information that was received on November 10, 2016;

WHEREAS on February 14, 2017, AEP sent an email to Cleanit Greenit stating that AEP has reviewed the November 10, 2016 letter from Cleanit Greenit's consultant, and offers the following comments.

- The proposal of doing a field verified survey of groundwater users within 1 km of the site to delineate groundwater users, as described in the Nov. 10<sup>th</sup> letter is acceptable to AEP;
- The proposed field and lab testing of the liner must lead to confirming the permeability of the liner. The *Code of Practice for Compost* states:

6(1) The person responsible shall construct a compost facility that is designed in accordance with the following requirements:

- (i) constructed of at least 0.5 metres of clayey material having a permeability less than



5 x 10<sup>-8</sup> metres per second, or an alternative material that provides equivalent protection, and;

- (ii) constructed with a minimum slope of 2 percent in EO that the pad does not collect water or leachate;
- The in-situ testing for density testing alone will not provide the hydraulic conductivity. The soil properties and the density can be equated to a hydraulic conductivity as long as the factors for the analysis are also tested. The density testing proposed will need to be defended with accuracy of how the expected corresponding hydraulic conductivity (k) of the resulting densities. Moisture content will also play a role in the determination of the k value. It is suggested that a minimum of three (3) Shelby tube (core samples) be tested for the permeability;

WHEREAS on June 13, 2017, an EPO requested a status update in regards to AEP's email of February 14, 2017 relating to the completion of the "Plan of Action-Soil, groundwater and Liner Investigation Soil Composting facility";

WHEREAS on June 13, 2017, Cleanit Greenit indicated the consultant would be doing the groundwater monitoring work this week and the Liner Investigation work would begin in July 2017;

WHEREAS on August 1, 2017, AEP sent an email to Ms. Castro-Wunch requesting a status update on the groundwater and liner delineation work that was to be conducted under Cleanit Greenit's "Plan of Action-Soil, groundwater and Liner Investigation Soil Composting facility";

WHEREAS on August 2, 2017 Cleanit Greenit indicated their consultant had originally planned on doing the Liner Investigation study in July but decided it was too wet and would wait until September;

WHEREAS on August 3, 2017, Ms. Castro-Wunch confirmed in a telephone call with AEP that the Parties are still working towards completing the Liner Investigation study as requested in AEP's May 31, 2016 letter, and it will be completed in September 2017;

WHEREAS on September 29, 2017, Cleanit Greenit advised that its consultant would be conducting the liner delineation work on Monday, October 2, 2017;

WHEREAS on January 4, 2018, AEP sent an email to Cleanit Greenit Owner asking for a progress report on the Liner Investigation;

WHEREAS on January 10, 2018, Cleanit Greenit advised the consultant is in the process of doing the interpretation of laboratory result for the hydraulic conductivities, review of groundwater users and completing the report, and Cleanit Greenit anticipated it will be available end of January beginning of February, 2018;

WHEREAS on February 21, 2018, AEP sent an email to Cleanit Greenit requesting the status of the Liner Delineation Report and Cleanit Greenit's most recent Operations Plan;

WHEREAS on February 21, 2018, Cleanit Greenit advised AEP that the Liner Delineation Report is being finalized and should be available by the end of next week;

WHEREAS on March 5, 2018, over 19 months after it was originally due, AEP received from Cleanit Greenit a report dated February 22, 2018 and titled "2017 Liner Investigation";

WHEREAS the 2017 Liner Investigation indicates that the presence of a clay liner could not be determined through field tests and excavation observations;

WHEREAS on April 19, 2018, Cleanit Greenit submitted a letter from its consultant that made three recommendations to Cleanit Greenit relating to liner cover practices including:

- Material should be placed above the liner so that there is no direct machine contact (i.e. from tracked vehicles) on the liner itself. A cover thickness of at least 0.6m is recommended but thicker material would be more advantageous;
- A cover material will also be advantageous in minimizing frost/thaw cycles of the liner. These cycles could compromise the effectiveness of the liner;
- The cover material above the liner should not contain any large objects or angular material that could drive into the liner;

### **Groundwater**

WHEREAS Cleanit Greenit's 2014 Groundwater Monitoring Program Report, dated March 15, 2015, indicated that aluminum, arsenic, iron, manganese, uranium, selenium, zinc, barium, copper, antimony, and lead had been found in groundwater, all above the criteria in the *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, Alberta Government, March 18, 2014, in one or more groundwater monitoring wells over the last 3 groundwater monitoring events;

WHEREAS on July 16, 2014, AEP sent an email to Cleanit Greenit asking if groundwater monitoring wells were shock chlorinated in the past;

WHEREAS on July 16, 2014, AEP received email confirmation from Cleanit Greenit that it did shock chlorinate all the monitoring wells (including, MW-3 / MW-4 / MW-5 / MW-6 / MW-7) at a chlorine dosage of 20% on August 17, 2012;

WHEREAS on July 30, 2014, AEP received from Cleanit Greenit the Soil Impact Delineation Report, as required by Clause 18 of the EO, as amended;

WHEREAS on October 26, 2015, an AEP Senior Soil & Contaminated Sites Specialist and an AEP Hydrogeologist completed a review of Cleanit Greenit's 2012 and 2014 Groundwater Monitoring Program Reports, the 2014 Annual Report and the 2014 Soil Impact Delineation Report and found that dissolved metals analyses indicate that several constituents found in groundwater are above the applicable groundwater limits as outlined in the *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, Alberta Government, March 18, 2014;

WHEREAS on March 11, 2016, AEP received Cleanit Greenit's 2015 Annual Report and 2015 Groundwater Monitoring Report;

WHEREAS on May 3, 2016, an AEP Risk Assessment and a Contaminated Sites Specialist completed a review of Cleanit Greenit's 2015 Groundwater Monitoring Program Report and 2015 Annual Report and found dissolved metals analyses indicate that several constituents found in groundwater exceeded the applicable criteria, in the *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, Alberta Government, March 18, 2014;

WHEREAS on March 31, 2017, AEP received a copy of Cleanit Greenit's 2016 Groundwater Monitoring Program Report;

WHEREAS on March 12, 2018, AEP received from Cleanit Greenit the 2017 Annual Report and 2017 Groundwater Monitoring Program Report;

WHEREAS on March 20, 2019 Cleanit Greenit submitted its 2019 Annual Report and a "2019 Groundwater Monitoring and Detention Pond Water Sampling" report dated March 2, 2020, which was prepared by a consultant for Cleanit Greenit;

