

# Organics Processing Plant Community Liaison Group Meeting

17 May 2022, 6:30pm

Venue: Living Earth, 40 Metro Place, Bromley, Christchurch 8062

Welcome to the Community Liaison Group, a community forum to discuss consent compliance for the Organics Processing Plant; discharging contaminants to air, discharging contaminants to water and use of land to store organic matter and decaying organic matter.

## Agenda

- Welcome and introductions (5 minutes)
- Confirm previous meeting's minutes (5 minutes)
- Questions arising from the reports of Environment Canterbury and Living Earth (30 minutes)
- Summary of Council's resolutions following the Finance and Performance Committee meeting on 28 April 2022 – David McArdle, Christchurch City Council (5 minutes)
- A discussion about consent compliance for the Organics Processing Plant (15 minutes)
- Concluding remarks (5 minutes)

## Attachments

- Previous Community Liaison Group meeting minutes, 15 February 2022
- Environment Canterbury Community Liaison Group report, including Institute of Environmental Science and Research (ESR) report on dust samples collected in the community and at Living Earth
- Living Earth Community Liaison Group report

Any questions or feedback following the meeting can be sent to [Bromley@ccc.govt.nz](mailto:Bromley@ccc.govt.nz)

## Organics Processing Plant Community Liaison Group Meeting Minutes

15 February 2022, 6:30pm

Venue: Microsoft Teams Meeting

Facilitator - Carl Pascoe

Christchurch City Council (CCC) - Lynette Ellis, Ross Trotter, David McArdle, Michael Croucher, Yani Johanson (Councillor for Linwood)

Environment Canterbury (ECan) – Ruth Sarson, Marty Mortiaux, Judith Earl-Goulet, Nicole Marshall (ECan Councillor)

Living Earth – Jaco Kleinhans

Bromley Residents – Andy Walker, Vickie Walker, Bruce King, Carol Anderson, Geoff Hemm, Geoffrey King, Alexandra.

Minutes - Nichola Ainslie

Present - Action – Collect details of who is present at the beginning of the next meeting

Apologies - Janet Stokes, Councillor Cotter

### Introductions and Welcome

- The facilitator welcomed everyone and reminded the group to remain respectful, ensuring that only one person speaking is at a time.
- Permission for recording of the meeting was then confirmed with all those in attendance.

### Purpose and structure of Meeting

- The community gave approval for the meeting and recording to continue.
- The facilitator re-outlined the purpose of the meeting.

Michael Croucher of Christchurch City Council gave a presentation which he also shared of the workings and recovery efforts to the Wastewater Treatment Plant since the fire on 1 November 2021.

Overview of process pre-fire - The primary process of the treatment plant is to remove organic matter from the incoming waste and breakdown the nutrients that are contained in the wastewater and the plant uses a combination of physical and biological processes to do this. Michael referred to the diagram to explain.

- **Screens** - The effluent wastewater goes through the screens which removes any inorganic matter.

- **Grit Removal** – Grit removal removes any sands or silts that gets in there as this can damage the pumps.
- **Sedimentation Tanks** - The sedimentation tank allows any large or dense organic matter to sink to the bottom and once it has sunk to the bottom it is removed and moved on to the digesters.
- **Digesters** – The digesters cook the bio matter that comes out in various stages and dries and then that material is used for land remediation.
- **Trickling Plant** - The rest of the wastewater then flows from the sedimentation tank, then goes through the trickling filters which contain 24000 cubic meters of plastic media which is coated in a micro sludge, so the effluent is sprinkled over that and sludge and that eats away at the nutrients within the wastewater. As the sludge feeds off the nutrients, it grows and some of it slides off and drops to the bottom of the trickling filters along with the effluent that trickles down.
- **Aeration Tanks** – The aeration tanks continue the process of allowing the sludge to digest the nutrients by creating an aerobic environment, where bubbles come up from the bottom of the tanks aerating the water and suspending the sludge that is sledged of the trickling filters and it continues feeding on the nutrients.
- **Clarifiers** – There are four clarifiers, and those clarifiers allow the sludge to settle and once the sludge has settled to the bottom it is pulled off the clarifiers, some of which is used to reseed the biological process and the rest goes off to digestors and is cooked, dried off and then turned into bio-solids and sent off to land remediation works.
- **Oxidation Ponds** – Is where the polishing of the wastewater takes place, and this is done by the sun as the UV radiation of the sun neutralises any remaining pathogens that may be remaining in the water and from then it is pumped to the ocean outfall pipe, and it's delivered several kilometres offshore.

The whole process of wastewater from when it enters the plant to when it reaches the outfall pipe is around 20 days.

The damage that was caused in November was serious to the trickling filters, so much so that they were rendered inoperative and taken offline. The trickling filters were responsible for removing about 60% of the nutrient load and they are a key component of the biological process in the plant. The efficient removal of the nutrients early on in the treatment process is critical for the management of odour and during the fire, runoff from the burn filtered down passing through the aeration tanks, clarifiers and out into the ponds so the oxygen depleted run off killed the sludge which effectively terminated the biological processing ability of the plant and created some issues in the oxidation ponds which allowed significant odour to be produced.

The Council's initial response after the fire was to isolate the trickling filters to begin with as they were unusable, and this was done by installing a temporary overland by-pass that takes effluent from the sedimentation tanks straight through to the aeration tanks. Poli-dosing was then introduced to the sedimentation tanks as it clumps together and encourages clumping together of any other heavy or dense organics and helps settle it to the bottom to get rid of any of the biomass within the wastewater.

The dead sludge was also removed from the activation tanks it was just sitting at the bottom and rotting and stopping the biological process from restarting. To restart the biological process some sludge was shipped in from Lyttleton wastewater treatment plant and because it was a biological process, it is slow to regrow and takes time to settle in and do its job again. The

aeration was maximised within the aeration tanks, where there would normally be two blowers going with two of the four tanks being utilised but now utilising all four tanks with the three blowers going 24/7.

Hydrogen peroxide was also being added to the outfall of the oxidation ponds which breaks down into water and oxygen and the purpose of doing this was to improve the quality of the water within the ponds going forward.

The initial response enabled the plant to comply with its consent conditions in terms of outfall it didn't do much to reduce the odour issues and are very aware of the odour issues. The Interim plan which is kicking in now should address those issues significantly.

The interim plan is to convert two of the four clarifiers into aeration basins which will increase sludge contact time with the wastewater and the increased time will substitute the treatment that was provided by the trickling filters. In order to do this, there are going to be four aerators in each of the two clarifiers. The other two clarifiers have been emptied out and maintained to make sure they are in good running order.

Components of the aerators have been ordered from various places around the world and have started arriving on site and the intention is that the aerators will be in place to an operable state by the end of March and operating by early April. It will take time for the sludge to adjust and take its place, but it's expected that once the system is up and operating within several weeks there should be a reduction in smell.

The long term solution is dependent on the findings of the damage assessment, once the investigation is complete a decision can be made whether the trickling filters will be repaired, rebuilt or replaced and be looking at whether there are other technologies out there if it goes down the path of replacement. It is expected to be around three years before a selected option is in place and operating and the council is already investigating various long-term solution options around repair, rebuild or replace and nothing included in the draft remedial action plan which will be submitted to ECAN further down the line once there is some certainty around what path will be taken and the final draft will be prepared by consultants.

