

## CONTAMINATED SITES, ACCIDENTS AND INCIDENTS RELATED TO GAS INDUSTRY IN AUSTRALIA

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*NB: The following is a compendium of publically sourced stories related to the gas industry in Australia. It is by no means comprehensive as time does not permit keeping up with the growing number of problems associated with the industry. MC.*

- **19 Oct, 2015 – Mercy mission Chinchilla after farmers suicide death**

<http://www.thechronicle.com.au/news/mercy-mission-chinchilla-after-farmers-suicide-dea/2810996/>

JUST days after the tragic death of Chinchilla farmer, **George Bender**, international representatives of a group concerned about human rights and mining will be in town to offer their support to the grieving community. Sisters of Mercy, Sister Aine O'Connor and Sister Denise Boyle are members of United Nations for Mercy International Association whose work includes human rights issues in relation to mining and unsustainable development. The Sisters are visiting Chinchilla to gain a local perspective on this global issue surrounding human rights and the extraction of unconventional gas. They will share information from Canada, Ireland and USA and the upcoming International People's Tribunal into fracking planned for 2017.

- **19 Oct, 2015 – Govt stays tight-lipped on gas flare probe**

<http://www.gladstoneobserver.com.au/news/govt-stays-tight-lipped-on-probe/2810402/>

THE State Government has confirmed it is investigating recent flaring incidents on Curtis Island, although they wouldn't tell us any more than that "until the investigation is complete"

- **17 Oct, 2015 –Qld premier “vows” to look into the Bender suicide**

<http://www.pressreader.com/australia/the-courier-mail/20151017/281642484013866/TextView>

- **15 Oct, 2015 – Malcolm Turnbull will 'look into' suicide of anti-CSG farmer George Bender**

<http://www.theguardian.com/australia-news/2015/oct/16/malcolm-turnbull-csg-george-bender-suicide>

- **15 Oct, 2015 – GEORGE BENDER, CHINCHILLA FARMER**, whose bore water was impacted by Origin Energy CSG activities and whose farm was also impacted by failed Linc UCG trial, commits suicide.

<http://www.brisbanetimes.com.au/queensland/senator-glenn-lazarus-calls-for-csg-halt-after-farmer-george-benders-death-20151015-gka88a.html>

- **10 Oct, 2015 – How Coal and Gas get their way in fossil rich Queensland**

<https://independentaustralia.net/politics/politics-display/report-how-coal--gas-get-their-way-in-fossil-fuel-rich-queensland,8241>

A new report by The Australia Institute details the complex interactions between the coal and gas industries across current and previous Queensland state governments. Graham Readfearn follows the money trail and phenomenon of the "**revolving lobby door**".

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- **Oct 2015 – Medical Journal of Australia - Unconventional natural gas development and human health: thoughts from the United States**

<https://www.mja.com.au/journal/2015/203/7/unconventional-natural-gas-development-and-human-health-thoughts-united-states>

If unconventional gas development (UGD) continues to expand in Australia, the potential health and environmental impacts should be adequately addressed and preventive public health measures should be implemented. The United States has embraced UGD and has decades of experience that could be beneficial to Australia as stakeholders debate the potential benefits and harms of the technique. Additional research on the health impacts of UGD is necessary. Baseline and trend morbidity and mortality data need to be collected to assess changes in population health over time. To date, few health or epidemiological studies have been conducted, so it remains difficult to assess actual health outcomes. In the absence of scientific consensus, there are two possible risks: failing to develop unconventional natural gas when the harms are manageable; or developing it when the harms are substantial. Many government bodies around the world have chosen to minimise the risk of the latter until the impacts of UGD are better understood. **Policies should be informed by empirical evidence based on actual experience rather than assurance of best practices.** There is a strong rationale for precautionary measures based on the health and environmental risks identified in the scientific

- **6 Oct, 2015 – Toxic Truth: Contamination, cancer growing up at the gasworks**

<http://www.theherald.com.au/story/3405284/toxic-truth-contamination-cancer-growing-up-at-the-gasworks/?cs=12>

EIGHT children grew up in a house on the Hamilton Gasworks site before it was closed in 1985, declared contaminated, and left derelict for 30 years until belated government action to force remediation. Now members of the Frost family, who lived on the site in the manager's house between 1954 and 1973, want answers from AGL and the NSW government after a disturbingly high rate of disabilities, deaths and severe and life-threatening conditions, including cancer, affecting two generations of family members. They contacted the Newcastle Herald after an article revealed the derelict gasworks property was one of the Hunter's most contaminated sites, with reports showing it is leaching carcinogenic and toxic materials into groundwater that poses a risk to human health and the environment.

- **30 Sept, 2018 – FIFO accommodation and the rental debacle: Terry Ryder**

<http://www.propertyobserver.com.au/terry-ryder/46593-fifo-accommodation-and-the-rental-debacle-terry-ryder.html>

A town can have a \$2 billion project happening 5km down the road without any change in the local unemployment rate or the residential vacancy rate. In fact, the vacancy rate may well rise if developers build new dwellings in anticipation of increased demand. Gladstone's influx of tens of thousands of new jobs coincided with its vacancy rate rising from near zero to 10%. Most of the worker stayed in camps on an offshore island.

- **28 Sept, 2015 – Santos "flare" on Port Curtis Island**

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- **28 Sept, 2015 -- NSW government too slow to act on CSG regulation**

<http://www.smh.com.au/environment/environmental-groups-claim-nsw-government-too-slow-to-act-on-csg-regulation-20150925-gjvfw.html#ixzz3mzQzF7j6>

The NSW government is yet to meet eight of the 15 recommendations made by the NSW Chief Scientist, one year after they were made in the final report into coal seam gas, environmental groups say Monday marks one year since NSW Chief Scientist and Engineer Professor Mary O'Kane gave her review on coal seam gas, at the request of the government to "focus on the impacts of these activities on human health and the environment".

- **28 Sept, 2015 – Law academic wants clearer compensation laws for landholders affected by gas exploration and production**

<http://www.abc.net.au/news/2015-09-28/lawyer-on-gas-compensation/6806008>

Deakin University's Professor Samantha Hepburn agreed, but said the regulation had to be "torn apart" to make sure it was rigorous enough to protect landholders. She said the compensation farmers received differed around the country and often depended on people's negotiation skills. "It will depend on the volume of wells... the type of surface industry you had and how that industry is impacted. "Did

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you have an established dairy farm for example, and how are those drills going to affect that dairy farm?" Professor Hepburn said the amount of compensation awarded to landholders varied from **\$30,000 to reinforce windows against noise**, while others who could prove a greater loss might get as much as \$200,000.

- **27 Sept, 2015 – NSW Environment Protection Authority investigating handling of gas drilling waste**

<http://www.smh.com.au/nsw/missing-csg-waste-from-agl-broke-site-found-but-investigations-underway-20150926-gjviab.html>

The Environment Protection Authority has launched an investigation into contaminated coal-seam gas drilling mud waste from an AGL drilling operation in the Hunter, after reports it had gone missing and was then found. A spokeswoman for the authority said legal notices had been served on the transport company that moved the waste from a site near Broke and on the facility that took the waste. "As investigations are continuing, the EPA has no further comment on this matter," she said.

- **22 Sept, 2015 - Flare questions to be taken by Department of Environment**

<http://www.gladstoneobserver.com.au/news/flare-questions-will-be-answered/2783475/>

A REQUEST for clarity from the state government about the safety of flare emissions on Curtis Island --- including explaining changes to the original environmental impact statement --- is expected to be resolved when the Department of Environment and Heritage Protection visits on October 19. Minutes from the Gladstone Region Environmental Advisory Network meeting in August detailed concerns about the smoke emitted from the LNG flares, as well as raise questions about the number of air monitoring systems.

- **20 Sept, 2015 - Contaminated CSG waste from AGL site near Broke in the Hunter goes "missing"**

<http://www.smh.com.au/nsw/contaminated-csg-waste-from-agl-site-near-broke-in-the-hunter-goes-missing-20150918-gjqblj.html#ixzz3mzeNkBRy>

It is the baffling case of a "missing" 212 tonnes of contaminated waste from a former coal seam gas drilling operation in the Hunter Valley. An Environment Protection Authority report written in 2013 said the waste was transported to a "composting" business which was not licensed to take it, sparking concerns by the EPA it "was not being disposed of in an environmentally friendly and proper manner". AGL dockets are understood to show the destination for their waste was Bettergrow Pty Ltd. But the business it was supposedly sent to, Bettergrow, said it never received the waste. Spokesman Craig Hogarth said the company had taken a conscious decision not to take any CSG waste even if they were licensed to.

- **29 August, 2015 – Will this be the year the Darling Downs coal seam gas bomb goes up?**

<https://independentaustralia.net/environment/environment-display/the-darling-downs-coal-seam-gas-bomb,8106>

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As soon as I saw this picture, my immediate thought was "that must be an extraordinary bushfire threat". So I contacted John and some other residents of the Downs with whom I regularly interact and asked them if they were worried about the threat of bushfire now that their community has been turned into a giant gas field. The short answer was "yes". These fears were best articulated by spokesperson for a local community group at Hopeland, Shay Dougall. We had a general conversation about the appalling state of things on the Downs, with Shay saying gas companies were putting residents under a "gut wrenching and soul destroying and life destroying" level of stress. Shay outlined her fears regarding the bushfire/explosion threat: Yes, we have real fears about that. The gas companies have brought thousands of cubic metres of highly flammable gas to the surface, and are uncontrollably venting the gas from hundreds of high point vents all over our communities and piping it under pressure to the LNG plants at Gladstone. In addition to this, they are trialling underground storage of the gas in some locations. Clearly, now the threat is much greater. Bushfires in Australia are always a giant fear and now the gas companies have added all this flammable gas to the mix. **When I have asked the government for details of how our community is to respond to an emergency with regard to the presence of gas, there is no answer to the question.** I asked McGowan of the general danger coming with the approaching bushfire season. He replied that he was concerned. He confirmed Shay Dougall's assertion that there hasn't been a fire in the area where the wells are now in place since 2002. Now, with the gas wells and pipes in place, this summer is looming as a great fire and explosion risk for those of the Downs. How can government allow the citizens to be subjected to such an appalling, life-threatening risk?

- **24 Aug, 2015 - More flaring likely as Santos GLNG commissioning starts**

<http://www.gladstoneobserver.com.au/news/more-flaring-likely-commissioning-santons-glng-sta/2748160/>

INCREASED flaring and potentially dark smoke is likely at the Santos GLNG site as the project begins the commissioning of Train 1. The current activity is commissioning the treating and drying units, which must be completed before drying of the liquefaction unit using warm, dry gas. The company says that during the preparation stage, there will be increased flaring and potentially dark smoke as

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systems are brought into service. "When this is complete the flare will return to its normal operation," the company said in a statement. "Flaring is an integral part of our plant's operational and safety management systems." **"We monitor and manage air quality emissions in accordance with the environmental authority."**

- 14 Aug, 2015 – Meters monitoring flares not fully functional: report

<http://www.gladstoneobserver.com.au/news/meters-monitoring-flares-not-fully-functional-repo/2740500/>

**An RTI document obtained by GREAN shows equipment used to monitor contents of flare smoke and gas flow was not fully operational between December 2014 and April this year.** FLARE flow meters at the QCLNG plant on Curtis Island, Gladstone had "potential defects" and couldn't be relied on for five months up to April this year, an official information request reveals. **The problems with the flare flow meters coincide with the most significant visible flaring activity of recent times. The monitoring meters check for health and environment impacts,** as well as the plant's productivity.

- 27 July, 2015 – Downs farmers shocked by pipeline gas release

<http://www.thechronicle.com.au/news/downs-farmers-shocked-pipeline-gas-release/2719377/>

THE Basin Sustainability Alliance (BSA) is calling for an investigation into the environmental and health impacts of a large volume of gas released from a 90km stretch of Origin Energy LNG pipeline which upset cattle and took landholders by surprise. **Landholders up to 25km down-wind from the release at Downfall Creek, about 30km south east of Wandoan, could hear the venting on May 25.** Local farmer Neville Stiller, who lives about 8km away, described the May 25 release like "listening to an F1-11 roaring for a couple of hours". A second gas release occurred on July 13. Mr Stiller has told BSA that the volume going into the sky during the first release on May 25 was around four times higher and significantly louder compared to what can be witnessed on the footage from July 13.

- 14 July, 2015 – GLNG flare to increase in size as first gas gets closer

<http://www.gladstoneobserver.com.au/news/glng-flare-increase-size-first-gas-gets-closer/2704806/>

*"Flaring is the safest and most environmentally friendly way to release gas from the Santos GLNG facility, and is **part of our stringent safety controls that meet the requirements of the Queensland Work Health and Safety Act 2011.**"*

- 11 July, 2015 – (sic) Hopetown residents fear fracking has destroyed land.

<http://www.couriermail.com.au/business/hopetown-residents-fear-fracking-has-destroyed-their-land/story-fnihsp3-1227393512049>

**HOPELAND** residents asked what other disasters could afflict the prime farmland region near Chinchilla on the western Darling Downs at a community meeting held by the State Government on Wednesday night. Locals pointed fingers at the gas industry for a series of events that have left them scratching their heads. PAY DIRT: Company accused of contamination "We've had bubbling rivers, bore explosions and subsidence," Hopeland grain farmer Arthur Gearon said. "No one has been able

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to tell us why the (Condamine) river is bubbling. It's the unknown that is causing the fear. We don't want to see the end of the (gas) industry, but can we halt and let the science catch up?" Their fears were raised once again by claims lodged in court by the State Government this week that Linc Energy's underground coal gasification plant had contaminated 320sq km of farmland, affecting 50 landowners, with hydrogen, carbon monoxide and hydrogen sulfide. The hydrogen is potentially explosive.

- **9 July, 2015 – Chinchilla mum brings CSG fight to PM's doorstep**

<http://www.sunshinecoastdaily.com.au/news/chinchilla-mum-brings-csg-fight-to-pm/2698867/>

She says everyone in her family has suffered health effects since QGC started drilling on the property in 2005. "All of the children, me and my husband suffer very bad headaches and a couple have been having nose bleeds," she said. "We're sick all the time. "We mainly suffer from the noise of the wells, the rigs and the plants. We're only 6km from the Kenya plant and the noise is horrendous. "My husband and I don't sleep at night and we don't use one of our rooms because it is always rattling." Mrs Nothdurft said she was paid \$265 per well per year - a grand annual total of \$1855 for the seven wells on her land. "They said if we didn't let them come, they would take us to the Land Court and take our land off us," she said. "My husband refused to sign a confidentiality agreement when they came, which is why I'm able to talk about how much money we get."

- **1 July, 2015 – QGC use SLAPP to constrain gas field resident over facebook post - charges withdrawn due to lack of evidence.**

<http://www.thechronicle.com.au/news/downs-man-court-facebook-threat-shoot-csg-staff/2692012/#/0>

A TARA man who fronted court over an anti-CSG Facebook post says "common sense prevailed" after his charge of "using a carriage to menace" was withdrawn. John Jenkyn was discharged by Magistrate Kay Ryan, with the prosecution offering no further evidence to support the charge when the hearing resumed at midday. The hearing came after coal seam gas giant QGC filed an official complaint against Mr Jenkyn last November, after he took to social media to "vent frustration" about his dealings with the company.

- **19 June, 2015 - QCLNG flaring possible over coming weeks**

<http://www.gladstoneobserver.com.au/news/qclng-flaring-possible-over-coming-weeks/2679406/>

THE QUEENSLAND Curtis LNG plant is expected to begin infrequent flaring over the coming weeks as the second production train is commissioned. A QGC statement says flaring represents the controlled burning of gas released from our plant when it cannot be processed into LNG: "This is particularly relevant during the commissioning and start-up phase of construction as the plant is progressively brought online and equipment undergoes performance tests. Flaring from the process flare occurs any time the plant is shut-down for scheduled maintenance, unplanned repairs and maintenance or emergency situations. At these times, flaring is typically short-term. If refrigerants and nitrogen are present, then black smoke can be emitted with the flame. **"We closely monitor and manage air quality emissions and are committed to keeping our community informed."**

- **15 June, 2015 – CSG is destroying iconic Darling Downs as well as residents health.**

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<https://independentaustralia.net/life/life-display/csg-is-destroying-the-iconic-darling-downs-along-with-residents-health,7792>

New York's acting Health Commissioner wouldn't let his family living in the vicinity of fracking, and our health specialists are warning the Palaszczuk government that ill health reported by families in Queensland's gas fields can no longer be dismissed. Lachlan Barker investigates.

- **3 June, 2015 – EPA investigates spill at former Metgasco site**

<http://www.echo.net.au/2015/06/epa-investigates-spill-at-former-metgasco-site/>

The Environment Protection Authority (EPA) has commenced investigations into a suspected spill of contaminated water from a storage tank at Metgasco's decommissioned Corella exploration well near Dobies Bight.

- **20 May, 2014 – Shay Dougall to present coal seam gas petition to Glenn Lazarus and Larissa Waters**

<http://www.brisbanetimes.com.au/queensland/shay-dougall-to-present-coal-seam-gas-petition-to-glenn-lazarus-and-larissa-waters-20150520-gh65xb.html>

However the petroleum lease was approved six months before the Strategic Cropping Land legislation was passed, rejected and replaced by similar legislation, she said. Shay Dougall said neither the current government, nor the previous government were giving farming families the same respect as coal seam gas companies. "If they allow coal seam gas mining on strategic cropping land, they will lose it." What the state government says The Department of Natural Resources said their coal seam gas investigations showed problems in five stock bores near **Hopeland**. "To date, issues have been formally raised by three landholders in the Hopeland area associated with increasing gas in five water bores," a spokesman said. **"Investigations found that two of these bores had problems that may be attributable to CSG activities."**

- **14 May, 2015 – Queensland grazier calling on Government to act on dam spilling coal seam gas water**

<http://www.abc.net.au/radionational/programs/breakfast/queensland-grazier-calling-on-government/6468852>

A grazier is calling on the Queensland Government to take action over a dam that's been spilling treated coal seam gas water onto his property. The spill happened earlier this week, and is the second time the dam wall has been breached. Joe Hill, the farmer calling on the Government, runs Wandaloo Angus cattle stud near Miles in southern Queensland.

- **30 April, 2015 – Authorities battle to contain acid spill at CSG site (Woleebee – Qld)**

<http://www.thechronicle.com.au/news/authorities-battle-contain-acid-spill-csg-site/2623945/>

EMERGENCY crews are today battling to contain a hydrochloric acid spill on the western Darling Downs. The spill occurred at Woleebee, north-east of Miles. The spill, at a QGC work site, was reported to authorities about noon.



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- **16 April, 2015 – Queensland landholders claim secrecy over experimental coal gasification plant**

<http://www.abc.net.au/news/2014-04-16/landholders-claim-secrecy-over-experimental-coal-gasification/5395626>

Landholders on Queensland's Darling Downs say they are being kept in the dark about the nature of serious environmental harm allegedly caused by an experimental coal gasification plant. Last week the Queensland Government filed four criminal charges of irreversible or "high impact" harm relating to the plant against resources company Linc Energy. It emerged the state's environment department began investigating suspected environmental breaches nine months ago, but landholders told the ABC that the first they had heard of it was last Friday.

