

**IN THE MATTER**

of the Resource Management Act  
1991

**AND**

**IN THE MATTER OF**

application for discharge of MES to  
land at Oreti Plains

**BY**

**South Pacific Meats Limited**

**Applicant**

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**STATEMENT OF EVIDENCE OF HAMISH LOWE ON BEHALF OF THE  
APPLICANT**

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## **BACKGROUND**

1. My name is Hamish Timothy Lowe.
2. I am an Environmental Scientist with Lowe Environmental Impact Limited.
3. My evidence is given in relation to an application lodged by South Pacific Meats Limited (SPM) to apply sludge derived from meat processing effluent treatment onto land at Oreti Plains, Southland.

## **QUALIFICATIONS AND EXPERIENCE**

4. I have the following qualifications and experience relevant to the evidence I shall give:
  - (a) Bachelor of Agricultural Science (Honours); and
  - (b) Master of Agricultural Science (Honours in Agricultural Engineering).
5. I am a member of several relevant associations including:
  - (a) Water New Zealand;
  - (b) New Zealand Land Treatment Collective;
  - (c) Soil Science Society of New Zealand;
  - (d) New Zealand Institute of Agricultural and Horticultural Sciences (NZIAHS); and
  - (e) Environmental Institute of Australia and New Zealand (EIANZ).
6. I have served two terms as an elected council member of the Soil Science Society of New Zealand. I have served on the Biowaste Material National Research Programme advisory board for more than 6 years. I am a past Chairman of the New Zealand Land Treatment Collective technical committee, an elected position I held for four years, and served on the technical committee for 10 years. Following this long-standing relationship with the New Zealand Land Treatment Collective, I now support the Collective by providing management services.
7. I am a Certified Environmental Practitioner, in accordance with the EIANZ accreditation programme. I am a certified Practicing Agriculturalist, in accordance with the NZIAHS accreditation programme. I am a Certified Nutrient Management Advisor in accordance with the CNMA programme. I am also a certified Hearing Commissioner (Chair) in accordance with the Ministry for the Environment's Making Good Decisions programme.
8. At a national level, I have been actively involved in participating in and facilitation of various industry debates about the appropriateness and management of agricultural, industrial and municipal wastewater systems and the appropriateness of their application in a range of environments. This includes providing guidance to Regional and District Councils throughout the country and the Ministry for the Environment. I have contributed to a number of waste management guidelines, regional plan processes and am a contributing author to IPENZ Practice note 21 (PN21): Farm Dairy Effluent Pond Design and Construction.

9. I have helped to design and deliver a nationally accredited (NZQA) onsite wastewater qualification and assist Massey University with delivering Farm Dairy Effluent training. I am a design accreditation panel member for both the DairyNZ Farm Dairy Effluent System Design Accreditation Programme and Irrigation Design Accreditation programme.
10. I have been involved in the investigation, design, consent preparation, consent review and consent decision making of in excess of 70 small community wastewater projects in the lower North Island alone.<sup>1</sup> I have also worked extensively around the country on other community and industrial wastewater<sup>2</sup> projects.
11. I confirm that I have read the 'Code of Conduct' for expert witnesses contained in the Environment Court Practice Note 2011. My evidence has been prepared in compliance with that Code. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

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<sup>1</sup> Some of these include: Ashurst, Bulls, Carterton, Cheltenham Greytown, Dannevirke, Featherston, Foxton Beach, Halcombe, Himatangi Beach, Levin, Mahia Beach, Masterton, Martinborough, National Park, Piopio, Ohakune, Opunake, Otaki, Riversdale Beach, Sanson, Shannon, Taihape, Taumarunui, Takapau, Te Kuiti, Waiouru, Wanganui, Woodville, Waipawa, Waipukurau, Waipatiki, Wairoa and Waitare Beach.

<sup>2</sup> Some of these include: SFF (Oringi, Takapau, Fonterra (Hautapu, Lichfield, Edgecombe, Kapuni, Longburn, Pahiatua, Takaka, Darfield, Studholme), AFFCO (Awarua, Manawatu, Imlay), Carter Holt Harvey, Pan Pac.

## SCOPE OF EVIDENCE

12. My evidence addresses the following matters:
  - (a) A description of the proposed land application activity;
  - (b) The effects of the proposed application;
  - (c) Proposed monitoring and management procedures to be used to minimise the effects from the proposed application;
  - (d) Process and procedural matters relating to the application;
  - (e) Environment Southland reporting officers s42A report;
  - (f) Proposed conditions of consent;
  - (g) Response to matters raised in submissions and submitters evidence;
  - (h) Term of consent; and
  - (i) Conclusions.

