03/03/2022

Ravensdown Limited
C/- Anita Anderson
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Our Ref: APP-126684

Dear Anita

Request for Further Information

Our team of experts have reviewed your resource consent application APP-126684 for various discharges to the environment and water takes (details of further info being requested including reasons why it is important are provided in the appended review memos). More information is needed so that we can better understand your proposal and its potential effects. In accordance with Section 92 of the Resource Management Act (1991) (RMA) I request the following information:

Air

1. Please provide further information on the issue with the acid plant discharge flowrates, including updated information identifying when the calibration issue occurred, and information to demonstrate whether emissions from the plant have been compliant with the limits in the resource consent.
2. Please provide information on monitoring options that Ravensdown might implement for assessing fugitive emissions of particulate from the manufacturing plant in order to better understand them and reduce the potential contributions to fine particulate measured at the former Winstone site.
3. Please provide an updated assessment of emissions associated with the acid plant based on corrected emission data.
4. Please update the section on ambient monitoring of sulphur dioxide to clearly demonstrate the contribution from normal acid plant start-ups.
5. Please provide information on the potential effects associated with nitrogen dioxide emissions from the acid plant.
6. Please provide additional information on particulate emissions from the manufacturing plant stacks and how these might be responsible for the high concentrations of PM10 measured on the Winstone site.
7. What mitigation will be implemented to reduce particulate emissions from the manufacturing plant to acceptable levels?
8. Please also assess whether there is potential for similar levels of PM10 as those measured at the Winstone site to be experienced at other locations within the Awatoto airshed.

Vegetation

Acidic aerosols

9. Climate change effects: Referring back to the AEE comments on climate change and also comments within the Vegetation Assessment itself, it seems that climate-related effects such as drought or pests and diseases which cause stress to vegetation can result in greater susceptibility to other stressors such as air emissions. Please provide a discussion of this aspect and assessment of potential effects on both horticultural and conservation vegetation, including effects on pollination and fruit set.
10. Multiple exposures to acidic emissions: The Executive Summary states: "For the growing season outside of the flowering period (i.e. from November to April) the risk is only for multiple exposures, so emission of pH of <4.0 on up to 3 different days should not be considered a breach of resource consent." There does not appear to be any data or references within the body of the report to support the number of exposures stated as being acceptable. Please provide supporting data and discussion of potential effects.
11. Please discuss the discrepancy between the findings of the literature survey that potential adverse effects on pollination and fruit set can occur for emissions of pH 2.75 – pH 4.7 and proposed consent condition (18) which stipulates a minimum pH of 4 during the flowering season (August to September). Is condition 18 sufficiently rigorous to safeguard vegetation during the flowering period of horticultural crops? Please also consider potential effects of acidic emissions on flowering and fruiting of conservation vegetation which does not necessarily flower between August and September.

Fluoride emissions

12. The report states that F emissions could be a cause for concern if F-sensitive crops or vegetation is planted within 1km of the site and the proposed maximum emission rate was maintained for 12 hours or longer. Please discuss what these concerns are and how the proposed mitigating factors will address those concerns.

Synergistic effects

13. Mixtures of pollutants: The range of emissions from the Ravensdown Plant that have the potential to cause adverse effects on surrounding vegetation (fluoride, sulphur dioxide, dust & acidic aerosols) have been modelled separately and discussed in the technical reports as separate effects. Section 3.1.2 (P11 para 4) raises the possibility of the combined effects of acidic aerosols and fluoride emissions with other chemicals that may be applied to horticultural crops. Discussion of the potential for combined or synergistic effects of these pollutants acting together with each other or with horticultural or agricultural chemicals is needed.

Former Winstone's site and foreshore reserve

14. The Crop and Food report does not discuss the implications of fluoride and dust emissions that are above MfE guideline values for the former Winstone Aggregate site and foreshore reserve to the immediate east of the Ravensdown Works. Although the former Winstone's site is currently zoned as Industrial, there is potential for that area to be re-zoned and rehabilitated and restored for conservation and recreational use. If conservation vegetation were to be planted along this stretch of the coast there may be issues with damage to

vegetation and difficulties in getting restoration planting established. This possibility requires some discussion given the proposed 35 year life of the air discharge consent being sought.