**Farmer, George Bender, has criticised how long it took the Government to notify farmers.**  
<http://www.abc.net.au/news/2014-04-16/darling-downs-farmer-george-bender/5395704>

- **3 April, 2015 – Ex-Im Bank Flouted ESA By Funding LNG Project**

<http://www.law360.com/articles/639402/ex-im-bank-flouted-esa-by-funding-lng-project-envirosay>

The U.S. Export-Import Bank clearly ignored the risks to endangered species and sensitive habitat when it pumped \$4.8 billion into Australian liquid natural gas projects in the Great Barrier Reef, a trio of environmental groups said Thursday, urging a California federal judge for a quick victory in their lawsuit against the bank. In a motion for summary judgment in the case, the Center for Biological Diversity and its allies said the Ex-Im Bank shirked its duties under the National Historic Preservation Act and Endangered Species Act, with "real consequences" for one of the most diverse and beautiful ecosystems in the world. Potential impacts to the Great Barrier Reef from the Australia Pacific LNG Project and the Queensland Curtis LNG Project include reduced water quality; ship strikes that can kill or displace whales, dugongs and sea turtles; destruction of mangrove and seagrass habitats; underwater noise; and the "general industrialization of a currently relatively pristine area," the groups said.

- **25 March, 2015 – Kate 6 well emitting gas and discharging water from ground in residential estate near Chinchilla/Tara**

"Had a scare this morning. Gas well on Winfield red was spewing brownny yellow liquid all the way down the road to Mary road and almost to the creek. Tara police attended and after contacting QGC informed me it "is only water". QFES Area Director Mick Patch showed more caution and got the urbans out to check for gas. None was found but that is still untreated contaminated water running freely down our table drains. Thank you to all the firies that turned up with no thought for their own safety."

At 8.30-9.30 am 25/3/2015 at Kate 6

About 250 m from end of Winfield Road, water on side of road, dirty yellow brown liquid coming out of ground about 50 meters from well.

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2. *At the moment it is not clear and the response using the Kate 6 incident indicated there was some issues not only with who is responsible at the time of an incident to manage it, but also how the details are communicated and what testing gets undertaken.*

QGC was responsible for managing and responding to the incident. This incident was, however, reported through incorrect channels and as such there was a delay in QGC's response to the incident. QGC also reported the incident to the P&G Inspectorate.

QGC became aware of the incident via its remote monitoring of the well; it proceeded to send a maintenance crew out to manually shut down the well. Both QGC and the P&G Inspectorate started an investigation on this event. On 22 April a P&G Inspector met with landholders to obtain further information with regards to their observations on site, followed by a site inspection. The well site was examined for the gas leakage, presence of volatile organic compounds (VOCs), nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>) and hydrogen sulphide (H<sub>2</sub>S). None of the mentioned contaminants were identified on site.

It was identified that the skid package used on this well head could not be remotely controlled from the control room and it only had the pressure meters connected to the telemetry which can be monitored remotely. This issue was raised with QGC and it is understood the system will be upgraded accordingly.

With regard to the cause of this incident it has been identified that an increase of pressure between the Boundary isolation valve ('BIV') and the Kate 6 well head caused the Pressure safety valve ('PSV') to activate. The PSV lifted as designed to relieve pressure in the system but did not re-seat correctly when the pressure reduced and this has led to the intermittent discharge of water and gas from the system.

- **17 March, 2015 – Leg Injuries in Crane Accident on Barrow Island (Offshore/LNG)**

<http://www.amsj.com.au/news/worker-sustains-serious-leg-injuries-in-crane-accident-on-barrow-island/>

A worker has reportedly sustained serious leg injuries on Barrow Island off the coast of Western Australia from an accident involving a crane. According to the ABC, the worker's legs were crushed in the incident which happened last Wednesday, just prior to Cyclone Olwyn reaching the northwest coast of WA. Chevron has been constructing facilities for their massive Gorgon gas project on Barrow Island since 2010.

- **16 March, 2015 - Pluto LNG Shut Down By Rogue Drilling Rig (Offshore/LNG)**

<http://www.amsj.com.au/news/pluto-lng-shut-down-by-rogue-drilling-rig/>

Woodside's Pluto LNG plant has shut down production temporarily this morning after another company's submersible drilling rig drifted dangerously close to Pluto's flowlines. Pluto LNG operates an offshore platform in 85m of water in the Carnarvon Basin, approximately 190 km north-west of Karratha, Western Australia. Gas is piped in a trunkline to Pluto's onshore facility, located between the North West Shelf Project and Dampier Port on the Burrup Peninsula of WA.

- **1 March, 2015 - Senators move to give CSG whistle-blower air (CSG/LNG)**

<http://www.smh.com.au/environment/senators-move-to-give-csg-whistleblower-air-20150227-13qvm.html>

Coal seam gas projects worth almost \$50 billion are under fresh scrutiny, after allegations of rushed, incomplete approval processes that sidelined possible environmental impacts. Efforts will resume this week in a Senate committee to make public documents and comments by a Queensland whistleblower. Senator Glenn Lazarus of the Palmer United Party and Greens Senator Larissa Waters

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plan **to press fellow members of the Senate inquiry into Queensland Government Administration to lift a gag imposed on evidence presented by former state bureaucrat Simone Marsh.**

- **26 Feb, 2015 – Wayne Walker, Chinchilla landholder, describes his experiences with CSG Company, Origin Energy.** <https://www.youtube.com/watch?v=Jk5zDQ-rMa0> (CSG)

*Nb. Origin have since negotiated to buy Mr Walkers property. He has signed a gag clause as part of the contract with the company, preventing him from continuing to speak further on the matter.*

- **5 Feb, 2015 – Compliance audits completed during 2015 - Summary of findings – QGC (CSG)**

<https://www.environment.gov.au/epbc/publications/compliance-audits-2015>

Although the independent audit found that QGC had met the majority of activities to satisfy the conditions of the EPBC Act approval that were within the scope of the audit, the independent audit and the Department's review of the findings identified a number of non-compliances relating to:

- Conditions 5 and 20 which relate to the Constraints Planning and Field Development Protocol (the Protocol) which governs how constraints planning and field development decisions are to be undertaken before the final selection of specific sites for gas field development within the project area are made.
- Condition 9 which requires the approved Significant Species Management Plan(s) to be implemented.
- Condition 26 which required an Offset Plan to be prepared within 6 months of the commencement of the action.

The non-compliance with Condition 26 has previously been addressed by the Department and no further action is required. In relation to the remaining non-compliances the Department is engaging with the QGC to ensure that they are addressed to the satisfaction of the Department in accordance with the Department's EPBC Act Compliance and Enforcement Policy.

- **30 Jan, 2015 – Qld: landowners fight CSG expansion (CSG)**

<http://www.abc.net.au/radionational/programs/breakfast/qld-landowners-fight-csg-expansion/6056482>

The Coal Seam Gas industry has emerged as a key issue in the Queensland election campaign. Rural lobby group Agforce has accused the Newman Government of backing the multinational coal and gas companies instead of landholders. But as Cathy Van Extel reports, landowners in the Surat Basin are fighting back.

- **28 Jan, 2015 – Chemical leak at AGL's Gloucester fracking site (CSG)**

<http://www.echo.net.au/2015/01/chemical-leakagl-gloucester-fracking-site/>

Testing work at the Waukivory project near Gloucester has been suspended after benzene, toluene, ethylbenzene and xylene (BTEX) were detected in flowback water from four drilling wells and in a water storage tank. The state government has called in the EPA to investigate the breach and energy

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minister Anthony Roberts has questioned why it took the company almost a fortnight to admit the problem to the regulator.

- **25 Jan, 2015 – Jang’s water bore contaminated – drilling activity nearby thought to be responsible – QGC and government failed to respond adequately to requests to investigate – owners “walk away” from property due to health concerns. (CSG)**

5 years ago they sunk a bore for their property. They have excellent records on this young bore. In 2012 QGC did a baseline test on it as part of their activities in the region. This report does show some interesting results that indicate a change may have been happening.

On 19 January, John Reid and Adam Simon went to Greg’s house to investigate his complaints of the water from his bore being awful. He has linked it in timing with the well that was drilled by QGC within 500 m away in direct line with his bore.

The readings of high methane and high H<sub>2</sub>S was recorded in the bore water and this was filmed and photographed.

John Reid and Shay Dougall complained to the CSG Compliance Unit, EHP, DNRM on 20 January.

CSG Compliance said they would send some people to test it.

On Wednesday John Herbet from CSG Compliance rang him and told him that they are looking into it, and that they are getting reports from QGC.

To date no person from the authorities has been to Greg’s home to act on this. Greg and his family continue to be in a state of great angst, fear, grief, as their world is falling about them.

Greg is desperate to have his own independent tests done on the bore water and on his drinking water.

Greg took the pictures of the bubbling bore into QGC on Wednesday, he was offered no support but told someone would be in touch. He called them back Wednesday afternoon and Thursday. By Thursday at 3pm QGC “Patrick” rang and told him that CSG Compliance unit was now investigating the issue.

Over the last two months Greg had noticed that his pigs were wasting and not fattening, although nothing had changed. After putting together the water condition and their condition, of wasting,

- **23 Jan, 2015 – GCC response to Jon Black (Director-General, Department of Environment and Heritage Protection) re LNG flares, Gladstone**

<http://gladstoneconservationcouncil.com.au/web/wp-content/uploads/2015/01/GCC-response-to-Jon-Black-CTS31275-14-.pdf>

- **8 Jan, 2015 – Doctor says CSG bad for kids, pregnant women (CSG)**

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<http://www.thechronicle.com.au/news/doctor-says-csg-fields-bad-for-kids/2504258/>

BRISBANE GP GERALYN McCARRON is urging families with young children or pregnant women not to buy lifestyle blocks near Surat Basin coal seam gas fields. Dr McCarron first became involved with coal seam gas research in June, 2012, gathering local anecdotes about headaches, nose-bleeds, gastric issues, pins and needles, rashes and fits. She published a report based on her experience with 113 people, 58% of whom "felt their health was affected by CSG". Queensland Health released its own study in 2013 which Dr McCarron said took information from just 56 people, 13 visited in person.

- **Jan, 2015 – NSW Trade & Investment – Mine safety report**

[http://www.resourcesandenergy.nsw.gov.au/\\_data/assets/pdf\\_file/0006/540159/NSW-Mine-Safety-Summary-Performance-Report-2013-14.pdf](http://www.resourcesandenergy.nsw.gov.au/_data/assets/pdf_file/0006/540159/NSW-Mine-Safety-Summary-Performance-Report-2013-14.pdf)

- **19 Dec, 2014 – Transpacific fined for dumping CSG fracking water from AGL site in Newcastle sewer**

<http://www.abc.net.au/news/2014-12-19/company-fined-for-dumping-csg-fracking-water-from-agl-site-in-n/5978776>

Hunter Water says in October it refused an application from waste contractor, Transpacific to discharge treated flow-back water from the AGL site. But it says it recently became aware that Transpacific had discharged a prohibited substance into the sewer system from its treatment site on Newcastle's Kooragang Island. The company has since been penalised \$30,000 and warned that any further breaches would result in the termination of its commercial agreement with Hunter Water.

- **18 Dec, 2014 – GCC request for information Andrew Powell re Gladstone LNG Flare**

<http://gladstoneconservationcouncil.com.au/web/wp-content/uploads/2014/12/GCC-request-for-information-Andrew-Powell-LNG-Flare.pdf>

- **24 Nov, 2014 - Why the earth rumbles at Hopeland: coal seam gas**

[http://www.lockthegate.org.au/why\\_the\\_earth\\_rumbles\\_at\\_hopeland\\_coal\\_seam\\_gas](http://www.lockthegate.org.au/why_the_earth_rumbles_at_hopeland_coal_seam_gas)

A **serious explosion at a water bore in Queensland** shows farmers and communities should be very concerned about coal seam gas, despite government and industry reassurances to the contrary. Shay Dougall of the Hopeland Community Sustainability Group said a water bore at Hopeland, near Chinchilla on the Western Downs let out a loud bang about 6.30 on Thursday (Nov. 20). She said a huge gush of water and gas spouted metres into the sky and continued to release water for another day. There is a thin white crust around the bore, the eerie sound of gas rushing out of it and a side-to-side movement to the casing. Mrs Dougall said the bore had been disused but stable for at least 30 years. The bore is in the Walloon coal measures on prime agricultural land. The property where the bore is located is on an Arrow tenement but Origin is the coal seam gas company with a gasfield about 10 kilometres away. **"In 2008 we saw one water bore blow out at Hopeland, another in 2010 and in 2012 the Condamine River started bubbling.** "These events are occurring because of the coal seam gas activity in the area but all we hear from the companies and the government is spin.

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- **24 Nov, 2014 - Queensland's CSG compliance unit investigating bore 'blow out' on the Western Downs**

<http://www.abc.net.au/news/2014-11-24/bore--blow-out-investigation/5914126>

Queensland Government officials are investigating whether a water bore 'blow out' on a Western Downs farm is related to coal seam gas production in the region. The CSG compliance unit is assessing the cause of an eruption of water and gas from the bore, on a property near Chinchilla, which occurred on Thursday afternoon. The Queensland Minister for Natural Resources and Mines, Andrew Cripps, says departmental staff are monitoring the bore's condition. "On inspection, the bore [casing] was shaking and there was an audible sound of gas escaping from the bore," he said. [Nb. **GEORGE BENDER's bore**]

- **Nov, 2014 – CSG study finds elevated methane levels near gas fields**

<http://www.smh.com.au/business/carbon-economy/csg-study-finds-elevated-methane-levels-near-gas-fields-20141118-11p90>

Those findings, though, have now been published in the Water, Air and Soil Pollution journal. "It's exactly the same data that we presented then," said Damien Maher, a researcher at the SCU's Centre for Coastal Biogeochemistry Research, and one of the paper's authors. Methane triples. Deploying sensitive equipment, the researchers travelled hundreds of kilometres through the Tara gas field and an exploration field in Casino in northern NSW to gather air samples. The results found methane levels as high as 6.89 parts per million, or more than triple the background levels of about 1.8 ppm. Carbon dioxide levels reached as high as 541 ppm, or approaching a 50 per cent increase compared with general conditions. Dr Maher said the research could not identify the source of the higher methane levels although the chemical fingerprints – specifically the isotope of the gas – matched that of the CSG being produced from the field.

- **21 Oct, 2014 – George Bender, farmer, loses water bores due to CSG. Water reforms favour industry over farmers.**

[http://www.lockthegate.org.au/lock\\_the\\_gate\\_questions\\_preferential\\_water\\_rules\\_for\\_mining](http://www.lockthegate.org.au/lock_the_gate_questions_preferential_water_rules_for_mining)

Coal seam gas operators in the Surat Basin already enjoy this unlimited entitlement and local bore owner, George Bender has seen the effect of large-scale removal of water by companies that are not required to adhere to water planning limits.

Mr Bender, a Chinchilla cotton farmer, is about to lose two of his precious underground water bores that are being sucked dry by coal seam gas industry activities.

His bores are among 85 in the Walloon Coal Measures that are predicted to run dry by mid next year as a direct result of the CSG industry. The gas companies want to put up to 18 gas wells on Mr Bender's land. A further 528 bores will also be impacted in the longer term.

"We'll be living in a gasfield, it's as simple as that," he said. "The cards seemed stacked in favour of the resources industry with landholders left to suffer the impacts of coal seam gas exploration and mining with little recourse and few rights.

"You've got to agree to their terms or else. I reckon it's just all one-sided for the resources companies. It will completely interfere with the running of the property but that doesn't seem to matter as long as they get wells in and get the gas out of the ground."

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- **16 Oct, 2014 - Why the QCLNG flare flame is so big**

<http://www.gladstoneobserver.com.au/news/flaring-only-temporary-bechtel/2486330/>

IT'S visible from Tannum Sands and even as far away as Seventeen Seventy, but **a Bechtel spokesperson was keen to reassure Gladstone residents the large flame at the QCLNG site on Curtis Island is not a permanent fixture of the city's skyline.** "The flare will typically be smaller, smokeless and more consistent in luminosity when the plant is operating and producing LNG for export," the spokesperson said. "The composition of the gas currently being burnt at QCLNG is predominantly methane - or natural gas - as well as a small quantity of nitrogen."

- **8 Oct, 2014 – Chief Scientist CSG report leaves health concerns unanswered**

<http://theconversation.com/chief-scientist-csg-report-leaves-health-concerns-unanswered-32422>

The long-awaited independent review of coal seam gas (CSG) in New South Wales, released last week by the NSW Chief Scientist, highlighted many risks and uncertainties around human health from exposure to toxic CSG chemicals. Despite this, the report concludes the risks can be managed through unprecedented regulation and monitoring. But major health concerns remain unresolved. These include regulatory inadequacies, cumulative chemical and mental health risks, safety breaches, and climate change. Hence, the report leaves many health concerns regarding human health effects from CSG activities in NSW unanswered

- **4 Oct, 2014 - CSG means the grass is no greener**

<http://www.theaustralian.com.au/national-affairs/csg-means-the-grass-is-no-greener/story-fn59niix-1227079554316?sv=43cc918e67298bf117a34c5ecb9dff>

QUEENSLAND cattle breeder Joe Hill admits to a little envy at the limitless water gushing from the Origin Energy pipeline into the large new dam on his neighbour's cropping farm near Miles. In his own 800ha "Wandaloo" on the Western Downs, it hasn't rained much in 18 months and the grey clay plains are parched and cracked. But overriding Mr Hill's desire for drought-time "liquid gold" is a bigger concern that the irrigation water supply may not be pure. "But this CSG water and what is in it needs to be researched more, and there must be independent monitoring of these treatment plants, because I know from experience that self-monitoring by these multinationals doesn't work," he says. "The danger is that by the time we realise there is a problem and we have irreversible contamination of our land, the environment and our cattle it will be too late and the clean, green reputation of our entire beef industry will be at risk."

*Nb. The CSG dam has breached twice since completion inundating tracts of Mr Hill's property with CSG water. The water has high salt content and contains other impurities not removed by the Reverse Osmosis treatment. Joe Hill speaks at Senate Inquiry:*

<https://www.youtube.com/watch?v=9YwsnVCyul8&feature=youtu.be>

- **1 Oct, 2014 - Allowing coal seam gas wells on property 'a mistake', Qld farmer says, amid Senate committee inquiry**



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<http://www.abc.net.au/news/2014-10-31/allowing-csg-wells-was-a-mistake-qld-farmer-says/5848394>

CSG suppliers tempt landowners with unlimited water supply. He said that, in 2005, they had no water. "We were at the stage of having to buy water just to bath the kids. The dams were all running dry," he said. Photo: Allan Nothdurft and his wife Narelle have seven coal seam gas wells on their Queensland property. "They said 'how would you like a well [and] all the water you want? We said yeah, bring it on. That was the first mistake I suppose, but I don't think anyone knew about coal seam gas back then."

- **Sept, 2014 - Independent Review of Coal Seam Gas Activities in NSW Study of regulatory compliance systems and processes for coal seam gas**

[http://www.chiefscientist.nsw.gov.au/data/assets/pdf\\_file/0006/56913/140930-Final-Compliance-Report.pdf](http://www.chiefscientist.nsw.gov.au/data/assets/pdf_file/0006/56913/140930-Final-Compliance-Report.pdf)

selected period of time (1 July 2010-30 June 2013). Specifically, the Study looked at two of six Petroleum Production Leases in place at the time; two of 39 Petroleum Exploration Licences; the only Environment Protection Licence held for CSG extraction activities; and a Groundwater Licence.

While some good practices were observed, most notably in the Environment Protection Authority (EPA), some clear findings are that:

- there is a lack of alignment between requirements set out in licences and Government regulatory activity based on legislation
- regulatory capacity is limited in some agencies
- documentation and record keeping is often poor
- management of legacy requirements is limited
- new requirements are introduced without removing or aligning with existing requirements
- there is no clearly articulated whole-of-Government regulatory approach.

In particular, there is a concerning culture of some agencies not requiring or checking evidence to ensure industry compliance.

It is important to note that there is no evidence that the outcomes of mixed levels of regulatory oversight have been serious to date. This observation is supported by the results of available industry audits taken as a set. However, it is clear that some regulators have not been checking that required data and reports are delivered; not reviewing or verifying the material that companies are obliged to provide; not checking operations; and not reviewing or managing conditions which have become outdated or problematic with the passing of time.