Michael confirmed that the council is aware of the problems with odour and the effect it is having on people's lives and are doing everything possible to control and reduce the levels of odour coming from the plant and thanked the community for their understanding and patience.

- Q) **Vickie Walker - Community:** Is hydrogen peroxide no longer being used?
- A) **Michael Croucher of CCC:** Still being used and will continue to be used until the aerators and clarifiers are up and running and the clarifier conversion.
- Q) **Vickie Walker - Community:** What can the Council promise the community and when, and is further building going to stop?
- A) **Michael Croucher of CCC:** The interim plan are the aerators and clarifiers and are confident it will work and allow the plant to meet conditions and provide significant reduction in omissions. As a result of trying to substitute trickle filters will be 100% capacity.
- Q) **Bruce King- Community:** Why wasn't second sewerage plant in Halswell not built and why in the last two and half months has nothing been done inside the filters?

- A) **Michael Croucher of CCC:** Will get the answer to the first question and come back at a later date and until the damage assessment is finished not much can be done as we may cause more damage that may not be covered for by insurance.

**Observation by Bruce King** – The lack of action has lost time.

Michael noted that they are not as sturdy as they look, and it may be that a robotic digger possibly has to go in.

#### **Discussion around previous meeting minutes**

It was requested by Geoffrey King that the meeting minutes are back for review within 10 working days of the meeting.

It was requested by Bruce King that the minutes have the name of the community member asking the question represented in the minutes.

Bruce King requested that the next meeting not be taken up by the oxidation plant

Ross Trotter noted that it was discussed at the last meeting to have the wider content but happy to go with the community's request.

Ross Trotter also discussed that the meeting minutes can be released earlier however the timeframe for reports may be longer and would have to follow.

Environment Canterbury and Living Earth advised that reports will be available one week prior to next meeting.

- Q) **Councillor Johanson:** Questioned that, at the previous meeting it was requested that the PdP Report, which is an annual report on the dust monitoring be circulated and this was not made clear in the minutes and asked that it can be noted.
- A) **Ross Trotter of CCC:** Confirmed that this would be noted and that the report would be circulated

#### **Discussion around Environment Canterbury & Living Earth Reports**

**Bruce King** from the community discussed that Environment Canterbury reported a vast reduction of people reporting the odour and he believes there is confusion around people who have not lived in the area long cannot differentiate between the two plants, although when Bruce is walking his dog, he can tell the difference from the smell from the oxidation plant and the smells from Living Earth Plant.

- Q) **Geoffrey King - Community:** Advised that in a 90-day period he made 54 reports, although the reports don't show this. The windrows were moved but the smell is still bad and if they have been moved why is the smell still there?
- Q) **Andy Walker - Community:** Commented that he has not really noticed odour from the OPP recently, but has from the wastewater treatment plant. Explained that he has complained about the wastewater treatment plant through the SmeltIt app but the Bromley Facebook page said not to use SmeltIt for the wastewater treatment plant, but to call ECan Asked for the app to be modified so it can be used for the wastewater treatment plant.

A) **Ruth Sarson of ECan:** Smelt It App from the ECan Report, there has been a big rise in reports on Smelt It with regards to the wastewater treatment plant when that happened in November. The initial response when the reports were coming through made it difficult to see what was specifically to do with Living Earth. When Smelt It was set to deal with that issue and not to become an avenue for reporting on all kinds of odour, however it is recognised that it has become a very effective reporting tool for people and there have been discussions at Environment Canterbury over the last year or two about what is done with regards to Smelt It, however it is not as easy as just changing it to incorporate other odours, there is a lot more to it. There is a lot of admin and cost that goes into changing it and the decision was made that the Smelt It app would be for people to report odours from the Living Earth Plant and the preference to keep it that way.

Q) **Vickie Walker – Community:** Why does it have faecal matter on the list then?

A) **Ruth Sarson of ECan:** That option has always been there since it began in 2018/2019 when it was being trialled and they are based on the Ministry for the Environment guidelines for odour assessments.

**Geoffrey King** - Noted that the Smelt It App! Doesn't work its quicker to call the call centre and report with them.

Q) **Bruce King - Community:** Does reporting stop on 31 January?

A) **Ruth Sarson of ECan:** Yes, this reporting period was November to January and February, March and April will be next meeting

Q) **Councillor Johanson:** a) What are ECan actively doing to inform people on how to lodge complaints if the odour is a problem. Is there a programme of informing people to keep complaining now that the abatement notice has now expired to have people aware of what to do? b) At the last meeting there was a discussion around the Halswell dust issue and that a trial is being conducted around community mapping and would you consider doing something similar to that?

A) **Ruth Sarson of ECan:** With regards to actively promoting Smelt It, No and the reason being that it is specific issues in Bromley and Northern Timaru and the concern would be that if it was made more available there would be people all over Christchurch and Canterbury using Smelt It to report odours which would make it more difficult to deal with particular issues in Bromley. With regards to the issues to the dust, it might be that we had a Dust It App that was being trialled.

Q) **Councillor Johanson:** What should people do to make a complaint and what happens now?

A) **Marty Mortiaux:** ECan is not upping communication to encourage people to report something that might not be occurring, the communication that is going out at the moment is to carry on as it is, so if smell odour you go through Smelt It or through the hotline. It is not being encouraged for people to report for the sake of it. With regards to what's happening next it is still being evaluated.

- Q) **Councillor Johanson:** How many exceedances of the consent limit were there for dust for this period?
- A) **Ruth Sarson of ECan:** This information is not to hand as it's not usually discussed at the CLG. As part of the report ECan provide how many complaints have been received around dust and there have been none this reporting period.

**Councillor Johanson** - Thought it might be good to have record of the dust exceedances in terms of the consent limits to be recorded in each report and put this out to the community group.

- Q) **Vickie Walker - Community:** Asked if a report of the exceedances would be circulated as this would be a good thing.
- A) **Ruth Sarson of ECan:** Agreed to do this.
- Q) **Bruce King - Community:** Rang up and reported dust, house is Omaru stone and had been cleaned recently and it now needs done again due to the dust.
- A) **Ruth Sarson of ECan:** It is difficult to prove that the dust is coming from one particular site but note the concerns and will have more through reporting and next CLG.

**Geoffrey King** - Confirmed that he has the same issue as Bruce with the dust on his roof and in the gutters. It has been brushed and cleaned and then within the month its back and would like something done about it.

- Q) **Bruce King - Community:** There should be no smell or dust over the boundary, but it is there every day. As the Living Earth report about the dust it shows, a great increase over Testing Site 7 over December and January so the dust has been coming over quite considerably and it shows in the report.
- A) **Jaco Kleinhans of Living Earth:** Monitoring will be done down at pump station but an excessive amount of movement on site in clearing that specific area round the site but will have a look at that during the PdP independent assessment, but this is the area we have cleared down bottom at pond. Not surprised due to this but should get better moving forward.
- Q) **Andy Walker - Community:** How much compost is sitting on site?
- A) **Jaco Kleinhans of Living Earth:** No compost on site it is tailings which is screened material. Compost not on site anymore, as the material is screened it is now moved off site and this happens on a daily basis. You will see from the aerial photos there are still some tailings, but this will drop of moving forward.
- Q) **Andy Walker - Community:** What do tailings comprise of?
- A) **Jaco Kleinhans of Living Earth:** Tailings are larger material - greens, sticks and larger material.

