



Note that minutes are paraphrased to an extent and may not exactly match actual statements.

Project	Gloucester Coal Seam Gas Project	From	Michael Ulph
Subject	Community Consultative Committee	Tel	4910 7788
Venue/Date/Time	Thursday 18 June 2015 Gloucester Country Club, 10.00am – 12.30pm	Job No	21/17714
Copies to	All attendees		
Attendees	Ian Shaw [IS] – AGL Lands Officer Karyn Looby [KL] – AGL Community Relations Manager James Duggelby [JD] – AGL Hydrogeological Specialist Ray Dawes [RD] – Barrington Gloucester Stroud Preservation Alliance Ed Robinson [ER] – Lower Waukivory Residents Group Clr Aled Hogget [AH] – Gloucester Shire Council Jerry Germon [JG] – Community Representative Anna Kaliska [AK] – Mid Coast Water Nicky Coombes [NC] – The Gloucester Project Rod Williams [RW] – Community Representative Tony Summers [TS] – Mid coast Water Les Seddon [LS] – Port Stephens Council Clr Karen Hutchinson [KH] – Great Lakes Council Michael Ulph [MU] – GHD (Chair) Alexandra Parker – GHD (Minutes)	Apologies	Rebecca Connor – Gloucester Shire Council Toni Laurie – AGL Land and Approvals Manager Alex Kennedy-Clarke – AGL
		Others not present	Lee McElroy – Port Stephens Council Dan Rose – CEO, Forster Local Aboriginal Land Council Paul Minett – Dungog Shire Council Lisa Schiff – Great Lakes Council Clr Tony McKenzie – Dungog Shire Council
	Observers / Presenters Jackie Wright [JW] – (guest speaker)		

Notes

Action

1. Michael Ulph (Chair)
Welcome and Acknowledgement of Country
Introductions for new committee attendees and observers
Welcome to Tony Summers as representative for Mid Coast Water and Les Seddon replacing Lee McElroy for Port Stephens Council.



Notes

Action

Welcome along to Jackie Wright – guest speaker from EnRiskS who will present on BTEX.
Apologies – Rebecca Connor, Toni Laurie and Alex Kennedy-Clarke

Meeting commenced at 10:10 am

MU: I will call to accept the last minutes from the 16 April 2015 as a true and correct record.

Moved: Ray Dawes, Seconded: Jerry Germon

Karen Hutchinson requested her status from the April 16 2015 meeting be changed from not attending to an apology in the minutes.

2. Meeting agenda

- Welcome, Apologies, Introduction
- Acceptance of last minutes and matters from the previous meeting
- Morning Tea break
- BTEX presentation (*Jackie Wright*)
- Community Engagement update (*Karyn Looby*)
- Project Update(*Ian Shaw*)
- Water update (*James Duggleby*)
- Moving forward after CCC extraordinary meeting (*Michael Ulph*)
- General business
- Next meeting & close of formal proceedings
- Lunch

3. Action items from the last meeting

Action	AGL response
Request for presentation from <i>Creating Communities</i> regarding Dialogue Cafes (Karyn)	On completion of the report a communication plan will be developed for the social impacts and opportunities assessment (SIOA) and include a presentation to the GCCC.
What are the changes to the water modelling? What are the basic assumptions being made? How is the numerical model changing? (James)	We are currently in the process of updating the Conceptual Hydrogeological Model. The existing model was published in 2013 and the current update will include: <ul style="list-style-type: none">• Recent data from the groundwater and surface water monitoring network (including data from new bores

Notes	Action
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	<p>and stream gauges)</p> <ul style="list-style-type: none"> Improved understanding of the role of faulting from faulting investigations and local-scale numerical modelling The basin-wide water balance and salt balance Further refinements. 	
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AK: After Waukivory is finished, how will that be put into the model?

JD: For the numerical model. The Waukivory data which is at least 3 months of flow data and depressurise data from the wells will be put into the calibration of the ground water model.

RD: Do you have preliminary opinions as to the behaviour of major faults?

JD: There are a number of faults in the valley. The ones we are focusing on, we have run a couple of investigations around Waukivory area and Stratford wells on the Tiedman property. The indication from testing is these fault zones aren't conduits of ground water flows, they are not providing open links. That will be further tested. We have a number of bores in flood zone.

RD: What impact will fracking have on the permeability of the fault zones?