Example: "A review of the Wollongong Environmental Sustainability Unit complaint and incident reporting spreadsheet (covering the period December 2011- February 2013 only) identified three incidents. Failure to conduct continuous air emission monitoring as required by EPA licence; leak of up to 1000L of water from a gas well; bubbling occurring around a well site (noting inspection followed and monitoring undertaken). "

- **14 Sept, 2014 – GPC ignored bund wall advice, documents say**

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<http://www.gladstoneobserver.com.au/news/corporation-ignored-key-rock-advice-bund-wall-fail/2386275/>

THE Gladstone Ports Corporation ignored its approved plans and external advice when it failed to build a rock covering over the geotextile fabric which tore on a bund wall in Gladstone harbour, confidential government documents have revealed. An independent engineer who examined the failure of the Fisherman's Landing bund wall for the Federal Government's review has revealed the failure to build a rock covering was **the key problem that led to sediment leaking through and under the bund in 2011 and 2012.**

- **10 Sept, 2014 – Mixed opinions on major coal seam gas project in Queensland's Bowen Basin**

<http://www.abc.net.au/news/2014-09-10/qch-arrow-gas-announcement/5733902>

I think it will be worse because at least with the coal mines if they need country they buy it off you," he said. "Whereas with the gas they come and park on top of you and you've got to run around everything then." He says the company has made a decision that a pipeline will go through his crops, creating a logistical problem for his business. "We've asked them to follow the fence-line if they want to go into other areas to collect gas, but nothing has come of that and nobody seems to be able to tell us what's going on."

- **22 August, 2014 – Farmer claims CSG companies spreading weeds on southern Queensland properties**

<http://www.abc.net.au/news/2014-08-23/farmer-claims-csg-companies-spread-weeds-on-southern-qld-propert/5661016>

Farmers say coal seam gas companies (CSG) are driving dirty equipment onto their properties and spreading weeds that are destroying their livelihoods. Lawyer Peter Shannon, who represents Mr Leech, said he had recently been inundated with cases of farmers seeking compensation.

- **12 August, 2014 – Unexpected flaring at QCLNG after shutdown**

<http://www.gladstoneobserver.com.au/news/unexpected-flaring-qclng/2738712/>

SMOKE will be seen coming from QCLNG's flare today after an unscheduled shut-down of train two. The company put out a press release at just after 4pm on Wednesday saying the supply of natural gas to Train 2 had been stopped. **The flare is being used to evacuate gases from the plants processing systems. The flare itself will be larger and emitting more smoke.**

- **8 August, 2014 – Irish workers 'waltz in' on infrastructure roort**

<http://www.afr.com/markets/commodities/metals/irish-workers-waltz-in-on-infrastructure-roort-20140807-j75qr>

Some of Australia's biggest mining and infrastructure projects are using workers who have gained skilled migrant visas or permanent residency by misleading the government about their employment status. Contractor Murphy Pipe and Civil -repeatedly misled the Immigration Department to help Irish workers fraudulently obtain visas to work on the Queensland Curtis LNG project and Western

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Australia's Sino iron ore project. Leaked company files and well-placed sources have revealed evidence of widespread roting of temporary skilled worker 457 visas and, to a lesser extent, working -holiday visas. Fairfax Media has confirmed the Immigration Department has failed to investigate the fraud, despite being contacted by whistleblowers over the past three years.

- **4 August, 2014 - QGC home buyout 'proof gas, people don't mix'**

<http://www.thechronicle.com.au/news/qgc-home-buyout-proof-gas-people-dont-mix/2339255/>

QGC is believed to have spent more than \$1 million buying properties in the area, many of which have no water or electricity access. Graeme Henderson was arrested in 2011 after chaining himself to a gate to stop QGC vehicles leaving a property outside Dalby. He confirmed his Tara property had sold, but said a confidentiality agreement meant he could not reveal the identity of the buyer.

- **10 July, 2014 – Workers medically cleared after gas detectors triggered**

<http://www.thechronicle.com.au/news/emergency-services-called-qgcs-kenya-site/2314691/>

AN exclusion zone has been set up at a QCG CSG well about 25km south-east of Miles after an incident this morning. A QGC spokesperson said two well-site technicians had been working at the Matilda John site when one of their personal gas detectors was triggered. Both technicians moved away from the site and Queensland Emergency Services, including Careflight, responded. Both technicians had been assessed by a doctor and cleared.

- **9 May, 2014 – Gladstone dredging project inquiry finds conditions on port expansion too vague to be enforced**

<http://www.abc.net.au/news/2014-05-09/bund-wall-inquiry-finds-gladstone-port-conditions-too-vague/5440860>

The investigation has found water quality monitoring sites in Gladstone were established in the wrong areas, and the federal Environment Department failed to adequately retain compliance records. It also says environmental conditions imposed by the Commonwealth lacked the specifics necessary to enable their effective enforcement.

- **May, 2014 – CSG company fails to tell landowner of radiation**

<http://www.qt.com.au/news/residents-left-in-dark-coal-seam-gas-radiation/2244686/>

JULIE Fairweather simply wants an apology. After the Chinchilla- based landowner discovered QGC workers were exposed to radiation while drilling on her property, she was horrified the company had not informed her. Mrs Fairweather told Chinchilla News a neighbour had called to tell her about the incident the day after it had happened. "There was no phone call, no knock on the door, no email from QGC. I had to hear it through the grapevine," she said. "It's just dreadful, to have this happen on our property, no more than 700m from our home, and not even be told. QGC released an official statement last week confirming four workers were exposed to "low level radioactivity" while on the Montrose Rd property on February 28 this year.

- **29 April, 2014 - Radiation exposure on Chinchilla-based Weatherford CSG rig**

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<http://www.australianmining.com.au/news/radiation-exposure-on-chinchilla-based-weatherford>

QGC has only recently revealed to local press a radiation exposure incident that took place near Chinchilla in February (28<sup>th</sup>). A spokesperson for QGC told the Dalby Herald that four QGC workers were exposed to radiation while involved with gas drilling work. It was reported that the radiation came from a Schlumberger "measurement device". The incident occurred on a drill rig south of Chinchilla which was operated by international oil and natural gas service company Weatherford. QGC said the workers were exposed to a "low level of radioactivity" and medical examinations were performed. QGC said it is still continuing to monitor the health of the exposed workers

- **16 April, 2014 – Santos issued "please explain" over radioactive material in Pilliga NSW**

<http://www.northerndailyleader.com.au/story/2223585/santos-issued-please-explain-over-radioactive-material-in-pilliga/>

PROTESTERS have issued Santos a "please explain" after the discovery of radioactive material at its coal seam gas operation in the Pilliga. A bright red box at one of the company's drill sites contains the radioactive isotope Caesium-137, which can be deadly at high exposure levels.- Cs-137 is commonly used in the mining and construction industries to detect liquid flows in pipes, tanks or bore holes dug for coal seam gas exploration. But its uncovering, coming just weeks after it emerged that in 2012 a leaking storage pond resulted in high levels of uranium, barium and other elements in an aquifer, has some worried.

- **April, 2014 - Water contamination may be linked to coal seam gas wells (Wallumbilla – Qld)**

<http://www.westernstarnews.com.au/news/contamination-is-confirmed/2219462/>

RESULTS have confirmed the presence of methane gas in the Wallumbilla water supply, following extensive CSG testing by ALS Environmental. In a statement released by Maranoa Regional Council yesterday, Mayor Robert Loughnan said until the source of the gas could be determined and corrective action taken, Bore 2 would remain offline, with Wallumbilla's water being sourced exclusively from Bore 1. "There continues to be no impact to Wallumbilla residents' water supply - we are ensuring that consistent quality water will continue to be available while Bore 2 is offline," Cr Loughnan said. The statement said council had no knowledge of gas being present in water before this instance.

- **29 March, 2014 – Santos Pilliga project: Coal seam gas waste water spillage causes alarm**

<http://www.smh.com.au/nsw/santos-pilliga-project-coal-seam-gas-waste-water-spillage-causes-alarm-20140328-35ong.html>

[http://www.stoppilligacoalseamgas.com.au/wp-content/uploads/2011/12/The\\_Truth\\_Spills\\_Out\\_Final\\_May\\_2012\\_without\\_appendices.pdf](http://www.stoppilligacoalseamgas.com.au/wp-content/uploads/2011/12/The_Truth_Spills_Out_Final_May_2012_without_appendices.pdf)

The Environment Protection Authority is investigating a 500-litre wastewater spill from a coal-seam gas operation at the Pilliga forest in north-western NSW. The waste water was spilt during a transfer from an assessment well to a holding pond at the Santos gas field near Narrabri on Tuesday, the EPA said.

- **8 March, 2014 – Santos coal seam gas project contaminates aquifer**

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<http://www.smh.com.au/environment/santos-coal-seam-gas-project-contaminates-aquifer-20140307-34csb.html>

The company failed to report a leak of 10,000 litres of contaminated water from a treatment plant after an electronic switch connected to the pipeline failed. The water was about half as salty as sea water and killed more than 70 per cent of the trees in the affected zone, prosecutor Stephen Rushton SC said. Ms Hogan said it had been up to a local farmer to report the coal seam gas brine spill to the media on 2 January 2012 before any action was taken by Santos

- **28 Feb, 2014 - CSG drilling rig workers in Queensland exposed to radiation by Schlumberger**

<https://indymedia.org.au/2014/03/05/csg-drilling-rig-workers-in-queensland-exposed-to-radiation-by-schlumberger>

On Friday 28 February, four Weatherford drilling rig workers at a QGC coal seam gas (CSG) well site near Tara in Queensland were exposed to as yet undisclosed levels of radiation. They handled a radioactive equipment component left at the site by workers from another oil and gas services company, Schlumberger. **The radiation source was not shielded and labeled as required by regulation.** According to an anonymous source, radiation incident response personnel from the USA have been summoned to the Tara area to investigate and provide support. The health of the four workers is "under observation".

- **20 Jan, 2014 – Fishermen hope federal inquiry dredges up problems in Gladstone Harbour**

<http://www.abc.net.au/news/2014-05-09/bund-wall-inquiry-finds-gladstone-port-conditions-too-vague/5440860>

The inquiry follows Tony Moore's breakthrough story for Fairfax Media on the many failings of a bund wall, meant to contain dirty dredge spoil. Local fishermen have blamed the dredging project for a disease outbreak in 2011, which killed numerous fish, turtles, dugongs and other marine life. The state-owned Gladstone Ports Corporation has continually denied this and on Monday, sought to have a compensation claim by the fishermen thrown out of the Planning and Environment Court in Brisbane. The GPC's former environmental manager, John Broomhead, told media last week the design and size of the wall retaining the toxic material dredged up was a failure. **He said the wall started to leak in August 2011 and contributed to elevated turbidity in the harbour.**

- **14 Jan, 2014 – Whistleblower claims harbour bund wall is still leaking**

<http://www.gladstoneobserver.com.au/news/claims-gladstone-harbour-bund-wall-still-leaking/2140058/>

A FORMER Gladstone Ports Corporation employee has claimed the bund wall built to contain dredge spoils from work associated with the Curtis Island LNG projects is still leaking and could cost as much as \$50 million to fix. Former GPC environment manager turned whistleblower John Broomhead has told The Australian the wall is not fixed, after speaking out about issues surrounding the wall's construction. "This thing is so hollow and the geotextile fabric against the wall so poorly installed it is going to continue to erode," Mr Broomhead said.

- **26 Dec, 2013 – Gladstone port plea to stem toxic leak**

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<http://www.theaustralian.com.au/news/health-science/gladstone-port-plea-to-stem-toxic-leak/story-e6fgr8y6-1226789797130>

GLADSTONE Ports Corporation was forced to seek urgent permission to breach its environmental approvals in a race to plug a leaking bund wall before it ran out of space to store potentially toxic acid sulphate soils from dredging associated with the \$33 billion Curtis Island LNG export terminals. **Gladstone Ports has consistently denied the leaking bund wall was responsible for a collapse of fish health in the harbour in late 2011. A series of investigations has blamed the poor harbour health on record flooding early in 2011. But documents show the Ports Corporation was aware of the extent of the environmental threat posed by the bund wall failure.** GPC expressed concern about the "reputational issues" reporting of the bund wall failure and poor water quality posed for the project.

- **18 Dec, 2013 – Santos faces fines for Pilliga coal seam gas salt spill**

<http://www.smh.com.au/environment/santos-faces-fines-for-pilliga-coal-seam-gas-salt-spill-20131218-2zkob.html>

Gas giant Santos' NSW branch could be slapped with hundreds of thousands of dollars in fines after it admitted to failing to report contamination and excessive salt levels at a drilling site in the state's northwest. Santos NSW has pleaded guilty to four charges relating to failures by the site's operator, Eastern Star Gas, to report contaminated water leaks and lodge environmental management documents, the NSW Land and Environment Court heard on Wednesday.

- **25 Nov, 2013 - Enough to make you sick**

<http://www.echo.net.au/2013/11/enough-to-make-you-sick/>

Dr Somerville said that many of the chemicals used in CSG mining have health impacts, even in minute quantities. 'Volatile organic compounds can cause eye, nose and throat irritation, headaches, dizziness, respiratory distress, visual disorders, memory impairment, loss of coordination, nausea and damage to liver, kidney and the central nervous system. Some can cause cancer and other irreversible health side effects. 'Radium is a very toxic carcinogen that is associated with bone, liver and breast cancer. Radon is a decay product of radium, and is the leading cause of lung cancer among non-smokers.' Dr Somerville listed further compounds that have adverse health impacts, saying that even exposure to minute quantities of chemicals is enough to disrupt the nervous and endocrine systems. 'The damage may not be evident at the time of exposure but can have unpredictable delayed lifelong effects on the individual and/or their offspring and may last generations,' he said. Of concern to Dr Somerville is that children are more vulnerable than adults.

- **21 Nov, 2013 – Big stink at Kogan**

[Nb: QCL link returning an "Internal Server Error"]

### Big stink at Kogan - Queensland Country Life

[www.queenslandcountrylife.com.au/news/agriculture/.../2679137.aspx](http://www.queenslandcountrylife.com.au/news/agriculture/.../2679137.aspx) ▼

Nov 21, 2013 - IN A few months, Ipswich-based business NuGrow hopes to be ... **Brian Monk**, Iona, Kogan, with a letter from NuGrow, is far from happy about ...

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Full Text (reproduced below) found here: <http://www.springhillvoice.com/22november2013.html>

“In A few months, Ipswich-based business NuGrow hopes to be spreading waste from CSG drilling and mining camps on the paddocks of its newly acquired Kogan property, Iona Park, and Brian Monk is far from happy. That’s because Mr Monk’s 2000-hectare beef property, Iona, sits across the road from the 513-hectare Iona Park, and Mr Monk is full of fears about what the proposed project will bring to the area. NuGrow’s proposal is to blend CSG waste waters, mulched green waste, liquid and solid food waste, treated and untreated effluent, biosolids and manures prior to spreading them on cultivated ground on Iona Park.

While NuGrow is certain it has all the boxes ticked prior to the project receiving Queensland Government approval, Mr Monk is not so sure. He says he believes the soil conditioner or compost made from CSG waste will be saline and could contain harmful elements that will not be detected prior to the mix being spread on Iona Park’s paddocks. And when a serious flood comes, Mr Monk fears NuGrow’s compost will become his contaminant. “When it hits Montrose Road, the water’s 18 inches deep and 2km wide. That’s what I said to NuGrow. It’s going to be my problem,” Mr Monk said.

However, Peter Thompson, NuGrow’s environmental compliance manager, said NuGrow would be constructing contour banks around the 10ha trial sites on Iona Park and discounted the neighbour’s worries.

“Our site will be a non-release site so that any run-off will go into an on-site dam,” he said.

A letter from NuGrow to Mr Monk and his wife Carolyn about the “proposed pasture improvement project”, dated October 24, was the first the couple knew about what was planned for across the road. It invited them to a November 7 meeting at Kogan Community Hall, where Mr Monk came away with more questions than answers. “What about biocides and polonium and uranium? Will they be testing for that?” Mr Monk said. “When they are drilling for CSG, they are drilling through structures with naturally occurring radioactive material. Have they thought of that?”

Mr Thompson says he believes they have. “Prior to us accepting any waste stream, including CSG waste waters or effluent, we’ll require the producer to supply a lab analysis,” he said. That analysis would be monitored to ensure it met government-set criteria – and NuGrow was no stranger to the process. NuGrow already accepts drill waste at its Gracemere facility near Rockhampton, and organic liquid waste at other sites, including Swanbank near Ipswich, which is used in compost mixes.

The company is currently negotiating with parties that have CSG drill water and other wastes close to Kogan they need to offload, and Mr Thompson said any waters would be put through the Delta water treatment system to ensure it was not excessively saline. “There is food waste and effluent coming from camps and we’ve come up with the solution to use it for agriculture instead of it going to landfill,” Mr Thompson said.

But Mr Monk has little faith in the Delta process for desalination. “All they’re doing is hiding a large amount of salt.” “They are somehow avoiding calling it toxic waste by rebranding it as beneficial waste,” said Mr Monk, an outspoken opponent of the CSG industry. NuGrow will be paid by drillers, mining-camp operators and others to remove the waste. “This industry stinks,” Mr Monk said. “The water is their enemy and they want to dump megalitres of it every day.”

But NuGrow sees the project simply as a means of using waste to benefit the depleted soils of the Western Downs. Pending Department of Heritage and Environment Protection approval and under

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the Waste Reduction and Recycling Act 2011, **NuGrow hopes to reclassify the wastes it takes in for the project as beneficial resources, rather than regulated wastes. That means it will then be able to spread for agricultural use.**

Under the proposed plan, collected wastes will be blended at Iona Park prior to being spread in windrows for regular turning to ensure odour-minimising aerobic conditions. It will then be applied to paddocks which have been cultivated to a depth of 50mm. NuGrow will be required to work the product into the paddocks in a time frame, more likely to be hours rather than days, prior to planting of dryland crops.”

Related links:

<http://zambellienvironmental.com.au/kogan-multiple-beneficial-use-approval.html>

<http://www.coal-seam-gas.com/pdf/approval%20of%20resource%20for%20beneficial%20use%204443%20att.pdf>

- **1 Nov, 2013 – Fishermen claim dredging impact covered up by GPC**

<http://www.gladstoneobserver.com.au/news/claims-of-dredging-cover-up/2070489/>

CLAIMS of a cover-up over Gladstone's massive dredging project could be key to a fishing industry class action against Gladstone Ports Corporation. Fisherman Trevor Falzon is leading the class action, which includes more than 20 fishermen, crabbers and trawlers who want more compensation for alleged lost fishing grounds. It's the second case fishers have brought against the port, claiming they weren't adequately compensated for the Western Basin Dredging and Disposal Project. Mr Falzon said the latest case could include revelations of what he called a "cover-up". He claimed information about the environmental effects of the project had been hidden from regulators. But a port corporation spokeswoman maintained no environmental information had been withheld from state or federal authorities. **Mr Falzon alleged a report about a leaking bund wall was kept under wraps for more than a year, before being released two weeks ago.**

- **22 Oct, 2013 - Qld farmers lose bore water following CSG extraction**

<http://coalseamgasnews.org/qld/qld-farmers-lose-bore-water-following-csg-extraction/>

COL and Marcia Davis' Chinchilla property is in what you might call an awkward position. It comes under Arrow Energy's tenure in one half and Origin's on the other, and its boundary sits 600m outside the 'magical' cumulative management area (CMA) boundary as identified by the Surat Underground Water Impact Report. That means its failing groundwater supply is a priority only for the Davises, who run 1500 cattle and a piggery. "We've got surface water at the moment because the Wambo Creek got a flood in January-February, and seepage out of the banks is keeping it going, but we're in a position that we'll be looking for water within the next two to three months," Mrs Davis said.