WHEREAS Cleanit Greenit's "2019 Groundwater Monitoring and Detention Pond Water Sampling" report states the following:

- The pH and chloride and nitrate concentrations in all monitoring wells at the facility are below the Code of Practice standards, with the exception of the chloride concentration in MW-6 (average 365 mg/L), MW-7 (average 265 mg/L) and MW-8C (average 446 mg/L). Chloride concentrations in these wells are above the Alberta Tier 1 Guideline. There continues to be an increasing or upwards trend in the chloride concentration in MW-6 and MW-7.
- Monitoring wells MW-6 and MW-7 are located in areas of the facility with disturbance from installation of new perimeter fencing. Monitoring well MW-6 is located at the top of a hill of compost and soil, with the surrounding area excavated; and MW-7 is suspended approximately 1.5 m above the new facility grade. These disturbances may have resulted in changes to the drainage conditions at the Site that result in runoff of surface water from the facility towards these wells. Elevated chloride is apparent in the detention pond water and the liquid produced during the composting process and the chloride is likely associated with on site activities.
- There are no clear indications that the chloride concentration in MW-8C is associated with on-site activities, as this monitoring well is a deep well installation and the shallower well within the cluster does not show an elevated chloride concentration. An off-site source, given that industrial land use and oilfield activities are located north of the Site, is a possibility.
- Sulphate (typical for decomposing organic material) continues to exceed the Alberta Tier 1 Guideline in monitoring wells MW-5 and MW-7. The Tier 1 Guideline for sulphate is based on an aesthetic objective for drinking water use. As groundwater in the shallow wells is not used for drinking water there is a low human health risk.
- The compost liquid has a high sulphate concentration (1,590 mg/L) that supports previous conclusions and the continual observation that there is a relationship between high precipitation events and an increase in sulphate concentration in the groundwater as a result of run-off from the facility. These monitoring wells are located at topographic lows compared to the remainder of the facility.

WHEREAS in the "2019 Groundwater Monitoring and Detention Pond Water Sampling" report Cleanit Greenit's consultant recommends that Cleanit Green do the following:

- As per previous recommendations, considering installation of a new up-gradient monitoring well, as MW-6 and MW-7 are showing indications of changes in water chemistry that could be attributed to Cleanit Greenit Composting System Inc. 2019 Groundwater Monitoring on-site composting activities. The consultant understands that CG attempted to obtain

permission from the adjacent landowner, to install a new up-gradient well in March of 2014. The adjacent landowner was not amenable to the request and it may not be possible to install an up gradient well;

- Repair of MW-7 to ensure that the monitoring well does not remain suspended above the current grade which may result in infiltration of surface water around the well bore or the future destruction of the well. The well will require cutting off of the PVC, re-installation of the 1.5 m surface casing protector and backfilling of the top of the well bore at ground surface with hydrated bentonite;
- Consideration should be given to removing the compost and soil pile where MW-6 is located and re-completing the surface of the well to be at a similar grade to the rest of the facility. The surrounding material appears to be compost with a greater water retention capacity than the native soil and this may be resulting in leaching of precipitation with compost leachate down the well bore;
- Continuing to complete semi-annual monitoring activities spaced at least three months apart to account for seasonal fluctuations in some parameters;

WHEREAS on March 31, 2021, AEP received a copy of Cleanit Greenit's 2020 Groundwater Monitoring Program Report and 2021 Operations Plan;

WHEREAS on February 28, 2020 and April 17, 2018, an AEP Contaminant Hydrogeologist completed a review of the 2016, 2017, 2018 Groundwater Monitoring Reports, the 2018 Annual Report, and the 2017 Liner Investigation, and on October 5, 2020 completed a review of the 2020 Operations Update Report, and the 2019 Groundwater Monitoring and Detention Pond Water Sampling Report, and on April 20, 2021 completed a review of the 2020 Groundwater Monitoring Report and the 2021 Operations Plan and concluded the following:

- The compost operation has affected the shallow groundwater and possibly the deeper well (8C) as shown by the chemistry. The shallow groundwater system in the upper water table zone at about 7m below ground level (bgl) is affected by constituents which are not normally natural to groundwater chemistry;
- The one deeper well installation (8C), at approximately 18m bgl and down gradient, is very high in chloride (554mg/l), and exceeds the chloride operations limit prescribed by the COP (250mg/L);
- The presence of a Domestic Use Aquifer (DUA) at this site has not been evaluated as the research on regional hydrogeology and water wells indicates that there could be an aquifer below the deepest well (8C);
- Parameters used in identifying contamination from waste facilities, which include COD, DOC, TKN, Sulphate, and Chloride. The groundwater chemistry shows spikes and much variation between wells, which is not typical or normally found as part of natural or seasonal variation and increasing trends of some parameters are observed in some wells;
- Notable is the high chloride in wells MW5, MW6, MW7, and MW8C beginning in 2013;
- Two wells, MW6 and MW7, which are seen as background wells, remain above the COP

operating limit for chloride;

- Sulphate (typical for decomposing organic matter) exceed the *Alberta Tier 1 Soil and Groundwater Remediation Guidelines*, Alberta Government, March 18, 2014 in both MW5 and MW7.
- The Consultant has confirmed that the compost liquid has a high sulphate concentration (2019) and this supports previous conclusions and the continual observation that there is a relationship between high precipitation events and increase in sulphate concentration in the groundwater as a result of run-off from the facility (2013, 2014, 2016);
- Fecal coliforms and E.coli appear to have impacted the groundwater in the areas of MW6 and MW7, possibly due to operations involving movement of compost;
- Well logs and field observation notes provided in Table 1 App. C of the Annual Reports suggest that the integrity of the well installations may be compromised. The notes refer to hydrogen sulfide odour, natural sand slough, silty conditions at base of wells, and grey and brown coloration in samples;
- Compost operations may be influencing surface water infiltration by pooling and poor drainage in the vicinity of the well installations allowing for compost leachate to migrate down the well bore and into the groundwater system;
- This site has a history of well placement and replacement activity since which removes consistency in a monitoring program, and can also introduce contamination to groundwater from surface and upper subsoil areas;
- There is a storm runoff and liquids detention pond on site. Assessment of the water chemistry of the pond water and the liquid along the compost piles show very high chlorides, and indicators of organic and inorganic loading (COD, TOC, TKN). Bacteria (Total, Fecal coliforms and E.coli) are also present. This pond was dry in 2016 and 2017, but full in 2019. The integrity of the natural clay liner can be affected by weathering factors when it is dry, and therefore its effectiveness is unknown; and
- The liner investigation (2017 Liner Investigation) was not able to determine the presence of a constructed clay liner. However, the 2020 Operations Report describes that the entire working area is underlain by an impermeable (clay) composting pad that meets the specifications of the COP. This is contrary to the 2017 Liner Investigation findings, where the presence of a clay liner could not be determined through field tests and excavation observations.

