

BEFORE THE ENVIRONMENT COURT

ENF No. 113/99

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application under section 316 of the Act

BETWEEN **WAIKATO REGIONAL COUNCIL**

Applicant

AND **ROGER FREDERICK PETER JOHNSON**

Respondent

**AFFIDAVIT OF NADARAJA SELVARAJAH IN REPLY TO
RESPONDENT'S AFFIDAVITS**

Sworn

2000

TOMPKINS WAKE
BARRISTERS & SOLICITORS
HAMILTON

Telephone: (07) 839-4771
Facsimile: (07) 839-4855
PO Box 258 DX GP 20031
Solicitor: KG Parker
Counsel Acting: KJL de Silva

I, **NADARAJA SELVARAJAH** of Hamilton, Water, Air and Resource Utilisation Programme Manager, swear:

Qualifications and Experience

1. I hold a Bachelor of Agricultural Science with honours majoring in Soil Science from the University of Peradeniya, Sri Lanka and a Doctor of Philosophy in Soil Science obtained from Lincoln University, New Zealand.

2. I have 12 years experience in teaching and conducting tutorials and laboratory demonstrations for undergraduates in Chemistry, Physics and Soil Science. During this period I have undertaken research into various aspects of Soil Science. Since December 1992 I have worked for the Waikato Regional Council ("the WRC") as a Soil and Water Scientist within the Resource Information Group. From July 1995 until August 1999 I was Programme Manager for Agriculture and Forestry Programme within the Resource Use Group. Since September 1999 I have been the Programme Manager for Water, Air and Resource Utilisation within Resource Information Group. Besides being a Programme Manager I have also been a practising scientist with 35 scientific research papers in the field of soil, effluent and water chemistry. I am a member of the New Zealand Soil Science Society, New Zealand Hydrological Society, New Zealand Institute of Agricultural Science and Royal Society of New Zealand and executive member of the New Zealand Land Treatment Collective. I have been awarded "Leading Professional" status in 1997 by the New Zealand Institute of Agricultural Science and Australian Institute of Agricultural Science and Technology and NZIAS Science Award in 2000 by New Zealand Institute of Agricultural Science.

3. In this evidence I will represent the Senior Management of the Council to provide Council's opinion and directions about Johnson's piggery

particularly during my time as Programme Manager for Agriculture and Forestry and I reply to the affidavits filed by the respondent. However, if required I am capable of commenting on the technical aspects of piggery effluent issues.

First affidavit of Roger Frederick Peter Johnson dated 14 April 2000.

- 4 In summary Mr Johnson's affidavit indicates that as a pig farmer he has been trying his best to comply with Council's environmental requirements and that the Council has not been helpful throughout the process. In my time as a Programme Manager for the Agriculture and Forestry Programme, there was a steady and frequent flow of community complaints mainly on odour from the piggery.
- 5 From my Council's viewpoint the Council has bent over backwards to help Mr Johnson and his consultants to achieve the desired outcome by committing a very significant amount Council's staff time and resources. In the process, the Council has not been popular among the community. Despite threats from being prosecuted by several of the community members the Council has stayed neutral and focused throughout the process and approached Johnson's piggery issues in a practical and less bureaucratic fashion.
- 6 An excellent example of our non-threatening approach to Johnson's piggery issue was our decision to deal with Johnson's non-compliance through consent process rather than legal actions in 1996. We thought this would provide sufficient opportunity for Mr Johnson to alleviate odour and effluent quality issues. Later this approach was criticised by a report commissioned by the Ministry for the Environment on Johnson's piggery issue. The report emphasised that the Council could have resolved Johnson's piggery issues through legal actions rather than using resource consent process. The report also indicated that the processes

undertaken by the Council were appropriately executed but not well understood by the parties involved.

- 7 After giving considerations to land treatment of effluent Mr Johnson decided to adopt SBR system to treat effluent. SBR technology is well known and used generally to treat human sewage. If applied appropriately such a technology should yield with odour free effluent with low levels of key contaminants such as pathogens, ammonia, suspended solids and BOD.
- 8 It is also known that SBR systems are relatively expensive. I also realised that having installed an SBR system would not guarantee an odour free treatment process with good quality effluent discharge because operator efficiency is one of the key factors influencing the success of the system. Therefore spending thousands of dollars on a poorly performing SBR would be a waste time and money for Mr Johnson. In light of some of these risks associated with the SBR I held a meeting with Mr Johnson, his accountant and my staff Mr David Speirs in 1997.
- 9 My estimate was in excess of \$250,000 including consent charges, SBR instalment cost, consultancy fees and legal fees. In light of the location of the piggery and certain risks associated with the SBR systems I proposed a 'winding down' option to Mr Johnson. According to this option Johnson could save in excess of \$200,000 and shut down the piggery within 3 years. Such a proposal could be brought to the Hearing Committee to implement through the consent hearing process.
- 10 Despite this suggestion Mr Johnson decided to adopt the SBR option because of not finding desirable financial benefit from subdividing his land. At this stage I could only caution him about his approach. The Hearing Committee for the consent also cautioned him about the consequences.

