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Attn: Executive Director, Resource Assessments
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

To whom it may concern,

We are Jim and Maddy Adams. We own a 3000 acre property on the Liverpool Plains where we live with our two young daughters. We are extremely passionate about our family, our farm, our community and this beautiful area in which we live. We will do everything in our power to protect and look after it. The threat of Coal Seam Gas is close on our doorstep with the Santos CSG project in the Narrabri area and that is why we are writing this letter.

We are writing this submission to object to the Narrabri Gas Project Environmental Impact Statement.

We believe that the project should be rejected and we will now outline why:

1. Well integrity and water contamination.

Almost all of the farms in this area, like us, rely on underground water supplies. We are blessed to have good quality groundwater that is reliable. Our business and most cattle/farming businesses in the region are completely reliant upon this water to meet the water needs on our farms. Livestock require access to clean water 24/7 and ground water is the only viable source able to guarantee this supply – surface water (dams etc) simply cannot meet this demand in our hot dry climate. Put simply, without access to clean, reliable sources of ground water, most farming businesses in the region would cease to exist. Therefore, any threats to this supply need to be examined with extreme caution.

We have reservations concerning the integrity of the wells not just now but into the future and especially once the project has finished and the project operators have moved on. Experiences in the U.S and in Queensland suggest that, over time, failures in well integrity are inevitable. This fact is indisputable and the industry itself recognises it. We suggest that despite the best intentions of both regulators and the extraction companies, this inevitable failure in well integrity cannot be avoided. The reasons for this are as follows:

- i. The extraction companies are operating in a competitive environment with slim margins. This forces them to push the boundaries when it comes to long term integrity of the wells that they are creating. If

there are no mechanisms that place the indefinite liability upon the extraction companies, then it is logical that they will seek to cut costs where possible if they can get away with it.

- ii. There are engineering limitations for which there are no solutions within the foreseeable future. The main limitation here is in regard to creating a seal between the earth through which the hole has been drilled and the outermost structure in the well – usually concrete. It is physically not possible to seal this interface and it therefore creates a conduit through which the gas can flow from the coal seam all the way to the earth's surface (not to mention any aquifers it may encounter along the way). It is often the case that this failure may take several years to become noticeable however it is widely recognised amongst many in the industry that given enough time, this failure will become apparent in 100% of the wells.
- iii. Simple human error - Mistakes will be made in calculations, machinery will break down and fail at critical times, the nature of dealing with underground geological formations means that information upon which critical decisions are being made will be imperfect. Once again, the extraction companies may be operating with the best intentions but the limitations in human ability need to be recognised and factored in when considering the risks of well failure.

Failures in well integrity pose a threat to both water quantity and quality. The consequences of reduced water quantity will be observable and obvious. As mentioned above, such an outcome would compromise the ability for the broader agricultural sector to gain access to adequate quantities of water. With regard to water quality, the effects may not be as obvious however they are no less detrimental. First, implications on human health from consuming contaminated water and from exposure to broader environmental pollution caused by gas fields are well documented and alarming. There is a plethora of evidence in the U.S. and Queensland that cannot be ignored. Second, any consumption of contaminated water by livestock, or access to contaminated land will not only have adverse implications directly on livestock health, but it will provide a second pathway for such contamination to enter the food chain. Should such contamination occur, not only would it have health implications for an unknown human population (who is to know where the meat will end up), but it could threaten the market access that Australian producers rely upon to export their products internationally. Such an outcome may see farms with gas wells on them being placed into quarantine and denied access to markets. The economic implications of this speak for themselves.

Given the importance of clean, reliable water not only to our business but many farming business within the region, it follows that we feel **the risks that the Narrabri Gas project pose are far too great to allow it to proceed. Should there be damage**

to aquifers in the project area, or the broader region as a result of the Narrabri Gas Project, the consequences to the local agricultural industry would be catastrophic.

2. Water loss from the Great Artesian Basin

The de-watering of the coal seams will place pressure on the limited groundwater resources. This is concerning as the area that Santos' EIS covers is a major recharge area for the Great Artesian Basin (GAB), an amazingly reliable source of water that is vital to many rural communities across Western NSW. Santos have stated in their EIS that the project will result in a loss of water from the GAB recharge area over time. To us, this is unacceptable and another reason why the project should not be approved.

3. Liabilities

It is essential that mechanisms be put in place that make the gas field operator (Santos?) liable for any such impacts on water quality and quantity. Such liability should be made indefinite as the effects may not be detected until long after the project is completed. However there is a serious complication that arises here. There are fundamental limitations upon our ability to understand underground systems (we simply do not have the technology and it may never exist). It follows then that causation may be impossible to prove, allowing the gas field operator to escape liability. Until such a time that we can comprehensively understand these underground systems and be able to accurately determine causation of any impacts, we argue that the Narrabri Gas project should not be allowed to proceed. This argument should extend to the coal seam gas industry as a whole. The risk is too great.

In summary, we strongly urge the government to reject the project and make the Great Artesian Basin recharge off limits to coal seam gas extraction. We chose this life on the land because we are passionate about agriculture and what we do. We intend to look after and improve our land so it can be passed on to future generations. Can you say the same about the Narrabri CSG project? We live in a strong, supportive community where majority of the people are against this CSG project. If this project is approved, there will be a serious fight ahead, there is no social license, and we will do whatever we can to stop this project from proceeding.

Regards,

Jim and Maddy Adams