**Ross Trotter of CCC:** Tailings are then used as part of processing for the kerb side material, what comes in green bins, and we need something with more ferocity to make the new batch of compost.

There are more than normal due to the grass coming in with the growth this year. There is more than we would like but 31,000 tonnes has been removed so far.

More potential of dust because over that period due to the large amount of material going out, but no stock will be held on site apart from what needs to go out for new process until decision on facility.

**Geoffrey King:** When will we find out about the future of the facility?

- Q) **Geoffrey King - Community:** The windrows have been lifted but stench is still there, can you advise the source of the stench and when will it be fixed? Is it coming from the Bio Filter?
- A) **Jaco Kleinhans of Living Earth:** The windrows were fully screened, and all material moved off site so that process no longer happens but cannot comment on the odour, although working close with ECAN and independent service providers to assess after the process changes have been made.
- A) **Ruth Sarson of ECan:** Useful to know Ruth, David, Jaco and gentleman from Paddle Delamare Partners all met in Bromley between 10am and 11am to assess the odour in line with Ministry of Environment guidelines and can agree from the meeting this morning that that is the case.

**Jaco Kleinhans of Living Earth:** Agreed that he experienced very weak odour intermittently all working closely together to fix this but cannot comment on what Geoffrey is smelling, however meetings with ECan are to find this out.

**Bruce King - Community** - Noted that when he was dumping green waste, there were tailings three to four metres and the smell was coming from the tailings. If it is still the same formulation as originally, it has a toxicity to it. Toxic chemicals, dust and pathogens are being breathed in.

- Q) **Vickie Walker - Community:** At the last meeting probiotics was mentioned, is this happening?
- A) **Jaco Kleinhans of Living Earth:** Advised that yes probiotics are being used and having good results and plan is to keep feeding into system. Goes into the waste before it goes into tunnels.
- Q) **Councillor Johanson:** Noted that if it is looked at what's happened over the last couple of months, things are being done and attempts are being made to fix the issue, although it doesn't justify noncompliance at the moment. It would be good to get some sense of what people think is causing the odour. Is it possible to get something circulated around the noncompliance? There are expectations for things to improve and there must be some idea of what's causing the odour.
- A) **Marty Mortiaux of ECan:** People do smell things differently and there are different odour sources on the site and Marty was on site with the purpose of making sure the wind rows were gone and look at the tailings. Whilst Marty was there, he witnessed one of the trucks being loaded with the screened material and Jaco, told him at the time the misters that were going at the time was in order to keep the dust levels down while the trucks were being loaded and while he was on site there was minimal dust being discharge through the loading process. While walking around the site there were no whiff of odour until slightly downwind



from the tailings, different conditions and different people's experiences. Marty advised that he also walked past the Bio Filter and there was a smell but when you were about 5 meters away the smell was gone.

**Geoffrey King – Community** - Advised not to stand on top of Bio Filter due to past experiences, but this is where the smell is worst.

**David McArdle of CCC** - Advised that the Council is still working towards same timeline of presenting the Elected Members on 10<sup>th</sup> March 2022. The previous information has been given that the Council is looking at options for the Organics Processing Plant by either redeveloping the existing site or exploring other sites and alternate technologies. The Council has received the first incomplete draft report from Jacobs the independent consultant that has been engaged for the project and it is expected that the first draft be sent to the Council tomorrow. The information is confidential at the moment but when we present the Elected Members and then we should have decision and then we can provide more information.

Q) **Geoffrey King – Community:** Since this was first announced the council have had 16 months, what has happened in this time?

A) **David McArdle of CCC:** In this time, tenders have gone out and offers have been received /and this will all go into the Jacob's report where they assess those tenders.

Q) **Geoffrey King – Community:** The present site in the middle of residential site should not be there and it needs to be moved, has another site been found?

A) **David McArdle – CCC:** - Reiterated his previous answer and confirmed that all options will be looked at and will have more of an idea around the 10March 2022.

**Ruth Sarson of ECan:** With regards to consent compliance regarding the format moving forward it was understood at last meeting to go back to Community Liaison Group format. It is suggested that if the community wish to discuss other odours in Bromley, then this could be done in a different forum.

Q) **Vickie Walker – Community:** The community would still like to be updated on the wastewater as questions locally and it is good to have an answer to take back to people.

A) **Ruth Sarson of ECan:** It was suggested that a discussion be had with Christchurch City Council as to how the Council and the community have a forum for this to be discussed but for this to be separate from the consent condition requirements that Living Earth have these quarterly meetings.

Q) **Bruce King – Community:** Asked if the meeting on 10 March is an open public meeting or public excluded meeting?

A) **Councillor Johanson:** This meeting may have community sensitive information but wants public to have as much information as possible but does not want to jeopardise any opportunities to get the site or the budget but will, put as much in the public arena as possible.

Q) **Bruce King – Community:** Will it be possible to have a copy of the content so input can be given?

A) **Councillor Johanson:** Will have to speak with other staff and colleagues regarding the content of the report, around sensitive information and the last thing we want is not being

able to get the best outcome for the local community. Council is working very hard to get a better more permanent solution for something that is clearly a problem.

- Q) **Vickie Walker – Community:** Had a question regarding Tracey Clennon Local MP, regarding a letter received asking Vickie and Andy to sign petition to move the composting plant and not sure where she stands in this?
- A) **Councillor Johanson:** Is not sure but should be aware of what the council is doing and should be on the circulation list for these meetings.

**Bruce King – Community:** Advised that he has spoken to Tracey Clennon and she will be at the meeting on 10 March as she is presenting.

Close of Meeting

### **Actions**

- Community Liaison Group is going to be focused on the Living Earth, and the wider issues will not be part of this group, but information updates will be given around the waste water treatment plant. Which goes back to the original Terms of reference for this group.
- **Carl Pascoe – Chair:** Is happy to continue to chair if everyone is happy, although Geoffrey King would like a discussion and vote around this.
- **Ross Trotter of CCC:** Advised that it can take time to find a chair for meetings and to advise what the outcome is ASAP with a decision.
- PdP Report to be circulated.
- Minutes to note names of community members.
- ECan report on dust to be provided.