## ACTIVITY DESCRIPTION

### Proposed Activity

13. South Pacific Meats Ltd (“SPM”) operates a meat processing plant at Awarua. Liquid effluent generated at the plant is treated via a pond system. Biological breakdown processes in the system produce an organic sludge (referred to in my evidence as MES) which accumulates on the pond floor. This needs to be removed in order to maintain the design volume capacity of the pond (and treatment performance). There is an ongoing and recurring requirement to remove about 4,000 m<sup>3</sup> annually.
14. The MES as extracted has a solids content of about 3 % and a nitrogen concentration of about 1,200 g N/m<sup>3</sup>. The N partitioning is about 83 % in organic compounds, with the remaining 17 % in ammoniacal form. The results of analyses of MES samples show that, with the exceptions of phosphorus and potassium, MES is similar in characteristics to Farm Dairy Effluent (FDE).
15. The material to be discharged is aged anaerobic sludge and in a largely mineralised condition. It is aged and likely to be 3 to 4 years at the time of extraction. Its odour has been described as directly comparable with that of FDE pond sludge, albeit with a slight sulphur aroma.
16. MES is proposed to be applied to a portion of a property owned by Mr D Lindsay, located near Oreti Plains, Southland. Of a total farm area of 627 ha, an area of about 346 ha is suitable for MES application. The suitable land is characterised by predominantly flat land with a gentle slope towards the Oreti River. SMap was used to assess the soils that comprise of Glenelg, Drummond, Braxton and Pukemara family soils within Land Use Capability Class 2 and 3.

17. The MES is pumped from the pond into road tankers for transport from Awarua to Oreti Plains. Road tanker-loads of MES will be delivered to the property on an as need basis Monday to Friday (excluding public holidays and weekends), normally during spring and early- to mid-summer (1 October – 30 March). At the property, MES is transferred from the road tanker to a spreading wagon, which is towed by tractor and spray/spread onto the subject land.
18. The MES is applied to a depth not exceeding 5 mm in any one application and no more than 10 mm annually, or to such other depth (including multiple passes) as may be required in order not to exceed the consent limit for nitrogen application.
19. MES is applied to either pasture or land that is to be cultivated.

## **EFFECTS**

20. A full AEE was submitted with the lodging of the application for the proposed consent.
21. It is important to put the application in perspective. The following should be noted:
  - It has been agreed that the application period would be 6 months from October to March;
  - If road tanker volume = 30 m<sup>3</sup>;
  - Annual discharge volume = 4,000 m<sup>3</sup>;
  - Then resulting movements = 133 truck loads; and
  - If three loads per day, then there would be 44 days of truck carrying material.
22. The calculations above assume all material goes to this property, of which some could go elsewhere, meaning there will be less trucks. This extent of traffic is likely to be relatively minimal compared to other farming activities (in the area), including frequent milk tanker visits, silage trucks, supplementary feed deliveries and whey spreading operations.
23. Further, should all the 4,000 m<sup>3</sup> go to one property then only 40 ha would be needed. In the case of this consent, it would be 40 ha out of an available 346 ha.

## **MITIGATION, MONITORING & MANAGEMENT**

24. The applicant is proposing to mitigate, monitor and manage the effects of the proposed application as follows:
  - Continued implementation of contingency measures, in the event of a spill (in transit or on the Lindsay property) or if land availability for application becomes an issue;
  - Use of a low hydraulic application rate (less than 5 mm/application), to reduce the risk of ponding, runoff or by-pass flow;

- Use of a nitrogen loading rate that is comparable to other effluent application practices in the Southland region (whey spreading, FDE application);
- Generous buffers are to be put in place to minimise the effects of odour to neighbouring property owners;
- Use of low-pressure spray application, which will avoid generation of fine aerosols during application, reducing the likelihood of spray drift or odour problems;
- Use of appropriate exclusion margins from water courses and high nitrate groundwater zone, to ensure that potential contamination of surface waterways and groundwater is avoided;
- Tracking of MES application sites via a GPS tracking system;
- Record keeping – maintaining a log of volumes of MES applied, paddocks to which MES is applied, and relevant results of MES analyses;
- Maintaining a complaint register for all complaints received relating to the proposed activity, including details of the complainant, the complaint, and the measures taken to resolve the complaint; and
- Undertaking MES analyses (of material to be applied) on a scheduled basis to enable variations in MES composition to be identified. This may result in a change to MES application rates in order to meet the required annual nitrogen loading rate.

