

Woodstock Quarry Limited: Consolidated Proposed conditions

CRC214076 Discharge contaminants from an industrial and trade premise into air

Advice Note: The activities at the site are also subject to the following resource consents or changes to them:

CRC214073

CRC214074

CRC214075

CRC214077

RC215276

RC185244

Limits

General

1. The discharges shall be only from ~~quarry~~earthworks (including quarrying) and landfill activities, including:
 - a. Site preparation activities including vegetation, topsoil and overburden stripping, removal and storage;
 - b. Construction and maintenance of bunds, ~~and~~ stockpiles and operational infrastructure;
 - c. Excavation (including blasting), loading and transportation of material;
 - d. Processing of aggregate by crushing and screening;
 - e. Stockpiling of excavated aggregate;
 - f. Deposition of landfill waste material;
 - g. Site management including the deposition of material and soil, site contouring, capping and revegetation; and
 - h. The movement of vehicles associated with the above activities.

at 513 Trig Road, Woodstock, legally described as Lot 1 DP 481768, as shown on drawings referred to in the Drawing Index and stamped CRC214073-, CRC214074, CRC214075, CRC214076 and CRC214077

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Duration

2. The term of this Consent shall be 35 years from the date of its commencement.

~~Tim Johnston disagrees with the duration as discussed in his original s42a report. Garry Blay considers a 35 year timeframe is appropriate given the substantial works and investment required to establish the landfill. A review condition has been proposed which will provide the opportunity to implement methods to address unforeseen adverse effects.~~

Lapse

3. The lapsing date for the purposes of section 125 of the Resource Management Act 1991 shall be (date) (5 years from commencement).

Review

4. The Canterbury Regional Council may annually, on the last working day of May or November, serve notice of its intention to review the conditions of this consent for the purposes of;
 - a. Dealing with any adverse effect on the environment which may arise from the exercise of this consent and which is appropriate to deal with at a later stage; or
 - b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5. Prior to commencement of physical works described in Condition (1), all personnel working on the site must be made aware of, and have access to, the following:
 - a) The contents of this resource consent document and all associated documents;
 - b) Resource Consents CRC214074 CRC214075 CRC214076, CRC214077 and RC215276 (Waimakariri District Council Consent) and all associated documents, including the Landfill Management Plan with specific regard to the Erosion and Sediment Control Plan (ESCP), Landfill Closure Plan, Air Quality Management Plan and Dust Management Plan
6. The discharges into air shall not cause noxious, dangerous, offensive or objectionable odour or particulate matter effects beyond the boundary of the site.
7. There must be no discharge into air beyond the boundary of the site of any hazardous air pollutant, caused by discharges from the site, which is present at a concentration that is, or is likely to be, detrimental to human health or the environment.
8. The Quarry and Landfill Manager (the site manager), or another nominated person, must be available at all times (including outside site operation hours) to respond to complaints and issues related to quarry and landfill operations at the site.
9. The maximum rates of material handling at the site must be no greater than:
 - a. 375,000m³ per year of aggregate excavation;
 - b. 200,000m³ per year of aggregate processing; and
 - c. 250,000 tonnes per year of landfill waste.

Except that in the first 24 months following commencement of physical works up to 1,000,000m³ of earthworks can be undertaken in the first 12 month period and 500,000m³ in the second twelve month period as required to develop the landfill and associated infrastructure.
10. The total area of land in use at any time for excavation, processing, stockpiles, fill deposition, and site restoration prior to installation of the Landfill Cap must not exceed the area shown on Drawing F7 (~~rev E~~Rev G).
11. The maximum quantity of aggregate material stored at the site at any time must be 375,000m³, except that during the first two years following issue commencement of this consent physical works a maximum of 500,000m³ of aggregate material may be stored within the site.
12. Stockpiles must:
 - a. be only of aggregate excavated from the quarry, unsaleable material from the site or construction materials required for use in the landfill;

- b. not be located on or within 50 metres of land that is being or has been filled with landfill waste;
13. At the end of each day the working face of the landfill deposited material must be temporarily capped with:
- clean fill; or
 - soil cover to a minimum depth of 150 millimetres; or
 - an alternative cover that performs to an equivalent or higher standard to a 150 millimetres soil cover, at the end of each working day.