JD: The wells fracked at Waukivory are close. The zones that were fracked and the extent is very confined. There is no link. We are not seeing any impact.

Is it possible for AGL to provide a presentation on numerical modeling to understand what the changes are in the updated conceptual model? (James)	<p>The numerical model is still under development and will be finalized once we have flow/depressurisation data from the Waukivory Pilot.</p> <p>The updated conceptual model will be published in the coming months.</p>
Is 18m x 15m (in regards to rehabilitate gravel pads) the new dimension to put through in EA? (Toni)	Still to be determined following final design.

IS: As a brief update, there have been some changes in standard. This has impacted on the ability to provide the final design.

ER: What standards?

IS: In relation to distances, equipment, sizing etc

ER: Are these DRE standards? Or AGL standards?

IS: They are Australian standards.

Update membership on AGL website (Karyn)	Complete as at April 2015.
James Parker to find out from qualitative comments what the category of 'other'	Karyn has responses for 'other' and will read out.



Notes		Action
included - slide 8 of presentation (Karyn)		

MU: Other is as follows:

- To many professionals involved
- The negative impact on surrounding communities
- Residents have declined in numbers
- Provides revenue for government budgets helps the balance of payments
- Proposed open cut mine as well
- No one will be able to stop it anyway
- My husband is a mining engineer so I know a lot about it
- My experience with miners are very supportive of communities
- Losing forest industry
- It will be a good thing
- If it would make gas cheaper
- I don't like the protesters
- I don't believe in people protesting about it
- Good for dairy industry with use of gas
- Gas will be beneficial
- Depend on fossil fuels
- Council put in "no standing" signs on a country [road] with a police escort
- Convenience of local gas pipeline
- Change is inevitable
- A resource we can sell

Action items Labelled 'All' from last CCC meeting minutes

- CCC members are to send questions for AGL prior to meeting (preferably 1-2 weeks prior) to shorten response times.

Actioned. Questions put forward to AGL will be answered this meeting (see below). Ongoing Action.

- CCC members to put forward suggestions for guest speakers.

Has not occurred at this stage. Ongoing Action.

- CCC to write to each council and relevant organisation regarding active promotion of CCC.

Actioned. No responses regarding request at this stage.

- CCC member initials to be placed back into meeting minutes in place of generic CCC.

Actioned.

- Meeting minutes to be reduced. To be more of a summary and not a word for word recount.

Actioned. Will continue to reduce. It is a work in progress to manage effectively.

- Contact members regarding poor attendance.

Actioned. Letters were sent to four members. We have received two responses



Notes	Action
<p>from Dungog Council and Great Lakes Council. Port Stephens Council has responded by email and actioned this letter through new representation on the CCC by Les Seddon in place of Lee McElroy.</p> <p>AH: As I understand, there would be no prevention if another member from the council wanted to come to these meetings at some stage? KH: They wouldn't be excluded from attending would they? KL: No not at all. AH: It would be unfortunate if that was the case. I am concerned the letter gave that impression. KH: No, it was not seen that way.</p> <p>MU: With the pipeline receiving a level of approval. It is more relevant to these council areas now then it was. We could go back and say to them that it is on the agenda. RW: We might have to structure meetings around the pipeline. Invite Dungog etc. and have it as a specific agenda item.</p> <p>KH: I'd like to note that council staff are fully informed of what's going on. This committee isn't the only source of information. Staff members are looking at things that this committee don't look at. They are very very aware.</p> <p>MU: The vibe I am getting is that they will come when it's relevant. KH: If it is on the agenda it will be a relevant point of interest. Council staff are busy.</p> <p>MU: How do we respond? Should we respond by thanking them? Explaining we will keep them on and highlight the agenda when it is appropriate for them. Today the pipeline may be mentioned. However it doesn't appear on the agenda. KL: When we move into that space. We will have a detailed engagement strategy. This will include representation of the CCC. Therefore that communication needs to be defined. IS: As you noted, I will touch on that in project update.</p> <p>MU: If everyone agrees I will respond and highlight the pipeline. I will mention the pipeline has been approved and I will get the date etc.</p> <p>KH: It's an information session here we don't make decisions. We are a conduit between AGL and the community to provide the correct information.</p> <p>RW: With the Land Council, I know that Norma Fisher was coming; she was willing to participate and found it useful. I get the feeling there are internal politics going on. We have tried enough times with the correct protocol. What should we do next? KH: There are a lot of politics in that circle. MU: Do you suggest we look elsewhere for Indigenous representation? RW: I was just encouraged that she was here in good spirit. I don't know if maybe we invite her back or not. She maybe isn't the right person. We have done a lot to invite people to come here from that council. MU: Is there a different group or family? KH: Protocol won't let you approach anyone. IS: We have to accept that the representative body doesn't see it the same.</p>	<p>Action: MU to contact Councils and confirm that their officers are still to be considered as members, refer to pipeline etc.</p>



Notes

Action

MU: I can try harder; I can call rather than write

AH: I think it is a good idea to keep trying. We should continue to try.