## Environment Canterbury Odour and Dust Report February 2022 – April 2022

*(Prepared for the Community Liaison Group meeting 17 May 2022)*

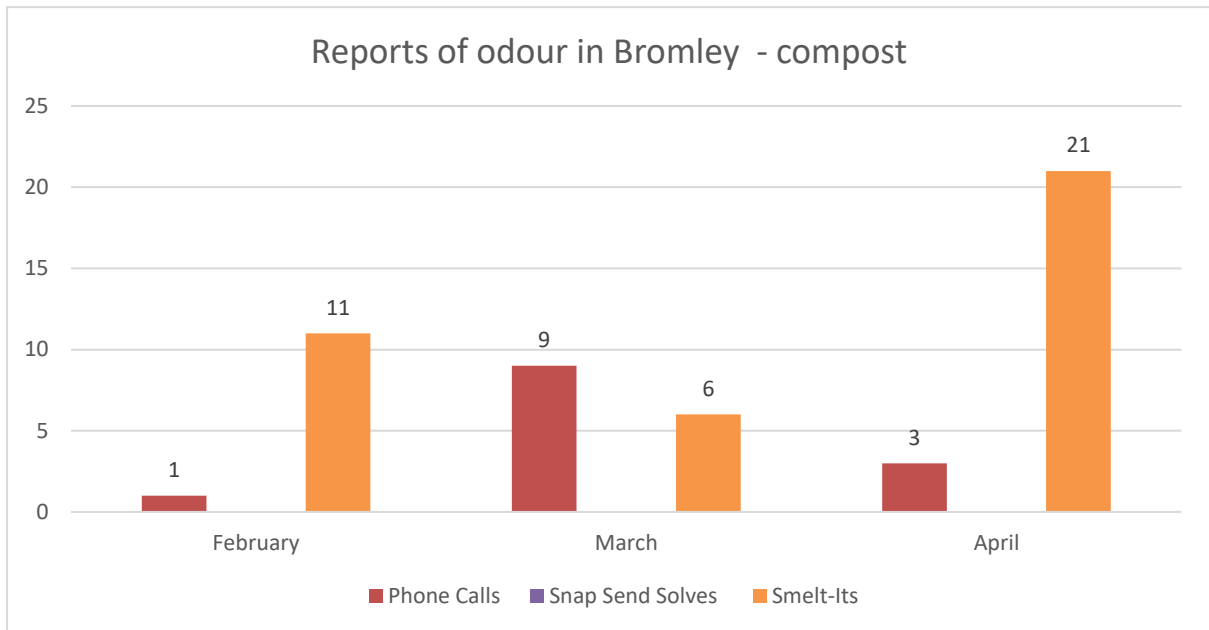
The data used in this report relates to incidents received within the Bromley area, as outlined by the pink area in the map below. For consistency of reporting, only Smelt Its within the pink boundary are considered.



### Odour Monitoring

A total of 72 incidents were logged with Environment Canterbury during the reporting period for Bromley. There may be multiple Smelt Its assigned to one incident for administration purposes.

Post the Wastewater Treatment Plant fire in November 2021, we started receiving a significant increase of Smelt It Submissions. The below chart shows Smelt It submissions where the submitter had stated specifically compost odour within the Bromley area.



During the reporting period, 24 assessments were carried out by warranted officers in Bromley. Odour from Living Earth was substantiated beyond the property boundary on 15 occasions at low levels. This means the odour would only be considered offensive and objectionable if it occurred on a regular or frequent basis. Odour monitoring has been hampered by staff availability due to Covid 19. Each time an officer confirms odour from Living Earth, odour from Wastewater Treatment Plant is ruled out as the source.

### **Methodology for issuing Notices of Non-compliance (NONC)**

A NONC can be issued when a warranted officer confirms the source of the odour and that it was offensive and objectionable beyond the boundary of the site, by completing an odour assessment (including a 360 appraisal) at the site or site boundary in accordance with Ministry for the Environment guidelines.

The NONC doesn't hold any punitive measures rather, it is a notice that in the officer's opinion, a breach of the consent has occurred.

On 1 February, our officer confirmed odour beyond the property of the boundary but at level that would only be considered offensive or objectionable if it occurred on a regular or frequent basis. An NONC was issued to CCC that day. CCC then requested us to advise them of odours via a weekly report rather than issuing NONCs. We agreed to this request for this particular reporting period.

The below table shows the results of the assessments where we confirmed odour from Living Earth that was considered offensive and objectionable beyond the property boundary and a NONC was issued.

Notices of Non-compliance			
Location	February	March	April
Living Earth	1	0	0
Other sites	0	0	0

## Dust

Reports of Dust in the Bromley Area:

During this reporting period, we received 2 reports of dust in the Bromley area. One of these was not related to Living Earth.

At a resident's request, we collected dust samples from the property and from Living Earth. These 4 samples were analysed by ESR and the report is attached.

The report showed that while there are common compounds between the two sites, these compounds are also abundant in nature. There were also compounds present at the resident's site that were not present at the Living Earth site. From this report, we cannot conclude the dust at the property came from Living Earth.

Data supplied by CCC in Feb 2022, indicates a breach of the consent with elevated levels of dust at the Affordable Storage sample site. When questioned, CCC explained there has been much transitional works on site such as removal of windrows and truck movement increases. Mitigation measures have been enacted.

During the 24 assessments conducted by staff, dust has not been observed beyond the boundary of the property.

## FOOD FORENSIC REPORT - FOOD CHEMISTRY LABORATORY

14 April 2022

**ESR Reference:** 22FC0076

**Attention:** Kimberley Kovacs-Wilks

**Copies To:**

**To:** Environment Canterbury

200 Tuam Street  
CHRISTCHURCH 8140

**Date/Time Collected:**

**Client PO #/Ref:** PO135453

**Date/Time Received:** 18 March 2022

**Sample ID(s):** 001 Dust on roadside

**Temperature at Receipt:** Ambient

002 Dust near gutter

**Sampled By:**

004 Dust LEL on ground

005 Compost LEL

**Date/Time Tested:** 22 March 2022

Received, four sealed glass jars containing dust or compost labelled inter-alia, respectively: "001 Dust on roadside gutter outside 14 Seascape 3:01PM 24/02/22", "002 Dust near gutter at front of property 3:05PM 24/02/22", "004 Dust LEL on ground at start of tailing rows 3:36PM 24/2/22", and "005 Compost LEL sample from screened pile 3:41PM". The client requested that the samples be compared to establish whether "001" and "002" could be the same as "004" and "005".

The samples were examined under low-power magnification (Figures 1-4). "001" and "002" appeared to be mixtures of mineral particulates, plastic fragments, and various organic matter, among other detritus. "004" appeared to be comprised predominantly of fine organic matter interspersed with larger pieces of woody material and gravel. "005" was comprised of decaying organic matter. Whether material observed in "004" or "005" was also present in "001" or "002" could not be determined visually.

Figure 1. Low power magnification image of 001 Dust.



Figure 2. Low power magnification image of 002 Dust.



Figure 3. Low power magnification image of 004 Dust.