## **PROCESSING & PROCEDURAL MATTERS**

25. The original application for the proposed activity was received by the Southland regional council, Environment Southland (ES) on 26 April 2017. Despite the application mirroring previous application, ES initially rejected the application in accordance with s88 of the RMA. Further information was added and the application was resubmitted on 6 June 2018.
26. The application was then limited notified to fourteen parties on 4 July 2018. A further party was notified on the 19 July 2018. Seven submissions were received.
27. A pre-hearing meeting was held on Wednesday 5 September 2018.
28. Since the pre-hearing, the applicant has been involved in on-going correspondence and discussions with the submitters (and their consultants) in order to resolve their concerns.
29. The questions raised in the pre-hearing meeting were addressed in an email sent to all submitters in November 2018. Additional information was attached to assist with some questions that were asked at the pre-hearing meeting. This included information about Mycoplasma Bovis, provision of an Effluent Management Plan and updated proposed conditions.
30. Some submitters commented on the information (Frances Wise (Suttons' consultant), Barry Macdonald, Catrina Thompson)). Follow up emails were sent to answer these queries in late November/early December 2018.

31. Correspondence from Frances Wise (Suttons' consultant) and Barry MacDonald in December 2018 indicated that term length and other historical issues meant that conditions could not be agreed upon.
32. Further correspondence in late January 2019 between Frances Wise (Suttons' consultant), Barry Macdonald, John and Diane Macdonald with one of my colleagues indicated that they did not agree to SPM's revised and shorter term of 15 years. Further to this, the historical land management issues that are unrelated to this consent kept on surfacing with submitters. This resulted in submitters not wanting to agree to the consent conditions even though changes had been made to some of the proposed conditions to minimise any potential environmental risk.
33. Agreement could not be met with submitters by the start of February 2019, so SPM have elected to have a decision made by a hearing commissioner.

### **RESPONSE TO COUNCIL OFFICERS REPORT**

34. The applicant has received and reviewed the ES s42A report prepared by Stephen West. There are several aspects of his report that require clarification and comment.
35. The Executive Summary of the s42A report lists a number of key issues. Several of these issues, being cultivation onto bare soil and concerns with the Braxton soils, were raised with us via email on Friday 22 February after the internal ES peer review prior to releasing the s42A report. We were not able to respond to them by the Monday (25 February) when the s42A report was released. These 'new' issues and other issues requiring clarification in his s42A report are addressed below.

#### **Odour**

36. Regarding odour, I note on page 10 Mr West indicates:

*Odour and spray drift should not adversely affect amenity values beyond the discharge site, and the discharge should be managed so as to not adversely affect soil and groundwater quality.*

37. He also notes on page 12 about the application system:

*The sludge will be spread by a low-pressure spray system from a slurry tanker. As such, it is not expected to generate aerosols.*

38. Mr West notes (page 12) there has been no odour complaints at the site near Garston. I also understand there has been no complaints from the operations at the Cairns property.
39. From the observations made by Mr West, I am of the opinion that odour and aerosol impacts will be less than minor.

#### **Soils and Preferential flow**

40. Mr West in various sections of this report has raised the issue of soils cracking and drainage via preferential flow. Firstly, it should be noted that the application will be 5 mm, thereby creating very limited potential for significant quantities of applied MES to pass through the soil. Secondly, the

venerable Braxton soils according to Mr West occupy "... about 5% of the proposed discharge area...".

41. To manage preferential flow and the potential for runoff, slurry tanker applications are often limited to low depths of application. Mr West states (page 12):

*I note that only 5 mm per application would typically be allowed for a FDE discharge by slurry tanker due to the risks of run-off or leakage into drains. FDE is typically lighter, more watery, than the sludge, but a similar limit may be appropriate if discharge onto the areas of Braxton and Pukemutu cannot be avoided.*

42. I am of the view that the potential is limited by both the volume applied and the area covered to have a no more than minor impact when considering the wider farming operation; in fact, grazing and urine impacts will be significantly greater, to the extent that the impact of the MES application will likely be *de minimis*.