- 11 Why should Mr Johnson treat his piggery effluent? Piggery effluent is the strongest effluent compared to farm dairy or human sewage effluent. It has very high ammonia levels. If discharged to waterways effluent with high ammonia levels can kill fish and cause algal blooms. Our Council is committed to reduce contaminant levels in streams and rivers.
- 12 If I consider the maximum allowed 50 kg pig equivalents of 4350 by the Council to Mr Johnson the raw effluent resulting from this piggery in terms of nitrogen is equivalent to the nitrogen output from the whole of Cambridge township with a population of 10,800.
- 13 Mr Johnson has a consent from our Council to discharge 125 cubic metres of effluent per day into an unnamed tributary of the Mangaomapu Stream. This stream flows into Mangaone Stream which flows into the Waikato River. Apart from farm dairy effluent discharges the two major consented discharges in the Mangaone catchment is from Anchor Products, Hautapu and Johnson's piggery.
- 14 Anchor Products has been investing millions of dollars to improve their discharge quality. They have been progressively reducing effluent loading onto their Hautapu site and reducing ground water contamination and consequently reducing indirect contamination of the Mangaone Stream. Despite these efforts Mangaone Stream is still considered as one of the most polluted in the Waikato Region.
- 15 Apart from high nutrient input to the catchment, Johnson piggery effluent discharge also had other issues. Mr Patrick Hogan of Cambridge Studs always maintained that the effluent discharges from Johnson piggery had high levels of pathogens and potentially dangerous to his expensive horse breeding stock. This is because the drain where the effluent used to be discharged runs through Mr Hogan stud farm.

- 16 Consequently the discharge quality standards imposed on Mr Johnson's effluent discharges are relatively high. These standards were in fact proposed by Mr Johnson's consultant Mr John Campbell and accepted by the Council staff and the Consent Hearing Committee. Mr Campbell was confident that his treatment system would meet these standards.
- 17 Apart from a low consent term of 5 years imposed by the Council, majority of the consent conditions were accepted by Mr Johnson and his consultants. The term of the consent was extended to 7 years following an appeal. To my knowledge as a Council we never did have any 'hidden agenda', everything was openly discussed and time frames negotiated with the Hautapu community and Mr Johnson and his consultants. In the process there has been continuous 'mile-post' shifting by the Council to ensure Mr Johnson comply with the consent conditions.
- 18 I do not accept the statement by Mr Johnson that the Council's decision to shut down the piggery came as a surprise. During the community consultation leading to the consent order by Judge Whiting (24 November 1998) I made it explicitly clear to Mr Johnson that if his odour expert failed to resolve the piggery shed odour issue the Council would consider shutting down the piggery.
- 19 I thought as an odour expert engaged by Mr Johnson with the consensus of the Council Mr Tipler would identify the issue of piggery odour and propose appropriate remediation measures. Mr Tipler's assessment of the odour issue was disappointing and counterproductive to resolve the issue amicably. Since there was no other hope and option to resolve the odour issue the Council eventually decided to apply for an enforcement order to shut down the piggery.

First affirmation of Clifford John Maxwell Tipler dated 14 April 2000.

- 20 The Council's disappointment with Mr Tipler's report is with regard to his conclusion of the report which stated, "*...on the basis of this assessment, while at times there will be odour at or beyond the boundary that an ordinary person would find annoying, this would not constitute an offensive or objectionable effect...*".
- 21 Based on this conclusion Mr Johnson needed not to undertake any measures to minimise odour from the piggery. This conclusion also implies that there has been no breach of consent conditions 12 and 13. If this is the case I am confused about the actions Mr Johnson has taken towards reducing odour, e.g. reducing the stock number, flushing three times a day etc.
- 22 Similarly I am confused with the mitigation measures recommended by Mr Tipler (paragraph 69) and Mr Richards (report to Council in April 98) while both of them are in the opinion that there is nothing wrong with the management of the effluent and the piggery.
- 23 I partially disagree with Mr Tipler's statement in paragraph 33. In my letter dated 30 March 1999 to Mr Tipler I explained how urine is the major cause for odour and illustrated the process of ammonia volatilisation from urine. I do agree that there are other odour causing substances apart from ammonia, however, I still maintain that ammonia is one of the major odour causing chemicals. In my expert experience with techniques used to measure ammonia levels in atmosphere there are always substantial errors associated with the data and this may be one of the reasons for poor correlation between odour (there are also high errors in assessing odour) and ammonia.
- 24 According to Mr Tipler he did not want to consider community odour diaries because of community bias against Mr Johnson. In my opinion such a view is academic (i.e. not practical) and as a Council we are

obliged to resolve any justifiable complaints from the community and I believe that odour diaries play a critical role in the process.

First affidavit of John Michael Campbell dated 14 April 2000.