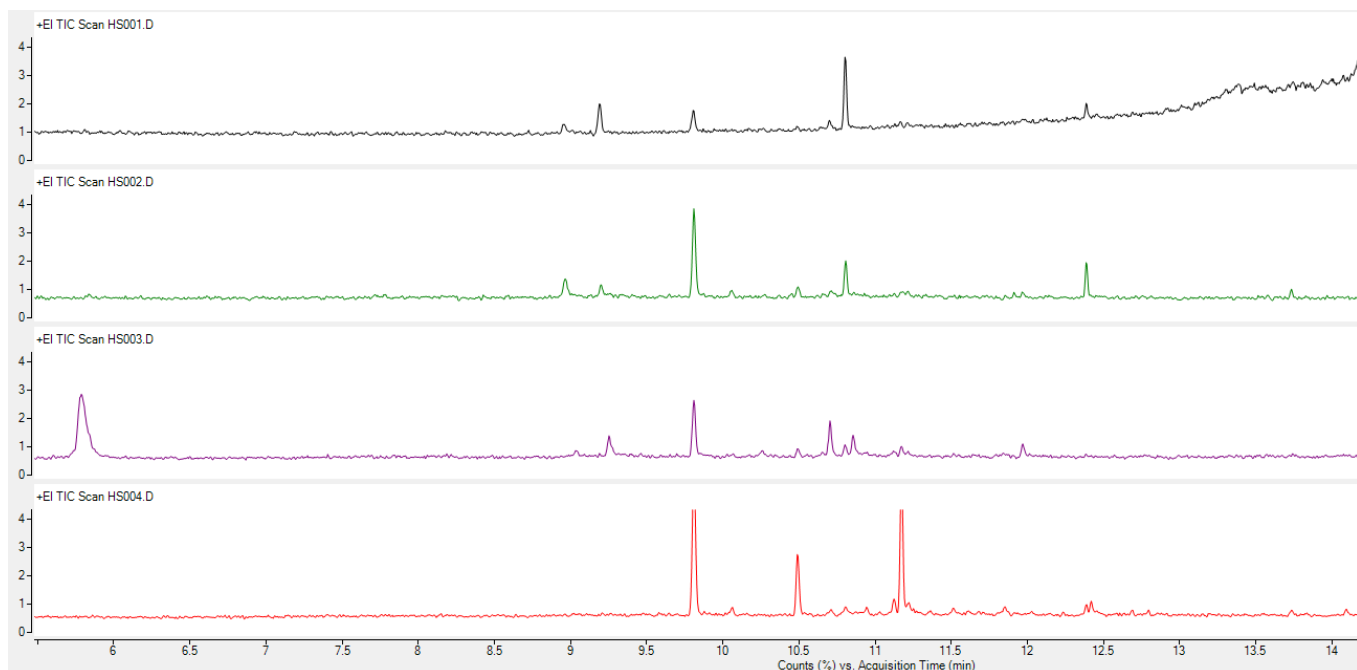


Figure 4. Low power magnification image of 005 Compost.



A portion of each sample was sealed in a headspace vial for Gas Chromatography Mass Spectrometry (GCMS) headspace analysis to identify the volatile compounds present in each sample. The GC-MS-headspace method is capable of positively identifying a very large range of volatile organic compounds. However, the analysis cannot detect all possible compounds; substances may be present that are not amenable to this analysis, be present at a level too low for detection by our equipment or be lost prior to analysis.

Figure 5. GC-MS chromatograms of the samples (Descending order: 001 Dust, 002 Dust, 004 Dust, 005 Compost).





**FOOD FORENSIC REPORT - FOOD CHEMISTRY LABORATORY**

14 April 2022

Peaks which occur at approximately the same retention time in the GC-MS chromatograms can indicate the presence of a common compound between samples. Common peaks and their probable identification result are tabulated below (Table 1).

Table 1. Common identified compounds

Peak Retention Time (minutes)	Common samples	Identified compound
9.8	001, 002, 004, 005	2-pinene
10.5	001, 002, 004, 005	4(10)-thujene
10.7	001, 004	2-pentyl furan

2-pinene (synonym: alpha-pinene) is a terpene that occurs naturally in the oils of plants such as coniferous (pine) trees, eucalyptus trees, rosemary, and oranges. 4(10)-thujene (synonym: sabinene) is also a naturally occurring terpene that can be found in plants such as marjoram, holly oak (*Quercus ilex*), and Norway spruce (*Picea abies*). 2-pentyl furan is commonly associated with the flavour of soybean oil and is used in foods as a flavouring agent due to its sweet rum, caramel, and cocoa odour. It can be formed by the oxidative breakdown of linoleic acid, which is found mostly in plant oils.

In our opinion, while there do appear to be common compounds between the samples, these compounds are also abundant in nature being produced by a variety of plants. It is therefore not possible to conclude that the material in "001" or "002" is the same as "004" or "005" based on their presence alone. Furthermore, compounds detected in "004" (hexanal, 5.7 minutes) and in "005" (limonene, 11.2 minutes) were not detected in "001" or "002", which suggests that "004" and "005" each contain materials that are likely not present in "001" or "002" in a detectable quantity.

Results only apply to the sample as received.

Signature:

**Reported By:****Seamus Watson**

Scientist

Food Chemistry Laboratory

**Enquiries:**

Darren Saunders

**Ph:**

03 351 6019

**Email:**

chemistry@esr.cri.nz

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Living Earth  
CLG Report – 17 May 2022  
Organics Processing Plant

February 2022 – May 2022

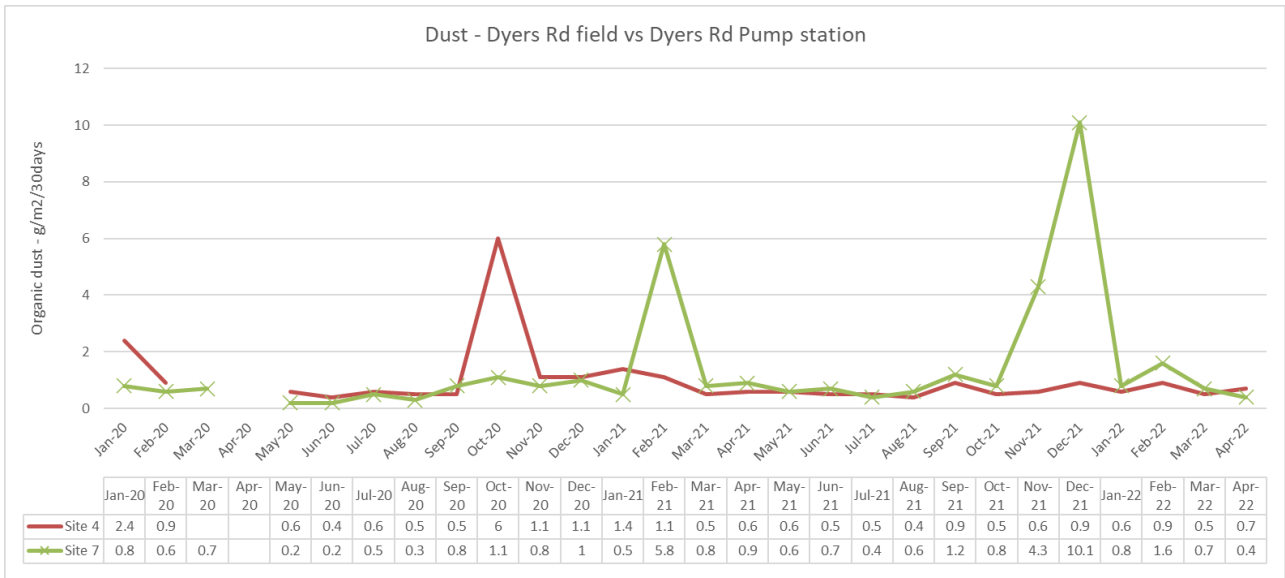
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6 May 2021

The consent conditions of CRC 080301.1 are detailed in this report and comments are provided on the status. Key matters are discussed below:

**Dust (c25)**

We have two deposition gauges located along Dyers Road. One is situated in a field North of Metro Place (upwind of the organics plant) and the other is at the old pump station near the end of Maces Road (downwind of the organics plant and near the residential Bromley area).



The formation of an open clear area and relocation of the misters is having a positive impact on the dust deposition results.



**Boundary plantings (c25)**

Clear buffer zone created and maintained on-site.

