Submission fro Mr A J Pickard

TONY PICKARD to: csg.review 01/05/2013 02:40 PM

History: This message has been replied to and forwarded.

Madam
Thank you for granting an extension to the allocated time for Submission .
Please find attached my submission and two (2) attachments.
The below contact information is not for publication .
Thanking you again for your tolerance and assistance .

Yours Sincerely
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Submission 1-5-13 The NSW Chief Scientists Review into the Risks of Coal Seam Gas.pdf

2nd Baseline Survey Report Rockdale June 2012 - Edited.pdf

29-15-9-06--3yhv4l2jc37fd.pdf

The NSW Chief Scientists Review into the Risks of Coal Seam Gas
Submission by Mr A J Pickard
75 Rockdale Rd Jacks Creek Narrabri NSW
dated 1st May 2013.

Madam

I will not be submitting much in the way of words, for already that has been done by me in the past to the a number of CSG Inquiries these include, NSW No. 5 Committee as well as to both Federal inquiries into CSG and the effects on the Murray Darling Basin (Eastern Star Gas' reply 77r to my submission 77 dated 09-18-09, is a must read along with my reply, {I raised Fraccing and Heavy Metal concerns amongst other issues} and the REF by ESG called "The Bohena Coal Seam Gas project, Water Treatment and Disposal Project" dated December 2006) as well as to the EPBC concerning the possible effects of the ESG proposal for 550 Well sets in PEL 238.
Santos now controls PEL 238 but the talk is still the same, just look at their explanation of the spill of July 2011 and then Golder Associates Soil Analysis. Go looking for the CH2MHILL report into the spill you will not find it and yet Santos has pinned all the Rehabilitation on this Report, now go looking for the two Inquiries into the spill, one carried out by the Maitland office of DR&I and the other (not released as yet, and do not ask me why) done by the Thornton Branch of DT&I. You may find the first but not the second.
The EPA Armidale has had numerous complaints made to it about Environmental matters outside to areas of actual operation but within the leased area in this PEL 238, however all have been sent to DI&I Maitland and very little if anything has been done in the way of action.
Myself, I would have made at least 15 separate complains of non-compliance of the conditions and obligations of the Exploration Licence. I have very little to no faith in any Inquiry, including yours, to have any decent and constructive and long term outcomes that protect either the Health (physical or mental) of those living next door or near a CSG Operation, or to the short to long term protection of the Environments of this and other areas affected by CSG.

I have been monitoring both Eastern Star Gas and Santos since December 2008 and have a very extensive photo, video and Analysis library of both Companies activities. This library covers a great range of issues from the discharge of poor quality water into Bohena Creek, the existence of salt encrusted unlined drill and tailing ponds. One of which, Bohena 7 is still in existence today (7 years after the last CS water was put into it). Some of the results of the last Analysis of water taken from this pond in January 2013 are as follows- Sodium 2080 ppm, SAR 120, Total CO2 2940 mg/L, Colour (true) 2000, SRB 1300SRB/100mL (most probable), P. Aeruginosa 4900FP/100mL. (This is just an example of what I found in the water).

Because the NSW Government and its Departments will not listen to any voiced concerns over water and soil Contamination with-out verifiable studies, and because the NSW Government has limited or not available to the public information, I have had to do this myself, taking monies from my savings. What has been found over the past 12 months in both water (surface and Aquifer) as well as from soil and from Drill ponds is very concerning. At this stage I am not going to release any information on my Water Study.
My work is over 6 months ahead of Santos and in all areas, and the range of tests more extensive. As an example Santos did an analysis (according to a Santos Senior Employee) of the Bohena Creek waters until January 2013. I analysed the waters for Bacteria of all types and for Algae's in August 2012, and my findings, in one location show that there has been acid soil conditions created from the discharged treated water along with high Blue Green Algae Concentrations. Has Santos reported this?