MU: I will proceed along that basis. It doesn't get us far on committee memberships however.

Question	Response
<i>Incoming Ray Dawes Regarding AGL Notification - Waukivory Pilot - decreasing gas pressure - temporary activity</i>	
Emails from Forbesdale residents indicate that they are unhappy about not being notified directly by mail. Is this an oversight? I would expect that, given the resources that AGL have at their disposal, they would have made the effort to contact the residents directly.	We have numerous communication channels established including letterbox drops, face-to-face, updates in the local paper and an email newsletter.
Can you give me an indication of the quantity of the volatiles, please?	The air quality assessment in the REF is available on our website - Air Quality Impact Assessment attached as Appendix C to the original October 2013 REF. The REF provides for worst case scenario assessment of VOC, which was determined to be 0.092mg/m ³ . Extremely low and a non-event. There is no EPA impact assessment criteria.
Secondly, can AGL provide a guarantee that there will be a) 100% combustion and b) that AGL will provide a comprehensive analysis of the volatiles?	The flare used at Waukivory is rated as a compliant "Type B" appliance meeting all relevant Australian standards which indicate minimal emissions and ensure that the gas is combusted poses a minimal risk to the environment. Fugitive emissions monitoring has detected low concentrations of methane in the range of 1.7 to 3.9 parts per million (ppm). By comparison, urban methane concentrations typically range between 1.8 ppm and 3.0 ppm, while in domestic environments around gas water heaters and stoves, concentrations of approximately 10 ppm are commonly found. These reports are available to the public on the AGL website. http://bit.ly/1QCVd4k We also monitor wells for methane leaks as part of the conditions of our Environment Protection License.
Question	Response
<i>Incoming Ray Dawes</i>	



Notes		Action
For each response to a question the name of the person and position within the AGL organisation is required to be stated at the end of each response.	The response is from AGL, not specific individuals.	
If it is determined that fracking is detrimental to the environment and the community, how will AGL restore the pre-fracc conditions? I.e. How will AGL unfracc?	<p>Hydraulic fracturing has been used safely millions of times around the world since its development in the 1940s and its introduction to Australia in the 1970s to extract natural gas and other petroleum resources.</p> <p>AGL has over 13 years' experience managing the Camden Gas Project in the Macarthur region south-west of Sydney. During that time, almost 150 wells have been drilled at Camden, more than 100 of which have been hydraulically fractured, with no evidence of any harm to local residents or to the local environment.</p> <p>The safety of hydraulic fracturing, properly regulated, has been validated by independent experts including the Chief Scientist of NSW, who in a report on hydraulic fracturing last year stated that "CSG extraction and related technologies are mature and Australia is well equipped to manage their application" adding that with appropriate safeguards and controls, natural gas from coal seams can be safely extracted.</p> <p>AGL will continue to operate safely, following all guidelines for hydraulic fracture stimulation when extracting coal seam gas.</p>	

NC: They would have been different chemicals in the 1940's and 1970's to what it is now?

IS: The fracture stimulation chemicals are determined with the relevant details of each fracture stimulation. If you look at what was used in the past, you wouldn't use it now. It has changed.

ER: We need to drop the '13 years' experience managing the Camden Gas Project'. They didn't buy it until 2008. A report from a couple of weeks ago said they haven't fracked down there for 4 years. When it started there was virtually no monitoring around there. That whole paragraph should not be there.

RD: It doesn't have anywhere near the structural complexity that Gloucester has. Every well here is different. In Camden, every well is virtually the same. Gloucester is not the same geologically as Camden.

IS: Staff from AGL have been involved in the Camden Gas Project since it started, so they do have that experience.

Notes

Action

ER: This says AGL has over 13 years at the Camden Gas Project. It should be staff. That statement is wrong.

IS: It's mulling with words. That's our response.

