

**BEFORE THE CANTERBURY REGIONAL COUNCIL HEARINGS PANEL**

**In the matter** of the Proposed Canterbury Regional Air Plan

**Between** Environment Canterbury

**And** Synlait Milk Limited

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**STATEMENT OF EVIDENCE OF NEIL GARRY BETTERIDGE**

**30 September 2015**

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## **Introduction**

1. My full name is Neil Garry Betteridge. I am the General Manager, Synlait Milk Limited (“Synlait Milk”). Prior to that I have held the position of the Operations Manager for Synlait Milk. I have worked for Synlait since the first construction phase in 2007.
2. I am based at the Dunsandel site and I am authorised to make this statement on behalf of Synlait.
3. I have a Bachelor of Chemical and Process Engineering (honours) degree from University of Canterbury, and am a Chartered Professional Engineer. I have worked in the dairy industry for the last 16 years.

## **Overview of Synlait**

4. Synlait Milk is a value-added ingredient, infant and adult nutritional milk processing operation. Since operations began in 2008, Synlait has grown to become one of Canterbury’s largest companies, processing 500 million litres of milk a year from around 173 Canterbury farms, and employing over 300 staff.
5. We export to over 50 countries and count among our customers the large multi-national companies of Nestle, Danone and Mead Johnson. Other notable customers are The A2 Milk Company and Munchkin – we have partnered with the latter to develop an exclusively grass-fed infant formula for the American market.
6. In 2013, Synlait Milk launched Australasia’s only ISO 65 farm certification system called Lead With Pride™. This certification recognises and financially rewards dairy farmers who achieve excellence in milk quality, environmental management, animal health and welfare and demonstrate social responsibility.
7. In this same year Synlait launched on the NZX, after a successful initial public offering.
8. Synlait has won numerous business awards including the Sensational Selwyn Agri-Business Award in 2012, the Champion Canterbury Global Operator Award in 2013 and was named the Champion Canterbury Supreme Winner in the medium/large business category for 2014.

9. Along with Synlait's world-class processing facilities, Synlait maintain control over the quality of milk supply, milk processing and market distributions to guarantee their global customers with absolute food safety, security and traceability.
10. The purity of our national environment is central to the unique and powerful blend of Synlait producers, and there is a need to protect it. Synlait work very closely with their milk supplies to ensure that a best practice environmental approach is taken on farm, and to ensure high environmental standards are maintained. On average milk supply farms are located 43km from the Synlait plant to ensure total integrity and traceability of supply. This focus on quality has enabled Synlait to build our customer's trust in our supply chain.
11. Synlait Milk appreciates the opportunity to provide feedback on the proposed Air Plan.

***Dunsandel manufacturing plant***

12. The manufacturing plant has grown substantially since being established in 2008. The success of the plant and the ability to secure milk from third party farms meant that it was extended in 2009 to add a second spray dryer and to increase the size of the original drystore by trebling its original capacity.
13. During the last two years Synlait has made significant investment in the Dunsandel site through a range of growth projects, furthering our nutritional business and maximising supply chain integrity by concentrating operations at the Dunsandel site. The growth projects include Dryer 3, the canning and blending plant, Lactoferrin plant, Drystore 3, a dedicated transport facility for our tanker fleet, a new administration building and laboratory.
14. The manufacturing plant today comprises three coal fired boilers with a combined energy output of 55MW providing steam to three large spray dryers, a smaller speciality milks dryer, Lactoferrin plant and a canning & blending plant. Other ancillary activities required for the production and export of milk powder products are undertaken at the site.
15. The various processes on site which have discharges to air are set out as follows:

<b><i>Plant</i></b>	<b><i>Capacity</i></b>	<b><i>Key Outputs</i></b>
Boiler 1	20MW	Sulphur Dioxide

Boiler 2	15MW	Total Suspended Particulate
Boiler 3	20MW	
Dryer 1	7 T/hour	Total Suspended Particulate
Dryer 2	10.5 T/hour	
Dryer 3	10.5 T/hour	
Special Milks Dryer	0.3 T/hour	
2x packing lines	N/A	Total Suspended Particulate
Wastewater treatment plant	N/A	Odour
Irrigation of wastewater	N/A	