I have, as a separate study, but part of my overall Surface and Aquifer water studies, located Stygofauna in the Aquifers in the areas around my property and around Wilga Park (found in 2013 extension of Privately Funded Study). (I will attach the findings dated June 2012; the latest confirmation study done in March 2013 is still being reviewed).
This is significant, because this is the first recorded fully accredited study of its type in the Pilliga Forest, first time that Stygofauna has been found in aquifers at the depth of 72 metres in the Pilliga and surrounding areas and a first for the species found in this area.
The importance of this animal to the unpolluted quality of the Intake region known as the Southern Recharge of the Great Artesian Basin and hence to the Great Artesian Basin, is second to none. To destroy this animal with the Chemicals and biocides that the CSG Industry uses will only result in the rapid increase of Bacteria such as Sulphate Reducing Bacteria and others which will only decrease the life of the Cement and Steel that makes up the Gas wells. This attack is from the outside, where the surface area exposed to the Bacteria is the greatest (sometimes as long as 300 metres or more), all of which is invisible and unrepairable, if detected.

At this time I will produce some photographs and ask the Question: “Where is the Science from the CSG Companies that back up their claims regarding well integrity”?

The photograph is of Dewhurst 10 in the PEL238. If the cement is missing at the top where it can be seen, then what is the cementing condition where it cannot be seen? Is the annulus between the inner and outer casings completely filled with cement as the CGS Industry claims?

This is not an isolated well in PEL 238 with this problem.

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These 2 (two) are of Dewhurst 3c in the PEL 238 and clearly show that the outer casing at the top has been eaten away. This well is on Santos' plug and abandon list. My question is: If this is like this at the top where it can be seen, then what is the condition of the outer casing for the approx. 800 metres under the ground that cannot ever be seen once plugged with cement and can never be checked by any known method?

This is clearly a problem. The Companies tell us that once the casing is externally cemented this then prevents Aquifer interchange between one level and another, remove the filling (Cement and or Casing material) and aquifer water will be able to mix between different levels, if this material is eaten away then there is a very great risk of aquifer cross contamination.

This well is by no means an isolated example of the well casing conditions as seen in PEL 238.

This photo shows Dewhurst 6c clearly off-centre to the outer casing at the very top of the well.

My question is: If the inner and outer casings are in this relationship at the top where it can be seen and should have been corrected before the adding and hardening of the cement, what is the relationship between the two casings where they cannot be seen, and what is the inner casings centralisation to the rock strata once the outer casing runs out?

To show the extent of the problem, this picture is of Bohena 4 in PEL 238. This well was put down about 2002 and has now been plugged and abandoned.

This again is not an isolated well issue in PEL 238, but does cover a range of time from at least 2002 to 2009.

The photograph on the following page was taken 21-4-2013 and is of Bohena 7 which is an unlined drill pond, the last drill pond lined or otherwise left in the Pilliga State Forest of PEL 238. This pond is described in an earlier part of this submissioin, and as unlined ponds are illegal, why is it still in existance and why have

not the directions of DI&I Maitland as given in 2011 been carried out. I can only assume that the Government Departments cannot or will not enforce their own rulings. So what faith can one place in Government Agencies to protect the environment. If you fine them, what is $10,000 to a Gas Company? NOTHING. But what is the value of the potential damage to our Artesian Water? Answer -- Incalcuable.

Bohena 7 is the last of 12 unlined ponds that I personally have recorded since 2009, and from my estimation there could have been over 30 unlined ponds in the Pilliga State Forest, all filled with the Saline extracted water and drilling waste from the Coal Seams below and then left for up to 7 years before treating and or filling in.

The above is a photo of a large unlined and lined dam at Bohena 6 taken in May 2010. This dam was filled in in mid-2011.

Santos is at present carrying out a form of “Land Farming” on the whole area of Bohena 6 and adjacent to Bohena 7 as well as many other sites, both old and new, throughout the Pilliga State Forest including areas where there have been large tree kills. The point to all this is that the preferred Chemical, Gypsum, contains Sulphate which is one of many ways Sulphate Reducing Bacteria obtains its energy for life.

This Bacteria is in all natural environments along with many others, however the chemicals leaching from both the unlined ponds and the Rehabilitation will and have increased the populations in the soils and surface as well as the Aquifer waters. These Bacteria and associated fellows (Iron Reducing, etc.) will find a readily available extra food source in the cement and steel coverings that are the Gas wells. Where there is a pond or dam there is a gas well, many plugged but many operational for now.