WHEREAS The 2007 Standards for Compost Facilities, Section 3.2 (a), describes the minimum construction criteria for a constructed liner system. Section 3.2 (b) describes the conditions which a natural protective layer must meet when a constructed liner under Section 3.2 (a) is not present. Cleanit Greenit's 2017 Liner Investigation did not determine the presence or thickness of a constructed clay liner. The 2017 Liner Investigation report states that there was at least 3m of silt loam soil, and concludes that meets the requirements of Sec 3.2 (b);

WHEREAS Cleanit Greenit's 2020 Operations Plan describes that the entire working area is underlain by an impermeable (clay) composting pad. This is contrary to the findings of their 2017

Liner Investigation, where the presence of the clay liner could not be determined through either field tests or observations;

WHEREAS AEP's reviews and analyses of Cleanit Greenit's reports, indicate that:

- Cleanit Greenit's operations are affecting the shallow groundwater and surface contamination may be entering the subsurface and the groundwater through precipitation and surface runoff, which contributes to compost leachate infiltration;
- The integrity of a clay liner inside the storm pond/detention pond, which stores compost leachate, has not been measured or confirmed as present and effective;
- Well seals in some wells may be ineffective and surface and shallow subsurface contamination is resulting in leakage along the well annulus and into the upper water table; and
- The 2017 Liner Investigation found that neither the location or the thickness of an actual clay liner could be determined;

#### **Incoming Waste and Outgoing Material Reports**

WHEREAS on January 12, 2017, AEP received from Cleanit Greenit the 2016 "Incoming Waste and Outgoing Material" report, which indicated that in 2016 19,990.30 tonnes of waste was received and 27,913.05 m<sup>3</sup> of compost was removed from the site;

WHEREAS on January 11, 2018, AEP received Cleanit Greenit's 2017 Incoming Waste and Outgoing Material report, which stated 17,256.00 tonnes of waste was received and 12,677.56 m<sup>3</sup> of compost was removed from the site;

WHEREAS on January 10, 2019, AEP received Cleanit Greenit's 2018 Incoming Waste and Outgoing Material report, which stated 19,809.80 tonnes of waste was received and 18,946.40 m<sup>3</sup> of compost was removed from the site;

WHEREAS on January 9, 2020, AEP received from Cleanit Greenit the 2019 Incoming Waste and Outgoing Material report, which stated that 18,812.0 tonnes of feedstock, bulking agents/amendments and process water was received in 2019 and that 9841.5 m<sup>3</sup> of compost and 59.3 tonnes of waste was removed and sent to landfill in 2019;

WHEREAS Cleanit Greenit's 2019 Incoming Waste and Outgoing Material report shows liquid waste and hydovac was accepted by Cleanit Greenit during January, February, March, April, May and June of 2019;

WHEREAS on the below table Cleanit Greenit failed to provide the monthly Incoming Waste and Outgoing Material on time;

	<b>Date</b>	<b>Reference #</b>	<b>Month</b>	<b>Cleanit Greenit's failing to meet due date</b>
1.	March 26, 2021	377312	April	Due to short turn around time.
2.	Feb 19, 2021	376231	March	Due to the short turn around time.
3.	Dec 16, 2020	374536	January	Due to insufficient time, they need more time to prepare 7 day letter for CG feedstock and finished compost report.
4.	Nov 10, 2020	373564	December	There was a short turnaround time for submitting feedstock and finished compost removal report.
5.	Sept 16, 2020	371616	September	Because the 1st Thursday falls on Oct 1st due to time constraint (not able to accomplish that within one day without checking all the numbers).
6.	Aug 31, 2020	371006	October	However they don't have enough time to compile the information and submit it. However that would only give them two days to process the information therefore they are requesting to have it delayed for another week.
7.	Aug 4, 2020	369834	August	Due to lack of staff they won't be able to submit by Aug 8th and will submitted by Aug 13.
8.	Mar 16, 2020	364672	April	However because they receive the data on the first of every month and the first Thursday falls on April 2, 2020 they won't be able to submit it in time this month.
9.	Dec 16, 2019	362046	December	The December report will be delayed by 1 week due to the holiday season.
10.	Sept 17, 2019	358986	October	Due to time constraint of it only being 3rd day of month.
11.	Aug 21, 2019	357790	September	There is not enough time to complete and verify data due to Labour Day.
12.	July 16, 2019	356140	August	Because the source receives its tonnage data on this day. The data requires a third party review and it is not feasible to complete the review on the same day the data is collected.
13.	Jun 25, 2019	355202	July	A report is due next Thursday, July 3rd, which is too short to compile all the data and verify
14.	Apr 29, 2019	352587	May	For May 2019, the first Thursday is on May 2nd, and they are not able to compile the data in time.
15.	March 25, 2019	351121	April	Not enough time from the end of the month to compile before the due date
16.	Dec 21, 2018	347840	January	Due to holiday they will not have it in until Jan 10
17.	Oct 24, 2018	345328	October	Because it is the first day of November. The October monthly data will be submitted on November 8th
18.	July 18, 2018	341068	August	There are only 2 days in between the end of the month and when the report is due and they are short staffed and will not be able to have the report done in time.
19.	Feb 21, 2018	334894	March	No reason
20.	Jan 19, 2018	333884	February	Because Feb 1 is the first Thursday, and they do not have time to prepare the report.
21.	May 29, 2017	324881	June	Due to June's Thursday being the 1st they will not have time to process data from May.
22.	Jan 13, 2017	319971	January	Monthly report which was missed for January 2017 due to the office being closed.
23.	Dec 8, 2016	319034	November	But there were not enough data for the first Thursday
24.	August 21, 2016	315684	September	Unable to submit the aforementioned report on time as data will not be available.
25.	Aug 31, 2016	315698	August	Source has contravened Clause 6 of EO-2011/03-NR for failing to provide the required information by the first Thursday of August, 2016.