16. A fourth 30 MW boiler is consented but not currently installed. Boilers 1 & 2 share a common 50m high stack, while Boiler 3 has a separate 55m high stack. Both stacks are fitted with bag filters to provide a high level of emission control.
17. Sulphur dioxide (SO<sub>2</sub>) and Total Suspended Particulate are the main contaminants discharged from the boiler stacks. The consent has a combined maximum SO<sub>2</sub> emission rate from all boilers of 230kg/hour; and a TSP concentration limit of 50mg/dsm<sup>3</sup> from each stack. The measured emissions have always been fully compliant with both limits. Dryers 1 and 2 have individual stacks, both at a height of 39.6 metres above ground level. Dryer 1 is a commodity dryer and discharges via a bag filter. Dryer 2 is a nutritional dryer and discharges pass through a cyclone before the bag filter. Dryer 3 also passes through both a cyclone and bag filter before discharging at a height of 40.5 metres above ground level. The Special Milks Dryer (SMD) discharges through both a cyclone and a bag filter and with the stack 17 metres above ground level. The packing plant exhaust is controlled by a bag filter and discharges at a height of 18 metres.
18. TSP is the key contaminant discharged from the dryer stacks and packing plants. The consented concentration limit is 15mg/dsm<sup>3</sup> for Dryers 1 & 2, and the packing lines; 100mg/dsm<sup>3</sup> for SMD and 20mg/dsm<sup>3</sup> for Dryer 3. Annual stack testing consistently shows concentrations to be well below these limits.
19. Efflux velocity is measured annually for all discharge sources and is always well within limits, a function of the plant design.

### **District Plan Change**

20. Earlier this year Selwyn District Council granted to Synlait a private plan change to the district plan. The plan change recognises the Dunsandel site as a Dairy Processing Management Area (DPMA) and provides for further development. The DPMA covers 113.5ha, of which 44.1ha can be built on; the remaining 69.4ha must be retained as a rural buffer zone. Within this, and subject to permitted activity standards, further development of dairy processing activities may occur. If fully developed, the DPMA has capacity for 8 spray dryers – subject to authorisation of activities under regional council control, including discharges to air among others.
  
21. The outcomes of the plan change are strategically important to Synlait in managing food security and quality to the high level our customers demand. Concentrating our operations at one site allows us to maintain product integrity which is of utmost importance to our business.

### **Site selection and receiving environment**

22. The location of our manufacturing site was a strategic decision, influenced by a number of factors:
  - 22.1 Close proximity to our milk supply farms;
  - 22.2 Close proximity to arterial roads/rail for efficient transport to and from port.
  - 22.3 Long term access to a reliable water supply;
  - 22.4 Access to large land areas suitable for irrigation of process wastewater;
  - 22.5 Rural area with low population density to minimise any potential impacts on neighbours; while being in reasonable proximity to service providers.
  
23. These factors are all relevant from a business perspective, with water supply, wastewater land and low population areas also being key environmental considerations.
  
24. The Dunsandel site meets all these criteria and in doing so allows us to operate efficiently and minimise environmental impacts. As set out above, the

appropriateness of the site for dairy processing has been recognised by the recent change to the Selwyn District Plan.

25. However there are not many locations in Canterbury that would meet all these factors. Rural industrial activities such as milk processing are not suitable for dedicated industrial areas like Izone as they require large areas of land, place significant demands on services such as water and trade waste, and would increase transportation costs and pose logistical challenges by increasing the distance from the milk supply catchment.
26. Synlait is located in a rural area, surrounded by dairy and mixed use farms. The area is sparsely populated with some residential homes and farmhouses. The township of Dunsandel is approximately 5km to the north. The nearest house is 400m to the north and is a residential property; followed by a farmhouse 500m to the east.
27. These establishment considerations are consistent with other dairy processors in Canterbury, and wider rural industrial processes.

#### **Air quality limits**

28. The air quality limits in the consents held by Synlait are suitable for the receiving environment we discharge to (particularly the location of sensitive receptors) and the nature of our operation. The plant is designed to meet the consented limits; provided the plant is well maintained compliance with the emission limits is easily achieved. The exception to this is the quality of coal burnt. We ensure ongoing compliance with emission rates by working proactively with our coal supplier to secure a blend which meets our specification requirements for energy efficiency and emission control.
29. If the proposed Air Plan restricts any further deterioration in air quality, which I understand may be the outcome for Synlait and many other industries if Policies 6.2, 6.3, 6.21 and Rules 7:17 and 7:18 are adopted, the impact on business would be severe. Any expansion (either new plants or increased production) would have to claw back or offset an existing discharge in order to achieve this. More likely such a standard will prevent further growth of discharging businesses, which would have significant flow on effects for the region e.g. constraining milk processing capacity will in turn constrain milk production on farm. Further, existing businesses will face a high level of uncertainty in renewing resource consents to discharge to air.