Wamba, which has been in Mr Davis' family for more than a century, had an unfailing supply of bore water until 2008, when gas started to severely impact on two bores. "We've got seven bores and six are in the Walloons," Mr Davis said. "The one that isn't, we're having no problems with, because it's shallower than the others." However, they did have a "big problem" with the main bore, which was 162 metres deep. "The two main bores we can't pump out of anymore because they've got that much



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gas in them that the impellers or the mono rotor kits burn out," Mr Davis said. **The couple said gas levels in their bores had become worse in the past 18 months, and Origin had agreed to replace a bore. "They've said they'll do it in two years, but we'll need it before then," Mr Davis said.**

- **12 Sept, 2013 – CSG behind Cancer cluster MP – (Govt. reject this assessment)**

<http://www.myresources.com.au/news/17-othernews/8758-csg-behind-cancer-cluster-mp>

Three people who live near coal seam gas activities in southern Queensland have contracted terminal cancer, and one of them has since died, a state MP says. Katter's Australian Party member for Condamine Ray Hopper told parliament on Wednesday the residents live within four kilometres from a coal seam gas (CSG) evaporation pond in his electorate. All three have been diagnosed with pancreatic cancer, he says. "Sadly, one person has died and the two others have been given just months to live," he said. He called for Health Minister Lawrence Springborg to launch an investigation into whether CSG mining is linked to the cancer cluster. **But Mr Springborg rejected the suggestion that the CSG pond had anything to do with the illnesses.**

- **12 Sept, 2013 - Katter MP wants probe into CSG links to cancer cluster**

<http://www.thechronicle.com.au/news/katter-mp-wants-probe-csg-links-cancer-cluster/2018180/>

Ducklo resident Luigi Morrison, one of three people diagnosed with prostate cancer living near a coal seam gas evaporation pond, said he is right behind Ray Hopper's call for an investigation into the cases. He said while his specialist had told him a link between coal seam gas activity and his pancreatic cancer would be "difficult to prove", he believed the evaporation pond's proximity and chemicals in the water were part of the cause. "It would be a major coincidence," he said.

- **2 Aug, 2013 – Flooding, not dredging, caused sick fish in Gladstone harbour (according to Govt.)**

<http://www.gladstoneobserver.com.au/news/flooding-not-dredging-caused-sick-fish-gladstone/1969391/>

A FINAL (Govt) report on sick fish in Gladstone Harbour says flooding - not dredging - was the main cause of the problem. The report says flooding, combined with large numbers of fish being washed over the Awoonga dam, stressed the ecosystem in the harbour and adjacent waterways. The study, released on Friday, couldn't rule out the possibility that dredging and associated turbidity provided additional stress to the ecosystem, but it was not the primary stressor.

**The report was put together by an independent panel of investigators appointed by the State Government** to investigate concerns about sick fish in the waterway.

However, a separate report just released by veterinary scientist Dr Matt Landos shows levels of marine life disease around the harbour are much greater than previously thought. Dr Landos' data revealed 39% of mud crabs collected around Gladstone harbour tested positive for distinctive rust spots that indicated shell disease from ingested metals such as copper and aluminium. The Guardian Australia reports his results show that instances of shell disease soar in locations close to the Western Basin Dredging and Disposal project.

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- **14 July, 2013 - 200m of steel drill pipes blown into air in July CSG mishap (Metgasco)**

<http://www.northernstar.com.au/news/a-dangerous-incident-that-occurred-during-the-deco/2033819/>

[http://www.resourcesandenergy.nsw.gov.au/data/assets/pdf\\_file/0004/474610/Drill-string-ejected-from-gas-well.pdf](http://www.resourcesandenergy.nsw.gov.au/data/assets/pdf_file/0004/474610/Drill-string-ejected-from-gas-well.pdf)

A DANGEROUS incident that occurred during the decommissioning of one of Metgasco's gas wells near Casino in July is the subject of an inquiry by the NSW Mine Safety Investigation Unit. On July 14 this year six Metgasco workers were placed into a "very high" risk situation during the shutdown operation of the Kingfisher E01 well on the outskirts of Casino, when 200m of steel drill pipes shot out of the well without warning.

- **25 June, 2013 – Saxon Energy denies claims of lax safety at Fairview**

<http://www.westernstarnews.com.au/news/saxon-energy-confirms-worker-has-died-fairview/1920803/>

SAXON Energy has denied claims lax safety standards led to the death of a 21-year-old on site at Fairview gasfield on Sunday. A company spokesperson said all operations on site complied with Queensland Safety regulations. This company denial came after a source, who wished to remain anonymous, told the Western Star the incident was avoidable. "(The) issue was a known danger that nearly killed someone else," the source said. **"We have unqualified, under-experienced men on all out rigs... anyone that comments gets fired."**

- **23 June, 2013 - Rig floor incident on Saxon Rig 185 in the Fairview field in Queensland, which tragically resulted in a fatality**

<http://indaily.com.au/business/2013/07/19/santos-cuts-guidance-after-setbacks/>

- **28 May, 2013 – Health of Tara residents comes first: Toowoomba Bishop**

<http://www.thechronicle.com.au/news/health-tara-residents-comes-first-toowoomba-bishop/1884740/>

THE health of people living on the Tara residential estates needs to be put before the economic benefits of coal seam gas production, says Catholic Diocese of Toowoomba Bishop Robert McGuckin. "Every effort needs to be made to ensure that the extraction of coal seam gas and related activities does not impact negatively on the people on the Tara Residential Estates, particularly the health of children," he said in a statement released today. "Economic benefits to the area from mining must not be at the sake of the community's health and wellbeing - particularly of local children."

- **6 May 2013 – Great Barrier Reef in danger according to UN report**

<http://www.sunshinecoastdaily.com.au/news/great-barrier-reef-danger-according-un-report/1855970/>

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THE State Government is convinced it will avoid the Great Barrier Reef being deemed under threat by United Nations' environmental arm after UNESCO raised concerns in a new report. The group gave some praise to both the Queensland and Federal Government but warned that with up to 43 proposed developments along the coastline of the reef, UNESCO would still recommend the reef's status be listed as "in danger". To avoid this, both levels of government must act before February 1 next year. Queensland **Environment Minister Andrew Powell said the LNP government was already reviewing Gladstone Harbour and putting together a ports strategy - two issues highlighted in the report.**

- **9 May, 2013 – Report details health concerns for residents affected by CSG**

<http://www.thechronicle.com.au/news/report-details-health-concerns-residents-affected-1862076/>

She said that in dealing with the community, she had concerns children could be experiencing damage to their nervous system, as some reported sensations of numbness and pins and needles. "In my suburban practice, that's not something I would see in people of that age group," Dr McCarron said. "My feeling is that people's concerns for their health have substance. "There needs to be an intensive investigation to find out what's going on." She said the government research from Dr Keith Adam - a specialist in environmental medicine - and the Darling Downs Public Health Unit was not sufficient.

- **1 May, 2013 - GP fears for health of gasfield residents - Independent health survey highlights need for better understanding of coal seam gas health impacts.**

<http://dea.org.au/news/article/media-release-gp-fears-for-health-of-gasfield-residents>

A report released today by Brisbane general practitioner Dr GERALYN McCarron highlights the need for further investigation of the health impacts for people living in a coal seam gas (CSG) field. Dr McCarron has been communicating with affected residents of the Tara estates in SE Queensland who believe their health has been adversely affected by pollution from CSG activities near their homes. **She was highly dissatisfied with the adequacy of the recent Queensland Government report** and so undertook her own survey of health complaints. The report Symptomatology of a gas field describes interviews with 38 households, encompassing 113 people. Over half of residents surveyed reported that their health has been adversely affected by CSG activities.

- **30 Apr, 2013 – Petroleum (Onshore) NSW - 29 safety incidents shown for period 2002 - 2013**

[http://www.resourcesandenergy.nsw.gov.au/\\_data/assets/pdf\\_file/0011/499736/NSW-Mine-Safety-Performance-Report-2012-13-Final-140120.pdf](http://www.resourcesandenergy.nsw.gov.au/_data/assets/pdf_file/0011/499736/NSW-Mine-Safety-Performance-Report-2012-13-Final-140120.pdf)

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## 4.4 Petroleum (Onshore) Incidents

Petroleum incidents and injuries notified under the Petroleum (Onshore) Schedule 1992 and recorded in the COMET database appear below.

Note that prior to 2012 and the introduction of the Work Health and Safety Act 2011, reportable incidents that were notified to the WorkCover Authority and not also notified to NSW Trade & Investment, do not appear in the COMET safety statistics.

Also, several factors have affected petroleum operations in NSW in the past three years including the NSW Government imposed moratoria on fracking, granting of exploration licences and renewals of existing exploration licences. In addition, the level of coal seam gas exploration has slowed down in response to the drafting and delay in the implementation of the Strategic Regional Land Use Policy. This reduced activity is reflected in the safety statistics.

### 4.4.1 Petroleum (Onshore) Incidents by Incident Investigation Level

**Figure 51**

Petroleum (Onshore) Incidents by Incident Investigation Level 2002-03 to 2012-13

Investigation Level	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Total
Level 1 - No need to attend. Mine to investigate & report.	-	-	-	-	3	-	-	5	1	-	-	9
Level 2 - Official to attend mine.	-	-	-	-	-	-	4	6	5	1	2	18
Level 3 - Detailed investigation suitable for further action	-	-	-	-	-	-	-	1	-	-	-	1
No Data	-	1	-	-	-	-	-	-	-	-	-	1
<b>Total</b>	-	<b>1</b>	-	-	<b>3</b>	-	<b>4</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>29</b>

**Figure 166**

Petroleum (Onshore) Incidents by Incident Type and Subtype 2002-03 to 2012-13

Legislation Category	Incident Type	Incident Subtype	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Total
POASch	POASch 1992	POASch1992 Cl 304 potentially hazardous event	-	-	-	-	-	-	1	8	4	1	1	15
		POASch1992 Cl 301(2) death or serious injury	-	1	-	-	3	-	2	3	1	-	-	10
		POASch1992 Cl 306(1)(c) uncontrolled escape or ignition of petroleum, flammable or combustible material or toxic chemicals causing potentially hazardous situation	-	-	-	-	-	-	1	1	1	-	-	3
		<b>Total</b>	-	<b>1</b>	-	-	<b>3</b>	-	<b>4</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>28</b>
N/A	Complaint	Public Complaint	-	-	-	-	-	-	-	-	-	-	1	1
		<b>Total</b>	-	-	-	-	-	-	-	-	-	-	-	<b>1</b>
<b>Petroleum Incidents Total</b>			-	<b>1</b>	-	-	<b>3</b>	-	<b>4</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>29</b>

- 5 April, 2013 – QGC response to **anonymous allegations** of non-compliance made to media by a contractor

[http://www.qgc.com.au/media/250265/qgc\\_non-compliance\\_allegations\\_5\\_april\\_2013\\_.pdf](http://www.qgc.com.au/media/250265/qgc_non-compliance_allegations_5_april_2013_.pdf)

[Nb. Unable to locate any related media article on this subject]

- 1 April, 2013 – Gas Leak! Four Corners

<http://www.abc.net.au/4corners/stories/2013/04/01/3725150.htm>

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But why weren't these problems picked up in the development approval process? The answer is simple: according to one insider, the approval process is significantly flawed. Four Corners reveals what really happened when two major companies applied to develop thousands of square kilometres of southern Queensland for coal seam gas. Using hundreds of pages of confidential documents, the program reveals that the companies didn't supply enough basic information for an informed decision to be made about environmental impacts. Despite this, various government agencies permitted the developments to go ahead, allowing the companies to submit key information at a later date. A decision which shocked some who were involved: *"It was quite frightening that they would consider approving such a project without the basic information that a normal mining project would have been asked to submit, given that this was like six hundred times the size of your standard, large mine."* This same insider claims pressure was applied to the bureaucracy to fast track approval for coal seam gas development. This allegation would deeply concern many farmers who have seen their land used for coal seam gas sites and raises significant concerns about the future expansion of the industry across Australia.

[QGC Response: <http://group1403.rssing.com/browser.php?indx=5398583&item=67> ]

- **28 March, 2013 - QGC response to questions asked by the ABC in relation to upcoming program, Gas Leaks!**

[http://www.abc.net.au/4corners/documents/CSG2013/QGC\\_response.pdf](http://www.abc.net.au/4corners/documents/CSG2013/QGC_response.pdf)

- **22 October, 2012 – Land Holder Taking Water Fight to Santos**

<http://www.nvi.com.au/story/405991/landholder-taking-the-water-fight-to-santos/?cs=382>

Mr Pickard reports that the sodium content in the water samples is actually 1030 ppm (parts per million) and the pH of the ponded water is 9.93, while the sodium content in the soil at Bohena 7 is 17200 ppm, with a pH of 11.2. "Another point to look at is the Sodium Absorption Ratio (SAR) is 200 in the ponded water," he said. "Rain water has an SAR between 1 and 2 at its worst, with bore water generally slightly higher. "Bore water for domestic use in the area (my house bore sampled 16.5.2012) was 2.6 and on 27.6.2012 was 2.97," he said. "When you get a SAR in water of four (4) you know you are in trouble... twenty (20) is desert. The native wildlife do not drink this water and live and the water is not conducive to plant and tree growth or survival either. He says, however, that the biological activity in the water tells the most compelling argument, citing astronomical counts of sulfate reducing and hydrocarbon utilising bacterias.

- **18 October, 2012 – Family fights for compensation for well site**

<http://au.news.yahoo.com/thewest/regional/countryman/a/-/news/15144422/family-fights-for-well-site-compo/>

As a fruit and vegetable producer, Mr Copeland said he was losing substantial income from the existence of the well site. "If I put zucchinis into the 9000sqm area this year I would have made in excess of \$80,000 gross," he said. "If I planted rockmelons there in April to May 2012 I could have made in excess of \$80,000 for the price we were receiving at that time. "This is providing the site had been property rehabilitated and soil nutrients lifted to the appropriate levels for our industry." AWE was contacted for comment but a spokesman said the company was unable to respond because the matter was before the court.

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- **20 Sept, 2012 – Gladstone Dredging**

<http://www.abc.net.au/catalyst/stories/3593812.htm>

Mark Horstman explores the environmental consequences of a large dredging project at Port Curtis harbour in Gladstone Queensland.

- **12 September, 2012 – Gas Company (AGL) illegally emitting acid rain compounds for 3 years**

<http://au.news.yahoo.com/video/national/watch/26473248>

AGL found for 3 years have been pumping 30% more Sulphur Oxide into air than environmental limits allow. Also found to be exceeding limits for hazardous waste stored on site.

- **4 September, 2012 – Farmers and environmental groups blast new gas industry ad that claims coal seam gas is safe for groundwater – (APPEA)**

<http://www.couriermail.com.au/news/farmers-and-environmental-groups-blast-new-gas-industry-ad-that-claims-coal-seam-gas-is-safe-for-groundwater/story-e6freon6-1226464606972>

<http://www.news.com.au/breaking-news/national/csg-ad-criticised-for-false-claims/story-e6frfku9-1226464941206>

Deceptive advertising by APPEA claims that CSG is safe for groundwater. A PRO-COAL seam gas (CSG) television advertisement has falsely claimed Australia's national science agency believed groundwater was safe from contamination by CSG mining, CSIRO says. The Australian Petroleum Production and Exploration Association (APPEA) authorised the television ad that aired on Network Nine at the weekend. The ad claimed CSIRO believed groundwater was "safe from coal seam gas" activities. CSIRO has rejected the claims. "At no time has CSIRO made such a statement, and nor do the results of CSIRO research support such a statement," a spokesman said in a statement.

- **4 September, 2012 - CSIRO wants ads pulled as coal seam gas industry claims rejected**

<http://www.coastaltimes.com.au/news/national/national/general/csiro-wants-ads-pulled-as-coal-seam-gas-industry-claims-rejected/2658104.aspx>

- **20 August, 2012 – Dalby gas fire denial – Arrow**

<http://www.news.com.au/national/coal-gas-stream-blaze-still-alight-west-of-dalby/story-fncynjr2-1226453647479>

<http://www.brisbanetimes.com.au/queensland/dalby-gas-fire-not-csg-related-arrow-energy-20120820-24h5s.html>

Arrow Energy says a *gas fire burning* on one of its properties in Queensland is under control and is not linked to the company's coal seam gas activities. Fire fighters were called to a grass fire at the site of Arrow's Daandine CSG project, west of Dalby, on the weekend. The grass fire has been put out. Arrow Energy says the gas fire is centred on an old coal mine well, and is continuing to burn, but in a controlled, secure way.

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- **20 July, 2012 - CHINCHILLA beef producer David Hubbard has seen his property impacted four times by QGC spillages this year - GGC**

<http://qcl.farmonline.com.au/news/state/agribusiness-and-general/general/qgc-should-spill-details-not-just-gas/2614696.aspx>

“Drilling fluid from a QGC mining rig had twice spilled into the Condamine River, a few hundred metres from where he accessed water for stock, and fluid also had spilled twice across a boundary fence into his paddock, he said. The accidents, which had occurred at a neighbouring property, had taken place over a single month. While he expressed his annoyance these incidents were occurring in the first place - a familiar story for many across rural Queensland - Mr Hubbard said his ongoing frustration was that he was not being adequately informed by the company about the discovery of the incidents and the follow-up investigations into the impacts. He said he had only learnt about two of the incidents following his own initiative and questions.”

- **20 July, 2012 - Corybas leak sparks alarm – Geraldton - AWE**

<http://au.news.yahoo.com/thewest/regional/gascoyne/a/-/news/14280202/corybas-leak-sparks-alarm/>

Gas bubbling at the surface of a fracking well on The Grange farm, south of Dongara, has raised new concerns about the environmental safety of the process. Nearby growers expressed fears about contamination of groundwater supplies when a leak was discovered at AWE's Corybas wellhead. AWE managing director Bruce Clement this week confirmed the company found a gas leak on the valve of Corybas 1, which was bubbling up through rainwater in the cellar trap. Mr Clement said the leak at the well, which was fracked at 2.51km in 2009, was picked up during routine maintenance checks and was being fixed now.

- **6 July, 2012 – Coal seam gas blamed for health problems**

<http://www.abc.net.au/local/stories/2012/07/06/3540381.htm>

The Australian Medical Association's incoming president in Queensland has confirmed several of its member doctors have raised concerns that residents living near coal seam gas mining operations may be showing symptoms of gas exposure.

- **2 July, 2012 – Queensland LNG enforcement unit to investigate 'flammable, toxic' water in Chinchilla bore near CSG project**

<http://www.couriermail.com.au/news/queensland/farmers-fear-as-water-bore-burns/story-e6freoof-1226413841111>

THE State Government has called in its LNG enforcement unit to investigate why a household water bore on a Chinchilla property has suddenly become flammable and apparently toxic. Landowner Brian Monk blames the extensive coal seam gas operations in the region, including the controversial practice of fracking which has been used there. But coal seam gas company QGC said science and logic would indicate that had nothing to do with it.

