

To MWS&DB Engineers on the submission – Warragamba Dam raising project -S1-8441

My name is Ray Casey

I live at Leumeah NSW

I make no political donations and this submission may be published if required.

I do not belong to any political party or support any with any money. I am supplying information and no doubt a lot of this would be very embarrassing to the Sydney Water Board if published. The politicians are only there for one or two elections, get their pensions and move on so it is up to the engineers to assess the submissions because the project – s1 -8441 is suppose to last over 100 year or more for a dam that is already over 70 years old now.

I submitted the objection to this project because I consider it very unsafe and a danger to all the people that live on the flood plains below the dam and along the river. It is not the cement that the dam is made of that is the problem, it is the sandstone it is sitting in and on!

The political parties allowed building on land in the 100 year flood zone however people will be effected by the outcome of this Warragamba Dam wall raising project decision!

A bit of my history - I was a first year apprentice at Cadwalladers engineering factory at Concord West for only 4 months until the decision was made that they had too many apprentices for the number of tradesmen there!. In this factory I met an old man and he said he worked on making the dams in the 1920s. He said no one knew much about concrete in those days and they through bags of cement in with out them being mixed!! I didn't believe this THEN.

I obtained an apprenticeship with STC at Liverpool. When I came out of my time as a 5 year apprentice I was working in STC Liverpool mobile radio testing department testing and adjusting mobile equipment which had as a main customer the MWS& BD. The head of electronic department came to do the acceptance and asked me to come and work for him at the MWS&DB Waterloo location, which I did.

I worked on MWS&DB mobile equipment and base station equipment. This base station equipment I helped install on the Wollondilly River location, the head office would send out a signal and each dam would send back information such as rain fall and river height and this signal then triggered the next dam to respond and so on.

I was put in charge of the TV truck doing inspections on water pipes and bore holes.

On Parramatta road a series of hole was dug down to the pipes below the road surface and covered with steel plates until we were ready to open the pipes. This was a night time operation. Then the crew would dig around the pipe holes down to the pipes and cut out section of the pipe for the camera to be dragged through after a cement scoarer was dragged through and the a load of cement in front of this cork shaped devise which was squashed onto the sometimes non existing pipe. I noticed the cutting of the pipe required first that the black outside coating had to be cleaned and huge electrical clamps attached, then the pipe cut. As the saw cut sparks would occur at these clamp connections and especially when the pipe brock off – hundreds of amps of currect flowing but low voltage. The pipe carrying earth leakage currents which erroded the metal pipes from homes using the pipes as earth return for house hold power. My job was to photo the finished coating of cement which went up other connected pipes that then ozed back into the pipe and set hard, needing someone to go and chisel out these blockages. Not to many volunteers for that job! This work continued each night with plated covering the holes until the work was completed, the noise coming from cars driving over the plates sounded like rushing water and scaring the “volunteer”. He would have a rope tied to his feet to pull him out. A few weeks later one man was drowned doing simular job.

My next job was at Avon Dam where holes were bored about every 6 foot and sloping along the dam wall and another set across the dam and this set sloping the opposite direction along the dam wall. My job was to take photos of any defects seen.

I found a cavity inside the dam in which I photographed **cement bags!!**

Much later all the dams walls where strengthened by rods inserted and cemented in place . At Avon dam large stone blocks where added to the outside wall of the dam to 50 feet thickness; so engineers took notice of these photos to fix the problems.

Anyhow on one occasion doing the inspections the cable being hand wound down a bore hole slipped off the wheel and the probe dropped 2 feet , this was enough to severe the probe and it fell down the bore hole. Latter recovered and repaired.

I had to take the TV truck to Warragamba Dam to have the repaired probe leak tested by dropping it over the dam wall. The dam operator then showed me the inside of the dam galleries. I saw on the lower level gallery pipes drilled down through the dam into the sandstone beneath with pressure gauges and a tap on each pipe. I was told that the operator has to **monitor this pressure and release the pressure when it builds up**. Out of these pipes was growing a crystal growth of the desolved sandstone calcium, like fairy floss, which I could run my hand through but it continued to grow.

On another trip to Warragamba Dam the operator complained of the false information coming from the Woolondilly installation indication a 22 foot water level. The information was correct and the water at the dam rose a foot an hour and eventually required all flood gates to be opened for the first time. This flow of water ripped up cement blocks just beyond the dam wall and they were take down stream by the flow of water causing a lot of damage to equipment beyond.

Later it was found that the Dam wall had moved 3/8 inch and 1/2 inch by this flood.

It is because of this movement that I object to raising the dam wall and putting the people down stream in greater risk when 15 meter extra water height is added to the force against the dam wall ***and the extra 25% lifting force below the dam wall to 150 psi! It is not superglued down into the bedrock.***

There was all through out the world dams failing. An agreement by goverments that the old 100% full would become to 110% overfull (the old 90% equals full) which on Warragamba about 15 feet lowering. i.e. **now 10% overfill** before water would go over the top of the wall. Australia signed this world agreement.

However **later** after installing a separate spillway to take this flow well away from the dam wall with the level at the new 100% full position (that is the original 90% full height).

But again **later** this was altered with a temporary stone wall back to the original 100% full position. This makes me thing that the left hand doesn't know what the right hand is doing at the new MWS&DB, then renamed NSW Sydney Water.

The NSW Government trying to sell off assests is causing this lack of common sense with no one looking at history and past mistakes. If the dam was to be constructed **NOW** the updated modern materials and methods would be able to construct good dams, however the new NSW Sydney Water is stuck with dams over 100 years old and their old methods of construction.

The dam is not positioned where additional storage is possible!

Sydney is not immune to seismic movements!

Sydney Water will have to **bit the bullet** and find a way of converting sea water to drinking water more cheaply, stop dumping sewerage into the ocean but instead, converting it inland to make use of it as fertilizer for food production. Not a job for private companies that require profit to exist.

Sydney Water could use the existing NSW train tunnel boring mechines to construct a tunnel through the Blue Mountains to transport and make the soil richer out in western NSW as all the good fertile land for growing food in Sydney basin has now got houses on it.. This redirection might stop killing the fish from the plastic being dumped out in the sea.

If the government slows the huge influx of people into NSW the water requirements would be less critical with more time to find solutions to these many problems of obtaining clean water.

My son works on cleaning up the damage to the river from all the houses and bits and pieces washed down and sunk into the river from the last flood.

Engineers - **Make the right decision!!**