30. As set out in our submission, Synlait support the direction of the proposed Air Plan in enabling industry that is appropriately located. We further submit that our manufacturing plant is appropriately located, as described above in the factors considered in selecting the site. However in taking the other policies and rules into account we don't believe any further development or even consent renewal of the existing plant would be enabled.
31. Continued operation and development of milk processing facilities must be enabled in Canterbury. Dairy is and will continue to be a key farming system in the region and further growth is expected with the Central Plains Water Scheme ("CPW") coming online. Notwithstanding future milk growth in Canterbury, further development of value added milk products will likely generate the need for plant expansion.
32. Under the provisions as notified renewal of our existing consents would be a non-complying activity. This seems an unfairly high bar especially when you take into account the rural, sparsely populated receiving environment, the efficiency of our plant and the level of investment into the site. There is no comfort or security that a non-complying consent would be granted which is an unacceptable situation for us.
33. The proposed plan further has the arguably perverse outcome of forcing industry to create new greenfields sites rather than further developing existing sites through the inappropriate use of AAQG and applying the same standards to all airsheds. There are multiple reasons why establishing new sites is not desirable:
- 33.1 Synlait have invested heavily into the Dunsandel site and its potential for further development; curtailing this would cause serious disruption to our business strategy.
- 33.2 Aside from the significant capital expense of establishing greenfields sites, operating over multiple sites would create inefficiencies and degrade the very intentional strategy we have implemented to concentrate our supply chain at one site.
- 33.3 Finding and securing suitable locations is far from guaranteed, especially given many other companies would be in the same position.

33.4 There is absolutely no certainty in the proposed provisions that consent would be granted to establish a greenfields site.

33.5 Multiple smaller industrial sites will degrade air quality over a wider area. Surely it is a better environmental outcome to concentrate discharges in locations where a full assessment of environmental effects has demonstrated the air quality effects are appropriate to the receiving environment.

#### **Best Practicable Option (BPO)**

34. As noted in our submission, Synlait support encouraging the use of BPO. We are proud to operate a modern, state of the art milk plant and consider BPO to be a core component in our ability to deliver the high quality nutritional products our customers demand.

35. Manufacturing of infant formula and nutritional products is subject to very stringent measures. Our plant and systems are subject to regular audits by our customers, the Ministry for Primary Industries and the equivalent regulatory agencies of the countries we export to. Operating at BPO gives us assurance we can continue to meet the environmental, food quality and customer standards we are committed to.

36. There are two key ways our plant achieves BPO in relation to air discharges. As noted earlier, our nutritional spray dryers are fitted with both cyclones and baghouse filters. Cyclones are required for infant formula production as bag filters pose the risk of very fine particles from the socks getting into the product.

37. Our boilers are fitted with baghouses and comprehensive monitoring systems. The market for large scale boilers in New Zealand is very small, and it is simply not an option to purchase boilers of this size without such BPO standards.

38. It is interesting to compare the newly commissioned boiler 3 with the existing boilers. Boiler 3 has improved combustion achieved through better process control systems. However the difference is not significant and there are little other differences between boilers. All three boilers are highly efficient and the emission rates are dependent on the quality of fuel burnt in them.



### **Energy efficiency**

39. Optimising energy efficiency is important to Synlait, not least because energy is one of our biggest costs. A range of measures are implemented to ensure the boilers and steam system continually operates at optimum efficiency:
  - 39.1 Recover energy by collecting condensate from the plant steam traps;
  - 39.2 Efficient chemical treatment of boiler water;
  - 39.3 Cleaning the heating surfaces of the boiler and economiser;
  - 39.4 Minimise energy losses through blowdown
  - 39.5 Routine inspections/calibrations of steam system to minimise losses;
  - 39.6 Operating boilers in a manner to achieve maximum efficient combustion.
  - 39.7 Optimising start up and stops of the dryers to minimise steam usage;
  - 39.8 Operating dryers well to optimise performance.

### **Coal supply**

40. Coal is an essential input to Synlait's operations and consequently securing reliable access to quality coal is high on our agenda. Considerable effort has gone into trialling different coal blends to find the optimal blend in terms of energy generated, emission rates and boiler operation.
41. Since August 2013 we have been using predominantly Canterbury coal from the Glentunnel mine. Canterbury coal is well balanced across calorific value, sulphur content and sodium and generally meets our requirements. All three parameters must be acceptable; there are coals much lower in sulphur content, however they also have low calorific value so more coal must be burnt to generate the same required energy output. Similarly we have seen high sodium levels cause fouling of the heat transfer surfaces, reducing the energy output.
42. In 2011 the Glentunnel mine was closed by the owners at the time and we couldn't source Canterbury Coal. Subsequently we trialled many blends from

other mines to find an acceptable blend and while we managed to meet energy demand and comply with emission rates, the sulphur dioxide emission rate increased significantly as a result of the change in coal.

43. Fortunately the Glentunnel mine was re-opened in 2013 when it was purchased by Bathurst Resources and our supply of Canterbury coal resumed.
44. The coal blend used since then is relatively stable, as proven by our monthly composite sampling results. Our coal supplier is incentivised to provide consistent blends within the agreed specifications.

#### **Alternative energy sources**

45. At present there is no viable alternative to coal as a fuel source for Synlait. The South Island doesn't have the option of natural gas and other fuels such as diesel or electricity are simply not viable at this scale.
46. Synlait are aware there has been research completed into potential alternative fuels such as miscanthus and other biomass, but they are still some way off being commercially viable.