#### **Loading rate**

43. An effluent and sludge limit of 150 kg N/ha/y is a common in Southland. Mr West notes (page 12):

*The 150 kg N/ha/year is a figure that has been applied to FDE discharges and, where appropriate, other discharges, in Southland since 1993.*

44. He then goes on to say (page 13):

*Therefore, if the sludge discharge occurs within that limit, and the total from all waste discharges is also within that limit, then the effect of the nutrient load from the sludge should be regarded as minor.*

45. What this 150 kg N/ha/y value does not take into account is the form of the applied nitrogen, with the MES material being in a form that releases gradually over time. This is discussed in the bare soil discussions below. I am of the opinion that the effects of the 150 kg/N/y loading will be indistinguishable from other farming activities on the property.

#### **Bare soil application**

46. Mr West has raised late in the processing of this application risks associated with application of MES to bare soils, particularly with the risk to nitrogen leaching increasing, stating (page 13):

*"...where the sludge will be applied to bare soil, there will be a period that there are no plants to take up the nutrients, and there is an increased risk that nitrate nitrogen will leach to groundwater."*

47. Mr West also notes (page 33):

*"...I have concerns about the proposed sludge discharge to bare soil during cultivation and the risk of contaminant bypass flow where soils are subject to cracking in dry conditions. Therefore, I suggest that the sludge discharge be restricted to pasture areas, and that an inspection of ground conditions be carried out prior to each discharge."*

48. Leaching is typically associated with loss of nitrogen in oxidised forms, being nitrate and nitrite. Organic and ammonical nitrogen bind to the soil and are not readily leached. The table presented

on page 4 of Mr West's evidence shows the composition of nitrogen species, with nitrate and nitrite being less than 1.8 % of the nitrogen being applied. This alone significantly minimises the risk of leaching.

49. Soil incorporation of sludges is common and is in fact a best practice tool, especially to control odour. Further, the reality is that given the limitations around the supply (i.e. practical number of road trips possible and volume available at the plant only allows for up to 40 ha to be used). The area of bare soil to which MES would be applied will be limited, with application limited to possibly a few paddocks in any one season.

#### **Leaching to groundwater**

50. I am of the view the potential for leaching to groundwater will be minimal and no different oth other approved farming operations (both consented and permitted activities). This seems to be support by Mr West who notes (page 25):

*"...the discharge is not expected to increase nutrient leaching to groundwater. Rather it will fit within the loading allowed on the area from multiple nutrient sources, such as whey and FDE discharges."*

#### **Risk of disease-causing organisms**

51. Mr West notes (page 14):

*"...the sludge is likely to contain disease-causing organisms, but has not been analysed for E.coli or faecal coliforms."*

52. This statement is incorrect and misleading. There has been historical monitoring as part of a previous consent (McMillan consent). This indicated that while there were indicator pathogens, actual disease-causing organisms were not present, or if present in sufficiently low concentrations they posed minimal risk. It should be noted that presence of indicator pathogens from the coliform bacteria group do not mean that disease causing organisms will be present. The indicator pathogens, particularly E.coli, simply indicate there are bacteria from a source that **may** contain disease-causing organisms.
53. As indicated in correspondence to submitters. Mycoplasma Bovis is not of concern as the plant: 1) is predominately a sheep processing plant; and 2) bobby calves process are from farms where they has been no M. Bovis detected. This issue is addressed later in this evidence.

#### **Overall**

54. Overall, the applicant is largely in agreement with the conclusions and recommendations reached by Mr West in his report.

### **CONDITIONS**

#### **Sludge discharge Permit**

55. The applicant has reviewed the proposed conditions outlined in the ES s42A report.
56. The applicant accepts conditions 1 – 4, 6, 7, 9, 10 (b), 11, 12, 13, 14, 15, 16, 17, 18 as written.

57. The applicant wishes to amend condition 5 to align with correspondence between submitters and SPM. This should read *“the discharge of sludge shall not exceed a depth of application of 5 millimetres for each individual application and no more than 10 mm annually over the same area of land”*.
58. The applicant wishes to amend Condition 8 (a) to read:
- (i) *“Each day’s land application of meatworks effluent sludge shall only be undertaken if and when Environment Southland’s Heddon Bush soil moisture recording site records that soil moisture is sufficiently low to allow effluent application. Irrigation can occur when soil moisture states “safe for irrigation”, “low rate irrigation”, or “pulse irrigation”*
- (ii) *“No application of sludge is to occur if >20 mm rainfall is forecast within a 24 hour period of proposed application”*.
- Advice Note: Environment Southland’s website at <http://gis.es.govt.nz/index.aspx?app=soil-moisture> shows the Heddon Bush soil moisture monitoring site and irrigation below field capacity is identified on the graph for Heddon Bush at approximately 65 % water filled pores. This assumes soils are safe for irrigation of effluent when soil moisture is below 65%”*.
59. Delete Condition 8 (b) as this would rule out application during cultivation. This condition is opposed by the Applicant.
60. Amend Condition 10 (a) to include: *“analysis will only occur in the months when MES is likely to be applied”*.
61. In response to discussions with submitters, an additional condition is proposed, being:
- No effluent shall be discharged:*
- a. to land between 1 April and 30 September each year; and*
- b. on weekends or statutory holidays.*