Alternative daily cover materials may be used in lieu of the cover(s) specified, with the approval in writing from the Canterbury Regional Council. No refuse shall remain exposed overnight.

14. Asbestos-contaminated material must be only accepted for deposition at the site if it is:
- a. Composed of soil or building material fragments and does not include bulk asbestos materials; and
 - b. Double wrapped in polyethylene material to avoid, as far as practicable, the egress of any material; and
 - c. Accompanied by a description of the form and friability of the material.

15. The consent holder must take all practicable measures to minimise the discharge of dust from quarry and landfill activities, including but not limited to:

- a. Using water ~~while crushing and screening at all times and where required~~ for all ~~other~~ activities on site for dust suppression as required to ensure compliance with this resource consent;
- b. Assessing weather and ground conditions (wind and dryness) at the start of each day and ensuring that adequate dust mitigation measures, including water needed for the purpose of dust suppression are available for use prior to the commencement of quarry and landfill activities;
- c. Grassing and vegetating bunds and bare areas, except for internal roads and operational areas, as soon as practicable;
- d. Imposing a speed restriction on all vehicles on the site of 15 kilometres per hour at all times and clearly signposting this limit;
- e. Minimising drop heights when loading and unloading trucks, conveyor hoppers and when moving material;
- f. Constructing and maintaining unsealed internal roads, access ways and yard areas so that the surfaces are comprised of an aggregate base, and are maintained to minimise potholes and exposed fine material;
- g. Undertaking routine site inspections of visible dust emissions throughout each day of quarry and landfill activities and logging observations and any dust suppression actions.
- h. Ensuring that deposited landfill material is covered at the end of each day.

16. When asbestos-contaminated soil is deposited, the following measures must be used:

- a. Water misting to suppress dust during deposition, cover and compaction of all asbestos-contaminated soil unless it is raining at the time;
- b. No asbestos-contaminated soil deposition shall occur when the wind speed

exceeds 10 m/s (10-minute average), as measured by the on-site weather station;

- c. Asbestos-contaminated soil shall be deposited into the landfill area at least 1 m below the adjacent working ~~natural~~ ground surface;
 - d. The tipping height above the working level of the landfill shall not exceed 2 m;
 - e. Asbestos-contaminated soil shall be deposited directly into the final position in the landfill area. No relocation, reworking or shaping of asbestos contaminated soil shall occur after it has been deposited into the landfill area;
 - f. As soon as practicable following deposition, each load of asbestos-contaminated soil shall be covered with a minimum of 100 mm of aggregate excavated from the quarry;
 - g. To reduce the chance of puncturing the plastic wrapping, the use of heavy and large pieces of aggregate as cover material shall be avoided;
 - h. Notwithstanding Clause (g) compaction of asbestos-contaminated soil shall not occur until the soil has been completely covered with a minimum of 100mm of aggregate excavated from the quarry;
 - i. Compaction shall only be undertaken by vehicle wheel tracking. Vibratory compaction equipment shall not be used.
17. The Consent Holder must install, operate and maintain an on-site weather station to record on site weather conditions every 30 minutes. The parameters measured shall include:
- a. wind velocity and direction measured via a minimum mast height of 6 metres above ground level.
 - b. barometric pressure
 - c. rainfall, and
 - d. temperature.

The weather station shall be installed, operated and maintained in general accordance with AS/NZS 3580.14:2014: Methods for sampling and analysis of ambient air- Part 14: Meteorological monitoring for ambient air quality monitoring applications.