These Bacteria will attack the cement and steel that is supposed to prevent Aquifer connection, thus reducing that ability to seal and once the path for aquifer mixing is provided, aquifer cross contamination will result. This cross contamination on plugged and abandoned wells may never be noticed until too late. Whilst the cross contamination around producing wells may be picked up by monitoring bores, but by then the damage has been done, an aquifer has been polluted and a neighbouring property or town forever effected.
Many, if any companies have not put down, Aquifer monitoring bores before they started exploration, to long term monitor water quality and to see and constantly monitor the water quality in the Aquifers that supply Stock and Domestic Water as well as towns and cities, before, during or after the Drilling.
I believe, in NSW, that this is not a requirement up until the Production stage and by then it is too late, because people will not be able to prove what the original Aquifer water quality was like prior to the first Drilling under exploration. The Gas Companies have a nice out, because the effected person must prove damage, and the Gas Companies do not even have to test the water (David v Goliath, and no stones).

Maybe the NSW Government should look at the timing and extent of water testing of Aquifers that can affect the Quality of water available to both Human and Agriculture, whether it be, Surface, Aquifer or Basin waters, before any CGS activity can commence.
Maybe the NSW Government needs to balance the risks involved taking into account the overseas experience and obtained information as accumulated in the many respected overseas Libraries.

From my perspective with regard to health issues, there are the obvious and then there are the hidden issues.
The obvious is described below, the hidden after that.

I will speak of my own experience when I broke out in very itchy pimple like sores that once scratched oozed a clear fluid that sealed the pimple, only for it to become itchy again.
All this occurred in April of 2012 after using water from my bore that had suddenly, in March 2012, developed a strong smell akin to a cross between a sewer and a stale open water storm drain.
These sores did not start going away until we changed our water supply from Bore to Rain water.
I will add that in the whole time that my wife and I have owned the property (since 1999) we and our family

and friends, have never experienced this problem previously whilst either living on or visiting the property. We will never go back or trust our bore water again, as results since May 2012 show that the water quality is declining and Bacteria levels are increasing. We will not even feed the water to our sheep.
I have included some photographs taken 21-4-2012 just after we changed water supplies as noted above.

There is a road dust issue that may contain some future issues due to the high level of silicon in the soils, but only the future will tell there.

The hidden issues are the ones that affect the mental physi, especially living next door to a Gas field, as I do. There is a constant low level noise of traffic on the road mostly day-time from Gas Company related vehicles coming and going to the Gas well Site, and when drilling is on, at night too. There is the lack of response from both Company and Governments to complaints, even when the noise analysis done to shut-you up proves your case. Then there are the Government inquiries where people friendly to the Industry can give verbal evidence, in secret, that can only be described as incorrect information and make assumptions about the effects of the Industry upon myself (see submissions the day before the No.5 Inquiry took evidence at Narrabri in 2011). Our area is at the end of the road and before the gas company put wells next door, the traffic would be lucky to be 1 car a day and during the day, now with the expansion of the Gas project next door and the flow lines, the traffic of all sizes, has increased on all roads surrounding our property (front and side).

Then there is the exploration activities themselves, up to date the work is being carried out or underway before we are informed of what is happening, and there is never any consultation one on one or local group. The Companies may say that they do the occasional information day to inform everyone of their activities, but they do not inform the people affected properly. One of the recent announcements was jammed behind my property sign so it could not be seen by anyone, Santos was informed of this, now the announcements come in a registered letter form, and as we are not entitled to a mail delivery service, it can be up to 10 days before we receive the letter.

Then when we find, photograph and present evidence of problems such as fuel spills, CSG water discharges, unlined ponds and dams, open drain lines etc., to the correct authorities you are made to feel by all parties, including politicians that you are un-Australian because you reported the matter.
All this weighs on the mind and causes stress.
Local Councils who delay as long as possible the disclosure of mining related Development Applications and refuse to return your calls also contribute to the problem. The massive amount of secrecy that surrounds any CSG project is beyond belief.

This can be summed up in the words of a Santos Employee as recorded in the Narrabri CCC Soils discussion of March 7th 2013, when asked for a Document re the Rehabilitation in the Pilliga State Forest. Quote" Neale: as we run a business there is a risk that if Santos hands the report out it will be picked apart……"Unquote. This can be found on the bottom of page 5 and the top of page 6 of the Narrabri Santos CCC on Soils. This is only a small example of Santos' unwillingness to communicate; the NSW Government Departments are just as bad.