## Odour

WHEREAS in response to ongoing odour complaints received by AEP, AEP deployed its Mobile Air Monitoring Unit (MAML) and Canister samples on October 28, October 29 and October 30, 2019 to continuously measure concentrations of ammonia (NH<sub>3</sub>) and Hydrogen Sulfide (H<sub>2</sub>S) and the analyses found the following:

- Three exceedances of the H<sub>2</sub>S 1-hr Alberta Ambient Air Quality Objectives (AAAQO), 2016, No.2;
- H<sub>2</sub>S and NH<sub>3</sub> concentrations were above their corresponding odour thresholds most of the time near the fence line;
- 8 Canister samples targeted up to 121 (Volatile organic compounds) VOC and 19 Reduced Sulphur Compounds (RSC), H<sub>2</sub>S was above its odour threshold and high Polycyclic aromatic hydrocarbon (PAH), Fine Particulate Matter (PM<sub>2.5</sub>), and Methane (CH<sub>4</sub>) concentrations;

WHEREAS Appendix B represents samples from the MAML;

WHEREAS Appendix C represents samples from the Canisters;

WHEREAS on March 5, 2020, AEP received 5 separate public complaints between 15:30 and 18:15 and AEP attended the Cleanit Greenit facility and surrounding area and found the odour to be very strong at 18:00hrs;

WHEREAS on March 9, 2020, AEP received an email from Cleanit Greenit with a new fact sheet and a section from their Operations Plan called "Actions Taken to Minimize or Remedy Odour Event" and "Recording and Addressing Public Complaints" and the new fact sheet provides a telephone number with a dedicated complaint line for odours;

WHEREAS on March 9, 2020, the AEP EPO advised this procedure is contrary to the requirements of Clause 10 of the EO, as amended.;

WHEREAS on July 21, 2020 at 11:00 am, an AEP EPO contacted Cleanit Greenit to follow-up on several odour complaints received on the evening of July 20, 2020. Cleanit Greenit stated:

- It's a wet year, too much water is a problem to the site;
- Activity at the site is being conducted during the day time and rarely is work being conducted at night;
- When odour complaints started coming in on July 20, 2020 Cleanit Greenit's on-call patroller got overwhelmed and was unable to fulfill the role;
- Cleanit Greenit has bought 5 more fans, generators and piping so more aeration can be incorporated into their piles and the fans are almost always on;

WHEREAS on September 15, 2020, AEP received a request from Cleanit Greenit to amend clause 8(d) of the EO, as amended, to allow CG and AEP hotline staff to take messages between the hours of 22:00hrs and 08:30hrs and AEP could then give any messages to CG at 08:30hrs the next



morning for investigation, however AEP declined to amend the EO;

WHEREAS contrary to clause 10 of the EO, as amended, on several occasions AEP has received Odour complaints and were unable to reach Cleanit Greenit so they could follow-up;

	<b>Date</b>	<b>Reference #</b>	<b>Reason given by Cleanit Greenit</b>
1.	August 10, 2014	288047	had a gap in scheduling as an employee went on holidays;
2.	March 14, 2015	309213	no response was ever provided to AEP by the Parties
3.	April 25, 2020	365721	Advised their patroller has accidentally slept through the initial phone call from AEP
4.	June 9, 2020	367462, 367463, 367464, 367465, 367467	A systematic malfunction with its phone calls

WHEREAS from January 1, 2015 to November 15, 2020 Cleanit Greenit has self-reported 66 incidents of odours from the Cleanit Greenit facility;

WHEREAS from January 1, 2015 to November 15, 2020 AEP has received 833 odour complaints from the public about the Cleanit Green it facility;

### **Operations**

WHEREAS on October 21, 2015, AEP sent a letter to Cleanit Greenit asking the following questions:

- That a survey report relating to the perimeter berm exceedance has not been received and a request how they will resolve the exceedance of the berm and the fact that the active areas of the facility extend beyond the liner;
- A survey to restore the surface water storage pond to the as-built state was requested again;

WHEREAS on October 30, 2015, Cleanit Greenit submitted a survey dated October 30, 2015 stating the following:

- That the re-grading along the northerly limit of the land put the toe of the slope of Material within the boundary of the Lands;
- The consultant company placed stakes along the Northerly and Easterly boundaries of the land for the storm water pond based on the as-built plan of November 12, 1998;

WHEREAS on November 24, 2015, in response to Cleanit Greenit's October 30, 2015 survey, AEP sent a letter to Cleanit Greenit advising the following:

- AEP cannot accept this survey as it is not a legal survey and does not have a professional stamp;
- AEP asked for a description of how much volume of Material was removed and where it

went;

- AEP requested that pictures be sent showing the current pond construction, including the bottom and side profiles;
- AEP requested again that a complete chemical and physical assessment of all the sediments at the bottom of the surface water storage pond, as this was still outstanding from the requirements of Clause 16 of the EO, as amended
- AEP disagrees with Cleanit Greenit statement that that the pond has adequate freeboard for a 1 in 25year, 24-hour duration storm event as the calculation provided in the October 27, 2015 report was based on drawings Cleanit Greenit provided to the consultant and not an on-site survey based on “as built” conditions; and
- AEP would like a plan and further clarification about what is being done with the Surface Water Storage Pond so it meets the requirement set out in Clause 22(j) of the EO, as amended, since Cleanit Greenit’s October 30, 2015 survey stated that “if the [surface water storage pond] has more than 1.06m of water in it prior to a 1 in 25 year, 24 hour duration storm event, the storm event would over fill the pond”;

WHEREAS on December 1, 2015, Cleanit Greenit submitted a survey dated November 24, 2015 and titled “As-Constructed Elevations for Deep De-silting/Detention Pond”, indicating the surface water storage pond is returned to “as-built” dimensions and elevations, as close as possible (exact would not be possible) and that the pond is currently empty;

WHEREAS on January 19, 2016, in response to Cleanit Greenit’s December 1, 2015 communication, AEP sent a letter to Cleanit Greenit asking where the sediment from the Surface Water Storage Pond went, asking for confirmation that the pond meets 1 in 25 year, 24 hour duration storm event; and requesting a plan on how Cleanit Greenit intends to meet this requirement, as set out in Clause 22(j) of the EO, as amended;

WHEREAS on January 22, 2016 Cleanit Greenit submitted a response to AEP’s January 19, 2016 letter stating the following;

- Numerous efforts were made to collect samples of the sludge from the bottom of the storage pond in May of 2012 using a Pollard Water Sludge Pro XL 15’ Sampler and all attempts were unsuccessful;
- Cleanit Greenit staff pumps and recirculates pond and site water whenever weather and conditions allow. We do this to ensure we are prepared to meet the 1 in 25 year, 24 hour duration storm event as the level the pond should be kept below the 1.06m level and they manage this by increasing the frequency of pumping if necessary;