- 18 The Consent Holder must notify the Canterbury Regional Council and Waimakariri District Council of any complaints received by the Consent Holder regarding discharge to air from the site ~~odour~~ ~~or dust~~ as soon as practicable, and no longer than one working day after the complaint is received.
- 19 When air quality related complaints are received by the Consent Holder, the Consent Holder must investigate the cause of the complaint and record the following details in a complaint log:
- a. type and time of complaint.
 - b. name and address of complainant (if available).
 - c. location from which the complaint arose.
 - d. wind direction at the time of complaint.
 - e. the likely cause of the complaint.
 - f. the response made by the Consent Holder; and
 - g. action taken or proposed because of the complaint.

The complaint log must be available to the Canterbury Regional Council at all times, on request.

- 20 A walkover site inspection must be undertaken no less frequently than weekly. Any evidence of actual or potential landfill gas leaks, such as odour, cracks in the Landfill surface, gas bubbles, leaks in the gas extraction system, or vegetation damage, shall be investigated. Where necessary remedial action shall be undertaken as soon as practicable to minimise fugitive gas discharges.
- 21 The concentration of methane at the surface of Landfill areas with intermediate or final cover must not exceed 0.5 percent by volume. The concentration of hydrogen sulphide at the surface of Landfill areas with intermediate or final cover must not exceed 0.0005 percent by volume. Quarterly monitoring of surface emissions must be carried out to demonstrate compliance with this Condition.
- 22 The Consent Holder must submit a Landfill Gas Report to Canterbury Regional Council at the end of each year as part of the Landfill Annual Report. The Landfill Gas Report must include the following:
- A summary of the monitoring results from the quarterly methane and hydrogen sulphide surface emissions monitoring;
 - A summary of the weekly walkover inspections;
 - A summary of any air quality complaints;
 - The logs from the weather monitoring devices;
 - An estimate of the amount of landfill gas being generated from the Landfill;
 - A recommended programme of landfill gas management to ensure that surface emissions of intermediate or final cover does not exceed 0.5 percent by volume;
 - A summary of the performance of any landfill gas extraction and destruction system.
23. If the Landfill Gas Report recommends the installation of a landfill gas extraction system the Consent Holder must engage a suitably qualified person to design the landfill gas extraction system and submit the design to the Canterbury Regional Council for review and approval.
24. All extraction wells that are to be connected to a gas extraction system must be installed no longer than 12 months after placing [landfill](#) wastes within the radius of influence of the wells. Gas venting from the wells prior to connection to the gas extraction system may be burnt by passive flares.
25. Landfill gas must be monitored at each extraction well head or, if more appropriate, at manifold points, on a three monthly basis. The following parameters shall be measured and recorded:
- gas flow rate
 - gas composition (percent methane, percent oxygen, percent carbon dioxide, percent hydrogen sulphide)
 - gas temperature
 - ambient temperature
 - gas pressure
 - barometric pressure
 - ppm carbon monoxide if residual nitrogen exceeds 15 percent.
26. The residual Nitrogen content of landfill gas in all extraction wells must not exceed 20 percent by volume or exceed five percent oxygen by volume.