- **19 June, 2012 – Metgasco fined for failure to comply - Metgasco**

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<http://www.northernstar.com.au/story/2012/06/19/metgascos-wastewater-fine/>

METGASCO has been fined \$5000 by the State Government for failing to provide information about its plans to dispose of wastewater produced by the coal seam gas extraction process. The fines were revealed on a government web site which listed cases of "non-compliance" with the Mining Act and Petroleum (Onshore) Act. A COAL seam gas company has disposed of more than a million litres of dirty water at a sewage treatment plant in northern NSW, breaching the plant's licence conditions, the NSW Environment Protection Authority says

- **12 June, 2012 - Coal seam effluent salts sewerage - Metgasco**

<http://www.smh.com.au/environment/coal-seam-effluent-salts-sewerage-20120611-2060v.html#ixzz1xWyBfdZU>

- **28 May, 2012 - Methane Migration Affects 5 km stretch of Condamine River - Origin**

<http://www.abc.net.au/news/2012-05-30/claim-csg-river-leak-caught-on-video/4041298>

Gas is bubbling to the surface on a five-kilometre stretch of the Condamine River near Chinchilla on the Western Downs. The Queensland Government's LNG Enforcement Unit says it is investigating the claims. Mr Hutton says while he cannot rule out naturally occurring methane, the incident is unprecedented. "The landowners say they've never seen this happen before," he said. "It's along quite a lengthy stretch of the river - there's very strong bubbles coming to the surface. "This is a new phenomenon for this section of the river." Mr Hutton says the river is close to CSG wells operated by Origin Energy.

- **24 May, 2012 - Varanus gas explosion report slams Apache Energy – LNG/Apache**

<http://www.abc.net.au/news/2012-05-24/varanus-gas-explosion-report-released/4031146/?site=northwestwa>

The report is critical of Apache, saying the company had ultimate responsibility for maintaining the site and should have identified the risk that corrosion posed to the affected pipeline. It has described Apache's safety culture as 'middle-rank'.

- **12 May, 2012 – Gas leak forces suspension at QGC rig at Surat Basin - QGC**

<http://www.couriermail.com.au/business/gas-leak-forces-suspension-at-queensland-gas-company-rig-at-surat-basin/story-fn7kjcme-1226347929202>

Gas leak forces suspension at Queensland Gas Company rig at Surat Basin-QGC. THE Queensland Gas Company has suspended operations at one of its drilling rigs on the western Darling Downs after detecting a gas leak. A 150-metre exclusion zone was established around the Surat Basin rig as a precaution late on Saturday night. The incident occurred during drilling of the Argyle 162 well, about 25km southwest of Chinchilla, on a QGC-owned property.

- **28 April, 2012 - CSG company spills fluid into river - QGC**



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<http://www.smh.com.au/environment/water-issues/csg-company-spills-fluid-into-river-20120428-1xr4k.html>

Drilling fluid linked to a CSG project has leaked into a Queensland river that is part of the Murray-Darling Basin. The leak occurred when contractors for coal seam gas company QGC were drilling to run a pipeline underneath the Condamine River in Queensland's southwest.

- **10 April, 2012 - Missed pollution leak raises concern about credibility of mine audit**

<http://www.eco-business.com/news/missed-pollution-leak-raises-concern-about-credibility-of-mine-audit/>

The breaches included suspected dumping of drilling mud and a failure to properly rehabilitate a site. But the audit, conducted in September and October, failed to detect serious incidents at coal seam gas drilling sites in the Pilliga woodland in north-west NSW. The sites had long been the subject of community concern and numerous breaches were self-reported by the owner Santos in February. Santos found the sites' previous operator, Eastern Star Gas, had serially breached environmental rules, including 16 spills or leaks of contaminated water. It also found evidence of error-ridden work practices, such as records lost, and land cleared apparently without approval.

- **4 Apr, 2012 - Queensland reveals Condamine water quality report**

<http://www.abc.net.au/news/2011-11-24/chinchilla-condamine-water-quality-report/3677838>

The Queensland Government has confirmed the toxicity of coal seam gas water to aquatic organisms is assessed against environmental standards after it is released into rivers and not prior to discharge. This approach appears to stand at odds with the approach taken by the Queensland co-ordinator-general in his approach to contaminant guidelines when he approved the Australia Pacific Liquid Natural Gas (APLNG) project. Environmental protection standards are set through ANZECC aquatic ecosystem guidelines. In June 2010, the Queensland Government granted an environmental approval allowing APLNG to discharge the equivalent of eight Olympic swimming pools of treated coal seam gas water per day into the Condamine River south of Chinchilla. The water comes from the company's desalination plant on the Walloons gas field, which is part of Origin Energy and ConocoPhillips' \$35 billion coal seam gas and liquefied natural gas plant near Gladstone.

- **16 March 2012 – Lightning strike on gas pipelines**

<https://pipelinesoz.wordpress.com/2012/03/16/lightning/>

<https://pipelinesoz.wordpress.com/2012/03/22/lightning-damage-pictures/>

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"The APIA/POG incident database received a new incident report the other day – a pipeline leak caused by a lightning strike.



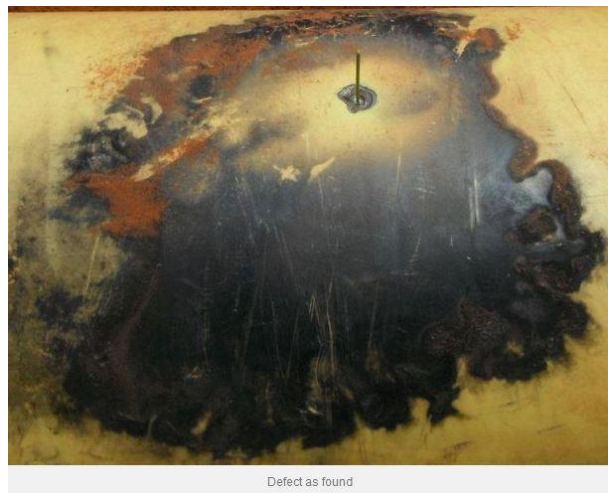
The confidentiality requirements mean that I'm not going to tell you where it was or which pipeline, other than that it was in an outback environment and there was a fused crater in the pipe wall about 17 mm in diameter with a 1.6 mm diameter hole at the bottom.

What I regard as striking is that lightning now ranks as the third most frequent cause of pipeline damage in the database, regardless of whether you count all incidents or just those causing loss of

containment. External interference of course remains dominant with over 80% of damage incidents. The remaining causes and number of incidents are:

- 8 construction defects (3 leaks)
- 7 lightning strikes (4 leaks)
- 6 corrosion leaks
- 5 earth movement incidents (2 leaks)

The non-leak lightning strikes were discovered through in-line inspection where strange defect indications were investigated and revealed fused craters in the pipe wall. There may be more of these that have not yet been discovered. Two of the lightning incidents were associated with power lines, where the lightning initially struck the wires then ran down a stay wire that passed close to the pipeline. So there is an obvious way to avoid that. But apart from that situation there appears to be no mitigation available for random lightning strikes on a buried pipeline."



- **10 February, 2012 - Arsenic and lead found in contaminated water leak at coal seam gas drill site - Santos**

<http://www.smh.com.au/environment/water-issues/arsenic-and-lead-found-in-contaminated-water-leak-at-coal-seam-gas-drill-site-20120209-1rx7s.html>

FOUR separate leaks of polluted water have now taken place at a coal seam gas drilling site near Narrabri in northern NSW since June, the resources company Santos confirmed. The spills of contaminated water led to the detection last month of toxic heavy metals, including arsenic, lead and chromium, plus traces of petrochemicals in water and earth samples taken in the Pilliga forest area. Tests last year also showed elevated levels of metals and chemicals, though these were initially blamed on the use of chemical fertilisers on farms. The company then conceded that an unreported spill of 10,000 litres of polluted water had taken place in June. But Santos has now reported a series of leaks that occurred since it took over the site from Eastern Star Gas late last year. "There have been *three*

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*subsequent, smaller leaks* of water from coal seams within Eastern Star's Pilliga operations in the weeks immediately following Santos' acquisition of the company," a spokesman said.

- **February 2012 – APPEA Report: LNG tank gas release – Woodside**

[http://www.appea.com.au/images/stories/Safety/71%20 %20lng%20tank%20gas%20release.pdf](http://www.appea.com.au/images/stories/Safety/71%20%20lng%20tank%20gas%20release.pdf)

During the installation of an LNG loading pump a significant amount of hydrocarbon gas was generated and released to the atmosphere when the loading pump at 300C came into contact with the -1620C LNG product within the pump well. The resultant vapour cloud engulfed the work party located on the scaffold above the LNG tank. The scaffold had only one “intended” means of escape which was blocked by the vapour cloud due to the prevailing wind direction. The work group left the scaffold and waited for the gas release to dissipate. After initial contact and subsequent gas release the pump was lowered to normal position. There were no injuries or immediate damage associated with this incident

- **14 January, 2012 - Coal-seam gas pollution spill went unreported - Santos**

<http://www.theaustralian.com.au/national-affairs/coal-seam-gas-pollution-spill-went-unreported/story-fn59niix-1226244002610>

COAL-SEAM gas giant Santos has admitted a company it now owns last year spilled 10,000 l of polluted waste water in the Pilliga State Forest, in northern NSW, potentially contaminating 1.2ha of bushland.

- **4 Jan, 2012 – Acting Premier denies fish kills related to LNG harbour dredging**

<http://www.smh.com.au/environment/conservation/fish-kill-not-linked-to-gladstone-dredging-acting-premier-20120104-1pko0.html>

Another fish kill in central Queensland may not necessarily be linked to dredging in Gladstone Harbour, acting Premier Andrew Fraser says.

- **3 Jan, 2012 – Fish Kills at Gladstone extend upriver**

<http://www.abc.net.au/news/2012-01-04/investigation-underway-into-queensland-fish-kill/3758334>

The Queensland Government is investigating the discovery of more dead fish in a Gladstone waterway. The Department of Environment and Resource Management imposed a local fishing ban when sick fish were found in Gladstone Harbour in recent months. Barramundi and other fish turned up with cloudy eyes and discolouration, and the ban forced a number of commercial fishing operators out of business. Now local fisherman Chris Sipp says he has found 15 dead barramundi in the upper Boyne River in recent days.

- **Dec, 2011 – Report – AGL - A total of 53 environmental incidents at AGL operated sites were recorded in AGL's corporate incident reporting systems during FY2011**

<http://2011.aglsustainability.com.au/index.html#/76/zoomed>

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A total of 53 environmental incidents at AGL operated sites were recorded in AGL's corporate incident reporting systems during FY2011, compared with 15 incidents recorded in FY2010. One of the incidents was rated as having a high potential risk (the overtopping of a dam at the Downlands Facility during the Queensland floods in December 2010). Other incidents included minor spills and leaks, administrative non-compliances and noncompliant air emissions. In addition to environmental incidents at AGL operated sites, during FY2011, a number of incidents occurred at the AGL-Arrow Energy Moranbah Gas Project joint venture, where Arrow Energy is the operator. Further information can be found in the 2011 Annual Report available at [2011annualreport.agk.com.au](http://2011annualreport.agk.com.au).

- **Dec, 2011 – Qld Gov. CSG (6 monthly) Compliance Report**

<http://www.ehp.qld.gov.au/management/coal-seam-gas/pdf/csg-compliance-report-jan.pdf>

The Queensland government reported that in only the first six months of 2011 there were forty-five CSG compliance related incidents, including twenty-three spills of CSG water during operations, four uncontrolled discharges of CSG water, three exceedances of discharge limits, three overflows of storage ponds, and other incidents relating to vegetation clearing and BTEX contamination (see "Drilling Down" – link on final page)

***Nb. The document quoted from and linked (above) has since been removed from the DPH website and replaced with this document:***

<https://www.ehp.qld.gov.au/management/non-mining/documents/csg-compliance-report-jan.pdf>

- **10 Nov, 2011 – In pictures: Mystery marine disease off Gladstone**

<http://www.abc.net.au/news/2011-11-09/gladstone-harbour-in-pictures-and-quotes/3650296>

Fishing in the World Heritage-listed waters off the coast of Gladstone is a business for many and a popular pastime for locals, but ever since the outbreak of disease in marine life, the industry there has been in panic mode. An unprecedented number of fish with red spots, lesions and parasites, as well as dead dugongs and turtles, have been found this year. Fishermen and conservationists blame the state of the marine life on dredging to widen Gladstone Harbour to accommodate carrier ships servicing the booming liquefied natural gas and coal seam gas industries. But the Gladstone Port Corporation does not believe the dredging is causing the disease in fish, and authorities say last year's wet summer may be a factor in the poor health of the harbour. Water testing shows a number of sites within the harbour exceeded national guidelines for aluminium, copper and chromium. Experts say the levels pose a minimal risk to marine life; however, the Queensland Government has appointed an independent scientific panel to conduct more research.

- **October, 2011 – APPEA Report: LNG Pressure Vacuum breaker loss of containment – gas release**

[http://www.appea.com.au/images/stories/Policy - Safety and Health/incident\\_alerts/60 - Pressure Vacuum breaker loss of containment.pdf](http://www.appea.com.au/images/stories/Policy - Safety and Health/incident_alerts/60 - Pressure Vacuum breaker loss of containment.pdf)

A gas cloud was observed emanating from the hydrocarbon Pressure Vacuum (PV) breaker on-board a GPSO. The PV breaker released at a lower pressure than the expected design pressure, resulting in the release of about 28,000kg of hydrocarbon gas. The cargo tanks took approximately 1.5 hours to depressurise via the PV breaker.

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- **23 September, 2011 – Is dredging killing the Gladstone fish and making us sick?**

<http://theconversation.com/is-dredging-killing-the-gladstone-fish-and-making-us-sick-3517>

Several individuals have required medical attention after a mystery disease appeared to spread to humans from fish in waters near Gladstone, Queensland. Fishing bans are currently in place and local residents have been told not to eat local seafood. While little is known about the disease, test results from several affected fish are due to be released in the coming days. Environmentalists, such as Dr Andrew Jeremijenko, have suggested that the dredging of Gladstone Harbour – to accommodate the burgeoning liquified natural gas (LNG) development on nearby Curtis Island – could be to blame for the disease.

- **17 September, 2011 - Academics warn of looming seam-gas 'mess'**

<http://www.theaustralian.com.au/national-affairs/academics-warn-of-looming-seam-gas-mess/story-fn59niix-1226139356296>

"Dr Mudd said one of his students had recently conducted such a study of a CSG well, and found while one nearby water bore was unaffected by the operations another 5km away suffered a "very major impact". "If a an undergraduate student can do that in three weeks of full-time work why the hell hasn't the government done that?" he said. A LEADING resource economist has called for restrictions on the booming coal-seam gas industry until proper water quality and technology monitoring systems can be implemented.

- **4 September, 2011 - QLD gas well leaking - QGC**

Gas is leaking from a five-centimetre crack in a pipe on a Queensland coal seam gas development. Queensland Gas Company senior vice-president Jim Knudsen said the leak was not dangerous and an exclusion zone had been set up while workers fixed the problem. The pipe was damaged on Monday near the well head at QGC's Berwyndale South gas field

- **13 September, 2011 - Crews work to fix leaking gas well - QGC**

<http://www.thechronicle.com.au/story/2011/09/13/crews-work-fix-leaking-gas-well-toowoomba/>

A SAFETY zone has been established around a Darling Downs gas well which has been leaking since last night.

- **13 September, 2011 - Gas mine leaking in southern Queensland – QGC**

<http://www.smh.com.au/environment/gas-mine-leaking-in-southern-queensland-20110913-1k7do.html#ixzz1Y9QBEyFG>

- **22 August, 2011 - Santos fined over outback gas blast – Santos (Ethane- not CSG but worth noting as it was a lack of maintenance which caused this issue)**

<http://www.abc.net.au/news/2011-08-22/santos-fined-moomba-explosion/2850122>

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Oil and gas producer Santos has been fined for breaching workplace safety laws over an explosion at its Moomba natural gas plant in South Australia.

- **10 August, 2011 - NSW Gov't issues AGL with a formal warning after coal seam gas well blow-out - AGL**

<http://www.kateausburn.com/2011/08/10/nsw-govt-issues-agl-with-a-formal-warning-after-coal-seam-gas-well-blow-out/>

The NSW Government has issued AGL with an official warning following an incident during maintenance of a coal seam gas well at a site in Camden on 17 May 2011.

- **10 August, 2011 - AGL warned over coal seam well leak - AGL**

<http://www.northernstar.com.au/story/2011/08/10/agl-warned-over-coal-seam-well-leak/>

ENERGY firm AGL has been formally warned by the NSW government after a leak at one of its coal seam gas wells in southwest Sydney.

- **3 August, 2011 - Coal seam damage to water inevitable - APPEA**

<http://www.eco-business.com/news/coal-seam-damage-to-water-inevitable/>

<http://www.smh.com.au/environment/water-issues/coal-seam-damage-to-water-inevitable-20110802-1ia00.html#ixzz3nJTWdQWR>

"Coal seam damage to water table inevitable" APPEA. THE coal seam gas industry has conceded that extraction will inevitably contaminate aquifers. The Australian Petroleum Production and Exploration Association told a fiery public meeting in Sydney **that good management could minimise the risks of water contamination, but never eliminate them. "Drilling will, to varying degrees, impact on adjoining aquifers,"** said the spokesman, Ross Dunn. "The extent of impact and whether the impact can be managed is the question."

- **21 July, 2011 - Leaking, bubbling coal seam gas well - Pilliga State Forest NSW -Santos**

Video from the Pilliga: <http://www.youtube.com/watch?v=qf5Rj3vfQPc>

- **21 June, 2011 – Arrow fined \$40,000 for Breach – Arrow & QGC**

<http://www.couriermail.com.au/ipad/arrow-hit-with-40000-fine-for-breach/story-fn6ck2gb-1226078776279>

ARROW Energy has been hit with a \$40,000 fine - Queensland's biggest penalty to date against a coal seam gas company - for **five breaches of the petroleum and gas laws at the Daandine Homestead property near Dalby**. The fine does not include any penalty for the blowout of Arrow's well on the same property, which is still under investigation by the State Government. Arrow was fined in this instance over breaching access laws that state a landowner must be given 10 days' notice before a company can enter private property. Another breach related to a technical issue over a pipeline. The

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finer followed more than a year of controversy for the emerging industry. Rival company Queensland Gas was also fined almost \$20,000 in April for illegally clearing trees at its project near Tara.

- **17 June, 2011 – Dredging starts, Data next month**

<http://www.gladstoneobserver.com.au/news/dredging-starts-data-next-month-marine-health/881096/>

WATER quality and marine health data will be made public and updated weekly on the Gladstone Ports Corporation website starting next month, despite the dredging having already started.

- **13 June, 2011 - Gas chief admits company at fault – (Metgasco)**

<http://www.northernstar.com.au/story/2011/06/13/gas-chief-admits-company-at-fault-over-storage-pond/>

METGASCO CEO Peter Henderson has conceded the gas company was remiss in not cleaning up two ponds after drilling at a site at Dyraaba was abandoned.

- **7 June, 2011 - Coal seam gas leaks posed fire threat: report**

<http://www.abc.net.au/news/video/2011/06/07/3238112.htm?site=southqld>

A new report has revealed five coal seam gas wells in Queensland could have ignited after they developed leaks.

- **5 June, 2011 - Coal Seam Gas Pond Toxic water storage leaking and overflowing (Metgasco)**

[http://www.youtube.com/watch?v=smP9tL\\_e3U8](http://www.youtube.com/watch?v=smP9tL_e3U8) - Dobie's Bight Rd

- **23 May, 2011 – Qld farmer worried about gas leak on land (Arrow)**

<http://news.smh.com.au/breaking-news-national/qld-farmer-worried-about-gas-leak-on-land-20110523-1f063.html>

Mr O'Connor told AAP it was the fourth gas incident on his property in two years. "We've had three gas leaks prior to this but none as big as this," he said. "The other incidents didn't come from the wells. One was from a leaking pipe." Mr O'Connor has 12 wells on his 1847-hectare property after Arrow Energy gained access in 2006.