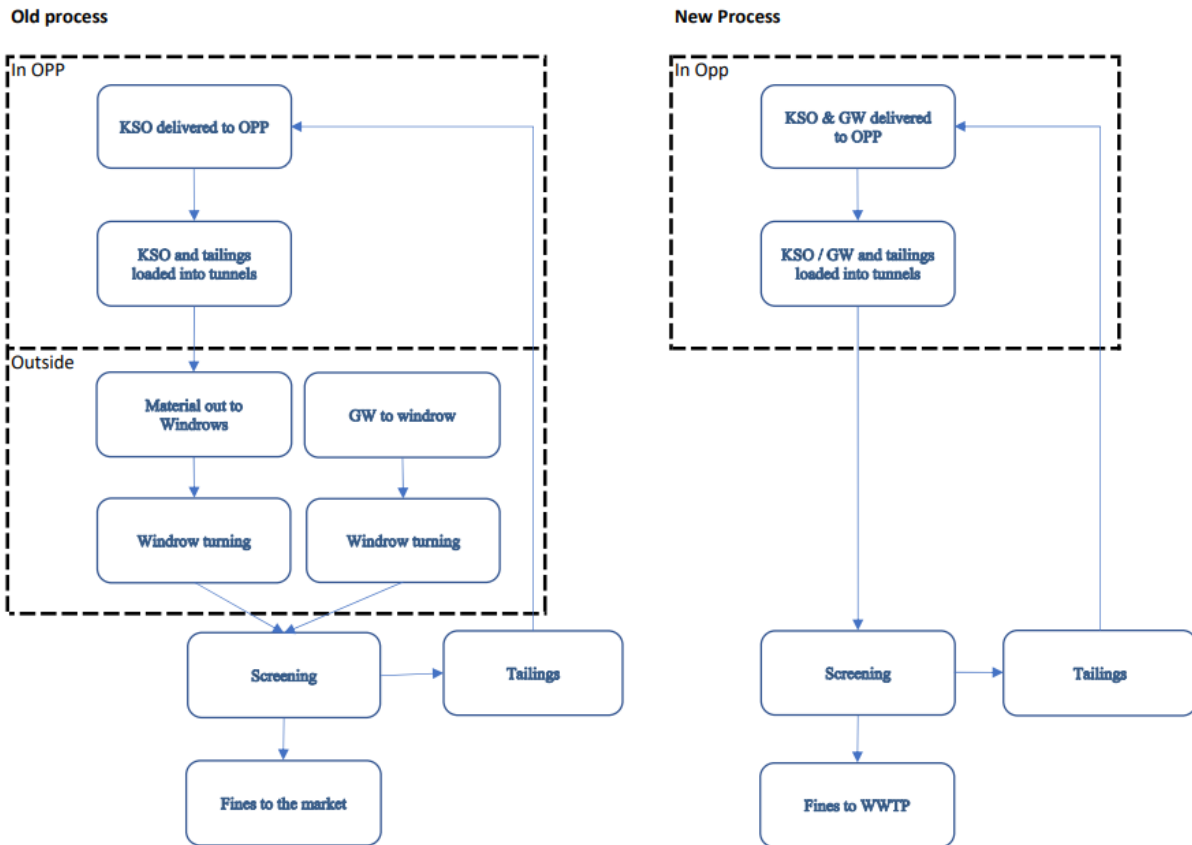
**Odour (c27/ c14)**

Managing on-site odour remains a priority.

## Transition Plan

To minimise the environmental impacts of the OPP the following operational changes were made.

1. All compost stockpiles moved off-site. Screened material is moved off-site regularly to prevent compost stock build-up.
2. Fence was installed dividing the site and the unused areas were cleaned and repaired.
3. Tailings are used at input material, reprocessed and rescreened.



RMA Authorisation Number: **CRC 080301.1**

Description		Compliance (Y/N)	Findings Comments & Problems
1	The discharges shall be only odour and dust from an organics processing plant and green waste composting facility located at 40 Metro Place, Bromley, Christchurch at map reference NZMS 260 M35: 8627-4087 and indicated as "Applicant's Site" on plan CRC080301A attached as part of this consent.	Yes	No discharge except odour and dust occurs from the facility other than storm and wastewater that are covered under different consents.
2	The organics processing plant shall process not more than 90,000 tonnes of organic material per year.	Yes	The plant operates under the set limit.
3	The discharges of odour and dust shall only occur from the following sources:  a. From construction activities associated with the establishment of the organics processing plant; b. From an odour extraction system on the process building that discharges to air via biofilters; c. From composting of organic material in managed windrows; and d. From screening, blending, packaging and stockpiling of matured compost.	Yes	a) n/a during this period b) Activity was undertaken during this period c) Outdoor windrow process stopped on 15 Nov 2021. d) Activity was undertaken during this period
<b>Construction of Organics Processing Plant</b>			
4	The consent holder shall provide to the Canterbury Regional Council a Construction Management Plan to be submitted for approval before commencement of the works on site that includes but is not limited to the following requirements:  a. Regular watering of dusty surfaces during dry windy conditions; b. Restricting traffic speed within the site to less than 15 kilometres per hour; c. Covering loads of excavated soil whenever visible dust occurs from this source; d. Locating stockpiles in areas that are less likely to be affected by prevailing winds and at least 50 metres from boundaries; and e. Stabilisation of exposed areas as soon as possible after work is completed.	Yes	No construction during this period
<b>Organics Processing Plant</b>			
5	The consent holder shall provide to the satisfaction of the Canterbury Regional Council a Facilities Operation Manual before operating the organics processing plant.	Yes	A copy was provided in 2012 as required under the consent.
6	The material processed shall only include the following: a. Green waste; b. Food waste; and c. River weed.	Yes	No other items are accepted.
7	Organic waste containing putrescible material {food waste} shall be processed in a tunnel compost system contained within the process building.	Yes	All kerbside organics and food waste collection vehicles are emptied inside the processing hall and

			processed in the tunnels.
8	Organic waste not containing putrescible material may be composted in managed windrows.	Yes	No more windrows processing on site.
	<b>Tunnel Compost System</b>		
9	The tunnel compost system shall consist of a process building, outdoor uncovered windrows and screening and stockpiling.	Yes	No more windrows processing on site.
10	The process building shall: a. House all receiving, shredding and blending of organic waste that is to be composted in the tunnel composting process; and b. Be operated under a negative pressure system with all discharges to air being treated via a biofilter.	Yes	a) All receipting, shredding, and blending of materials is completed in the process hall before being loaded into tunnels. b) The negative pressure of the biofilter fan (tunnel exit) is typically maintained at -100Pa and monitored via a computer control system.
11	The incoming organic material shall be placed into the tunnel composting system on a daily basis within 24 hours of receipt.	Yes	This is completed. OPP operates on public holidays in line with the kerbside collection trucks. We are open and processing on all days that collection occurs.
12	The tunnel composting process shall have a duration of not less than seven days, which includes an allowance of up to half a day for tunnel emptying, cleaning and filling. During the tunnel composting process, the temperature of all the compost shall be maintained at greater than 55 degrees Celsius for a minimum of three continuous days or less at higher temperatures, so that pathogen destruction has occurred in compliance with New Zealand Composting Standard NZ4454. At the same time or after the tunnel composting process, the compost shall be aerobically treated for 14 days or longer, during which time the temperature must always be over 40 degrees Celsius and the average temperature must be higher than 45 degrees Celsius.	Yes	During this period typical time was 14 days in the tunnel.
13	Records shall be maintained showing compliance with Condition (12). Such records shall be available to Canterbury Regional Council on request.	Yes	Reports were recorded via a computer control system recording time and temperature.
14	The maturation composting stage shall be an uncovered windrow system that allows the process to meet Condition (27) of this consent.	Yes	No more windrows processing on site.
	<b>Greenwaste Windrow Compost System</b>		
15	Organic wastes not containing putrescibles are to be shredded, blended and formed into windrows within 24 hours of receipt.	Yes	No more windrows processing on site. All Green waste is processed through the tunnels.
16	Any organic waste which contains putrescible material is to be redirected into the tunnel composting system.	Yes	All Green waste is processed through the tunnels.
17	Not more than 30,000 tonnes per annum of green waste shall be composted in full in the outdoors windrows.	Yes	We receive less than this. All Green waste is processed through the tunnels.
18	The uncovered windrows shall meet the following criteria: a. The windrow shall be maintained in an aerobic state throughout; and b. The state of the windrows shall be monitored for oxygen, temperature and moisture as follows (and records retained):	Yes	No more windrows processing on site.