### **Air Discharge**

62. The Applicant agrees with all Conditions proposed.

### **RESPONSE TO SUBMISSION**

63. Seven submissions were received. All submissions were from land owners that included: Catrina & Richard Breen, Allan & Jennifer Hamilton, Russell and Dawn Laughton, Donald MacDonald, Barry MacDonald, Geoffrey & Marianne Sutton and John and Diane Mary Macdonald.
64. I note that many of the submissions are in common, with a proforma used. While the outcome sought was to decline, relief through revised conditions has been suggested. Most revised conditions have been offered, but there is a reluctance by submitters to withdraw their right to be heard.

## Submitter Concerns

65. All submitters opposed the application (sought it be declined), and all wished to be heard. They had the following concerns:
- Air quality deterioration, odour;
  - Effects on groundwater sources of drinking water and nitrate concentrations, high groundwater levels;
  - Concern about discharge relative to open drains;
  - The transmission of Mycoplasma Bovis from the application of MES to land to their stock via run-off/ spray drift on to their property;
  - The concerns of previous environmental performance of the land owner;
  - The length of the consent term; and
  - Impacts on amenity values due to an increase in tankers driving along the roads causing increased traffic, noise and odour pollution.
66. While all submitters sought that application be declined, six out of seven submitters listed alternative consent conditions that imposed certain restrictions if the consent is granted. Allan & Jennifer Hamilton, Russell and Dawn Laughton, Donald MacDonald, Barry MacDonald and John and Diane Mary Macdonald addressed the following consent conditions:
- A consent term of no more than 10 years;
  - No discharge of sludge on weekends or statutory holidays;
  - Discharge only to occur during the hours of 8 am and 5 pm;
  - Discharge to go directly onto land surface, i.e. not sprayed or into land by injection;
  - No sludge to be applied if rain is forecast within the 24 hour period following application;
  - All transfer of sludge occurs on a designated area that is within the property boundary; and
  - The consent holder to provide a contact phone number that can be called in the event of an incident occurring.
67. Geoffrey and Marianne Sutton listed the following and suggested consent conditions:
- Consent term should align with the land owner's current (dairy effluent) effluent consent. Alternatively, no more than a five year term should be granted;
  - Operational management plan provided to ES and approved before commencement of the activity. The approved plan shall be provided to neighbouring land holders;
  - The activity shall only occur during the months September to March;
  - The neighbouring land holders shall be advised of the land area to be used to receive MES;

- A permanent area should be assigned for transfer of MES from road tanker to spreading wagon;
- Odour condition stating no objectionable odour beyond the boundary of the receiving property;
- Amendment to proposed Condition 3: There shall be no MES spread to land that has had other effluent applied within the preceding 12 months, and no other effluent applied to the land used for MES for a further 12 months. Only one application of MES shall be made to any land in any 12 month period;
- Amendment to proposed condition 4 to define “*nearest soil moisture site*” and appropriate soil moisture conditions that will allow irrigation of MES. No discharge to occur if 20 mm or more of rain is predicted within 24 hours of planned application;
- Amendment to proposed condition 5 (i): limit proposed application to a maximum of 5 mm in any one pass.

### **Response to Submitters**

68. Despite term, most submitter concerns are not unreasonable. However, a number of concerns can not be controlled by this consent as they fall outside the scope of the application being sought or are not matters that ES can provide regulatory control over, for example traffic movements.

69. My response to the submitters concerns are outlined as follows:

- **Buffers** - Generous buffers are to be put in place to manage any potential odour. This includes a 200 m buffer from any residential dwelling and 20 m from the property boundary. Sensitivity to odour depends on both the degree of acceptability of the smell involved, and the proximity of people potentially offended by it. Most of the paddocks to which MES is proposed to be applied are at least 200 m from any residences not on Gladvale Farms.

The proposed buffers are typical if not more conservative than that used elsewhere for similar materials. Further, it should be noted the frequency is intermittent as it is limited by supply, time of year, soil moisture and a range of other factors.