- **23 May, 2011 – Queensland coal seam gas leak plugged – (Arrow)**

[http://mines.industry.qld.gov.au/assets/mines-safety-health/Safety\\_Alert\\_Well\\_48.pdf](http://mines.industry.qld.gov.au/assets/mines-safety-health/Safety_Alert_Well_48.pdf)

<http://www.theaustralian.com.au/news/nation/queensland-coal-seam-gas-well-blows-its-top/story-e6frg6nf-1226061049085>

A LEAKING coal seam gas well west of Brisbane has been plugged. The gas well, west of Dalby, began leaking yesterday while Arrow Energy, the company which operates the well, was preparing it for gas

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production. The well was uncapped to install a pump when water and gas burst to the surface. Greens spokeswoman Libby Connors said water and gas exploded up to 100 metres high. Contractors at the scene were not hurt and a 100m exclusion zone was established around the well on a farmer's property off Kogan-Condamine Road

- **4 March, 2011 – Gladstone dredging begins soon**

<http://www.gladstoneobserver.com.au/news/gladstone-dredging-start/786237/>

QUEENSLAND Treasurer and Minister for State Development and Trade Andrew Fraser has welcomed the announcement of a dredging project that will see Gladstone Port become one of the world's major Liquid Natural Gas exporters. Gladstone Ports Corporation announced that the first stage of the \$1.3 billion Western Basin Dredging and Disposal Project has been awarded today. Joint venture partners Van Oord and Dredging International Australia will commence the first stage of the dredging project worth an estimated \$387 million immediately.

- **3 March, 2011 - CSG concerns bubble to surface – (Metgasco)**

<http://www.echonews.com.au/story/2011/03/03/csg-concerns-bubble-to-surface-locals-csg-concerns/>

Northern Rivers residents continue to be alarmed by the practices involved in coal seam gas exploration, with revelations that a tailing pond (where water used in the test bore is kept until it can be trucked away) is poorly maintained. The pond at Dyraaba has a lining made of builder's plastic that is ripped in places and overflowed in the January rains. Reports of a possible third leaking test well, at the same site at Dyraaba.

- **1 March, 2011 - Leaking coal seam gas concerns – (Metgasco)**

<http://www.northernstar.com.au/story/2011/03/01/leaking-coal-seam-gas-concerns/>

STATE Greens candidates Sue Stock and Janet Cavanaugh say they have been alerted about a potential leaking coal seam gas site at Lower Dyraaba, west of Casino. This leaking drill site is north- west of Casino at Lower Dyraaba, close to Dyraaba Creek which forms the boundary between the Clarence and Lismore electorates. I was contacted by a concerned resident downstream of the well," Ms Cavanaugh said. "This is one of Metgasco's exploratory drill sites. It is the third of their sites that has been found to be leaking by members of the public. According to Metgasco's own Review of Environmental Factors, on completion of the 10 to 20 days spent drilling at the site the bore should have been abandoned to the satisfaction of the relevant Government department, namely Industry and Investment NSW.

- **March 2011 – QGC contractor breaches environmental laws**

<http://www.pnronline.com.au/article.php/212/1670>

March 2011 - QGC suspended work in its major pipeline in Queensland after admitting one of its contractors may have breached Federal and State environmental conditions in clearing a 6 km long, 40 m-wide route for the pipeline near Dalby. Knudson said at the time that the *lack of approved plans*



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*for soil and species management* may have resulted in the breach, but said QGC does not believe the clearing had an adverse impact on protected plants and animals.

- **24 February, 2011 – Leaking gas - Call to hold off on gas drilling (Metgasco)**

<http://www.northernstar.com.au/story/2011/02/24/call-hold-gas-drilling/>

The Northern Star revealed at least two sites on the Northern Rivers were leaking. The Star yesterday revealed there were more than 50 drill sites in place or approved across the region. It revealed two supposedly sealed drill sites near Bentley were leaking methane gas through the soil. Metgasco, which is responsible for the sites, insists the leaking gas is not entering underground water reservoirs around the drill sites.

- **24 February, 2011 - Gas wells leaking methane – (Metgasco)**

<http://www.northernstar.com.au/story/2011/02/24/local-gas-wells-found-leaking-metgasco-lismore/>

METGASCO has confirmed methane gas has escaped from two of its drilling wells, prompting calls that the industry regulator immediately inspects all coal seam wells in the region to discover if more are leaking. Metgasco's chief operations officer, Mick O'Brien, said yesterday methane was found to be leaking from sealed wells near Bentley and north-west of Casino. "These were small gas leaks from the piping connections at the top of the ground," he said, adding they have both since been re-sealed. "At Bentley we couldn't detect any methane, but I heard someone managed to light it and from the piping you would expect it to be methane."

- **14 Feb, 2011 - Farmer worried about coal seam gas water release**

<http://www.abc.net.au/news/2011-02-14/farmer-worried-about-coal-seam-gas-water-release/1941086>

A farmer on Queensland's Darling Downs says she is concerned about the quality of water discharged by a coal seam gas plant onto her property during last month's flood emergency. Megan Baker's farm is only a few kilometres from Arrow Energy's water storage and treatment facility at Daandine, north-west of Dalby. During last month's flood emergency, Arrow received State Government permission to release water from a storage dam into a nearby creek to prevent damage to the dam wall. The discharge flowed over Ms Baker's property and she is now concerned about the impact it has had on her cattle and crops. Ms Baker says she has not seen the results of water tests conducted by Arrow.

- **16 Feb, 2011 – Bore testing gives carcinogen chemical all-clear**

<http://www.abc.net.au/news/2011-02-16/bore-testing-gives-carcinogen-chemical-all-clear/1944490>

Arrow Energy says water bore tests in Queensland's Central Highlands have found no traces of benzene. The tests were conducted after traces of the carcinogen were detected in nearby coal seam gas (CSG) wells last year. Last November, Arrow Energy found traces of benzene in three out of 60 water samples taken from coal seam gas wells near Moranbah, south-west of Mackay in north

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Queensland. Secondary testing confirmed the presence of the chemical but recent testing of water bores near the wells have found no traces of the carcinogen.

<http://www.abc.net.au/news/2011-02-16/bore-testing-gives-carcinogen-chemical-all-clear/1944490>

- **Feb, 2011 –QGC fracking causes interconnectivity between aquifers and leaking wells not rectified in a timely manner**

[http://www.abc.net.au/4corners/special\\_ed/20110221/gas/docs/QGC\\_Response.pdf](http://www.abc.net.au/4corners/special_ed/20110221/gas/docs/QGC_Response.pdf)

<http://www.abc.net.au/4corners/content/2011/s3144681.htm>

Myrtle 3 – Anne Bridle: About six weeks after the fracturing process in mid-2009, QGC's monitoring indicated that the Walloons and the Springbok formations were connected where the Myrtle 3 well had been drilled. Argyle 2 & 5 – Scott and Kate Lloyd: The Argyle 2 well, about 1km from the Lloyd's homestead and the Argyle 5 well, about 1.4km from the Lloyd's homestead, were leaking gas for 5 years before QGC decided to rectify the matter after being exposed by the ABC. Lauren and Cody: Leaks identified

- **January, 2011 – Huge Loss of Containment Toowoomba Range – Roma to Brisbane Pipeline**

[http://pipeliner.com.au/news/roma\\_to\\_brisbane\\_pipeline\\_flood\\_damage\\_and\\_response/077836/](http://pipeliner.com.au/news/roma_to_brisbane_pipeline_flood_damage_and_response/077836/)

On 10 January 2011, a violent 'inland tsunami' struck Toowoomba causing landslides and washouts. The RBP, which runs down the Toowoomba escarpment at an acute angle, suffered exposure and damage at several sites. In particular, there was a significant washout of the DN400 pipeline approximately 200 m from the top of the Toowoomba range where the pipeline crosses under a dual railway line. Approximately 20 m further down the slope there was also a loss of containment on the DN250 pipeline caused by an excessive amount of stress placed on the pipeline during a landslide.

- **19 November, 2010 -Toxins found at third site as fracking fears build – Arrow & Metgasco**

<http://www.smh.com.au/environment/toxins-found-at-third-site-as-fracking-fears-build-20101118-17zfv.html#ixzz1ViDujTwr>

TRACES of toxic chemicals have been found at a "fracking" operation to extract coal seam gas - the third time this year that gas producers have detected contamination at a drill site. Arrow Energy confirmed that benzene, toluene, ethylene and xylene - together known as BTEX - had been found in wells at a gas site east of Mackay, Queensland. In NSW documents obtained from the Department of Industry and Investment show that a coal seam gas drilling site near Lismore, run by the Sydney company, Metgasco, was permitted to use fracking after supplying a generic list of hazardous materials safety guidelines. Emails [between department staff and Metgasco] show that testing for coal seam gas using fracking can go ahead without approval being sought, or required, from the Environment Department.

- **21 October, 2010 - Origin stops coal seam gas drilling after chemicals found in water around 8 wells – Admits contaminating water - Origin**

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<http://www.smh.com.au/environment/energy-smart/origin-stops-coal-seam-gas-drilling-after-chemicals-found-in-water-20101020-16ud7.html#ixzz1ViEpErIH>

Farmers near a coal seam gas "fracking" site in Queensland will have their water supplies tested for toxic benzene and other chemicals today after Origin Energy found contaminated water near drilling sites. The discovery of BTEX - a mixture of benzene, toluene, ethylbenzene and xylene - around eight coal seam gas wells near Miles, west of Brisbane, marks the first time a resources company has admitted to contaminating water at a fracking site. Origin detected the chemicals a week ago and told the Queensland government - which is legislating to ban the use of BTEX chemicals during coal seam gas drilling - on Friday. Most landholders in the area have been notified of the contamination. There is no known impact on drinking water in the gas field. Origin has shut down all 17 of its drilling rigs across a 40-kilometre-wide area while an investigation is carried out.

- **September 2010 – APPEA Report: Significant spill of produced water – QGC**

[http://www.appea.com.au/images/stories/Policy - Safety and Health/32 - High Potential Incident Alert - Water Trunk Line Strike.pdf](http://www.appea.com.au/images/stories/Policy_-_Safety_and_Health/32_-_High_Potential_Incident_Alert_-_Water_Trunk_Line_Strike.pdf)

During excavation of a new trench along an existing right off way the bucket of an excavator struck and ruptured a buried 315mm water line resulting in a significant spill of produced water. The water trunk line was immediately adjacent to a gas gathering system pipeline. 'As Built' information was not available for the buried pipelines but their approximate location was indicated on alignment drawings and the contractor being aware of the Brownfield nature of the site, had also sought to locate and mark these pipelines prior to excavation via the use of Pot Holing and or Metro Tech devices. The incident occurred when the excavator struck a roping bend in the buried pipeline that had not been properly located. The Company did not ensure the contractor had located all underground services prior to commencing the physical work program. The activity was covered by a Permit to Work but relevant controls were not checked prior to issue of the Permit.

- **September 2010 - Bugged Grader Pipeline Strike & Gas Release – Santos**

[http://www.appea.com.au/images/stories/Policy - Safety and Health/36 - High Potential Incident Alert - Bugged Grader Pipeline Strike Gas Release.pdf](http://www.appea.com.au/images/stories/Policy_-_Safety_and_Health/36_-_High_Potential_Incident_Alert_-_Bugged_Grader_Pipeline_Strike_Gas_Release.pdf)

A grader operator bogged over a live gas pipeline attempted to use the blade to recover the grader. The blade struck and ruptured the HDPE line, releasing gas to atmosphere.

- **29 July, 2010 – Weatherford Drilling (who also operate in CSG arena) apologises for gas rig death (Moomba)**

<http://www.abc.net.au/news/2010-07-28/drilling-company-apologises-for-gas-rig-death/922888>

A drilling company charged over the first workplace fatality since tougher penalties were introduced in South Australia has pleaded guilty in the industrial court. Weatherford Drilling International pleaded guilty to failing to maintain a safe work environment and failure to appoint a responsible officer to ensure the company met safety obligations.

- **March 2010 – APPEA Report: LNG Loss of Containment incident – Gas release – Woodside**

## CONTAMINATED SITES, ACCIDENTS AND INCIDENTS RELATED TO GAS INDUSTRY IN AUSTRALIA

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<http://www.appea.com.au/images/stories/Policy - Safety and Health/41 - High Potential Incident Alert - LNG Loss of Containment Incident.pdf>

During an LNG carrier's routine cool-down operations, the shore terminal loading arm emergency release coupling (ERC) separated close to the vessel cargo manifold. The separation did not close the ERC dry break arrangement, resulting in LNG loss of containment. Cargo operations were immediately stopped with the activation of an emergency shutdown, ship and shore staff mustered, and area secured until gas free. The release size was classified as Major using the RIDDOR system. The officer of the watch on board the LNG carrier suffered LNG cold-burn injuries.

- **February 2010 – APPEA Report: Uncontrolled Gas Release – Arrow**

<http://www.appea.com.au/images/stories/Safety/11 - High Potential Incident Alert - Uncontrolled Gas Release.pdf>

Incident summary - A 1/2" ball valve was attached to the pressure test points to enable diagnostics to be conducted. The nipple on the ball valve failed resulting in the release of methane gas. Personnel advised not to enter the plant in the event of a gas release, due to the potential for explosion.

- **21 September, 2009 - Broken leg from coal seam gas sampling incident involving high pressure**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert043.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert043.pdf)

- **29 August, 2009 - Crushing fatality – pipe racks load shift**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert042.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert042.pdf)

A 24-year-old man was struck and crushed by pipe racks which came off a truck that was being unloaded at a drill site. The rig worker did not survive his injuries.

- **25 June, 2009 - Drill Rig Walkway - Toe amputated when securing walkway**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert041.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert041.pdf)

- **1 Aug, 2008 – Aussie Gas Boom anticipated**

<http://www.abc.net.au/7.30/content/2007/s2233048.htm>

A giant British resources company is attempting one of the biggest takeovers in Australian corporate history, possibly the biggest. The BG Group has announced a \$13 billion bid for Origin Energy the nation's second largest energy retailer, with an extensive portfolio of gas fired generation plants and gas production interests in the Bass Strait and Otway Basin. Well, one of the main reasons the BG Group is so keen on the takeover is because of the company's enormous CSG re reserves in Queensland.

**GEORGE BENDER, CHINCHILLA FARMER:** What's going to happen in 20, 25 years time when they all dry up, what's going to happen to all the salt left in those ponds?

## CONTAMINATED SITES, ACCIDENTS AND INCIDENTS RELATED TO GAS INDUSTRY IN AUSTRALIA

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*[Nb. Seven years later, George (2015) commits suicide due to emotional stress created after Origin Energy CSG project damages his bore and UCG company, Linc Energy, impacts his groundwater and soils]*

- **10 Jan, 2004 – Big Stink in gasland**

<http://www.smh.com.au/articles/2004/01/09/1073437472720.html>

Minor volumes of methane from coal seams are being tapped around Camden, with plans to tap into the coal reserves of the Hunter Valley. A small gas field near Narrabri is also being developed. But NSW is yet to find an oil or gas field large enough to reduce its reliance on Moomba in South Australia, which is becoming increasingly unreliable with three incidents over the past two years - and declining reserves, to boot. Exploration of the acreage off the NSW coast begins in earnest this month, with seismic mapping of the most likely section - a huge underground structure called Biggus, which lies about 12 kilometres off Terrigal - to start on Monday week, and an exploration well to be drilled 2 kilometres into the earth's crust later this year. The structure is around 30km long and 7km wide, and large enough to hold 1 trillion cubic feet of gas, according to estimates of former holders of the acreage.

- **March 2003 – Fatality on CSG Drill Rig**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert012.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert012.pdf)

A drill rig operator suffered fatal injuries when he was crushed between a length of drill collar and an adjacent “mousehole” during stacking pipe on an unstable foundation. It appears that the ground gave way between the position where the pipe was being stacked and the hole excavated to locate the “mousehole”.

- **21 September 2009 - A crushing incident involving drill collars and selection of lifting elevators**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert044.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert044.pdf)

- **6 September, 2002 – Injury**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert010.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert010.pdf)

A floorman was removing the covers from casing when two stands fell on him resulting in a broken leg and evacuation by the Royal Flying Doctor. Stoppers were not in place and the activity was being carried out in poor light conditions.

- **5 January, 1998 – Drill rig serious leg injury**

[http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety\\_alert002.pdf](http://mines.industry.qld.gov.au/assets/petroleum-pdf/safety_alert002.pdf)

Repairs to a rig at night involved electric welding and the rig was shut down while work was carried out. The electric welder cables were coiled on the deck and draped across an exposed drive shaft. When the clutch was engaged to test the repair, cables which were thought to have been removed were caught up in the drive shaft. The cables wrapped up the leg of an operator standing on the coil and dragged him into the shaft. The young operator suffered serious injuries to his leg.

# CONTAMINATED SITES, ACCIDENTS AND INCIDENTS RELATED TO GAS INDUSTRY IN AUSTRALA

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## CONTAMINATED SITES, ACCIDENTS AND INCIDENTS RELATED TO GAS INDUSTRY IN AUSTRALIA

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### New Zealand

*September 20, 2012 – Fracking in Southland exposed – New Zealand*

<http://www.3news.co.nz/Fracking-in-Southland-exposed/tabid/423/articleID/259325/Default.aspx>

But over the 21 months it was active, more than 11 million litres of waste water - including fracking chemicals and potentially carcinogenic coal residue - was dumped in the stream. "The stream was looked at with regard to its ability to assimilate such waste water," says Environment Southland consents manager John Engel. "The nature of it was such that it was relatively clean water but it did contain materials from the coal seam that were not normal for that stream." The permit - granted by Environment Southland - to dump the waste was non-notified, meaning only the bare minimum of people knew.

*September 20, 2012 - Taranaki gas field **contaminates soil** – New Zealand*

<http://www.3news.co.nz/Taranaki-gas-field-contaminates-soil/tabid/1160/articleID/269871/Default.aspx>

Hundreds, potentially thousands of cubic metres of soil have been contaminated by toxic chemicals at a gas field in Taranaki. Six well sites at the Kapuni gas field south of New Plymouth used unlined pits in the earth to store and burn off chemicals from operations, including hydraulic fracturing. And the company was sometimes doing so without the required council consent. Kapuni is the oldest gas field in the country. For decades the normal practice was to use unlined pits to store and burn off chemicals and sludge from the wells. Six well sites are contaminated. Soil from one had to be transported recently to a waste treatment plant in Wellington to be stabilised

### Accidents and Safety – Critical Reports

<http://www.appea.com.au/oil-a-gas-in-australia/safety-and-health.html>

<http://mines.industry.qld.gov.au/safety-and-health/accident-incident-reports.htm> (NB: Gas industry incident reports appear to be unavailable)

### Other Information

<http://www.jeremybuckingham.org/?p=967>

"The depth of the Wyoming gas wells blamed for the contamination is very similar to the depth that many Australian coal seam gas will operate, and much shallower than typical North American East Coast shale gas wells. This is a direct warning for the Australian situation.

"The NSW Government should make public a list of all coal seam gas wells in NSW that have been fracked and their location, and initiate an investigation to see if there has been any contamination of adjoining aquifers."

"We heard evidence in the coal seam gas inquiry yesterday that **AGL had fracked 117 wells at its Camden Gas Project but also heard that no groundwater monitoring has been conducted by the company of surrounding ground water,**" he said.

## CONTAMINATED SITES, ACCIDENTS AND INCIDENTS RELATED TO GAS INDUSTRY IN AUSTRALIA

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[https://www.youtube.com/watch?feature=player\\_embedded&v=NQ6\\_Uvs\\_vxE](https://www.youtube.com/watch?feature=player_embedded&v=NQ6_Uvs_vxE)

*This paper mentions some Australian CSG incidents (page 37 & 38):*

*“Drilling Down - Coal Seam Gas - A background paper”*

Queensland: Jan - June 2011 (6 months) there were:

23 spills - Releases of CSG water during operations account for the largest incident type. These spills typically occurred during drilling activities or resulted from opened/faulty valves within pipework.