ER: This statement keeps coming up, I have complained about this on a number of occasions. It's not factual or correct. It needs to be dropped.

MU: In Regards to Ray's concern, I would say the question doesn't talk about Gloucester. The question is talking about fracking.

JD: Whether it is Camden or Gloucester. One location geologically is different to the next. Each is assessed individually. Whether we are in Camden or Gloucester it is assessed to same level. It is more complex structurally here in Gloucester that is true.

One concern we have regarding AGL's need to flare these four Waukivory wells because of the buildup of gas is, what is happening to the well across the road from the Forbesdale Estate on Mark Harris property? It was supposedly 'capped and abandoned' last year, so how can this well which is producing a good flow of gas, be safe?	<p>Plugging and abandoning is only used when we wish to shut down a well for good.</p> <p>The well on Mark Harris' property was plugged and abandoned, which means it was cemented from bottom to top. As part of this we check the abandoned well for any emissions at the time of plugging and again 12 months later, according to EPA guidelines.</p> <ul style="list-style-type: none"> Good well abandonment is particularly reliant on appropriate well design and construction, the choice of cement used, and the procedure for its injection. More information can be found in the NSW Code of Practice for Coal Seam Gas Well Integrity (http://www.chiefscientist.nsw.gov.au/coal-seam-gas-review)
Where will the waste be transported now that it has been rejected by Transpacific and Worth?	<ul style="list-style-type: none"> AGL is currently storing this water in a large, double-lined, above-ground tank with leak detection equipment and are working with the Office of Coal Seam Gas and the Environment Protection Authority in relation to disposal options for this water. <p>AGL is negotiating with approved, licensed third-party contractors to manage this water. We will keep the community informed of any developments.</p>
Why are air quality measurements not being undertaken during the flaring both near the flares and at the nearest houses? There is considerable and justified concern from the community.	<p>The flare used at Waukivory is rated as a compliant "Type B" appliance meeting all relevant Australian standards which indicate minimal emissions and ensure that the gas is combusted poses a minimal risk to the environment.</p> <p>Fugitive emissions monitoring has detected low concentrations of methane in the range of 1.7 to 3.9 parts per million (ppm). By comparison, urban methane concentrations typically range between 1.8 ppm and 3.0 ppm, while in domestic environments around gas water heaters and stoves, concentrations of approximately 10 ppm are commonly found.</p> <p>These reports are available to the public on the AGL website. http://bit.ly/1QCVd4k</p> <p>We also monitor wells for methane leaks as part of the</p>

Notes		Action
	conditions of our Environment Protection License.	
What's the problem? Can't a well be shut down whenever necessary without there being a danger of some sort, which requires flaring relief? And what if the area was flooded? What would happen?	<ul style="list-style-type: none"> Flaring was undertaken to ensure pumps work efficiently upon re-start of the Pilot. More information can be found in the NSW Code of Practice for Coal Seam Gas Well Integrity (http://www.chiefscientist.nsw.gov.au/coal-seam-gas-review) 	
Why didn't AGL consider capping these wells until the suspension is lifted, instead of flaring? We think AGL is proceeding with its project by means of deception. AGL needs to test the flow of gas by flaring, so it would appear AGL may be trying to pull the wool over the eyes of the OCSG and EPA.	<ul style="list-style-type: none"> All flaring was done with the approval and knowledge of the NSW Environment Protection Authority and the Division of Resources and Energy. Flaring was undertaken to ensure pumps work efficiently upon re-start of the Pilot. Flaring enables the entry of water into the wellbore when wells are shut-in and no longer moving water. A gas column on top of the water will continue to exert a back pressure on the water column in the annulus between the tubing and casing which inhibits water from feeding into the casing. By flaring we are eliminating the back pressure exerted by the gas which allows for a continuous water entry in to the annulus and thereby allows for easier start-up of pumping operations, when we are ready to proceed with pumping operation. It allows for more smooth and more efficient resumption of pumping operations. 	
Why is AGL not prepared to discuss worst case scenarios? Adaptive management is not an acceptable or appropriate answer.	<ul style="list-style-type: none"> AGL has undertaken all appropriate risk assessments including a comprehensive Review of Environmental Factors for the Waukivory Pilot which have shown that across a wide range of potential impacts, our expected impacts on the environment are minimal to low. 	
The community requires a full risk assessment of the initial project of 110 wells and clear statements explaining mitigation measures undertaken and planned responses to incidents.	<ul style="list-style-type: none"> AGL will continue to work closely with its regulators, meeting all requirements including the Risk Assessments for project activities. Should the project succeed to Stage 1, Risk Assessments will be communicated to relevant stakeholders specific to that Operation. 	
Question	Response	