Sulphur dioxide modelling

15. If SO2 emissions are re-modelled by Tonkin & Taylor to take account of historic discrepancies with measurement of the acid plant discharge flowrates please provide an updated assessment of the results of the modelling for SO2.

Aquatic Ecology

16. Please provide assessment on the effects of wind-blown material from the site on water quality in surrounding waterways, particularly those above the pump station.
17. Please provide the implications for the assessment of water quality and ecological effects below the pump station, if wind-blown material is adversely affecting upstream waterways (noting that the assessment highlights that it is difficult to determine the relative contribution of the discharge to downstream effects when significant upstream sources are also evident).
18. Please provide assessment of the potential for, and significance of, adverse ecological effects arising from the combined effects of multiple contaminants.
19. Please provide commentary on whether conclusions about ecological effects would change, if it was confirmed that Spectrus BD1500 does bioaccumulate.
20. Please provide commentary on the potential exceedances of proposed water quality standards were derived from predictions of discharge quality at Stages 1 to 3, and dilution estimates for high and low tides. Is it reasonable to assume that for those parameters predicted to exceed proposed standards at each Stage, that the exceedances will occur every time the discharge occurs? If not, how frequent are exceedances expected to be?
21. Please correct the macrofaunal results presented in the Phillips et al. reports and provide updates.
22. The absence of recommended conditions that require the continuation of existing receiving environment monitoring, with the addition of chlorophyll-a and water clarity measurements, and potentially, including the evaluation of the fish IBI. Please suggest appropriate consent conditions.
23. Please provide the basis for the proposed unionised ammonia-N standard, including how it is going to be measured and how measurements are going to be standardised to pH 8 and 20 °C. Consideration should be given to whether it would be preferable to base the standard on total ammoniacal-N (NH3-NH4+-N), which is typically measured and easily interpreted. Please provide comments on this matter.

AEE

24. Please confirm if backflow prevention devices are already installed and maintained and provide commentary from a suitably qualified and experienced person on the risk of contaminants entering groundwater via the on-site bores, i.e.:

- headworks are constructed and maintained to prevent any leakage and/or movement of water or contaminants between the ground surface and groundwater and that there are no openings through which contaminants might enter the well
- gaps around any pipework and/or cables at the wellhead

25. The water balance model results are summarised in Table 12. Please provide the data to support these statements about capture and bypasses.

26. We note that this detail can be included in the future and could be part of consent conditions and that solids carry through may be minimal due to the treatment train (with a bioreactor and clarifier etc). How will contaminated sediment accumulation and wetland vegetation be managed at the Stage 2 wetland? Note that wetlands typically need vehicle access around the full perimeter for maintenance - will this be included?

27. AEE - Appendix A, drawing *509619-0000-DRG-CC-1002-C* has a label: 'Proposed Irrigation Apparatus (By Others)'. Please confirm what "By Other's" means.

A4: Land Discharge Effects and Management

28. The Executive Summary should be revised or an appropriate response (as per S92 RMA) to ensure clear summary statements are made about whether contaminant risks are likely to be present or absent based on a conceptual site model which requires there to a be linkage of source pathway and receptor relationship and where such a potential contaminant risk linkage has been identified, estimated concentrations of contaminants are then compared against national guidelines.
29. The Monitoring and Reporting section should be revised (or an appropriate response (as per S92 RMA)) to include a section on how baseline chemical analysis of the discharge water at Stage 1 and 2 will be used to adjust the proposed monitoring programme to match more closely the actual contaminants presence in the baseline samples.
30. Please update Table 6 to include a total increased concentrations row and included the heavy metals Pb and As.
31. Please revise comparisons to MfE guidelines to be against new Table 6 totals row and include MfE Guidelines in references.
32. Please confirm the reference for the MfE guidelines used for Table 7.
33. Please include sampling for all contaminants of concern and comparison to relevant guidelines for animal feed.
34. Provide a map of the SPZs with the full site boundary including the land discharge area. The names of the SPZs and distances from or if the site is included within a SPZ should be provided in the Appendix and where relevant in existing text that refer to the SPZ, notably the Executive Summary.
35. Please consider and provide commentary on the revised well locations (refer Figure 10 below with recommended locations) and increase the number of sampled monitoring wells to all three wells.
36. The Health Risk Assessment should be revised or an appropriate response (as per S92 RMA) to ensure clear summary statements are made about whether contaminant risks are likely

to be present or absent based on a conceptual site model which requires there to a be linkage of source pathway and receptor relationship and where such a potential contaminant risk linkage has been identified, estimated concentrations of contaminants are then compared against national guidelines.