I will not go into depth on the Access Agreement side of it, except to say that according to Santos "the land holder has the complete say over what happens on his land ranging from the people who enter, to the CSG Activity carried out on his land". This also is mentioned in the Minutes of the Narrabri Santos CCC Soils, as well as at the April 24th Narrabri Santos CCC. So as you can see No reliable and verifiable information is ever given out, by the Companies as they can blame the Landholder.

With regard to the close proximity of CSG to the neighbouring properties, that is a tough one, but it is my belief, that like a Coal Mine, the CSG Industry, should offer to acquire any future affected property well in-advance of any Pilot or full Production which may have an adverse effect on neighbouring properties.

The Gas Companies may say that their operation will have little or no effect on those who do not want the operation on their land, but it is the surrounding and isolating of these properties by the Industry that has an effect on the economic attitudes of the farmer, the breakdown of the local interaction has an effect on the viability of a farm. It is the local interaction that keeps many people on the land. This is something that selective choosing of where and on whose place gas well development has been mastered by the CSG Companies in order to achieve their aims.

I really must wonder what will the Companies say and do should a large environmental or other equally consequential event occur in the future, given their responses to the ones of the past.
There seems to be no respect by the Companies, Governments, Politicians or any person who may profit from this Industry, for those who may be in some way affected by the Industry. And yet they themselves demand respect from you.

How does the NSW CSG Industry stack up against the Industry Nationally and Internationally?
That is a hard one, for if you read all the local literature and then the overseas literature, you wonder why the Industry is allowed in the first place. To me it seems like the NSW side of the Industry wants to learn from its own mistakes, but that to me is a very dangerous path. There is no room for error of any kind with this Industry, one slip and our greatest resource-WATER- is for-ever ruined, the cost to treat that ruined water would not be viable, and I am sure that neither the NSW Government nor the CSG Companies can afford to do anything.
There is a debate going on right now about SRB and friends and how they can affect the life of the Gas wells and the cement work that both protects the steel casing and provides aquifer sealing. From what I see the local Australian experts say there is no problem because that has never occurred here and besides that the Australian Drinking Water Standards do not give any health warning about what is the acceptable level of SRB Bacteria in drinking water, like you, I fail to see what this has to do with the corrosive effect that these guys have on metal and cement. Then there is the statement that the Gas wells in the Pilliga do not contain SRB but only Methanogens, and then there is the statement that SRB are not mobile in anaerobic moist ground and aquatic environments. But suffice to say information available from overseas and on the Internet paints a very different picture. It is my considered opinion that the overseas experience should be the first bench mark of the Australian Industry. We must learn from the errors and observations of the International Brigade, not to do so is pure head-in-sand stuff. Please do not get me going about the NSW Industries lack of willingness to actually take notice of problems that have and are occurring internationally.
I also find it very strange and unnerving, that while the NSW, and to some degree the Australian Industry, love to quote the Oil and Gas Industry both in Australia and Internationally, as a basis for best practice and other matters beneficial towards the CSG Industry, then, when something goes wrong with that Industry they suddenly say the Oil Industry has no connection to them, yet the Australian CSG Industry uses the same International Companies as the International Oil and Gas Industry do. You cannot have your pie and eat it too.
We need to have our own set of rules for this Industry, rules based on International experience and research but tinged with a bit of the National and NSW experience.

Water testing of near-by property water Bores with-in a 2 klm. Radius of a drilling operation, just before, and just after drilling is a joke. The CSG Industry an NSW Government must think that the average person is an idiot when it comes to Aquifer and water flow rates as well as directional courses of those aquifers.

You are the Scientist; can you tell me the flow rate of my Aquifer? You cannot, and it is unfair of me to expect that of you. Yet Santos claims that bores tested after drilling has ceased are not affected by their drilling. How would they know they never come back nor, do they, like you, know the flow rate or direction of that aquifer, so how can they say they cause no aquifer pollution or interference in the short time a drill rig is in operation in the area.