4 Discharge - These incidents involved the controlled or uncontrolled release of coal seam gas water or permeate to the environment.

3 discharges - Overflow (flooding) During the January 2011 floods, several CSG water storage dams breached the dam banks and discharged directly into the environment.

3 Exceedance release limits - Discharge limits are set on environmental authorities and these limits were exceeded on several occasions.

4 Other (vegetation clearing, BTEX etc.) - There was one incident relating to BTEX contamination and one incident of excessive vegetation clearing.

<http://www.cityofsydney.nsw.gov.au/environment/EnergyAndEmissions/documents/CoSCSMReportfinalv4pdf.pdf>

<http://www.cityofsydney.nsw.gov.au/environment/EnergyAndEmissions/documents/CoSCSMReportfinalv4pdf.p>

### **Version Control**

Updated – 30.09.2015 AM; 30.09.2015 2.40 PM; 11.10.2015 2.30PM;



**Santos state that .....**

***“ the interconnectivity of coal seams and aquifers remains the biggest concern to operations.” quote from Santos’ EIS***

**Professor Tony Ingraffea – Cornell University – quote**

***“there is no such thing as well integrity”.***

**So.....**

**If we allow CSG companies to extract CSG anywhere,  
we run the risk of losing our bore water.**

**THERE IS ENOUGH GAS IN BASS STRAIT TO SUPPLY THE  
EASTERN STATES OF AUSTRALIA INDEFINITELY.**

**(aerial photo of QLD taken ???)**

**Photo taken over ??? in 2015 by ???**



Santos claims it takes great care, uses the best available science and works within strict requirements to ensure we explore for and extract natural gas from coal seams ( coal seam gas- unconventional gas) safely without harm to the environment! I wish this was true. Unfortunately when you list the Santos' prior "form" this is simply not true.

Sydney Morning Herald Jan. 2010 – Moomba SA an explosion in Santos' Liquids Plant in the early hours of the morning. Significantly worse than two previous explosions. Pressure on Santos to give a fuller public admissions to what the problems are that keep crippling their Moomba Plant, whether it be an aging plant or under spending on critical maintenance after years of cutting corners to fatten the bottom line.

21 July 2011 – Leaking, bubbling CSG well, Pilliga State Forest NSW – Santos Bibblewindi.

23 August 2011- APPEA announcement – Coal Seam Gas Damage to Water Inevitable. ( ref. article SMH by Ross Dunn APPEA spokesman at NSW Senate inquiry into CSG)

22 August 2011 – Santos fined over Outback Gas Blast ( Ethane is not CSG but worth noting as the explosion was due to lack of maintenance breaching Workplace Safety.

17 September 2011 - Academics warn of looming CSG mess. The Australian leading Agricultural Research Economist Professor Allan Randall of Sydney University said the long term risks of damaging the nations' precious water and food producing areas by CSG extraction mirrored Professor Gavin Mudd's concerns relating to CSG.

14 January 2012 - Coal Seam Gas spill went unreported in the Pilliga- Santos 10,000 litres of polluted CSG waste water in Pilliga State Forest.

10 February 2012 – Arsenic, lead, chromium plus traces of petrochemicals in water and earth samples taken in the Pilliga. ( three spills since Santos' acquisition of the Pilliga project from Eastern Star Gas.)

26 March 2013 – Santos contaminates aquifer in the Pilliga with 20 times the allowable uranium levels and was fined in March 2014. Santos admitted that remediation of the contaminated aquifer was impractical.

September 2015 – Today Tonight Adelaide – Santos admitted to four separate potential aquifer contamination incidents in the Cooper Basin.

1. 12<sup>th</sup> January – separated hydrocarbons (PSH) in groundwater detected.
2. 18<sup>th</sup> February – PSH detected in groundwater 16 metres below ground level.
3. 17<sup>th</sup> May – PSH detected in groundwater in decommissioned pit.

4. 12<sup>th</sup> September – another buried “line leak” detected in groundwater beneath the leak.

Imagine if an airline had form like this? Yes, well, no point in stating the obvious, however Santos goes on to tell us that they<sup>6</sup> have insurance to cover their CSG operations.

If this is the case, precisely what risks are covered and are all landowners who may be affected by risks that may be attributed to Santos’ CSG operations covered. Neighbouring properties and properties accessing water from the same aquifer as aquifers aren’t contained within property boundaries.

So please Santos, elaborate, as you have stated that you hold various insurance policies to cover major risks and liabilities. Just what and who they cover with regard to Santos NSW Pty. Ltd. CAN 094 269 780 and Santos NSW (Operations) Pty. Ltd. ACN 132 851 837 as these are the two shelf companies that are engaged in the Narrabri CSG project at present. ( There are 119 shelf companies based here and overseas linked to Santos.)

Santos also states that in addition the NSW Government holds a Bank Guarantee from Santos to cover remediation that Santos fails to rectify. Unfortunately as reported widely in the press recently, Bank Guarantees for mining remediation fall well short of any sort of useful reparation. If this isn’t the case with Santos, please confirm Santos, the amounts Santos has offered in the form of a Bank Guarantee, taking into account that in the case of the Narrabri Project and its location in the Pilliga, and deemed to be an area of extreme significance as a recharge area for the Great Artesian Basin (GAB). Ref: Report by Robert Banks – Soil Futures Consulting Pty. Ltd. And peer reviewed by Andrea Broughton – Maloney MSc who was originally commissioned to map the Namoi Hydrogeology by NSW Government as well as Dr. Brian Smerdon, senior hydrogeologist and Professor Ian Acworth and Dr. Bede Gredner Manager.

What figure would have to be placed as a bank guarantee to cover possible damage or contamination to the GAB, considering the role it plays in agricultural and supplying rural communities?

Lastly Santos states that the oil and gas industry always has and continues to have insurance to cover environmental accidents or contamination. If this is the case why did Santos not utilise this insurance with the Sidoarjo mud flows in Java in May 2006 credited to blowout of a natural gas well drilled by PT Lapindo Brantis which they had a significant holding in the company and which Santos gave technical advice as well as overseeing the actual drilling.

Little wonder landowners in NSW surrounding the Narrabri Santos CSG project are nervous and cannot come to terms with a project that clearly need not

occur considering the recent Gas Statement of Opportunity of 2015 bought out by the Australian energy Market Operator that there is no shortage of gas. There is enough conventional gas in the Gippsland Bass Strait to supply the Eastern States of Australia indefinitely. Why is this NSW government complicit with Santos putting our precious water at risk?  
Political donations are the first things that come to mind !!!!

Councillor David Quince – Gunnedah Shire Council  
Farmer and Grazier – Chairman MGPA

[http://www.crikey.com.au/2015/02/16/even-gas-execs-admit-that-we-dont-need-more-gas-drilling-in-nsw/?wpmp\\_switcher=mobile](http://www.crikey.com.au/2015/02/16/even-gas-execs-admit-that-we-dont-need-more-gas-drilling-in-nsw/?wpmp_switcher=mobile)

All Organisations aligned with the Coal Seam Gas Industries should really have a good hard look at themselves and have a reality check . As they continue to relentlessly churn out so called opinion pieces and commentary regarding the Opponents of this Industry

.  
The misinformation they continue to provide with regard to these opponents who are by far the majority of the population, as is continually validated by the polls & plebiscites held on this contentious Industry.

The unmitigated Lie that undermines trust in society that NSW is facing a Gas Shortage when in fact it is really only the greedy Gas Companies that are facing this problem with their over avaricious LNG ambitions

.  
This very same LNG Industry that has recently been reported in the press of not providing the promised royalties & taxes to the Australian Government , the Senate Enquiry looking at corporate tax on Wednesday the 18th November 2015 heard that Santos owed \$482 million in tax , not exactly the financial windfall Australia was expecting

.  
But perhaps the real clincher is the most strident opponents of CSG are Landholders who run Agricultural Based Businesses that cannot avail themselves of any Insurance or Insurance products that will protect these business from the very real & many risks associated with the CSG Industry . They simply do not exist and that in it self sends very real & defined warnings regarding this Industry

.

ERIC also claim the Opponents of CSG & Lock the Gate are all highly paid and highly trained ,this has also has been sprouted by the Energy & Resource Minister Anthony Roberts. This complete bit of nonsense would have been propagated by the Australian Public Institute or Energy Resource Information Centre which is rich coming from them as their funding is virtually limitless.

While "Lock the Gate" runs on a virtual shoestring budget with any remunerations being basic and only for the necessary staff who work full time for LTG . All others who are members like myself donate our services willingly & freely as we oppose CSG to protect our Land, Water, Environment ,Businesses and basic Australian Rights

.

yours sincerely David Quince Farmer & Grazier & GSC  
Councillor

in relation to the to the

## Independent Pricing and Regulatory Tribunal

Landholder benchmark compensation rates – Gas Exploration and production in NSW

Members of the Mullaley Gas and Pipeline Accord (MGPA) wish to submit the following comments.

1. Landowners have no right of veto for the coal seam gas industry. The NSW Farmers Association has signed a MOU with two Coal Seam Gas (CSG) companies (AGL and SANTOS) which is only relevant to drilling operations and not for the invasive industrialisation of their land with other industry related infrastructure such as roads, pipelines, compressor stations and holding ponds associated with CSG.
2. Members of MGPA are aligned with Lock The Gate that have surveyed three million hectares in NW NSW. 96.5 % of landowners surveyed have said they do not want CSG. Therefore, the vast majority of landowners are not interested in compensation.
3. Discussion of compensation is hypocritical. Landowners have been led to believe from the NSW Government and CSG industry proponents that the CSG industry is the least invasive of the extractive industries and pose no risk to their business. For the government to now request IPART to make recommendations for compensation to landowners implies that there will be harm to their businesses.
4. The terms of reference only refer to compensation for infrastructure above the ground. The potential for damage with CSG is also below the ground and has been completely overlooked in the terms of reference.
5. We assert that IPART is not in a position to consider the implications of potential long term repercussions when considering compensation to landowners. For example, consideration of compensation cannot be calculated if aquifers are depleted or contaminated as this would be



irreparable and potentially catastrophic for agricultural businesses and the environment in general.

6. Most landowners rely on a sustainable supply of underground water and the effects of contamination or depletion may not become apparent for some time. SANTOS' documents state that CSG will lead to a drawdown in aquifers, IPART must consider that compensation must adequately allow for the possibility that landowners may lose their underground water upon which they are totally reliant for the viability of their business.

7. It is not possible to compensate a family run farming or grazing operation that has operated successfully for generations and intend to do so ad infinitum if they are forced to suffer the impacts of this invasive industry. Compensation must cover the cost of an unknown number of generations of a family who may be precluded from continuing the business of producing food and fibre.

8. If any CSG company were to withdraw from NSW the impacts to the Australian economy would be negligible. If agricultural land and supplies of underground water were impacted by CSG extraction the negative impacts to the economy of Australia would be immeasurable.

9. Members of the MGPA have toured areas in QLD impacted by CSG extraction and clearly there is no co-existence between agriculture and CSG.

10. It is inappropriate to consider compensation before all of the recommendations from the Chief Scientist Mary O'Kane have been implemented.

11. The implementation of any recommendations related to the CSG industry has been piecemeal and ad hoc to appease proponents of the CSG industry.

12. A true cost-benefit analysis must be undertaken which considers all social, economic and environmental impacts associated with the

CSG industry before it is permitted to proceed or not.

# Using the best science

← SANA M03 T-0005

**SANTOS conducts regular community tours of operations in and around the Pilliga.**

Santos general manager of energy NSW Peter Mitchley said the company was very proud of its work in exploring for and extracting natural gas safely while ensuring the environment was protected.

"We are more than happy to show anyone around our facilities," Mr Mitchley said.

"What we often find, is that when people see our activities first hand and we explain how we work, they become comfortable with the processes and extensive safeguards involved in natural gas extraction."

← This is particularly true with regard to drilling natural gas wells.

"While there are additional measures that we take, the method of drilling natural gas wells is very similar to that used to drill farm bores. The main differences are the depth to which we drill (hundreds of metres below the Great Artesian Basin), the higher standards used, and the stringent regulations we are required to meet."

Mr Mitchley said when drilling wells, Santos was required to comply with the NSW government's 2012 Well Integrity Code of Practice for Coal Seam Gas.

The code has been peer reviewed by the Office of the Chief Scientist and Engineer and the design, construction and maintenance standards set out in the code were the highest in the world.

Mr Mitchley said the code also required Santos to keep and maintain extensive records of each well's construction and its on-going monitoring and maintenance. These records must be lodged with, and reviewed by, the regulator each year.

"All Santos' wells are drilled in accordance with the code and are designed to ensure they are safe, environmentally sound and the underground aquifers are protected," Mr Mitchley said.

"Generally, the steel pipe we use in our wells has a diameter of about 36cm at the surface.

"The next layer of steel, which runs from the surface down through the aquifers, is just under 24cm in diameter, with the final layer, the steel pipe which extends from the surface down into the coal seam, being just 18cm in diameter or comparable in size to that used in most agricultural bores.

"Where we drill through the Great Artesian Basin, our wells contain at least two layers of steel and cement. The cement used to secure the steel pipes (or casings) is specifically designed for the environment in which it is placed and is as strong as the rock into which it is drilled."

Once the cement is in place, the casing is pressure-tested to confirm there is a seal between the rock and the casing.

After Santos has drilled a well, the company offers to monitor landholder bores within a two kilometre radius of its operations to give them confidence their water is not being impacted.

**'What we often find, is that when people see our activities first hand and we explain how we work, they become comfortable with the processes and extensive safeguards involved in natural gas extraction.'**

← Santos general manager of energy NSW Peter Mitchley

"To provide transparency and assurance to the community there is no broader impact on water, we have established a network of shallow and deep aquifer monitoring bores around our proposed project area," Mr Mitchley said.

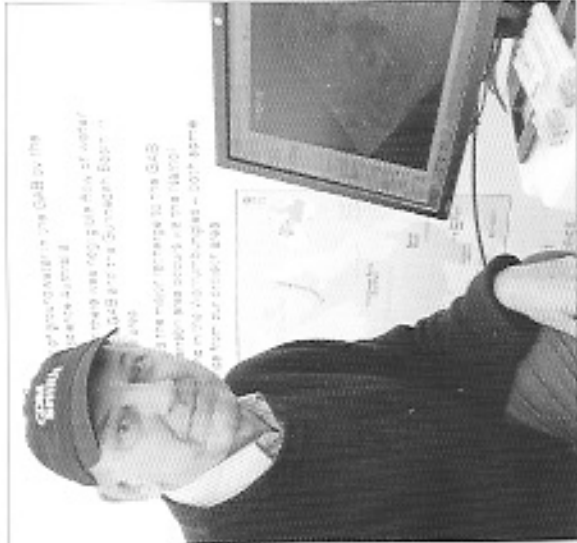
"Water quality and water level data from these wells can be publicly accessed via Santos' water portal."

When a well is decommissioned, it is sealed in stages with specially formulated cement. Each stage is pressure-tested before the next cement plug is pumped into the well.

After the well is sealed, the underground steel and cement are not subject to weathering and corrosion. They will degrade at the same pace as the surrounding rock over geological time. → I HAVE FINISHED WITH THE BOTTOM

"The community can be assured, that at all times, Santos' operations use the best science and technology and adheres to the most stringent regulations to ensure our operations are conducted safely," Mr Mitchley said.

"Perhaps take a minute to consider how the standards, practices and safeguards involved in our operations compare to those of the 4700 registered bores in the Narrabri Shire and more than 18000 in the Namoi Catchment."



← WATER engineer Dr Lloyd Townley explains groundwater details at AgQuip.

← THE SCAM OF DW DO YOU RAN WITH HOFFER - HE HAS RECEIVED ON CLAIMING THAT L0002

# Science 101:

## Why you shouldn't put a gas pipeline through black soil

The photos illustrated below speak for themselves – the Liverpool Plains is not a suitable place to install a gas pipeline. So, why is a second pipeline through some of Australia's best agriculture land being considered, despite the devastating physical affects it can have on the landscape?

by KAITLYN ESTENS

The current Central Ranges gas pipeline, which runs through the south-east of Warrumbungle Shire, is supposed to sit several metres below the surface. However, a large rain event, combined with the shifting nature of black soil, resulted in a section of

pipeline near Coolah becoming exposed.

Although there have been breaches at other locations in the area, the visible pipeline at Peter and Charmaine Cook's mixed farming property has drawn strong media attention over the past few months.

The company respon-

sible for the maintenance of the pipeline has footed the expensive clean-up bill, contracting more than 3000 tonnes of rock to be dumped on the damaged area, in a bid to stop erosion and lock the pipeline into place, sealing it from the elements.

Although the construction is ongoing, it will be

unlikely the Cook's will be able to farm the 150 acres of land that has been disturbed by the pipeline, unless massive rehabilitation efforts are undertaken.

The \$6000 acquirement fee the Cook's were paid back in 2006 to have the pipeline run through their land has been a costly decision, and one which many farmers in the area are also regretting.

Warrumbungle Shire Council mayor, Peter Shinton, said council had heard the fears and frustrations of members of the Mullaley Gas Pipeline Accord (MGPA) who were concerned about Eastern Star Gas' Narrabri to Newcastle pipeline proposal.

"We agree with the MGPA that a pipeline through that particular area poses more risks than benefits," Cr Shinton said.

"The council feels a pipeline in the more stable, low value sandy soils closer to Coonabarabran would be a better option."

He believes running the pipeline parallel to the

Newell Highway would not only provide a fire break through the Pilliga Forest, but would bring gas closer to a large centre, allowing reticulation or just an energy source in the industrial area, and could allow the development of a liquefied natural gas plant.

"The Liverpool Plains are one of the most productive rural areas in Australia.

"The farmers in this area are the custodians of this beautiful soil and struggle to make it productive - over the generations they have learnt how fragile this resource is, and have learnt how to nurse it, manicure it and profit from it.

"It disturbs me that an engineer or a planner can then assume that they understand this environment and just put a pipeline in," Cr Shinton explained.

In a letter from the NSW Director General of Planning and Infrastructure, Sam Haddad, to Eastern Star Gas dated 30 June, 2011, Mr Haddad said, "given on-going concerns regarding the impacts of the pipeline on agricultural land and farming activities in the Liverpool Plains, I request that serious consideration be given to the use of the Newell Highway road reserve as a preferred option for the pipeline route.

"The department will have serious concerns progressing the assessment should the Newell Highway road reserve not be adopted as the route corridor for the pipeline," Mr Haddad said.

Apparently, Eastern Star Gas doesn't heed recommended advice, even from the State Government, as it was still promoting the gas pipeline through the Liverpool Plains as the only viable route at its most recent public information sessions at the end of July.



The Central Ranges gas pipeline exposure on Peter and Charmaine Cook's farm, north of Coolah.