	<ul style="list-style-type: none"> <li>a. Oxygen: Weekly for the first four weeks after the row is constructed and thereafter if the row is suspected of turning anaerobic;</li> <li>b. Temperature: Weekly;</li> <li>c. Moisture Content: Every second day</li> </ul>		
	<b>Odour Extraction System – Organics Processing Plant</b>		
19	The odour extraction system on the process building shall be designed by a person competent in this area of technology to industry best practices.	Yes	n/a during the period
20	The odour extraction system shall be of sufficient capacity to prevent any fugitive discharge of odours from the process building under all operating conditions.	Yes	n/a during the period
21	The discharge shall exhaust via a biofilter with an average loading of not greater than 80 cubic metres of air per hour per cubic metre of bed material	Yes	Biofilter size 20.7m x 42.5m size. Maximum airflow ex fan is 90,000m <sup>3</sup> /hr. If media is > 1.17m deep, then 80m <sup>3</sup> /hr/m <sup>3</sup> of media cannot be exceeded. Bed depth is typically 1.3 – 1.5m. fan speed typically <90% of max. The fan can be limited in the control system to maximum speed as required. Fan operation is measured, controlled, and monitored by a computer control system.
22	The odour extraction systems shall operate at all times during processing of raw materials or products.	Yes	Operates 24/7 and is monitored by a computer system.
23	<p>The bio filters shall be maintained in such a way as to effectively reduce odours from the organics processing plant so Condition (27) is met. This shall include but not be limited to:</p> <ul style="list-style-type: none"> <li>a. Maintaining satisfactory moisture levels in the biofilter.</li> <li>b. Maintaining an appropriate pH range, typically 4 to 8.</li> <li>c. Maintain aerobic conditions at all times.</li> <li>d. Replace the biofilter media at an appropriate time, determined when any of the above operating parameters, odour levels, or, airflow backpressure are unable to be maintained within their operating limits.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>a) Humidifier operates at the inlet to the biofilter. Moisture tested January 2022 as 58%</li> <li>b) pH recorded in January 2022 as 6.5</li> <li>c) Oxygen levels &gt;20%</li> <li>d) Back pressure monitored for bed media condition. Media last changed in May 2021.</li> </ul>
	<b>Dust Control</b>		
24	<p>The consent holder shall implement the following measures to minimise the generation and discharge of dust:</p> <ul style="list-style-type: none"> <li>a. Use water sprays with any mechanical handling of compost when conditions are likely to generate dust.</li> <li>b. Provide an impervious base to all outdoor composting areas.</li> <li>c. Limit the height and slope of outdoor piles to less than five metres in height.</li> <li>d. Bulk carriers removing material from site shall be covered.</li> <li>e. Use water tankers and/or sprinklers to dampen down areas of heavy vehicle access when wind speed exceeds five metres per second (five minute average) during dry conditions.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>a) Mistors and water trucks are used</li> <li>b) Site is asphalt sealed</li> <li>c) Input piles are under 5m in height</li> <li>d) Bulk loads covered</li> <li>e) Mistors and water trucks are used</li> <li>f) Monitored on-site, data reported each minute.</li> </ul>

	f. Suspend all product load-out and windrow turning operations during dry conditions when the wind speed measured by the on-site meteorological station, blowing from between 10 degrees and 130 degrees, exceeds 10 metres per second for two consecutive five-minute averages. Recommencement of load-out and windrow turning operations may occur if recorded wind speeds from that sector are less than 10 metres per second for two consecutive five minute averages.		
25	<p>a. Within 12 months of this consent coming into effect the consent holder shall establish and maintain suitable tree windbreaks around all areas where compost is stored.</p> <p>b. Notwithstanding condition 25(a), a further line of tree shelter shall be established along the boundary with Affordable Storage Limited and the boundary with Dogwatch Sanctuary Trust, to fill in gaps in the existing tree shelter plantings where establishment or growth has been poor such that a continuous shelter belt more than 1.8 metres high has not been formed. These additional shelter trees shall be planted within six months of commencement of the change to conditions. All shelter trees shall have a minimum height of 1.8 metres and shall be maintained and irrigated until they reach a height of at least five metres. Any dead, diseased or damaged trees shall be replaced immediately. The trees shall be protected from the prevailing wind during at least the initial three years of establishment of the trees by wind cloth fencing or similar in order to optimise tree growth.</p> <p>c. A plan showing planting and landscaping works to be undertaken to comply with Condition 25(b) shall be prepared by a suitably qualified person and shall be submitted to the Canterbury Regional Council within three months of commencement of the change to conditions.</p>	Yes	The open area is regularly cleaned.
26	On-site vehicle speeds in the outside windrow, compost storage and compost screening areas shall be restricted to not more than 15 kilometres per hour. A sign, capable of being read at a distance of five metres, shall be erected at the main vehicle entrance to the outside storage area to inform all drivers of this requirement.	Yes	Signs in place, all drivers, and contractors inducted with specific mention made of consent compliance.
27	The discharges to air shall not cause odour or dust which is offensive or objectionable beyond the boundary of the site on which this consent is exercised.	No	Transition plan in place.
28	Notwithstanding Conditions 24 and 27, all product load-out, heavy vehicle operation and windrow turning activities shall cease at any time when these activities cause visible suspended particulate matter beyond the western site boundary, including at properties occupied by Affordable Storage Limited, Dogwatch Sanctuary Trust or their successors.	Yes	Monitored daily. New internal fence installed, lined with water cannons and misters.
29	<p>The consent holder shall maintain records of any odour or dust complaints received by the consent holder. These records shall include:</p> <p>a. Location of complainant when odour or dust was detected;</p> <p>b. Date and time of odour or dust detection;</p> <p>c. Weather conditions, including wind direction, at the composting facility when odour or dust was detected;</p>	Yes	Complaints made to Ecan are recorded by Ecan.