Santos can ring the drill rigs with water sampling bores, say at a distance of 20 metres (for work place safety) from the rig and put them down to the average depth of the local bores, and they will still not pick-up all the aquifers or feeds to aquifers, and I doubt that the interchange of fluids, as mentioned in all REF's, will be picked up in these bore holes, especially those with tight water carrying structures, during the short time that the drill rig is at that area. So the Government compromises, but what devastating affect will this compromise have on our Aquifers and hence their uses in future times?

Where is the Science to show that this Compromise makes our water safe from irreversible Contamination? And has the NSW Government, due to this Compromise given the CSG Industry a way out of accepting blame for poor operational practice and vigilance, should aquifer water quality be affected?

Fraccing is always an emotive subject and until it is fully banned in NSW it will stay that way. Overseas experience has shown many bad side effects of this practice, and indeed in Queensland over the years "events" have been suddenly occurring in areas where Fraccing is going on that have never been recorded before, and if they were, certainly not to the extent that is occurring today.

Fraccing is the forced movement of a geologically fixed rock stratum. Pressure is applied hydraulically to force the strata apart creating a fissure (crack) and then material, usually sand is allowed to enter that fissure and hold the fissure open.
As described above Fraccing can be called a man-made earth tremor and as such this tremor can be transmitted, by certain rock strata, to areas where damage to deep, shallow and surface man made and introduced infrastructure, can be a consequence. So why then in NSW is there not a requirement for seismic monitoring equipment to be placed around the Fracc area to record the tremor and hence prove or disprove the claims of potential damage to the afore mentioned infrastructure.
Also a requirement should be that a full before and after seismic survey should be done of the deep, medium and shallow rock stratum to establish that no new fissures have opened up between or in these stratum, that could allow either fluid, gas or Bacterial/microbial exchange.
As an example of this I refer back to my 2009 submission to the first Murray Darling inquiry and to the ASX report of September 15th 2006 (3yhv412jc37fd.pdf attached). This is a perfect example of a very tight group of deep Fraccs (all wells 1 to 9) are within a 500 metre radius that could have created large fissures in the surrounding rock strata that could allow fluid, Bacterial and Microbial interchange. We will never know for certain because Safe practice and Science was never carried out in the first place, but later events in the nearby field of the first Bibblewindi Laterals may provide a clue (drilling of shields to remove excess water, replacing original de-watering pumps with bigger units, and then equipping the horizontals of the shields with electric submersibles to remove the larger than expected water from the coal seam, all this is recorded in Eastern Star Gas records and some on the ASX).

I will say this, that from all the information available to me since the Fraccing event of September 2006, when my Stock and Domestic bore suffered a gravel-pack slippage which cut-off a number of Aquifers that supplied it. I can very safely say that the Fraccing at the time caused the problem, but because there is no Seismic Records to show the event, there is no secondary evidence to back this claim.

Conclusion

There are so many scientific areas that have never been adequately applied to the CSG Industry in the past that it beggars belief. Factual proof backed by Science is required of those who ask questions of this Industry, yet this Industry has been allowed to get away with producing desk-top Computer generated

models which are at best unreliable because they are only as good as the information fed into them, and if that information is not based on actual location taken scientific studies then the outcomes for the area concerned, will not be correct. WHY IS THIS PRACTICE ALLOWED TO HAPPEN?

I have presented some actual proof, but really I doubt if it will change the status-quo.

Your investigators and others will only talk to the Gas Companies and take their word over the word of the concerned public, for what reason I and others will never know, but I can assure you, many people are doing and have done the Science, but will not release it because of Mistrust of the Government, its Agencies and Departments all based, and correctly so, on a long line of complete and utter distain by these august organisations for those who have been questioning the accuracy of the CSG Company provided Science.

There is an investigation into the Discharge at the Bibblewindi Treatment Facility done in March 2012 by the Thornton Branch of DI&I that is not released yet, WHY?, is it because it will show the CSG Industry is not as squeaky clean as they claim? That is but one example of mistrust of the system by the questioning public.

Mr A J Pickard

Contents:
11 pages of Submission

Attachments:
Second Stygofauna Survey Report for 'Rockdale'---June 2012 (15 pages)
29-15-9-06—3yhv412jc37fd.------ ASX Report (1 page)