27. There must be no visible emission, other than water vapour, light, heat haze, or steam, from any Landfill gas flare.
28. The Consent Holder must provide sufficient on-site electrical generation, or other appropriate measures, to ensure the operation of landfill gas flare equipment is not interrupted for more than two hours through loss of mains power supply. The gas collection and treatment system shall be restored as soon as practicable in the event of a malfunction or fault.
29. Until such time as a permanent landfill gas flare (or other utilisation station) is installed, landfill gas (blended) must be monitored at each flare station on a three monthly basis. The following parameters shall be measured and recorded:
 - a. gas flow rate
 - b. composition (percent methane, percent oxygen, percent carbon dioxide, percent hydrogen sulphide)
 - c. gas temperature
 - d. ambient temperature
 - e. gas pressure
 - f. barometric pressure
 - g. hydrogen sulphide
 - h. total non-methane organic compounds.
30. Except as provided in Condition 29, all extracted landfill gas must be combusted in a flare (or other utilisation station) in accordance with the following:
 - a. Enclosed flares must have the following minimum specifications:
 - i. flame arrester and backflow prevention devices, or similar equivalent system; and
 - ii. continuous automatic ignition system; and
 - iii. automatic isolation systems to ensure that there is no discharge of unburnt landfill gas from the flare in the event of flame loss; and
 - iv. adequate sampling ports to enable emissions testing to be undertaken; and
 - v. provision of safe access to sampling ports while emissions tests are undertaken; and
 - vi. minimum temperature at ~~750°C~~750°C and retention time of 0.5 seconds; and
 - vii. a permanent temperature indicator at half a diameter from the top of the flare with a visual readout at ground level.
 - b. Open flares shall comply with Condition (30)(a)(i), (ii) and iii above.
 - c. Landfill gas fired generators shall comply with specifications (30)(a)(i) to (a)(v) above.
31. Once a permanent landfill gas flare (or other utilisation station) is installed, landfill gas (blended) must be monitored on a continuous basis and recorded electronically.
 - a. gas flow rate
 - b. composition (percent methane, percent oxygen, percent carbon dioxide, percent hydrogen sulphide)
 - c. gas temperature

d. gas pressure

32. The Consent Holder must maintain a log of all inspections, investigations and actions taken with respect to the landfill gas system.
33. The Consent Holder must include within the Landfill Gas Management Plan provisions setting out how the Landfill Gas Collection and Treatment system will be maintained to comply with all conditions.
34. If monitoring demonstrates that the methane and hydrogen sulphide gas concentration limit specified in Condition 21 is exceeded, then remedial action must be carried out and the concentrations re-tested within 14 days. If this is not practicable, the Consent Holder shall prepare a programme of remedial action, including a timetable, within 14 days of the exceedance. The proposed programme shall be implemented within the proposed time period.

Air Quality Management Plan

35. At least two months prior to first deposition of landfill waste the Consent Holder must prepare an Air Quality Management Plan (AQMP) for the approval of the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring in accordance with the purpose described below and implement the AQMP once certified. The purpose of the AQMP is to:

- To ensure effective daily cover of at least 150mm of soil or equivalent alternative material.
- To keep the working face as small as practicable.
- To ensure effective intermediate cover of at least 300mm thickness.
- To avoid excavation into old areas of refuse as far as practicable.
- To minimise water ingress to the working face.
- To achieve early and progressive installation and extraction from the LFG system in the active landfill areas.
- To avoid having gas wells unconnected to the extraction system.
- To ensure provision for standby power to avoid flare outages.
- To minimise the extent of unvegetated areas.
- To enforce vehicle speed limits on site.
- To ensure sealed road surfaces are regularly swept.
- To maintain unsealed road surfaces and working areas to minimise potential for dust emissions.

~~Tim disagrees with the two month timeframe because he considers it is not sufficient time for review. Garry considers two months is sufficient time as the matter is not overly complex and WQL has provided an undertaking to provide prior notice of submittal of the AQMP to allow CRC to organize external reviewers if required.~~

36. Prior to submitting the AQMP to the Canterbury Regional Council the Consent Holder must have the AQMP reviewed by a Suitably Qualified and Experienced Practitioner (SQEP) who is a Certified Air Quality Practitioner to confirm that the measures proposed in the AQMP are appropriate to achieve compliance with conditions of this consent and enable the management of discharge of dust beyond the boundary to a level that is not offensive, objectionable, noxious or

dangerous.

