**Submission into the review of the 2016 floods.**

I would just like to make a couple of points about the effects of the cloud seeding on the flooding.

I am a resident of the Upper Derwent Valley, who is directly in a down wind area from the Hydro’s cloud seeding and also directly in the flight path of the plane when it is heading out on its flights, so I pretty much know when the plane is going on a flight, and have been studying the flight maps since seeding became routine in 1998.

I have no doubt that seeding is reducing rainfall downwind of the Hydro’s target areas, it is painfully obvious as an observer over so many years when I also know if the plane did or did not go on a flight. The Hydro deny claims that it reduces downwind rainfall despite the fact that the technology has been used for this very purpose in many other countries, China, France, Russia, to name some. China have stated that the opening ceremony of the Beijing Olympics was only kept dry through cloud seeding when less than 100km away they received 100mm during the event. It was also used to keep the weather fine during this years G20 summit. The downwind rainfall suppression is a result of the increased rainfall or concentration of the rainfall in the Hydro’s catchment. This is what would have occurred on the Sunday 5th of June when the Hydro seeded the Upper Derwent catchment. Ouse had a fine day, even though there was a reasonable amount of rain predicted. One farmer who lost in excess of 500 sheep, was shearing at the time and had dry sheep on Sunday night in the shearing shed, yet woke on Monday morning to find before dawn, a flood the size many would never have seen before had washed over paddocks taking his sheep he had assembled for shearing later in the week. He had no flood warning the day before. The Hydro’s cloud seeding would have increase the rain in the catchment increasing the size of the flood and also the damage caused. By concentrating the rain in the catchment rather than it being dispersed over a wider area as would of happened naturally, the cloud seeding may have been the main cause of the flood down the Ouse of the 6th June.

The Hydro claims the cloud seeding would not have had an effect on the flood as it was targeting Lake Echo where as the Ouse river is fed by Lake Augusta. Problems with this statement are that firstly once a cloud is seeded there is no control over where it will go any change in wind direction will cause the target area to be missed, and secondly the area around Lake Echo has many creeks that do run into the Ouse river.

The Hydro also released a statement on the 29th July that said cloud seeding was not to blame. It stated that post flight analysis showed the clouds seeded on that day had high levels of ice content, which made seeding ineffective. In other words the Hydro claim the cloud seeding plane was on a joy flight for 2 hours and 53 mintutes wasting money and adding to global warming from the emissions of the plane. Firstly how can you evaluate clouds post flight when the clouds are gone and the flight is over. Secondly the Hydro’s website states

“The Cloud Seeding Officer uses the available information  
to determine if conditions are likely to be suitable for cloud seeding. The decision to go on a cloud seeding flight is made two to three hours before a potentially suitable cloud front is expected to be over Tasmania. Weather and atmospheric conditions in a cloud may change very rapidly as a cloud front passes across Tasmania and this means **the suitability of a cloud for seeding operations can only be confirmed by flying through the cloud. “**

According to this statement then the clouds on the 5th of June would have been flown through and determined to be suitable for seeding as a seeding flight did take place for 1 hour and 34 minutes. It can be then be assumed that the seeding over the Upper Derwent Catchment on the 5th June would have been effective in increasing the rainfall, and would of contributed to the flood down the Ouse river on the 6th June.

The Hydro cannot lie their way out of this, either their seeding contributed to the size of the flood and should be banned because it is changing rainfall patterns and to prevent future deadly floods occurring.

Or their cloud seeding program since 1998 has been a complete waste of money and resources. Hydro seem to justify the decision to cloud seed on the 5Th June by saying there was not any flood warnings issued for that catchment. Does this mean that BOM got it wrong, or was the cloud seeding a significant factor in the flood down the Ouse. It is very hard for BOM to issue accurate forecasts when there are other 3rd party human influences on the weather of which they are unaware.

I even believe that by reducing down wind rainfall with the cloud seeding, which reduces soil moisture in downwind areas, it is not out of the question to argue that the Hydro’s cloud seeding would have had an impact on the severity of the 2013 Bushfires, especially the fire around Ouse and Ellendale, if not the Dunalley fires as well.

Looking to flood prevention in future the banning of cloud seeding should be automatic. Any seeding activity which causes a catchment to become more saturated in the weeks or months leading up to a large natural rain event, regardless of whether seeding was done during that event would be likely to increase run off and subsequent flooding due to the catchment already being wetter than if no cloud seeding had been done at all.

The Hydro are not dependent on cloud seeding to run their business, it just needs to stop being greedy and realize that to run their business sustainably it may have to reduce the amount of power it exports or have other generation means.

Philip Davie.

Ouse Tasmania