

Winery Wastewater & Grape Marc Monitoring Report

(Clr Barsanti) (Report prepared by Rachel Neal)

E360-006-02

Purpose

1. The purpose of this report is to inform Council of the Compliance Group's ongoing monitoring of the discharge of winery wastewater and grape marc to land for the period 1 June 2015 – 31 May 2016.

2. **Rachel Neal will provide a short presentation on winery wastewater and grape marc monitoring (15 minutes).**

Background

3. Council has been monitoring the land and application of winery wastewater annually since 1999 with reports being produced since 2005.
4. The 2016 New Zealand Winegrowers Annual Report indicates that nationally the 2016 harvest of 436,000 tonnes was up 26% on the 326,000 tonnes crushed in 2015. The value of New Zealand wine exports grew a further 10% to reach a new record of \$1.57 billion this year.
5. In 2016 Marlborough had a 74.1% proportion of the grapes harvested in New Zealand (an increase from 71.5% in 2015); with 24,020 producing hectares (up from 23,203 producing hectares in 2015) and 323,290 tonnes processed (up from 233,182 tonnes processed in 2015, 329,572 tonnes were processed in 2014).
6. Liquid waste from the winemaking process predominantly consists of water used for cleaning floors, equipment, fermentation tanks and barrels. Liquid waste is typically seasonal in nature, with the greatest volume generated at vintage time.
7. Winery wastewater can contain some constituents that are an environmental concern. Poor management of the land application of winery wastewater can lead to contamination of surface and ground water and adversely affect soil and plant health.
8. Grape marc is the solid end product once grapes have been pressed for juice. It contains seeds, stems, skins and pulp. In 2016 an estimated 48,500 tonnes of grape marc was produced by Marlborough wineries (up from an estimated 35,000 tonnes in 2015).

Where monitoring was undertaken

9. There are thirty-seven wineries in Marlborough that discharge winery wastewater to land. Thirty-one wineries are located in the Wairau Plains, one is located north of Blenheim and five are located in the Awatere area. For the 2015/2016 monitoring period twenty-three wineries were inspected.
10. The wineries within the Riverlands and Cloudy Bay industrial zones that discharge directly to trade waste and three wineries in the rural zone that have their wastewater taken offsite were not monitored for this monitoring period.

How monitoring was undertaken

11. The thirty-seven wineries that discharge wastewater to land were monitored according to resource consent conditions and/or the permitted activities standards under the Wairau/Awatere Resource Management Plan (WARMP). Inspection templates were forwarded to wineries prior to vintage highlighting what information and records are required from them to demonstrate compliance with resource consent conditions and/or WARMP permitted activity standards.
12. Twenty-three wineries had an annual wastewater onsite inspection during harvest 2016. Wineries operating under the permitted activity standards with small production volumes, no previous onsite compliance issues and no changes to their wastewater system did not have an onsite inspection in 2016.
13. Resource consent conditions for discharge of winery wastewater to land are imposed based on the individual wastewater system and local environments; therefore, conditions vary for each winery. Only

twelve wineries are required to undertake annual soil sampling as part of their resource consent conditions (two wineries undertake sampling every two years) to assess what effect the application of wastewater is having on soil properties.

14. The WARMP permitted activity standards for discharge of winery wastewater include: annual wastewater sampling (parameters of biological oxygen demand, faecal coliforms, pH); odour; nitrogen loading to the land; discharge rate; buffer zones to boundaries and water bodies; and no discharges into surface water bodies.
15. The grape marc storage at the wineries was inspected. Additional monitoring was also undertaken for the wineries that compost and/or spread grape marc directly to land to ensure appropriate location, leachate collection and compliance with the WARMP standards.
16. A traffic light system was used for the fourth year to determine the compliance with consent conditions or the permitted activity plan rule. Condition or rules were assessed as:
 - **Green** are compliant and no action is required;
 - **Yellow** are technically non-compliant for minor breaches with no-adverse environmental effects;
 - **Orange** are assigned for relatively minor breaches requiring some corrective action; and
 - **Red** are non-compliant and remedial actions may be required.