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Notes		Action
<p><i>Incoming Ray Dawes In response to the following AGL email notification:</i></p> <p><i>Dear GCCC members</i></p> <p><i>I would like to provide an update on the Waukivory Pilot.</i></p> <p><i>As you may be aware, AGL has completed its recent flaring activity, which was undertaken to release gas pressure built up since the Waukivory wells were suspended in late January.</i></p> <p><i>As part of AGL's risk management practices we have provided the NSW Division of Resources and Energy (DRE) a summary of an updated risk assessment that outlines a number of potential risks and mitigation measures associated with the potential re- commencement of the Waukivory Pilot.</i></p> <p><i>As a result, AGL has now sought approval to temporarily pump flowback water and flare gas from four wells at Waukivory in order to obtain further samples, which will assist in determining what impact delays are having on its Waukivory Pilot. The request is to pump water and flare gas for testing over a five-day period. AGL is awaiting that approval.</i></p>		



Notes		Action
<p><i>One of the risks previously identified with not removing flowback water from coal seams directly after fracture stimulation, is bacterial growth in the wells. Sampling from recent gas flaring at Waukivory revealed traces of hydrogen sulphide, believed to have been caused by such bacterial growth. The detections were between 1.0 and 3.5 parts per million. These are between five and 15 times lower than the level requiring work safety actions. The detections were found by testing gas at the well head.</i></p> <p><i>AGL is committed to conducting its operations in a safe manner and this request will allow us to act prudently subject to suspension being lifted.</i></p> <p><i>Please let me know if you have any questions.</i></p> <p><i>Best regards, Karyn</i></p>		
<p>Does this means that there is other stuff coming out of the holes (just like I tried to discuss at a previous CCC?). Please excuse my junk science terms but this sounds like more of the same. There is nothing about the sludge being temporary, as it must be stored somewhere or irrigated or even put</p>	<p>Flowback water is being stored at a secure double-lined above around storage tank. AGL is currently negotiating with third-party contractors to treat and dispose this flowback water.</p>	



Notes		Action
back down the holes??		
Also, what will happen to the flow back sludge?	See above.	
Can you supply details of mitigation of bacteria and environmental impacts, before I get inundated with email.	The minor bacterial growths which can occur in flowback water which has not been promptly removed from wells can be treated with simple bactericides. It poses no threat to human health or the environment.	
In regards to NSW Division of Resources and Energy (DRE) summary of the updated risk assessment that outlined a number of potential risks and mitigation measures associated with the potential re-commencement of the Waukivory Pilot, could you supply me with a copy, please? I am surprised and disappointed that this was not offered to the CCC members for discussion	This is an internal working document only and the risk assessment contained in our public documents remains the primary document for the Waukivory Pilot.	
Question	Response	
<i>Incoming Rod Williams</i>		
Can you ask AGL if they have as yet been permitted by GSC to rejoin the Gloucester Dialogue which next meets on Thursday 25th June?	At this stage no, we have not been invited back on the Dialogue.	

AH: A motion was put to Council to reinvite AGL to the Dialogue. The motion was lost. A subsequent motion was put to enter into discussions with AGL about the conditions for which their involvement may resume.

I assume at some stage council will get in contact with AGL.

RW: Why wasn't that done prior? Council requesting a meeting with AGL?

AH: They had conditions to be satisfied before the dialogue was resumed. My



Notes

Action

understanding is 2 or 3 of the conditions are still outstanding. So in some respects it's premature for AGL to return.

Yesterday discussions considered that it was time to re-engage even though those things hadn't been completed.

JG: What hasn't been completed?

AH: Council to develop a more refined MOU for discussions of Gloucester Dialogue. There is some contention over that one.

Council write to the Minister for Resources and Energy requesting AGL be suspended due to AGL's behaviour within the community. No correspondence from the Minister has been received as of yet.

RW: How does that relate to AGL?

AH: This was a motion passed in February, by council that says these were the conditions that Council would like to see met before AGL resumed.

The third thing is that a suitable location for flow back water to be processed be agreed on. At this stage there is still considerable contention over AGL's plans despite the fact the REF has been approved. There was no agreement with council that that was appropriate. Having said that council has decided to re-engage with AGL to discuss the conditions. A clear majority are keen for re-engagement.

