

***Is criticism of the effluent and the Dioxin limit
set by the Tasmanian Government
valid?***

Adjunct Associate Professor Andrew Wadsley of Australian Risk Audit has been a vocal critic of the dioxin in effluent issue. He was the author of part of the submission for the Greens political party on Gunns Draft IIS.

He has issued various media releases and public statements critical of the Government, its consultants, the developer and their expert consultants. He appeared on the National ABC program the 7:30 report to explain his dioxin theory; the ABC displayed a model of this theory.

One of his media releases was used by Flinders Island Council to decide to oppose the Mill.

Dr Wadsley has also published a *Review of SWECO PIC Assessment Report*.

This is a review of the report “*Assessment of the Gunns Limited Bell Bay Pulp Mill against the Environment Emission Limit Guidelines*” by SWECO PIC Oy .

Dr Wadsley claims he found that SWECO PIC “make false and misleading statements, and omit significant issues required for assessment under the Pulp Mill Assessment Act 2007.”

He was also critical of dioxin levels.

But are these criticisms justified and are they valid?

The following statements and comments may enable a reader to consider if the Wadsley report itself “make false and misleading statements, and omit significant issues”

A W Wadsley 11 July 2007 *Review of SWECO PIC Pulp Mill Assessment*

Emission Limits (Page 9)

“It should be noted that lower emission limits for dioxin can be achieved using BAT as modern American mills have dioxin concentrations in their effluent of less than 2pg TEQ/l (^{30,31}) compared to the 13 pg TEQ/l set in the guidelines (³²).

³⁰ pg TEQ/l = picogram (10^{-12} g) per litre equivalent toxicity to the “Seveso-dioxin” 2,3,7,8-TCDD

³¹ Beca Amec Limited, Review of ECF and TCF bleaching processes and specific issues raised in the WWF report on Arauco Valdivia Section 2.7.

³² Toxicos Pty Ltd, Marine Impact Assessment- Bell Bay Pulp Mill Effluent, 23 January 2007. p122.

This statement ignores the fact that the legal limit of detection for dioxins in the USA is 10 pg TEQ/l as found in the quoted reference.

It is the smallest quantity that can be measured by instruments, setting limits lower when they can't be measured is not part of international best practice.

Reference 31 states:

2.7.2.10 American and Canadian emissions of dioxins from ECF mills

Most North American BKP mills analyse and report on dioxin discharges regularly, typically several times annually. Most American and all but one Canadian mills in the early 2000s reported “non-detect” on 2,3,7,8 TCDD (**at 10 pg/L in the bleach plant effluent for the US and 15 pg/L in the treated effluent for Canada**) and roughly half had occasional detection of 2,3,7,8 TCDF.

All Canadian mills except one were employing ECF bleaching, whereas only about $\frac{2}{3}$ of the US mills were employing ECF bleaching at the time of the survey [McCubbin, 2001].

A recent update of the dioxin survey [McCubbin, 2006] reports that in the USA, 55 of the 80 or so bleached kraft mills determine the concentrations of 2,3,7,8 TCDF and 2,3,7,8 TCDD in bleach plant effluent regularly, but few report data on the concentrations of these substances in the effluent as discharged to the receiving water after biological treatment. **The legal detection limit (minimum level) for 2,3,7,8 TCDD and 2,3,7,8 TCDF is 10 pg/L, and virtually all the analyses report values less than this level. However, there is insufficient data available to calculate the margin by which bleach plant discharges are below the legal detection limit.**

A first approximation, on the basis that bleach plant effluent flows are typically around $\frac{1}{3}$ of the total mill effluent flow and at least some of the dioxins will be retained in the effluent treatment plant sludge, **suggests that treated effluents discharged from American mills may contain less than about 2-3 pg/L of 2,3,7,8 TCDD.**

Virtually all Canadian mills are at present authorised by Environment Canada to reduce sampling, analysis and reporting of dioxin and furan discharges to once annually, and virtually all analyses are undetectable at the regulatory levels of 15 pg/L for 2,3,7,8 TCDD and 50 pg/L for 2,3,7,8 TCDF.

Environment Canada verifies that mills report discharges as required, but does not maintain a database of actual values, since all are considered “non-measurable”.

It is clear that discharges of PCDD/ PCDF in Canada and the US are dramatically below the levels of the early 1990s, but there is insufficient data available to quantify the current discharge levels.[Emphasis Added]

This statement by Beca Amec not only to be totally at odds to Dr Wadsley's interpretation but contradicts Wadsley's earlier claims in his own report

“Dioxin

SWECO PIC assert that the estimated discharges of 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) will meet the Guidelines; this is despite the fact that the proposed chlorine dioxide process is new pulp mill technology. There is no basis in fact to make their assertion. The effluent dioxin concentration of 3.376 pg TEQ/L is an estimate by Jaakko Pöyry based on 10% of average Canadian/Swedish mill effluent concentrations in the 1990s (11). Given the use of different technology, such historical data has no relevance to Gunns' proposal.” (Page 4/5)

Again this statement is misleading, whilst one of the options to produce chlorine dioxide is a new process (and is not now going to be used), the use of Chlorine dioxide in ECF bleaching has been used since around the year 1990.

The Beca Amec reference quoted by Wadsley and available to the Public from the RPDC web site has a detailed discussion of ECF bleaching with chlorine dioxide and the resultant reduction in Dioxins in the biota near North American pulp mills.(section 2.4)

Sources:

Beca Amec Limited, Review of ECF and TCF bleaching processes and specific issues raised in the WWF report on Arauco Valdivia available from <http://www.rpdc.tas.gov.au/poss/pulp/publications>

Review of SWECO PIC Assessment Report

Available from

http://tasmaniantimes.com/images/uploads/Review_of_Sweco_Pic_Report.pdf