WHEREAS on April 15, 2016, an AEP Waste Management Specialist reviewed Cleanit Greenit’s November 24, 2015 “As-Constructed Elevations for Deep De-silting/Detention Pond”, for the surface water storage pond and observed the as-built detailed survey was missing information about both the slope of the pond sides and the compaction of the clay lining that should underlay the surface water storage pond;

WHEREAS on May 4, 2016, AEP representatives met with the Parties and reviewed all of the clauses of the EO, as amended, and indicated which requirements were still outstanding; including:

- A site delineation of the site to determine the current as-built state of the liner;
- A detailed assessment of the facility, including the location of the confirmed liner;
- A determination of the Maximum Site Capacity; and
- Information regarding the encroachment of Cleanit Greenit's wastes on City of Edmonton lands;

WHEREAS on May 31, 2016, AEP advised Cleanit Greenit in writing, and as discussed in person on May 4, 2016, that several outstanding conditions and the non-compliances have been identified and that Enforcement EO EO-2011/03-NR would not be closed, nor would the registration of the EO on title be removed at this time and Cleanit Greenit must complete the following:

- Complete a site delineation of the site to determine the current as-built state of the liner at the Cleanit Greenit facility;
- Complete a detailed assessment of the facility, including the confirmed liner and determine the maximum capacity the Cleanit Greenit facility can handle and still meet all the legislative requirements;

WHEREAS on May 31, 2016, AEP sent a letter to Cleanit Greenit titled "EO-2011/03NR: Encroachment on City of Edmonton Property" requesting additional information relating to the material that was encroaching the City of Edmonton lands including;

- Type of material;
- Volume of material;
- City of Edmonton notification; and
- Provide a copy of any sampling analytical results for the "material" that was removed from the City of Edmonton Land.

WHEREAS on June 15, 2016, AEP received a letter from Cleanit Greenit regarding AEP's letter of May 31, 2016 indicating the material that was on City of Edmonton property was 897.62 tonnes of compost and overs and that soil samples from the material show elevated levels of chloride and sodium;

WHEREAS on June 20, 2016, AEP received, in response to AEP's May 31, 2016 letter, regarding the site liner and site capacity, in which Cleanit Greenit committed to getting quotes to complete the following:

- A site delineation to determine the current as-built state of the liner at the Cleanit Greenit facility; and
- A detailed assessment of the facility, including the location of the confirmed liner and determine the maximum site capacity that Cleanit Greenit can handle and still meet all legislative requirements;

WHEREAS on July 29, 2016, AEP received an email from Cleanit Greenit advising they are still working on getting quotes to complete the site liner and delineation work;

WHEREAS to date Cleanit Greenit has never responded to AEP regarding the requested determination of the site's maximum capacity;

WHEREAS on April 10, 2018 and April 20, 2018 AEP Reclamation Policy Specialist reviewed Cleanit September 24, 2015 Operation Plan and indicated the following:

- The Cleanit Greenit facility should be reclassified as a waste treatment facility, rather than a Class I composting operation, based on the potentially hazardous wastes Cleanit Greenit accepts including; used activated carbon, grease trap sludge, liquids from car service shops, hydrovac, machinery oil, waste from machine shops, and hydrocarbon contaminated soils;
- Hazardous wastes are not acceptable wastes for a composting facility because these materials potentially contain hazardous, long-chained hydrocarbons that are not easily degraded, and chemicals not commonly found in compost; and

WHEREAS on February 26, 2019, AEP completed an inspection at the Cleanit Greenit facility and observed several non-compliances, which are outlined in AEP's February 26, 2019 "Compliance Assurance Site Visit Summary";

WHEREAS on May 23, 2019 AEP, sent Cleanit Greenit a 99 page "Compliance Assurance Site Visit Summary" outlining all of the non-compliances that were identified during the February 26, 2019 inspection, and requested that Cleanit Greenit submit a written responses by June 7, 2019 and June 17, 2019 outlining all the actions taken to remedy the non-compliances;

WHEREAS on May 30, 2019, Cleanit Greenit confirmed that they received the "Compliance Assurance Site Visit Summary" dated May 23, 2019 and requested a one month extension on the June 7 and June 17<sup>th</sup> deadlines to July 5, 2019 and July 17, 2019, which AEP granted on June 6, 2019;

WHEREAS on June 17, 2019, AEP completed a site visit at the Cleanit Greenit facility;

WHEREAS on June 20, 2019, AEP and Cleanit Greenit representatives had a meeting to discuss the contraventions outlined in AEP's "Compliance Assurance Site Visit Summary";

WHEREAS on July 17, 2019, AEP received from Cleanit Greenit a number of emails in response to AEP's May 23, 2019 "Compliance Assurance Site Visit Summary" and the June 20, 2019 meeting and although none of the emails rectified the outstanding contraventions, Cleanit Greenit provided the following information:

- The berms around the perimeter of the facility also function as an on-site road;
- The 2017 and 2018 spikes in chloride concentration in the groundwater have not been confirmed to be the result of on-site activities, and once Cleanit Greenit determines the cause of the chloride concentrations, it can take next steps; and
- Cleanit Greenit has stopped accepting liquid wastes;

WHEREAS on September 6, 2019, AEP completed a site visit at the Cleanit Greenit facility and observed that:

- two wet bunkers, one on the west and one on the east, had been filled in with some earthen material leaving two small shallow depressions, each a couple of feet deep; and
- each of the depressions accumulates leachate from the waste piles, which Cleanit Greenit then mixes back into the waste in the active compost piles;

WHEREAS on January 22, 2020, Cleanit Greenit submitted to AEP a revised "Operations Plan" dated January 2020 (the "2020 Operations Plan");

WHEREAS on October 20, 2020, AEP received from Cleanit Greenit an email with a document titled "Cleanit Greenit Composting Systems Inc. As-Built Survey, dated April 30, 2020, Revision 3" from a third party surveyor, however this survey does not show the current state of the Cleanit Greenit facility, but rather it is a compilation of previous drawings Cleanit Greenit had provided to the third party surveyor to overlay into one plan, and which fulfills none of AEP's requests made on September 23, 2015, October 21, 2015 and May 31, 2016;

WHEREAS Cleanit Greenit's statements that they ceased accepting liquid wastes is contrary to their October 2020 Incoming Waste and Outgoing Materials Report (received by AEP on November 5, 2020), which states that they accepted 1.2 tonnes of liquid waste between January and October 2020;

#### **Inspection – October 27, 2020**

WHEREAS on October 27, 2020 AEP completed a site visit at the Cleanit Greenit compost facility and documented several non-compliances under the Code of Practice for Compost Facilities (COP) and the EO including:

- COP 6(1)(a) Capacity exceedances and feedstock acceptance issues, Aeration system operational problems and Odour complaints and run-off management issues noted;
- COP 6(1)(b) The 2017 Liner Investigation Report, submitted previously by Cleanit Greenit, notes that Cleanit Greenit's consultant cannot determine the existence of a composting pad. An AEP review of the document also found that the site subsurface is capable of transmitting potentially contaminated liquids downwards;
- COP 6(1)(d) Inadequate run-off control and management system that provides protection of surface water quality in accordance with COP section 7(4);
- COP 7(4) Current Cleanit Greenit Composting System Inc. site configuration may permit offsite release of leachate and/or surface run-off and, based on Cleanit Greenit Composting System Inc. 2019 Annual Report surface water analyses results, the limits specified in 7(4)(a), (b) and (c) would be exceeded;
- COP 8(3) The Cleanit Greenit Composting System Inc. 2019 Annual Report notes that chloride levels in groundwater monitoring wells MW-6 and MW-7 continue to be elevated and exhibit an upward trend;

- COP 8(6) Cleanit Greenit Composting System Inc. has yet to implement a Groundwater Remediation Plan, despite groundwater parameter exceedances;
- COP 8(7) 2019 Annual Report includes references to groundwater monitoring well deficiencies. The report also noted the need to repair or replace MW-6 and MW-7 monitoring wells; this work has not yet been conducted;
- COP 12 Unreported contraventions regarding the non-compliant site run-off management system;
- *Waste Control Regulation* section 25(3) Cleanit Greenit failed to notify Alberta Environment and Parks that a certified compost operator (Mical Woldeselassie #1117) left the company in 2017;
- EO Clause 6: Monthly reports have been consistently submitted later than the specified deadline (on or before the first Thursday of every month thereafter);
- EO Clause 12: During the October 27, 2020 inspection, AEP observed four active compost piles with forced aeration equipment present. Two generators located south of the piles would provide the necessary power needed to run the system, however, the system was not in operating mode at the time of the visit. Cleanit Greenit indicated that the aeration time applied to all piles is always one time in the morning for 15 minutes and one time in the afternoon for 15 minutes. While observing the aeration, Inspectors noticed that one aeration hose was not connected to the blowers and the end of one of the aeration pipes which was exposed was missing its end cap (needed to force the air up into the pile);
- EO Clause 13: During the site inspection on October 27, 2020, Cleanit Greenit indicated that piles received forced aeration twice a day (15 minutes in AM and 15 minutes in PM) by manually turning the generators off and on with no aeration on weekends. The Site Manager tests piles on Tuesdays and Thursdays with a manual probe to assess pile temperatures and moisture content but is unable to track oxygen levels, as the probe is broken for the second time now. As winter approaches and temperatures drop, the Site Manager explained how the forced aeration will likely be turned off at -10° Celsius because the cold air emitted puts the piles at risk of freezing. Inspectors fail to see how turning piles during the winter months differs from forced aeration being applied during winter months as the blowers can limit the amount of cold air being pushed into the pile while pile turning provides larger quantity of cold air all at once, which is also prone to freezing the pile;
- EO Clause 22(a): the windrows are over 4.3 meters in height;
- EO Clause 22(d): As-built plans submitted to AEP on October 20, 2020, have been deemed deficient, as Cleanit Greenit's as-built plan does not reflect the current status of the compost facility;
- EO Clause 22(e): A written commitment has not been provided to AEP by Cleanit Greenit and volumes of material on the facility site exceed stipulated 20,000 tonnes limit;
- EO Clause 22(f): Cleanit Greenit's January 2020 updated Operations Plan indicates in section 2.1.3 under Feedstock Accepted Policies and Procedures that "At the time of updating this Operational Plan (October 2019), CG is not accepting liquid waste/feedstock",

however during AEP's site visit Cleanit Greenit stated that liquid waste sources are being accepted by Cleanit Greenit;

- EO Clause 22(h): There was no evidence of a system in place for retaining recipe records for each batch of Waste being composted;
- EO Clause 22(i): Under the "*Standards for Composting Facilities in Alberta*", July 2007 section 1.2 (b) (ii) i. indicates the Facility Design Plan and specification shall include, as a minimum, Engineering maps and plans that include a run-off control system to collect and control the volume of process water run-off for a 1 in 25 year – 24 hour duration storm event and although berms for leachate and run-off were once present at the time of the October 27, 2020 inspection it was unknown where the berm begins and ends;
- EO Clause 22(j): The Cleanit Greenit updated 2020 Operations Plan notes that the lined retention pond is continuously monitored and an adequate freeboard is maintained at all times to accommodate a 1-in-25 years, 24 hours duration storm event and that a pole with markings is to be set in the pond as a visual aid for operators, indicating the level. However, during the site visit there was no indicating pole or other device in place to monitor adequate freeboard;
- EO Clause 23(b): The 2019 Cleanit Greenit Composting System Inc. Annual Report was reviewed for compliance with the requirements of Clause 23(b); sections addressing requirements (viii) (any remedial actions taken), (ix) (summary of non-compliance issues) and (xi) (summary of complaints received and actions taken) are deficient;

WHEREAS Neil Brad, Regional Assurance Manager, Regulatory Assurance North, has been appointed a Director for the purposes of issuing and amending enforcement EOs under the Act (the "Director");

WHEREAS since the issuance of Amendment #8 on September 12, 2013, the Director and the Parties have exchanged a number of communications, AEP has conducted the site visits described herein, and the Director has reviewed these and the historical information exchanges that have occurred between AEP and the Parties;

WHEREAS the Director is of the opinion that the contraventions outlined in this amendment have occurred;

WHEREAS the Director is of the opinion that the operation of the facility may be causing adverse effects on the environment, including but not limited to air and groundwater, and that steps must be taken to both assess potential impacts and address all those that may have occurred;

**THEREFORE**, I, Neil Brad, Director, pursuant to section 212 of the *Environmental Protection and Enhancement Act*, DO HEREBY ORDER:

26. Each of the following clauses of EO-2011/03-NR, as amended, is deleted;

- a. Clause 7;
- b. Clause 8;
- c. Clause 9;

- d. Clause 10;
- e. Clause 15;
- f. Clause 16;
- g. Clause 17;
- h. Clause 18;
- i. Clause 19;
- j. Clause 21;
- k. Clause 22;
- l. Clause 23; and
- m. Clause 24.