RW: As a community representative on the Dialogue. I have had major frustrations with this from the start. That resolution was in February, here we are in June, and we have a meeting next Thursday.

At the previous Dialogue the reps including Office of Coal Seam Gas, Office of Water etc, all said AGL had to be in the room. AGL have had two approvals in the last week, things will move quickly.

KH: Council is not a consent authority in this. If I were on that council I would want to be in the room more. I'd want to be in the room because you have got the consent authority in the room.

AH: Council is in room. The dialogue has been continuing with State Government Departments, AGL simply hasn't been there.

KH: I'd want them there.

AH: Council is moving in that direction.

RW: What would be the timeframe?

AH: I have no idea.

KH: No timeframe from that motion?

AH: No.

Question	Response
<i>Incoming Ray Dawes</i>	
Why does AGL not request Dept. of Planning to reform the CCC to be consistent with other CCCs?	We already have a functioning GCCC that follows NSW Dept. of Planning Guidelines, 2007.
Can AGL provide name, model number and technical specifications of the down hole pumps currently located in the Waukivory Project?	Attached/handout is the technical specifications for the down-holes pumps currently installed in the Waukivory Pilot Wells (relevant rows highlighted).

Notes	Action
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Question	Response
<i>Incoming from Nicky</i>	
I would like to know AGL's definition of "social license". I have searched for this online & have not been able to find a concise meaning. Surely it must be part of their ethos.	<p>AGL doesn't prescribe to a single definition of 'social license' because there is a range of views on what social license incorporates.</p> <p>AGL's approach to community engagement is clearly set out in our sustainability report and in each of our community engagement plans.</p>

NC: What are the parameters of social licence? Is it in regards to the Shire? Electorate? State?

KL: There are loads of definitions.

NC: So is there no such thing?

MU: It's an intangible thing.

NC: So if the majority of the community said that most of them don't want it, would you shut it down?

IS: We have a legally approved project. It's a conditional approval and we are continuing to meet those conditions. Nowhere in those conditions is social licence included.

As is stated here, our community engagement program is well communicated and as you said Nicky, you can't find a concise meaning. We will continue to work towards the approval conditions.

NC: So if majority of community didn't want it to continue?

MU: As a procedure for project approval. It was a proposal first; it then went through consultation with various stakeholders. It was on exhibition, submissions were called for, and it is a standard EIS process. The government reviewed every submission, which were called for from everyone including community members. AGL had to respond to every submission and that is bundled up and given to the Department of Planning. Then a decision is made by that Department.

In terms of social licence, the way the community could have said 'we don't like this' is if they all put in a submission at that time which said that. The state government again is the body that reviews all of that and makes the decision. That's how the process sits today, as it is for every approval [of this kind] by the State government.

I would also like to know the definitions of evaporation ponds, holding ponds & transfer ponds & what differentiates these.	<p>Evaporation ponds are banned in NSW in relation to Coal Seam Gas operations. The Tiedmans East Dam (TED) has not been designed as an evaporation pond and Gloucester meteorological conditions preclude operation of the TED as an effective evaporation pond.</p> <p>AGL currently stores flowback water at the well site in an above ground holding tank.</p>
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NC: If the difference between an evaporation pond and holding pond is depth then if only a minimum amount of water is in Tiedman's Dam, does this turn a holding pond into an evaporation pond?

IS: That is answered in second part of that first paragraph.