37. The AQMP must include, but not be limited to:

- a. A description of the sources of odour and dust on site.
- b. A description of odour and dust management measures to be implemented on site;
- c. A description of the receiving environment and identification of sensitive receptors
- d. Identify the persons responsible for carrying out all actions in relation to meeting the requirements of this consent
- e. Describe the methods to control dust, including the frequency and triggers for water suppression activities.
- f. ~~Waste~~ Landfill waste inspection and handling procedures with regards to highly odorous loads;
- g. Landfill gas monitoring and recording procedures, including the gas monitoring bores and surface monitoring;
- h. Landfill gas flaring, including.
 - i. conditions under which flaring would take place;
 - ii. maintenance of the flare(s).
 - iii. method for flaring of hydrogen sulphide when there is low methane content.
- i. The methods to be used for controlling dust at each source during quarry activities.
- j. A system for training workers, including contractors, to make them aware of the requirements of this section of the LMP.
- k. Methods for determining the weather conditions that will trigger a restriction on potentially dusty activities.
- l. Identify responses to non-compliance with consent triggers and complaints.
- m. A method for recording, investigating and responding to complaints from the public.

~~Tim Johnston considers 'flaring of high hydrogen sulphide' should be added to point h as sub-point~~

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~~Garry Blay understands hydrogen sulphide will be flared if required, however is an issue that is specifically covered in condition 30 and therefore does not require specific mention in the AQMP.~~

Independent Peer Review Panel

38. The Consent Holder shall establish, at its own cost, ~~an Independent~~ a Peer Review Panel, to review the design, construction, operation, and after-care of the Landfill and all relevant management plans and drawings required under RC215276, CRC214073, CRC214074, CRC214075, CRC214076, and CRC214077 that are required to be approved by Council to assess whether or not the work is undertaken by appropriately qualified personnel in accordance with good practice. The ~~Independent~~ Peer Review Panel shall operate in accordance with the scope of responsibilities set out in Schedule 3 attached to this consent and comprise at least two independent persons who shall be:

~~a. independent of the Consent Holder;~~

~~ba.~~ a. experienced in landfill design, construction, and management;

- ~~eb.~~ experienced in landfill geotechnical, groundwater and surface water aspects;
- ~~ec.~~ recognised by their peers as having such experience, knowledge, and skill; and
- ~~ed.~~ approved in writing by Waimakariri District Council and Canterbury Regional Council.

39. Prior to submission of any document in relation to landfill waste containment, landfill waste management and land filling for the approval of Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring the consent holder shall obtain and provide written comment and endorsement from the Peer Review Panel

40. The ~~Independent~~ Peer Review Panel shall prepare ~~an annual~~ a six monthly report for the Consent Holder on the adequacy of the following matters:

- ~~a. management~~ PRP membership and monitoring plans; deliberations
- ~~b. site preparation, including hydrogeological and matters reviewed and reported~~
- approvals given
- ~~geotechnical issues; investigations~~
- ~~c. liner engineering final design and~~
- ~~construction and use of on-site materials; activity~~
- d. water control, including stormwater and construction quality assurance
- lining system performance
- landfill waste pile stability
- land movement and stability
- landfill waste containment
- leachate management;
- ~~e. compaction, including method and degree;~~
- ~~f. waste acceptance;~~
- ~~g. cover material used;~~
- ~~h. monitoring, modelling containment and records; and collection~~
- leachate handling and disposal on site
- landfill gas capture
- landfill gas monitoring of fugitive emissions and subsurface migration
- odour; rehabilitation.
- groundwater and surface water quality
- failures and damage relating to any above topic, and response by WQL.

41. Where the ~~Independent~~ Peer Review Panel does not have expertise in any of the areas it is required to report on, as detailed above, it ~~may~~ must, with the agreement of the Consent Holder and Canterbury Regional Council, engage the services of an appropriate expert to report on the relevant matter to the ~~Independent~~ Peer Review Panel. The report shall form part of the review provided by the ~~Independent~~ Peer Review Panel as required by this condition. Copies of all reports shall be sent to the Consent Holder, the Waimakariri District Council, and the Canterbury Regional Council by 31 August each year, unless otherwise agreed in writing with the ~~Waimakariri District Council and Canterbury Regional Council~~ Councils.

42. The Consent Holder must action all recommendations and/or directions of the Peer Review Panel.