	<p>d. Strength of the odour complained of, assessed on a scale of 1 to 5 by the complainant with the following rating system: 1 odour noticeable but not persistent; 2 odour clear and persistent; 3 odour unpleasant and persistent; 4 odour strong, offensive and persistent; 5 odour very strong and offensive.</p> <p>e. The amount of dust complained of, assessed on a description of the visible quantities and extent of dust deposits on a scale of 1 to 5 by the complainant with the following rating system: 1 noticeable and not extensive; 2 clear and minor coverage; 3 nuisance and moderate coverage; 4 objectionable and extensive coverage; 5 significant extensive deposits, offensive. A description of the appearance of the dust shall also be recorded;</p> <p>f. Any possible cause for the odour or dust complained of; and</p> <p>g. Any corrective action taken.</p> <p>Records demonstrating compliance with the above condition shall be provided to the Canterbury Regional Council on request and shall be summarised as part of the Annual Environmental Report required under Condition 36.</p>		
	<b>Monitoring</b>		
30	<p>The consent holder shall undertake site-boundary odour assessments at least once per day, in a manner consistent with Work Instruction WI30 Issue 6, dated 1 September 2010, submitted with the application, or an equivalent later document. These assessments shall occur at no fewer than eight locations around the site boundary, including at least one location downwind of the composting tunnels and the maturation windrows. In the event of strong odours being detected, that may create adverse effects beyond the site boundary, then the consent holder shall take all practicable efforts to mitigate the odour using measures that may include the use of masking agents, capping the source, and returning odorous material to the tunnels. Records shall be kept that include the date and time of the assessment, meteorological parameters at the time, odour descriptions and odour intensities at each monitoring location. Staff members responsible for these assessments shall have calibrated noses, determined by suitably qualified persons at an accredited laboratory. These staff members shall be recalibrated for odour sensitivity at least once every three years.</p>	<b>Yes</b>	Completed.
31	<p>The consent holder shall, prior to unloading a tunnel, undertake an odour assessment of the compost material, in a manner consistent with Work Instruction WI4 Issue 6, dated 1 September 2010, submitted with the application, or an equivalent later document. In the event of strong odours being detected, that may create adverse effects beyond the site boundary, then the consent holder shall return the assessed material to the tunnel and shall not empty the tunnel until it has been determined that the material is no longer odorous to the point where it may create an adverse effect beyond the site boundary. Staff members responsible for these assessments shall have calibrated noses, determined by suitably qualified persons at an accredited laboratory. These staff members shall be recalibrated for odour sensitivity at least once every three years.</p>	<b>Yes</b>	Odour assessments are completed on a continuous basis when tunnels are being emptied.
32	<p>a. At all times during exercise of this consent, wind speed and wind direction shall be measured by an anemometer established on the site.</p>	<b>Yes</b>	Weather station located on site.

	<ul style="list-style-type: none"> <li>b. The anemometer shall be installed at a height of at least five metres above ground level at a location free from any obstruction that has potential to significantly affect wind flow.</li> <li>c. Wind speed resolution of measurement shall be not more than 0.1 metres per second and wind speed accuracy of measurement shall be at least within +/-0.2 metres per second.</li> <li>d. The anemometer shall be established, located and operated to the satisfaction of the Canterbury Regional Council.</li> <li>e. Wind speed and direction shall be continuously recorded with an averaging time for each parameter of not more than five minutes.</li> <li>f. These data shall be: <ul style="list-style-type: none"> <li>(i) recorded using an electronic data logging system; and</li> <li>(ii) provided to the Canterbury Regional Council upon request.</li> </ul> </li> </ul>		
33	<ul style="list-style-type: none"> <li>a. Dust deposition monitoring shall occur in at least two dust gauges sited near to the boundary with Affordable Storage Limited or successor and the boundary with Dogwatch Sanctuary Trust or successor and at least one further control dust gauge. The location of the dust deposition gauges shall be determined by a suitably qualified person and shall be provided in writing to the Canterbury Regional Council. The method of monitoring shall be ISO DIS-4222.2 or a similar method to the satisfaction of the Canterbury Regional Council. Samples shall be collected monthly and the monitoring results shall be included and summarised in the Annual Environmental Report required under Condition 36.</li> <li>b. Dust control measures shall be implemented to maintain the rate of dust deposition at the consent holder's boundary, measured in accordance with Condition 33(a), at less than 4g/m<sup>2</sup>/30 days above the background concentration measured at the control site. Any exceedance of this trigger level shall be reported to the Canterbury Regional Council, including the likely reasons for exceedance and any remedial action undertaken.</li> </ul>	Yes	A Total of seven dust gauges are used as controls (1), onsite (3) and offsite (3). Offsite gauges are in the immediate neighbouring properties and these are used to monitor compliance against this consent.
	<b>Management Plan</b>		
34	<p>(a) The consent holder shall prepare and implement an Environmental Management Plan (EMP) that addresses the control of discharges to air from the site.</p> <p>(b) The EMP shall be prepared and provided to the Canterbury Regional Council: attention: RMA Compliance and Enforcement Manager, within three months of the granting of this consent variation and within one month of the completion of annual reviews.</p> <p>(c) The EMP shall be reviewed annually.</p> <p>(d) The EMP and any revisions shall include all measures necessary to achieve compliance with the conditions of this consent.</p> <p>(e) The EMP shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>a. A description of the dust and odour sources on-site;</li> <li>b. The methods to be used for controlling dust and odour at each source;</li> <li>c. A description of consent and monitoring requirements;</li> </ul>	Yes	Independent review of the EMP completed in 2020.

	<ul style="list-style-type: none"> <li>d. A system of training for employees and contractors to make them aware of the requirements of the EMP; and</li> <li>e. Identifying staff responsible for implementing and reviewing the EMP.</li> </ul>		
	<b>Community Liaison Group</b>		
35	<ul style="list-style-type: none"> <li>a. Within one month of the commencement of the change of conditions, the consent holder shall invite local residents and interested people to attend a meeting to establish a Community Liaison Group. The invitation to attend and establish a Community Liaison Group shall be extended to include: <ul style="list-style-type: none"> <li>(i) all property owners and occupiers with boundaries adjoining, or but for the presence of roads, with boundaries immediately next to the site; and</li> <li>(ii) all parties who made a submission on the application to change consent conditions.</li> </ul> </li> <li>b. A representative of the consent holder shall attend all meetings of the Community Liaison Group. The Canterbury Regional Council shall be invited to send a representative to attend all meetings.</li> <li>c. The consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least once every three months.</li> <li>d. The main purposes of the Community Liaison Group shall be to: <ul style="list-style-type: none"> <li>a. Identify and address any adverse effects of discharges to air from the site, including possible remedial action; and</li> <li>b. Discuss the results of all monitoring and reporting required under this consent.</li> </ul> </li> </ul>	<b>Yes</b>	Ongoing CLG meetings are held as required, including this meeting.
	<b>Reporting</b>		
36	The consent holder shall, no later than the 30 <sup>th</sup> of June of each year, provide an Annual Environmental Report to the Canterbury Regional Council setting out all monitoring and reporting results required by conditions of consent and their interpretation by an appropriately qualified person, including dust deposition monitoring and complaints recording undertaken in relation to this consent over the previous period. Where the result of any test or monitoring undertaken in relation to this consent exceeds the relevant limit/trigger level or does not comply with the relevant condition, then the steps that were taken to rectify the non-compliance shall be specified.	<b>Yes</b>	Annual report provided to Ecan.
	<b>Administration</b>		
37	This consent shall not be exercised concurrently with CRC930514.	<b>Yes</b>	
38	<p>The Canterbury Regional Council may annually, on or about the last working day of March each year, serve notice of its intention to review the conditions of this consent for the purposes of:</p> <ul style="list-style-type: none"> <li>a. Dealing with any adverse effect on the environment which may arise from the exercise of the consent; or</li> </ul>	<b>Yes</b>	OPP upgrade options being considered.

	<ul style="list-style-type: none"><li>b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or</li><li>c. Complying with the requirements of an operative regional plan.</li></ul>		
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