A5: Watertake Effects Assessment

37. Please provide saltwater intrusion risk assessment.

A8: Economic Assessment

38. We note that the *Effects of emissions-to-air from the Ravensdown Napier Fertiliser Works on vegetation* (Plant and Food Research, 2021) report concludes that there are unlikely to be any adverse effects on economics from the air discharge i.e. crop damage. Please provide comments from an economics expert on the actual and potential adverse economic effects from the proposed activities, if any.

A9 Planning Assessment

39. Ravensdown Planning Assessment (A9, Page 8) states:

    "The Napier City Council ("NCC") sewerage system does not extend to the Napier Works. Five onsite wastewater treatment devices (septic tanks) are used for the collection and treatment of wastewater from amenities (cafeteria, showers, toilets, laboratory)."

    It is understood from the site visit that the septic tanks are currently pumped out to trucks and the wastewater is disposed at the NCC municipal wastewater treatment plant. The future plan is for the amenities (cafeteria, showers, toilets and laboratory) wastewater to be piped to the NCC municipal wastewater treatment plant. Please confirm that the above is correct along with the expected timeframe for start dates and completion of the pipe connection.

R2: Manufacture Plant Process Report

40. In Section 5.2 Structural site improvements, this list does not appear to be complete, as some of the roof and roller door items discussed elsewhere are not included and in the Management Plans. Please confirm which list of improvements is most current.

R5: Water Discharges High Level Options

41. Executive Summary, Conclusions: "Overall, the highest scoring option in the MCDA process was a combination of options." This combination of options remains ill defined, and changes considerably as the design evolves. As it contains within it many possible combinations of source separation, treatment and discharge location, it would have been advisable to define the permutations of that option and return them for assessment by the stakeholders to select a preferred option that was well defined and agreed to be the BPO. Why was the

option not returned for assessment as the BPO after better definition (and a number of significant changes) was achieved in the design?

42. Please provide "Ravensdown Napier discharge to the lower Tūtaekurī River and Waitangi Estuary: Water quality and ecology monitoring, 2019", Aquanet Consulting, December 2019, (if not already provided to HBRC).
43. Given the sources of wastewater described above, the direct discharge of industrial products and adjuncts into the hard standings and drainage system, and the high base flow (below), why has this wastewater been classified and treated as stormwater?
44. Has the existing discharge from the site been tested for pollutant parameters outside of the current consent conditions, and in line with the known chemicals in the various waste streams (A3, Table 2)?
45. The Spectrus products (A3, Table 2) have been noted to have ecological effects that are potentially more than minor (A3). Have alternative products for this process and/or alternative treatment methods for this waste stream?
46. Why were effective chemical and biological treatment systems commonly used in industrial treatment processes not considered?
47. Why was there no investigation of each waste stream ("up the pipe") so that treatment solutions could be tailored to the contaminants, and potentially downsized and focussed on particular contaminants?
48. In regard to 'Section 7 Options Considered', please explain why the other 5 treatment solutions are not carried forward.
49. Please provide the information that evidences a lack of first flush events. What information has been gathered on first flush events, and how key contaminant concentrations vary through events.
50. Please explain with evidence why a value of just 25mm rainfall has been assumed for full treatment.
51. What information has been collected by the applicant on the flows from the individual waste stream and how the contaminants in these vary?
52. Has source separation and separate treatment been considered, and if not, why not?
53. Of the 2,000m^3/week, how much is dilution water from the bore supply?
54. In regard to 'Section 7.3.2 Wetland treatment train (Option 1b)', why was this combination of treatment processes selected, and not others?
55. In Table 17 the volume of treatment devices is noted. Is this the working volume (standing water that will be displaced with the arrival of new wastewater) or an empty volume in the treatment devices capable of accepting and attenuating flows?
56. What level of storm event would be treated by the pond and membrane filter option before bypassing would occur?
57. Please provide the outputs from the site-wide sampling, and how these have fed into the preferred solution developed in the Water Discharge Strategy (R6).
58. Please explain why separation of contamination sources was not carried out at an earlier stage and used in the build up of treatment options, rather than after the fact and only for one option. Knowing this information would greatly assist in the sizing, costing, and evaluation of each option.
59. The price for the membrane filtration system (Option 1c) seems excessive, given that an entire biological treatment plant can be procured for a small town for this value. Please

provide a more realistic price for this option, and confirm what assumptions were made when requesting the quotation.