### **Odour Reporting**

27. Beginning on **May 30, 2021** and continuing on the 30<sup>th</sup> of each subsequent month, the Parties shall submit to the Director a written Odour Complaint Report.
28. In each Odour Complaint Report, the Parties shall include a complete list of each time Cleanit Greenit receives any information about an odour from any person, including AEP, a member of the public or any other complainant, including at least each of the following:
- a. the date of the receipt of the information;
  - b. the complete name of the person from whom Cleanit Greenit received the information;
  - c. details regarding the steps taken by Cleanit Greenit to respond to the information; and
  - d. the suspected source of the odor.

### **Air**

29. The Parties shall, by **June 30, 2021**, submit to the Director, for the Director's approval, a written detailed Ambient Air Monitoring Program Plan, signed by an independent third-party qualified professional currently registered and in good standing with the Association of Professional Engineers and Geoscientists of Alberta (APEGA), excluding all employees of any corporation of which Ms. Kirstin Castro-Wunsch is a director.
30. In the Ambient Air Monitoring Program Plan, the Parties shall include, at least each of the following:
- a. Description of the air quality issues, including the release and potential release of gaseous or particle phase pollutants from the Lands capable of being detected by olfactory receptors or impacting human health;
  - b. Locations, shown on a map, of each of
    - i. the proposed air monitoring stations,
    - ii. all actual and potential emission sources, including fugitive emissions sources, and
    - a. all potential receptors within a 5 km radius of the facility,
  - c. A list and description of identified actual and potential emissions sources;



- d. A list and description of identified potential receptors within 5 km of facility;
- e. The latitude and longitude of the proposed monitoring stations locations;
- f. The rationale for the monitoring stations locations selection that complies with the *Air Monitoring Directive (2016) – Chapter 3: Ambient Monitoring Site Selection, Siting Criteria and Sampling System Requirements*, Section 2.0, “Site Selection and Siting Criteria”
- g. A list of the parameters and substances that will be monitored by an Ambient Air Monitoring Program, which must include at least all of the following:
  - i. Total Reduced Sulphur (TRS);
  - ii. Hydrogen Sulphide (H<sub>2</sub>S);
  - iii. Fine Particulate Matter (PM<sub>2.5</sub>);
  - iv. Wind Direction; and
  - v. Wind speed;
- h. A list identifying the thresholds each of the parameters and substances will be compared against in *The Alberta Ambient Air Quality Objectives and Guidelines Summary, January 2019, Air Policy*;
- i. A detailed description of each of the following, each of which must meet the minimum requirements specified in *Air Monitoring Directive Chapter 4: Monitoring Requirements and Equipment Technical Specifications, June 26, 2017, Alberta Government*, “Table 1: Minimum performance specifications and operating principles for continuous ambient air analyzers” and “Table 2: Minimum performance specifications and operating principles for meteorological sensors:”:
  - i. Monitoring methods;
  - ii. Instrumentation specifications;
  - iii. Detection limit and range;
  - iv. Precision and accuracy;
  - v. Proposed sampling frequency and duration, which must be continuous;
  - vi. Reporting periods; and
  - vii. Duration of the monitoring program;
- j. Proposal for data management, including at least each of the following:
  - i. How long raw data will be archived;
  - ii. Where the raw data will be archived; and
  - ii. QA/QC system
- k. Proposed dates for each of the following:
  - i. Time to complete monitoring site selection and preparation;
  - ii. Time to acquire monitoring equipment;
  - iii. Time to install and test monitoring equipment;
  - iv. Time to begin data collection; and
  - v. Other relevant milestones and completion dates,
- l. Action and reporting plan to be implemented each time one of the parameters or substances exceed *The Alberta Ambient Air Quality Objectives and Guidelines Summary, January 2019, Air Policy*;

- m. Action and reporting plan to be implemented each time the air monitoring equipment is not operating in accordance with the *Air Monitoring Directive, 2016, Government of Alberta*;
  - n. A propose implementation date for the Ambient Air Monitoring Program Plan, which shall be no later than **August 30, 2021**.
31. If the Ambient Air Monitoring Program Plan is found deficient by the Director, the Parties shall correct all deficiencies in writing by the Director, by the date specified by the Director.
32. The Parties shall implement the Ambient Air Monitoring Program Plan as approved by the Director in writing.
33. The Parties shall, beginning on September 30, 2021, and on or before the 5<sup>th</sup> of each month thereafter, submit to the Director a written Monthly Ambient Air Monitoring Report signed by a third party qualified professional currently registered and in good standing with APEGA, excluding all employees of a corporation of which Ms. Kirstin Castro-Wunsch is a director.
34. In each Monthly Ambient Air Monitoring Report, the Parties shall include at least each of the following for the immediately preceding calendar month;
- a. Identification of:
    - i. The percentage of valid hourly data for all monitored parameters;
    - ii. Any problems that led to an air monitoring station or its components being operational for less than 90% of the time;
    - iii. All exceedances of ambient air quality limits in the AAAQO;
    - iv. All changes to monitoring locations, methods, equipment;
    - v. All reporting or monitoring irregularities or issues; and
    - vi. Dates and descriptions of all incidents in which the approved Ambient Air Monitoring Program Plan was not followed;
  - b. Comparisons of the measured ambient air concentrations to the applicable AAAQOs
  - c. Identification and description or any measured ambient air concentrations in excess of the applicable AAAQOs; and
  - d. All raw data.
35. The Parties shall immediately report to 1-800-222-6514, each time each of the following occur:
- a. the ambient air monitoring equipment is not operational for more than 72 cumulative hours in a calendar month; and
  - b. each time one or more of the following thresholds are exceeded over a 24-hour averaging period:
    - i. Hydrogen Sulphide (H<sub>2</sub>S): 4 µg/m<sup>3</sup>, and
    - ii. Fine Particulate matter (PM<sub>2.5</sub>): 29 µg/m<sup>3</sup>
36. Each time any of the incidents described in 35(a) or 34(b) occur, the Parties shall submit to the Director a written Ambient Air Incident Report, within 7 days of the incident occurring.

37. In each Ambient Air Incident Report, the Parties must include at least all of the following information:

- a. the date and time of the incident;
- b. the location of the point of the incident or release;
- c. the duration of the incident or release;
- d. a detailed description of the circumstances leading up to the incident or release; and
- e. a detailed description of what was done to stop the release or bring the air monitoring equipment back into operation.