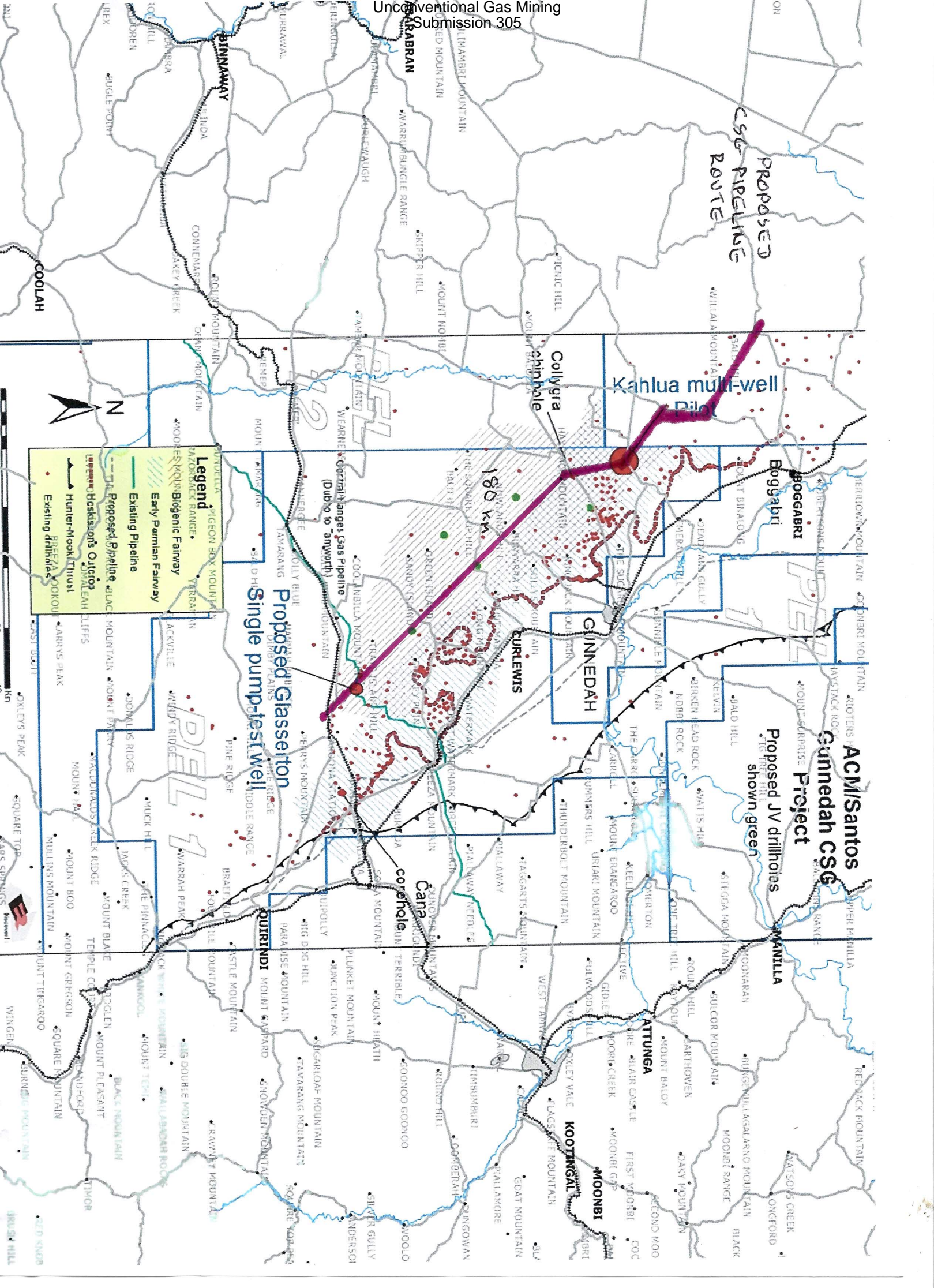


Mullaley Gas Pipeline Accord (MGPA) members, David Quince and Wal Warden, inspecting the massive pipeline reconstruction works at Peter and Charmaine Cook's property.

## COONABARABRAN



12 acres with river frontage, Subdivided into three paddocks, three bay open front steel shed, power, bore, small set timber cattle yards. Minutes from post office. Ideal building sites.



PROPOSED  
CSG PIPELINE  
ROUTE

Kahlua multiwell  
Dilo

GINNEDAH

ACM/Santos  
Gunnedah CSG  
Proposed JV drillholes  
shown green

Proposed Glassseton  
Single pump&est well

**Legend**

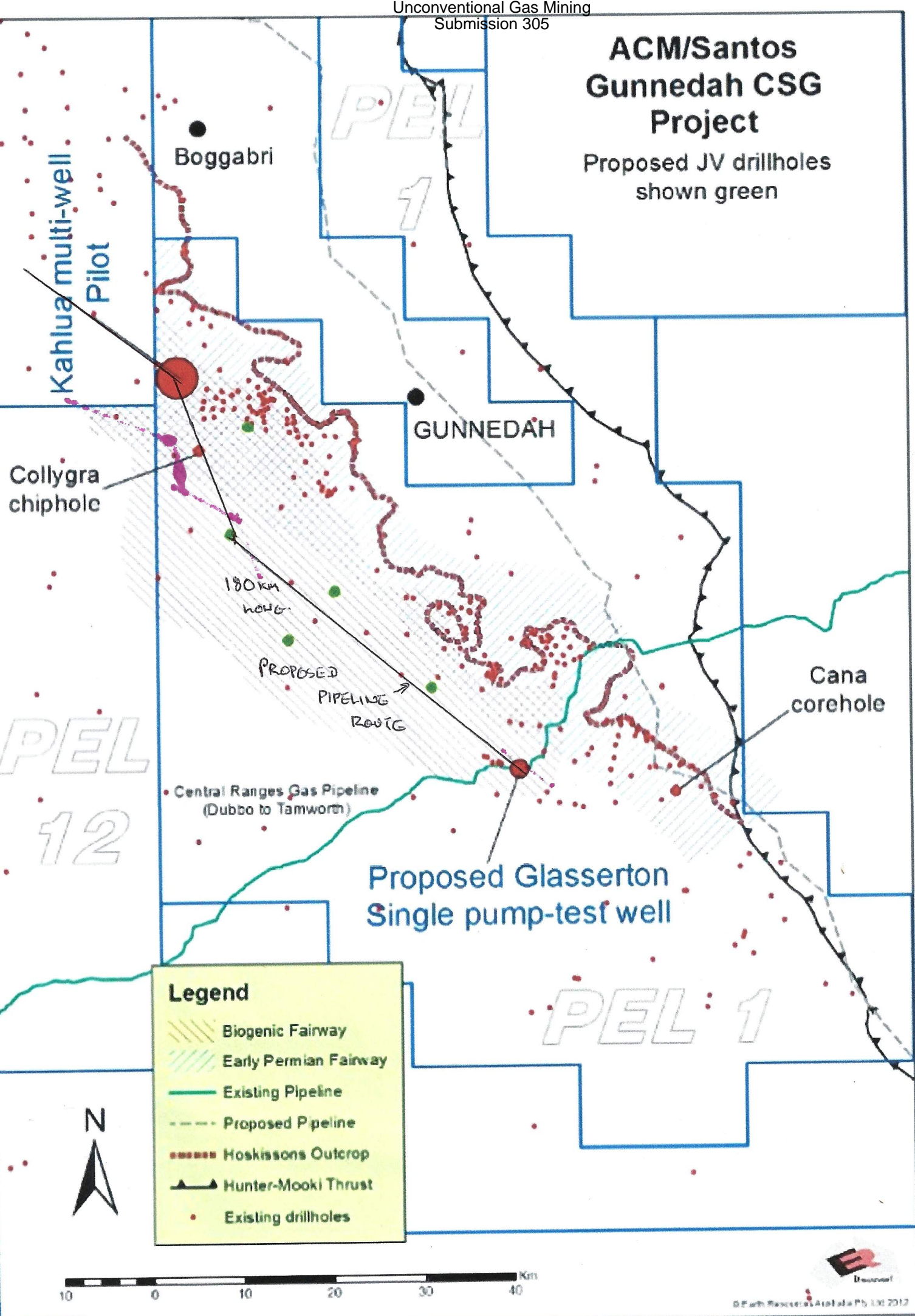
- Existing Pipeline
- Proposed Pipeline
- Hunter-Mook Titusai
- Existing drillholes
- Early Permian Fairway
- Biogenic Fairway
- Hostalson's Option



0 1 2 3 4 5 6 7 8 9 10 km

# ACM/Santos Gunnedah CSG Project

Proposed JV drillholes  
shown green





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## Application summary

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### Summary Application No: 20351

**Applicant:** Santos QNT Pty Ltd  
**Premises:** Kahlua Pilot & Georges Island & Longlea Exploration Wells  
Goolhi Road, GUNNEDAH, NSW, 2380  
**LGA:** GUNNEDAH **Catchment:** Namoi  
**Application type:** New licence  
**Application status:** Pending  
**Activity type:** Coal seam gas assessment/production  
Coal seam gas exploration  
**Received:** 24 Sep 2013  
**Pollution incident management plan:** Yet to be confirmed

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**Submission by the**  
**Mullaley Gas and Pipeline Accord**  
**in relation to the to the**  
**Independent Pricing and Regulatory Tribunal**  
**Landholder benchmark compensation rates –**  
**Gas Exploration and production in NSW**

Members of the Mullaley Gas and Pipeline Accord (MGPA) wish to submit the following comments.

1. Landowners have no right of veto for the coal seam gas industry. The NSW Farmers Association has signed a MOU with two Coal Seam Gas (CSG) companies (AGL and SANTOS) which is only relevant to drilling operations and not for the invasive industrialisation of their land with other industry related infrastructure such as roads, pipelines, compressor stations and holding ponds associated with CSG.
2. Members of MGPA are aligned with Lock The Gate that have surveyed three million hectares in NW NSW. 96.5 % of landowners surveyed have said they do not want CSG. Therefore, the vast majority of landowners are not interested in compensation.
3. Discussion of compensation is hypocritical. Landowners have been led to believe from the NSW Government and CSG industry proponents that the CSG industry is the least invasive of the extractive industries and pose no risk to their business. For the government to now request IPART to make recommendations for compensation to landowners implies that there will be harm to their businesses.
4. The terms of reference only refer to compensation for infrastructure above the ground. The potential for damage with CSG is also below the ground and has been completely overlooked in the terms of reference.
5. We assert that IPART is not in a position to consider the implications of potential long term repercussions when considering compensation to landowners. For example, consideration of compensation cannot be calculated if aquifers are depleted or contaminated as this would be irreparable and potentially catastrophic for agricultural businesses and the environment in general.
6. Most landowners rely on a sustainable supply of underground water and the effects of contamination or depletion may not become apparent for some time. SANTOS' documents state that CSG will lead to a drawdown in aquifers, IPART must consider that compensation must adequately allow for the possibility that landowners may lose their underground water upon which they are totally reliant for the viability of their business.
7. It is not possible to compensate a family run farming or grazing operation that has operated successfully for generations and intend to do so ad infinitum if they are forced to suffer the impacts of this invasive industry. Compensation must cover the cost of an unknown number of generations of a family who may be precluded from continuing the business of producing food and fibre.
8. If any CSG company were to withdraw from NSW the impacts to the Australian economy would be negligible. If agricultural land and supplies of underground water were impacted by CSG extraction the negative impacts to the economy of Australia would be immeasurable.
9. Members of the MGPA have toured areas in QLD impacted by CSG extraction and clearly there is no co-existence between agriculture and CSG.
10. It is inappropriate to consider compensation before all of the recommendations from the Chief Scientist Mary O'Kane have been implemented.
11. The implementation of any recommendations related to the CSG industry has been piecemeal and ad hoc to appease proponents of the CSG industry.



12. A true cost-benefit analysis must be undertaken which considers all social, economic and environmental impacts associated with the CSG industry before it is permitted to proceed or not.

Submission

by the

Mullaley Gas and Pipeline Accord

in relation to the

Agricultural Competitiveness White Paper

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## 1. Introduction

This submission has been prepared on behalf of the Mullaley Gas & Pipeline Accord (MGPA). We make recommendations in relation to Agricultural Competitiveness White Paper as it relates to the nation's agricultural sector.

The MGPA is an incorporated entity that represents community concerns of approximately 100 residents and the businesses of Mullaley and its surrounding districts. All members of the MGPA are involved in primary production and associated industries.

## 2. Food Security

The nation's food security is put at considerable risk with coal seam mining as identified by the Journal of Economic and Social Policy's article *The Economic Contest Between Coal Seam Gas Mining and Agriculture on Prime Farmland: It May be Closer Than we Thought*,

*CSG mining on a large scale is a highly intrusive process entailing a considerable catalogue of potential environmental risks and land use conflicts- diminished water supply and quality, methane leakage into the atmosphere, disturbance of subsurface aquifers and geological structure, fragmentation of landscape, and disruption of agricultural production.*(Chen and Randall, 2013)

## 3. Farm Debt

Most agricultural businesses operate using a significant overdraft facility due to the seasonal nature of income streams. Access to such overdraft facilities is dependent on the business operator's equity in the agricultural property, which has been adversely affected by the coal seam gas exploration. Properties have failed to attract bids, and where bidding does commence the highest bid is often significantly lower than the pre-auction valuation. Anecdotal evidence gathered through conversations with potential bidders indicates that coal seam gas (CSG) exploration is a factor in the prospective buyer's reluctance to commit to purchase locally.

In a submission to the *NSW Legislative Council inquiry into the management of the Murray-Darling Basin – impact of mining coal seam gas*, Rabobank, the world's leading specialist in food and agribusiness banking, expressed its concerns in regard to the coal seam gas industry,

*In our view, the net impact of CSG mining activities on a banking relationship may include a diminished production base that reduces a borrower's ability to service debt, a diminished asset base (groundwater constraints) and diminished land value, which affects borrowing levels.*

Further Rabobank states,

*Should the trend toward concurrent CSG mining and agricultural activities continue on agricultural land ... problem loans or defaults will rise (Rabobank 2011).*

The decreased land value resulting from CSG exploration and development is indisputable. The *Petroleum (Onshore) Act 1991* states,

*The holder of a production lease has the exclusive right to conduct petroleum mining operations in and on the land included in the lease together with the right to construct and maintain on the land such works, buildings, plant, waterways, roads, pipelines, dams, reservoirs, tanks, pumping stations, tramways, railways, telephone lines, electric powerlines and other structures and equipment as are necessary for the full enjoyment of the lease or to fulfil the lessee's obligations under it. (section 41).*

This has serious implications for superannuation of farming families. Farmers regard increases in property value as a superannuation nest egg. This is often the only superannuation in prospect and so these people are likely to be unable to support themselves in their later years. This is becoming an increasing problem given that the average age of farmers is now 57 (Cribb 2010).

#### **4. Competitiveness through the Value Chain**

CSG is a direct threat to the biosecurity of the agricultural sector and the country at large. Biosecurity works to ensure continued market access for our products; maintains our reputation for high standards of animal care and keeping; and reduces the risks that chemical contaminants pose to agricultural food production and the environment.

The construction stage of CSG, as well as the ongoing maintenance, is a direct threat to biosecurity as well as each and every individual living and working on farms (toxic spills, leaks, etc.)

As Bamberger and Oswald (2012) identify,

*... basic knowledge, such as hold times for animals exposed to chemical contaminates a result of gas operations is lacking, and research in this area is desperately needed to maintain an adequate level of food safety in our country.*

## 5. Regional Communities

The nation's goal to boost investment and jobs growth in the sector does not take into account the negative effects of coal seam gas. Achieving the nation's goal will require an experienced and well-educated agricultural workforce. The decreased value of property and the uncertainty created by the likely effects of coal seam gas exploration and development will affect succession planning on farms, making it less attractive for the next generation of agricultural workers. This will exacerbate the difficulties caused by decreased enrolments in agricultural studies as is discussed in *Rebuilding the Agricultural Workforce*:

*Data from the Department of Education, Employment and Workplace Relations (DEEWR) specifically related to agriculture qualifications shows that over the last decade, enrolments in agriculture have declined from approximately 4,500 to below 2,500 students nationally. (Allen Consulting 2012)*

## 6. Inputs Along the Supply Chain

The coal seam gas industry will adversely affect the number of skilled workers within the agricultural industry. As stated by Chen and Randall (2013),

*It is a standard result in economics that, in an economy that was already close to full employment, expansion of a particular economic sector occurs mostly by reallocating resources otherwise employed elsewhere in the economy; and it is reasonable to apply that result to CSG extraction and processing.*

Critical infrastructure in the agriculture value chain can only be negatively impacted as identified by Rabobank,

*The infrastructure that is built on farm to develop a CSG mining operation also presents challenges to agricultural activities. Networks of interconnecting gravel roads, wellhead and connection pipes are just some of the impediments that farmers need to adapt to in their operations. Liability issues could also arise should agricultural activities interfere with mining infrastructure and vice versa. Above ground infrastructure associated with CSG mining activities also limits the agricultural operations that could be undertaken on a farm. Road and pipe networks can render many farms unsuitable for broad acre cropping activities. (Rabobank 2011)*

## **7. Reducing Inefficient Regulation**

Australian agriculture enjoys a high level of competitiveness and strong reputation in part because of the strict regulations by which we abide; however, the coal seam gas industry remains largely unregulated.

An example of this is the limited and costly use of water for farmers and irrigators versus the unlimited and free exploitation of this resource by CSG. Likewise the double standard for the disposal of brine, salt, chemicals and waste from coal seam gas industry.

*The Australian Broadcasting Corporation reports cases where cognisant governments have permitted discharges into streams of coproduced water that, despite treatment, contains a variety of chemicals at concentration above guidelines of aquatic ecosystems and in some cases at toxic levels. Chen and Randall (2013).*

It is not so much the effectiveness or ineffectiveness of regulations that will affect agriculture in so much as the dearth of regulations of the CSG industry which will jeopardize agricultural competition, investment and private sector led growth. The CSG industry poses considerable environmental risks by virtue of its use of toxic chemicals and drilling techniques. There is a very real risk of contamination of aquifers, and water may be lost altogether if the integrity of these poorly understood aquifers is breached by deep drilling. All coal seam gas projects must be required to test both water quality and quantity before and during any activity. The CSG industry has no satisfactory method of disposal of the vast quantities of toxic 'produced water'. No further progression of the CSG industry can be permitted until a satisfactory scientific solution is developed. The government would be irresponsible to allow it to go ahead.

## **8. Enhancing Agricultural Exports**

In order to maintain our competitiveness for agricultural exports and new market access it is crucial that Australia maintain its "clean and green" image, impossible with the use of coal seam gas on food producing lands.

It is noted that no quality requirements are specified in relation to disposal of produced water from coal seam gas, although this is clearly a significant concern to all agricultural users of water, especially those now being offered treated produced water. There are currently no applicable produced water standards. To commence coal seam gas projects before any standards are developed would be irresponsible, leaving open the avenue for produced water contaminants entering the food chain; thereby compromising our agriculture exports and new markets access.

*The most important impact on agriculture is diminished agricultural productivity, in the case of agriculture and coal seam gas coexistence. After*

*the CSG has been depleted, the coexistence net benefits will always stay below the agriculture line as diminished agricultural production continues long into the future. Chen and Randall (2013)*

## **9. Conclusion**

The CSG industry represents a significant threat to the future of the agricultural industry in Australia. It cannot fail to significantly affect the asset base of families and consequently vital succession planning. It will exacerbate the loss of skilled agriculture workers at a time when the government recognizes the need for Australian agriculture industries to ramp up production to continue to make a significant contribution to feeding a burgeoning global population.

The MGPA oppose CSG extraction in all food producing areas of the nation, over all the Great Artesian Basin including recharge areas and any place that would result in the loss of native vegetation, threaten endangered species or fragment habitats.



## 10. References

- Allen Consulting Group Pty Ltd. 2012. *Rebuilding the Agricultural Workforce*. Report prepared for the Business-Higher Education Round Table.  
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- Bamberger and Oswald. 2012., *Impacts of Gas Drilling on Human and Animal Health*, New Solutions, vol.22 (1)
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- Cribb, J. 2010. *The Coming Famine: The Global Food Crisis and What We Can Do to Avoid It*. CSIRO Publishing. Melbourne.
- Rabobank Australia and New Zealand. 2011 *Submission to the NSW Legislative Council inquiry into the management of the Murray-Darling Basin – impact of mining coal seam gas*. Submission No 455