60. Was a cost estimate for a membrane filtration system for the "Combination of options" (Option 4) produced, noting that this would be a much smaller flow and therefore units, focussed on the contaminants in the "high contaminant treatment" area (see Figure 19).
61. Please explain how costs for Option 4 were generated without site-wide contaminant survey information.
62. In regard to section 10.4, please explain what waste concerns were raised about the membrane option, and the high energy concerns. Was an assessment of the brine and power consumption for this option completed?
63. Why was land treatment added to Option 4 in the Preferred Outcome (Section 10.4) when this was not in the description of the option (Section 7.6), nor endorsed by NCC or mana whenua (Section 10.4)?

R6: Water Discharge Strategy

64. Please confirm if the minor depressions noted above are at the lower point of the catchment and intended to direct contaminated stormwater flows towards the Neutralising Pit.
65. Please confirm how bunded areas in the Acid Plant South catchment are drained and discharged to.
66. What data is available on the volumes of water that are reused on site?
67. Will the proposed treatment and management strategy remove the need to dilute wastewater prior to discharge?
68. Why has sampling of contaminant sources not been undertaken prior to the option assessment work and application. As noted in the report, Adaptive Management Plans are appropriate where there are unknowns in a scheme, but this is only unknown because data has not been collected. Collection of source contaminant data is not an onerous task, and would be expected to demonstrate a suitable option evaluation and selection of BPO for a long term discharge consent.
69. Assessing the impact of operational changes should not be limited to treatment upgrades. Given the importance of source control for this scheme, sampling and monitoring should also include untreated waste streams to demonstrate improved source control over time. Please confirm if this is intended for the sampling and monitoring programme.

Section 5.6 Process water management:

70. Where will this process water be reused?
71. How much has been calculated as reusable?
72. Will the inhibitors, fouling agents, and biocides used in the process water be detrimental to reuse opportunities?
73. The cooling system is mentioned above. Is there also discharge of process water from the boiler system?
74. Why is the discharge from the truck wash not covered in the process water group, when it is clearly not stormwater?

75. Please provide the carbon footprint assessment that was used in the MCDA or if one was not undertaken, please prepare a wholistic carbon assessment for all options in accordance with ISO 14067 & ISO 14044 or relevant guidelines.

M1: Source Control Management Plan

76. It is unclear if the area between Superstore 1 and the Manufacture Plant (refer to Figure 1 & 2 in review memo) is covered under the action schedule so this needs to be clarified. Please confirm that this area is covered in the action schedule.
77. Please include additional information in the action table that describes how the actions are prioritised, including for example; risk or discharge, cost, and impact of change.

M2: Adaptive Management Plan

78. Please amend diagram on page 6 and Figure 1 (more labels and feedback loops – see review memo). This can be provided now or later as evidence.
79. Please add source control measures to Table 1.
80. Please include establishment of a source control baseline through monitoring in Year One of Table 1.

Proposed consent conditions

Further information request on proposed consent conditions is provided above and also in the appended Mott MacDonald memos. Responses to the Mott MacDonald review memo comments on proposed consent conditions can be provided via S92 or as evidence.

You must respond in writing to this request, before **28 March 2022** and do one of the following:

a) Provide the information.
b) Tell us that you agree to provide the information, but propose an alternative reasonable date (suggest a date).
c) Tell us that you refuse to provide the information.

It is important that you respond to this request.

If you fail to respond within the time limit, or refuse to provide the information requested, Council must:

- Continue to the hearing without the requested information
- Consider the application under s104 of the RMA.

You may request that the application be put on hold while the information requested is being collated. Otherwise HBRC are required to proceed to convene a hearing within the statutory time period of 75 working days from the submission closing date.

Please contact Sven Exeter if you have any questions.

Yours faithfully

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