- 25 In drawing the attention to paragraphs 9 and 10 in Mr Campbell's affidavit, in my opinion, there is nothing technically spectacular about the pond treatment systems Mr Johnson employed to treat piggery effluent before the installation of the SBR. These are normal effluent ponds dug to store and treat effluent. There is no control a pig farmer can exert on the function of these ponds to accelerate the treatment process. Pond systems are popular among dairy and pig farmers because the capital cost involved is very low and ponds require little or no maintenance cost or time.
- 26 The constructed wetland installed by MAF is not part of the treatment for quiet sometime. The discharge quality of the effluent was not conducive for the wetland plants to survive.
- 27 In my opinion the discharge from the ponds was not of high standard. The discharge had toxic levels of ammonia and BOD high bacteria levels. In light of poor quality of farm effluent pond discharges and their cumulative effects on the receiving environment our Council has been promoting effluent irrigation systems where appropriate. In other words the so called 'conventional' systems as referred by Mr Campbell (wake up Campbell!!!) are rapidly becoming unconventional systems in the Waikato Region.
- 28 The commissioning process was set out in the consent as Mr Campbell proposed in his reports to the Hearing Committee for the consent. There was nothing newly invented or introduced by the Council. It appeared to me that Mr Campbell did not take into account the risks and setbacks associated with the commissioning process. I recall discussing with him

full effluent loading into the digester with Mr Campbell and he was very relaxed with that approach at that time. I wished Mr Campbell emphasised the importance of commissioning process and hence requiring sufficient time and flexibility for successful commissioning of the SBR to the Hearing Committee as he illustrated in his affidavit paragraph 20, “...*I wish to state at the outset that commissioning any biological wastewater treatment system is a complicated dynamic process. Decisions have to be made on an ongoing basis with a full understanding of the system and on the basis of what has occurred and is occurring at any given time..*”

- 29 Mr Campbell also failed to inform Mr Johnson to not to use antibiotics or if used to divert effluent to old ponds following the use of antibiotics. During an urgent telephone conversation with Mr Campbell he clearly attributed the failure of the digester system to the use of antibiotics by Mr Johnson at that time. In the affidavit, however, he is complaining about the full load of effluent being the major cause for the failure. Full load of the effluent was never considered as a major issue by Mr Campbell until the system started to fail.
- 30 After the major failure of the digester the Council engaged a consultant to comment on the commissioning process. The consultant identified several fundamental mistakes in the SBR commissioning process executed by Mr Campbell. Important processes such as seeding the digester with old pond anaerobic pond sludge from the start, filling SBR with clear water and seeding it with activated sludge and more aeration provided to the SBR are few examples. It is interesting to note, however, at least these recommendations have been implemented by Mr Campbell since the failure of the system.
- 31 I do not agree with Mr Campbell that our abatement notice served on 1 July 1998 to Mr Johnson to flush the sheds twice daily caused a lot of ‘damage’ to the commissioning process (paragraph 41). He had the

choice of either using freshwater or SBR wastewater to flush the sheds and he chose to use SBR water. In fact the Council allowed Mr Johnson to abstract a further 35 cubic metres of ground water for the purpose of twice daily flushing.

- 32 In my opinion the Council tried its best to be flexible to Mr Johnson and his consultants whilst ensuring our credibility was maintained with the community. Despite this approach the community felt that yet again the Council let Mr Johnson to breach consent conditions.
- 33 I have to also respond to Mr Campbell's point about the relationship between stock number and odour (paragraphs 42 and 43). It is common knowledge that the amount of waste (i.e. animal excreta) produced by farm animals is directly related to stocking rate. High stocking rate means high amount of waste and high amount of gaseous emissions regardless of employing best practicable technologies. I do, however, agree if the entire air from the shed is scrubbed through a bio/chemical filter system there will be little or no odour. Even then such a system has to be designed based on stock numbers. Similar principle applies to waste water treatment designs.
- 34 In summary, my response to Mr Campbell's affidavit is (a) Mr Campbell was very relaxed with the resource consent conditions and did not alert or warn the Council or his client about potential setbacks during the hearing process or until the failure of the digester system (b) After facing a substantial technical challenges during the commissioning of the SBR he is now accusing the Council for the failure of the system.
- 35 After almost two years since the installation of the treatment system I am not satisfied with the very high ammonia levels present in the SBR (according to Mr Johnson's affidavit paragraph 7.5 in April 2000 it was 335 g/m³). These are the levels one would expect from inexpensive effluent pond discharges. The quality required by the consent and agreed

to by Mr Campbell is 2 ammoniacal-N g/m³ (annual median of monthly samples), which is far from reach.

- 36 To avoid any breach of the consent conditions Mr Johnson has to continue rely on irrigating SBR effluent onto his neighbour's property. It is probable that it may take several more years to reduce ammonia levels to the required discharge quality.

First affidavit of Garth Richard Seddon dated 14 April 2000.

Affidavit of John William Moxham dated 28 March 2000.

Affidavit of Edward Grant Richards dated 12 April 2000.

Signature of deponent.....

NADARAJA SELVARAJAH

SWORN at Hamilton this day of 2000 before me:

A Solicitor of the High Court of New Zealand