



# Atlantic Shellfish Ltd.

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4th November 2008

Dear Sirs,

## Waste Water Discharge Licence Application D0056-01 Midleton WWTP – re the Population Equivalent of the Agglomeration.

In their application to you of 14.12.07, Cork County Council gave the PE of Midleton as 10,000, stating that it had been calculated in 1993. Method : Pollution Assessment Load.

In their revised application of 26.05.08, the County Council gave a figure of 17,100 PE by the same method over the years 1993/2007.

It is, of course, vitally important that we all know exactly what is the sewage load of Midleton that has to be treated at this point in time. If we don't know it, we cannot tell how much, over and above what we are told is being treated at the WWTP, is being discharged, untreated, by the various storm and gravity overflows, for which you are considering licences.

I asked Cork County Council, under FOI, for the calculations by which they had arrived at the above figure of 17,100 PE and they replied on 2<sup>nd</sup> September, "There are no records in existence specific to the calculations you mention. Thus there are no records to be released under FOI. As plans are at an advanced stage to extend Midleton WWTP to its original designed capacity of 15,000 PE this is the figure that was attributed to the plant on the application. As the application is for licencing the discharge from the agglomeration, the contribution of Irish Distillers has to be added to this figure. 2,100 PE was attributed to IDL based on the max. flow/day their licence allows and the BOD limit that is set in their licence for waste being discharged to the council sewer." This, surely, is putting the cart before the horse and cannot be the way to assess the necessary capacity for Midleton's sewage treatment plant?

In their report to justify this up-grade for the WWTP, Barry & Partners gave the calculated PE in 2006 as 12,897 based on the 2002 census figure of a population of 9,380. Actually the 2006 Census, which they acknowledged was coming shortly, gave the residential population as 10,336. This would have increased their calculated PE for 2006 to 13,853. But as they also stated in the next paragraph, 2.5 Summary : *“The average biological loading on the WWTP in 2005 was 6,353 PE” ... (figures taken from the Service Provider’s Monthly Operational Reports).* These two figures of total calculated sewage load and load actually received by the plant, allow us to see the size of load that was NOT reaching the plant, i.e.  $13,853 - 6,353 = c.7,500$  PE.

In para. 3.1. Barry & Partners admit, *“The previous section demonstrated that the existing loading from the town may well be in excess of the WWTP’s design capacity of 10,000 PE but that this is not being delivered to the plant due to shortcomings in the pumping stations.”*

I would argue that there are no shortcomings with the pumping capacity of the pumping stations, whose pump capacity is cut right back, as agreed by Pettit’s NUWW Study para. 3.6.1, but the point is that a large quantity of sewage is not finding its way to treatment and we need to have an accurate assessment of the discrepancy.

Pettit’s calculated the 2004 PE of Midleton as 14,817 in the NUWWS. This would make the quantity of BOD being discharged untreated even higher than the Barry estimate.

As you know, the loads arriving at the plant are given in the Monthly Reports prepared by the Plant Operator. These were based on BOD5 results estimated by an external laboratory twice a week (latterly once a week) and by converting the site laboratory COD figures in the ratio COD : BOD at 2 : 1. Latterly the Plant Operator is paid on the basis of the external laboratory ratio determined once a week, so I have altered my conversions accordingly. The average daily influent load given by the two sets of figures is shown in the attached graph (1). Various things are shown up :

- 1) The load given by the external laboratory has varied mainly around the design level of 10,000 PE – despite M.C. O’Sullivan’s observation on p.4 of their 2002 Performance Report, *“In the last decade, Midleton and environs has experienced a huge residential building boom as the Eastern Parkway has increased the town’s attractiveness as a dormitory settlement of Cork City.”*
- 2) Until the middle of 2004, the external laboratory results, following a steady no-growth pattern, under-stated the all-figure set of results, but from then on there has been much closer agreement.
- 3) The on-site laboratory figures would seem to best reflect the growth in the town’s sewage load up to May 2004, at which time the load progressively DECREASES until December 2005. Statistically (2) the actual regression line increases from 11,000 to 16,000 in just under 4 years, which is an increase of approximately 12% p.a.
- 4) After February 2007 there are enormous swings in average daily load size from 6,947 PE to 22,128 PE. As the load is predominantly domestic and must therefore be deemed to be constant, these differences can only be put down to differences in load shed through the storm overflows etc.

I have already sent you the one estimate of the PE that we have which was clearly a private assessment from the consulting engineers, who designed the plant, M.C.O'Sullivan's to the County Council, written whilst the plant was still under construction on 19<sup>th</sup> November 1999 (3). In it they warn of the extremely rapid recent growth in the town, which, with the addition of the Dawn Meats' discharge of 590 PE, would bring the total PE, in their estimation, to 11,731 by 2000 and they warn the County Council that, if the load went to 20% above their design of the plant (i.e. to 12,000 PE), the DCMNR effluent consent was likely to be breached. Taking off the meat factory discharge we are left with the consulting engineers' estimate of the PE in 2000 of 11,141, which is very close to where we put it in the graph of influent loads above.

The rate of growth of Midleton has only accelerated since 2004, but keeping growth at 12% p.a. (or 1% per month), we arrive at a current PE for Midleton of 30,000, which lay comment seems to find about right.