Monitoring results

17. Thirty-four wineries submitted information (e.g. annual reports, wastewater and/or soil sample results) and data (e.g. records of daily wastewater volumes, discharge dates, disposal area sizes, pH) to demonstrate compliance. Follow up was required with some wineries in order to clarify the information and/or data provided. Three wineries are required to submit their 2016 harvest information at a later date.
18. For the 2016 vintage only one of the wineries processed less than the 2015 vintage. Thirty-three of the wineries processed more than the previous year. There is a large range in processing capacity from the smallest rural winery which crushed 36 tonnes, to the two largest rural wineries which processed just under 30,000 tonnes.
19. This year eight (23.5%) wineries (down from nine (24.3%) wineries in 2015 and up from six (18%) in 2014) were fully compliant with all conditions or rules and were assessed as **green**. Three (8.8%) wineries (down from five wineries in 2015) were assessed as **technically non-compliant**. One winery was assessed as **orange** (2.9%) (down from four wineries in 2015). Thirteen wineries (38.3%) (up from twelve wineries (32.4%) in 2015) had only one condition or rule assessed as **red**. Nine wineries (26.5%) (up from seven (19%) in 2015) had two or more conditions or rules assessed as **red** and/or **orange**.
20. The most common areas of non-compliance for this monitoring period were for exceeding the permitted ranges on one or more occasions for faecal coliforms (12 wineries, the same as in 2015), pH (9 wineries up from 2 wineries in 2015, similar to 8 wineries in 2014), biological oxygen demand (BOD₅) (5 wineries, up from 2 in 2015), and discharge volumes and/or discharge rates (4 wineries, down from 5 wineries in 2015). Other breaches included exceeding total nitrogen loading (2 wineries) and not including all parameters in wastewater or soil sampling.
21. There were no onsite discharge issues such as ponding noted during the harvest inspections in 2016.
22. It is noted that two of the main areas of non-compliance with the permitted levels for BOD₅ and faecal coliforms, are intended to be monitored via visual assessment of the environment within the proposed Marlborough Environment Plan. There are no specific BOD₅ and faecal coliform limits prescribed within the permitted activity standards. The proposed Marlborough Environment Plan rules for discharge of agricultural liquid waste had effect from the 9th June 2016 when the proposed plan was advertised.
23. The compliance ratings in this report are based on the WARMP as the vintage inspections and sampling was undertaken prior to notification of the new plan; however when considering compliance action, changes in the proposed MEP rules are given consideration to and balanced against any actual adverse effects.

24. This vintage there has been an increase in the amount of grape marc due to the increased volumes processed. During winery inspections officers make inquiries with wineries as to where their grape marc is disposed of, some winery operators are not able to identify where their marc is distributed and can only provide the transport operators details.
25. Inspections at the wineries during vintage did not identify significant discharge issues, problems with leachate collection and/or odour from their onsite grape marc piles. Twelve wineries compost their grape marc on site and then spread it under vines as a soil conditioner. Seven wineries spread their grape marc directly to land. Fifteen wineries have their grape marc transported offsite for compost, stockpiling and/or stock feed.
26. Post vintage there have been significant issues with grape marc storage and leachate discharge at four separate locations, primarily where grape marc has been brought onsite from a number of wineries. The issues observed include insufficient leachate containment systems resulting in discharge to land and water. This has resulted in Council issuing four separate abatement notices. The four locations are continuing to be investigated and monitored.

Future activities

27. The 2016/2017 season will continue to focus on education about the criteria required for consent conditions, plan rule standards and achieving compliance. This is to ensure accurate data and records are provided to Council to demonstrate compliance and avoid any adverse effects from winery discharges.
28. Prior to the 2017 vintage Council will engage with industry to address winery solid waste disposal issues and work on sustainable solutions that are environmentally responsible.
29. For the 2017 vintage the wineries will continue to be monitored and site visits will be conducted based on the size and compliance history of the wineries.

Comments

30. Industry has responded positively to the traffic light rating system reporting that it provides a clear visual picture of their compliance status.
31. Based on the information provided to date for Council's compliance reports for the 2015/2016 season, some wineries still need improved record keeping for the entire reporting period.
32. The main area of non-compliance with the permitted faecal coliform limit being exceeded is not a plan limit under the proposed MEP. The wineries have reported that this is a difficult parameter to control as there are many outside influences that could be contributing to the high results.
33. Grape marc is an industry issue which needs careful management to ensure that there are no adverse environmental effects.

Summary

34. The Compliance Group is continuing to take a proactive and constructive partnership approach to monitoring the discharge of winery wastewater and grape marc with education, relationship building and graduated enforcement when required with the key objective being the mitigation of adverse environmental effects.

RECOMMENDED

That the information be received.