- **Application depth** – An annual application depth not exceeding a nominal 10 mm is proposed. This is to be achieved through application events of no more than 5 mm per pass. There is also to be a soil moisture deficit of more than the volume of MES being applied. This will assist to limit movement of contaminants into the groundwater following application.

Any effects should they occur following application, are expected to be within the range of effects arising from such activities as commercial fertiliser application, which do not need resource consent. Further to this, MES will not be applied to within 100 m of the high nitrate zone that is present in the SE section of Gladvale Farm, as outlined in the AEE.

- **Surface Water** - All water bodies and their margins (20 m) are to be excluded from MES application. MES will be applied at a rate that does not result in ponding or run-off. The 20 m separation required by the Regional Effluent Plan and a 2-5 mm application depth per event is expected to ensure that there will be no movement of MES into any surface water bodies. It is not expected that an annual application of up to 10 mm depth, with a total nitrogen application rate not exceeding 150 kg N/ha/y, at a distance not less than 20 m from any watercourse, will lead to

any significant transport of contaminants through shallow groundwater to any surface water. Further to this, no MES is to be applied when field capacity has been reached or there is >20 mm rainfall forecast after 24 hours of application.

- **Mycoplasma Bovis** - The risk of Mycoplasma Bovis contamination to neighbouring properties from the application of MES to land is extremely low. This is because the bacteria itself is more likely to be spread through bodily secretions of infected bovine animals, particularly milk, eye and nasal secretions, saliva, and semen. Further to this, SPM process predominately sheep and what bobby calves it does receive, are not from affected farms. Therefore, it is unlikely that sludge will be contaminated with M. Bovis.
- **Land Owner** - The land owner will be held accountable for any compliance issues. An Effluent Management Plan outlines the procedures that need to occur in order for the land owner to be compliant. Not only this, but SPM will be working closely with the land owner to make sure compliance is achieved.
- **Consent Term** - A consent term length of 25 years was not agreed on by the neighbouring land owners. SPM discussed decreasing this to 15 years, but this was still not accepted. Having a 25 year consent term provides certainty to SPM of a location for MES application, compared to a short term consent (5 years) that would not guarantee the same certainty.
- **Amenity Value** - There is unlikely to be a dramatic increase in road traffic when road tankers are operating. The extent of traffic depends on soil moisture, the area and land use to which the material is being applied, and the availability of a spreading contractor. The effects to amenity values should be minimal and no more noticeable than the current farm traffic currently operating on the roads around Gladvale Farm.

## TERM OF CONSENT

70. Term of consent is possibly the single biggest issue. This has been raised by many submitters, and their issue is one more of certainty and relationship with the property owner rather than environmental effects.

71. I note with regard to groundwater effects that Mr West (page 25) states:

*"I don't believe that a shorter term for the proposed sludge discharge is a useful way of addressing the issue of groundwater nitrate concentrations."*

72. He also notes (page 25):

*"FDE discharges have generally been approved for ten-year periods, due to the history of compliance issues for such discharges across the region and because ten years approximately aligns with periodic shifts in methodology, equipment and policy. However compliance for FDE discharges has improved (particularly since storage ponds were required) and the applicant is proposing both regular monitoring of the sludge and periodic review of the discharge methodology. Therefore the factors that limit typical FDE discharges are reduced in this instance."*

73. Further, I note that the Fonterra whey consent allowing for spreading on this property was granted on 12 August 2014 for a 35 year term, expiring 31 July 2049. While all consents have to be considered and approved on a case by case basis, there should be a level of equity especially where there has been a high level of detail provided in an application and there are stringent management conditions imposed. By this I mean the investigations, reporting, assessment, conditions and management proposed are significantly greater than what would be applied for FDE and dairy sludges. As a result, this higher level of information and management should be reflected in a longer consent term.

74. Mr West notes (page 25):

*“...I have not identified factors that would definitely warrant a shorter consent period than the term sought by the applicant.”*

75. The applicant seeks a term of 25 years.

## **CONCLUSIONS**

76. The proposed application for application of sludge to land is consistent with the methodologies and practices of land application. Specifically, there are conditions proposed directing management, capping hydraulic and nutrient loading rates, providing for buffers for protection of waterways and impacts on neighbouring properties. A detail management plan is also to be provided. These are consistent with best practice and ES regulatory framework.

77. In addition, the Applicant is proposing best management practices are reviewed every 5 years to investigate if there have been technology advances which may allow for the application system to be reviewed.

78. A term of 25 years is sought.

79. It is requested that consent be granted subject to appropriate consent conditions.

**Hamish Lowe**

**4 March 2019**