However, it must be the County Council who could give us the most accurate GIS- and Planning-based figures. I note that, in response to Ms. Donlon's enquiry under Regulation 18 (3)(b) of the Waste Water Discharge (Authorisation) Regulations 2007, the PE for Carrigtwohill (population 2,782 in 2006 Census) was increased from 12,000 PE to 45,000 PE as Phase 1. I enclose this detailed piece of work, which even counts in an extra 4 PE when the train-line returns to the village. This seems to be at least the level of detail in which we need Midleton to be assessed, when human health from consumption of shellfish from the receiving waters is involved. (4)

I am still surprised that no correspondence from you is yet posted on the web and especially a Regulation 18(3)(b) requirement, which appears on most other WWDL applications, but I do hope you will agree with me that we need a properly calculated and best estimation of the current PE for Midleton such as that for Carrigtwohill, so that we can gauge the size of the load that is being shed to the estuary. It can no longer be measured directly because of the loads being lost to the estuary daily in "storm" overflows etc. – see the table below.

Further to my letter of 7<sup>th</sup> July re the apparent lack of any improvement following the infiltration remediation programme carried out last summer, we have now had 3 months where the total "recorded" storm overflows have been just as great as before the work, including the new Dwyer's Road pumping station, was put in hand. You will see that these 3 months have averaged over 2,000 m<sup>3</sup>/day of storm overflows and these still do not take into account the "unrecorded" gravity flows from the system. These are NOT storm overflows of much diluted effluent, but crude sewage, flowing directly through full storm tank cells with no holding capability at all, with a faecal coliform count as high as the influent to the plant.

The BOD concentration of the load being lost in this way will thus be much the same as that pumped to the WWTP. If the load being treated in the plant is still often below 10,000 PE and doesn't vary upward much more than in the range of 10,000 – 13,000 PE (see (1)) and the town has grown to 30,000 PE, then there is a shortfall in treatment of 20,000 PE of sewage. This is reflected in the viral contamination of the oysters, which are proving constantly positive. It could also be being reflected in the degradation of the water quality between Midleton and the East Ferry, from intermediate to eutrophic status – unlike the improvement brought about by the Carrigrennan plant.

## Summary of annual overflow data

Year	Rainfall (mm)	Combined overflows		Bailick 1		Bailick 2	
		Total number of overflows	Total volume of overflows m3	Number of overflows >40m3/day	Volume m3	Number of overflows >40m3/day	Volume m3
2002	1,264	193	333,216	139	315,299	54	17,917
2003	908	117	117,954	95	110,224	22	7,730
2004	1,011	131	186,640	89	152,643	42	33,997
2005	1,014	280	314,371	140	259,953	140	54,418
2006	1,140	387	394,796	158	294,380	229	100,416
2007	958	342	277,409	125	187,690	217	89,719

### Data for winter 2006/07

	No. >40m3	Total vol. m3	Av. spills/day	Av. vol/day m3
October	55	64,272	1.8	2,073
November	57	75,589	1.9	2,520
December	62	155,327	2.0	5,011
January	50	52,891	1.6	1,706
February	53	80,202	1.9	2,864
March	57	68,022	1.8	2,194

The summer of 2007 saw the extensive rectification of infiltration in the sewerage system and the construction of the new Dwyers Road p/s to eliminate the suspect pipe to Bailick 1 under the Owenacurra River. All was finished by September 2007 and yet it does not appear to have made much difference:

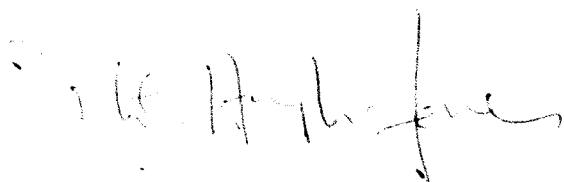
2008	No. >40m3	Total vol. m3	Av. spills/day	Av. vol/day m3
January	54	76,131	1.7	2,456
August	45	63,200	1.5	2,039
September	47	72,441	1.6	2,415

I trust that you will agree with me that it is unacceptable to be given a figure for the population equivalent of Middleton "to be, or being served", that is based solely on the fact that this is what the County Council have permission and funding for. This should not satisfy the Dangerous Substances Directive; it will certainly not protect the environment and I hope you will insist that we are all told just how big this agglomeration now is in terms of BOD or PE.

May I remind you that growth has been so fast in Midleton that the National Urban Waste Water Study carried out by Pettits et al. (April 2004) was forced to admit, "***The projected 2022 population derived from the Standard Methodology is considered an underestimate since it was exceeded in 2002.....***" The projected figure for 2022 was then increased by the authors three-fold from 6,750 to 20,307. Use of "*the original designed capacity of the treatment plant*", quoted by the County Council at the start of this letter, for the current PE of Midleton, simply is not good enough.

May I please ask you to post up on the web all your correspondence with the County Council on this, as I would imagine you may already have sought a more detailed PE calculation for Midleton than we have been given, but, at the moment, we are all very much in the dark. I do trust that the data above, that I have given you, warrants asking the County Council for a detailed study to be carried out and that you will also agree with me that you cannot licence these waste water discharges until you know the size of the sewage load, which is simply not getting treated.

Yours faithfully,



D.L.I. Hugh-Jones

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Average influent load in PE arriving at Middleton WWTP. Influent analysis as given on p.9 of Monthly Reports from external lab. (blue) and external and site lab. figures together (pink)