### **Groundwater**

38. The Parties shall, by May 31, 2021, submit to the Director a written detailed Groundwater Remedial Action Plan,

- a. signed by an independent third-party qualified professional currently registered and in good standing with APEGA, excluding all employees of any corporation of which Ms. Kirstin Castro-Wunsch is a director; and
- b. prepared using the *Alberta Government, "Remedial Action Plan Guide", March 3, 2020.*

38. In the Groundwater Remedial Action Plan, the Parties must include at least each of the following:

- a. determination of whether there are wells on the Lands that are contributing to groundwater contamination, and identification of these wells;
- b. identification of which wells on the Lands need to be decommissioned and replaced; and
- c. a plan to install up-gradient and down-gradient groundwater wells for the purpose of determining potential impacts to groundwater beyond the boundaries of the Lands;
- d. a plan for the management of leachate and surface water so that leachate and surface water do not come into contact with groundwater;
- e. a plan for the management of the surface water storage pond so that there is no release from that pond;
- f. a plan for the management of the surface water storage pond so that there is no discharge to groundwater from that pond;
- g. determination of groundwater flow direction; and
- h. identification of the feedstock that may be contributing to the exceedances of groundwater limits identified in this amendment.

39. An implementation date for the Groundwater Remedial Action Plan that is no later than **July 30, 2021**.
40. If the Groundwater Remedial Action Plan is found deficient by the Director, the Parties shall in writing correct all deficiencies identified by the Director, by the date specified by the Director;
41. The Parties shall implement the Groundwater Remedial Action Plan as authorized in writing by the Director;

DATED at the City of Edmonton in the Province of Alberta, this 30 day of APRIL, 2021.



Neil Brad  
Compliance Manager  
Regulatory Assurance Division

**Section 91 of the *Environmental Protection and Enhancement Act* may provide a right of appeal against this decision to the Alberta Environmental Appeals Board. There may be a strict time limit for filing such an appeal. A copy of section 91 is enclosed. For further information, please contact the Board Secretary at #306 Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8; telephone (780) 427-6207; fax (780) 427-4693.**

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

**Take notice that this environmental protection 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 B "MAML Samples"

Start Date Time	End Date Time	Site Name	Latitude, Longitude	Site Description	Prevailing Wind Direction (blowing from)	Main Findings
2019/10/28 18:08	2019/10/28 19:09	Site #1	53.554794°, - 113.664495°	~850 m SE of Cleanit Greenit	W and WNW	Background to slightly elevated H2S, NH3, CH4, and PAHs concentrations.
2019/10/28 19:30	2019/10/28 21:04	Site #2	53.559797°, - 113.673599°	Tens of meters to the main entrance of Cleanit Greenit	W and WNW	Hourly (20:00-20:59) H2S of 10.6 ppb (> 10 ppb); Significantly elevated H2S, NH3, and CH4 concentrations; H2S and NH3 often above their odour thresholds; Background to slightly elevated PAHs concentrations.
2019/10/28 21:23	2019/10/28 23:26	Site #3	53.554892°, - 113.668971°	~650 m SSE of Cleanit Greenit	W and WNW	Background to slightly elevated H2S, NH3, CH4, and PAHs concentrations.
2019/10/29 23:41	2019/10/29 01:44	Site #4	53.560008°, - 113.673401°	Tens of meters to the main entrance of Cleanit Greenit	W and WNW	Hourly (1:00-1:44; 73% data completeness) H2S of 13.1 ppb (> 10 ppb); Significantly elevated H2S, NH3, and CH4 concentrations; H2S and NH3 often above their odour thresholds; Background to slightly elevated PAHs concentrations.
2019/10/30 07:01	2019/10/30 12:35	Site #5	53.561183°, - 113.669503°	~300 m east of Cleanit Greenit	W and WSW	Hourly (7:00-7:59 and 8:00-8:59) H2S of 22.6 ppb and 33.1 ppb (> 10 ppb); Significantly elevated H2S, NH3, CH4, PM2.5, and PAHs concentrations; H2S and NH3 often above their odour thresholds; Onsite equipment activities during daytime likely contributed to emissions spikes.
2019/10/30 12:42	2019/10/30 15:30	Site #6	53.560825°, - 113.671036°	~200 m east of Cleanit Greenit	W and WSW	Significantly elevated H2S, NH3, CH4, PM2.5, and PAHs concentrations; H2S and NH3 often above their odour thresholds; Onsite equipment activities during daytime likely contributed to emissions spikes.
2019/10/30 15:35	2019/10/30 16:30	Site #7	53.560312°, - 113.673073°	Tens of meters to the main entrance of Cleanit Greenit	W and WSW	Significantly elevated H2S, NH3, and CH4 concentrations; H2S and NH3 often above their odour thresholds; PM2.5 and PAHs concentrations dropped likely due to reduced to no equipment activities.

## Appendix C "Canister Samples"

Date	Sample #	No. of RSC Analyzed	No. of RSC Detected	Sum of RSC* (ppb)	Max RSC (ppb)	No. of VOC Analyzed	No. of VOC Detected	Sum of VOC# (ppb)	Max VOC (ppb)	Description	Main Findings
Oct. 28 - 29	Roadside #1	19	1	0.7	0.7	102	15	45.8	12.3	Grab	Top 10 highest VOC concentrations were generally higher than (4.3 times) reference concentrations.
Oct. 28 - 29	Roadside #1 (D)	19	3	3.9	1.9	102	16	43.7	12.1	Grab	N/A (Duplicate sample; See above)
Oct. 28 - 29	Roadside #2	19	3	6.5	4.6	102	18	21.3	3.3	Grab	Top 10 highest VOC concentrations were generally higher than (2.65 times) reference concentrations
Oct. 28 - 29	Roadside #2 (D)	19	3	4	1.5	102	20	18.7	2.2	Grab	N/A (Duplicate sample; See above)
Oct. 30	Roadside #3	19	2	4.1	3.3	121	41	95	6.5	Grab	Top 10 highest VOC concentrations were generally higher than (7.1 times) reference concentrations.
Oct. 30	Roadside #3 (D)	19	2	4.5	3.8	121	41	85.5	5.6	Grab	N/A (Duplicate sample; See above)
Oct. 30	Roadside #4	19	3	3.1	0.8	121	48	125.7	6.3	1-hour	Top 10 highest VOC concentrations were generally higher than (4.3 times) reference concentrations.
Oct. 30	Roadside #4 (D)	19	3	3.1	0.9	121	46	124.1	6.3	1-hour	N/A (Duplicate sample; See above)

Note: (D) = Duplicate. \* As H2S equivalency; # As CH4 equivalency. Reference concentrations were from 1-hr canister samples taken in Calgary Southeast in an urban area with houses and industrial facilities in daytime July 2016 (samples analyzed by the same lab).