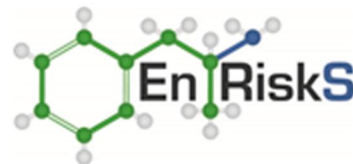


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Notes	Action
<p>The Gloucester meteorological conditions are not conducive. Evaporation ponds are large shallow areas. It is too wet, too humid here. Holding and transfer ponds are not terms we have used at any time.</p> <p>JD: Tiedman's are storage dams, above ground storage tanks. A transfer pond is not a term that we use. So we can't define it.</p> <p>RD: I agree with Ian's assessment. That relates to the evaporation of water. The thing we haven't discussed is gases coming out of solution due to decreased pressure. The definition of evaporation is too narrow here. It refers to the removal of water by heating.</p> <p>Thank you for the technical data. One thing that wasn't mentioned is that the community have a fear that AGL is controlling the agenda of the CCC. If it came under the auspices of the Department of Planning we could get away from that perception. Hence the question requesting to the Department of Planning to reform the CCC.</p> <p>KH: This CCC was formed 2008. It was not a requirement for Lucas to have a CCC. They formed the CCC on their own. I don't think there is anything untoward in what AGL is doing.</p> <p>RW: There is no obligation to have this structure in place. This is purely voluntary and in good faith.</p> <p>AH: My understanding is when renewed last year they specifically questioned the shareholders that the guidelines of community consultation would update. I don't know whether that update included a requirement to have a CCC.</p> <p>KL: CCC is required now.</p> <p>AK: But there are not clear rules of how etc. Just a basic rule.</p>	
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<p>Morning Tea Break: 11:19 am</p>	
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<p>3. Guest Speaker Presentation – Jackie Write (EnRiskS)</p>	
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FLOWBACK WATER – RISKS TO HUMAN HEALTH AND ENVIRONMENT

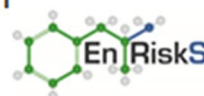
Jackie Wright



JW: A little about environmental risk science and myself.

ABOUT ENVIRONMENTAL RISK SCIENCES

- University degree and studying (completing this year) PhD in Public Health. Also Fellow of Australasian College of Toxicology and Risk Assessment
- Involved in conducting human health and environmental risk assessments for more than 25 years
- Evaluated wide range of chemicals and exposures from many different sources throughout Australia
- Responsible for development of national guidelines on assessment of risk for contamination



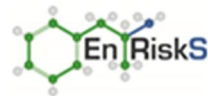
Notes

Action

AGL asked me to look at a few things in regards to flowback water.

WHAT WE HAVE EVALUATED

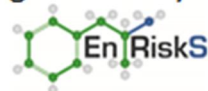
- Reviewed the quality of flowback water
- Evaluated risks to human health and the environment associated with BTEX in flowback water
- Established trigger levels for BTEX in flowback water



When it comes to quality of water, lots of things, not just BTEX are tested.

QUALITY OF FLOWBACK WATER

- Comprehensive analysis of flowback water
- Evaluate how the flowback water is handled and stored
- Water is generally similar to stormwater (with the exception of salinity)
- Water is not explosive, flammable, oxidising, corrosive, liberates toxic gases to triggers the need for additional protection for human health or the environment
- Water is saline and may have effects if spilled directly into a freshwater system (same as spilling seawater)

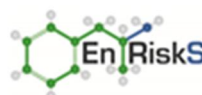


In regards to similarity with stormwater, BTEX and hydrocarbons are present in storm water.

The salinity is due to the coal seam, where the water is extracted.

BTEX IN FLOWBACK WATER

- BTEX comes from coal seam and is extracted in flowback water
- BTEX is naturally occurring in crude oil (so it is in many petroleum hydrocarbon fuels as well as some products) and formed during combustion
- BTEX is present in the environment from many sources (storage and use of fuels, emissions from vehicles, emissions from industry, gas cooking/heating, wood smoke, tobacco smoke)



BTEX is naturally occurring in the coal seams. But BTEX is also naturally occurring throughout the environment.

You would be surprised how much BTEX is in household products. It is also formed during combustion.

MU: BTEX is a word used to describe 4 different things?

JW: Yes, it covers four different compounds which are the light end volatile petroleum hydrocarbons. It is Benzene, Toluene, Ethylbenzene and Xylenes. Essentially we use the term BTEX to cover those off.

They are the best well studies as far as their behaviour in the environment and the toxicity to us. This is one of the reasons we focus on BTEX a lot.

MU: Is it appropriate to describe what you find in storm water as BTEX?

JW: BTEX is usually part of a whole package. Usually it is present when there are other hydrocarbons.

In stormwater runoff usually there are low levels of BTEX but usually you will get some middle and high level hydrocarbons that have come off oils and greases. Normally you will see BTEX plus a variety of other things.

MU: Why is it a group when there could be more or less hydrocarbons?

JW: I assess them individually. Each individual compound has its own toxicity. As far as providing information on hydrocarbons present, they are grouped together because often they are found together and it's an easy term for understanding. Sometimes they rope in Naphthalene, so BTEX and Naphthalene (BTEXN).

Notes

Action

With this water, we did test if there were other hydrocarbons in there, and there was. We also looked if they were hazardous as well. The other hydrocarbons are less toxic than these ones, that is why we focus on this.

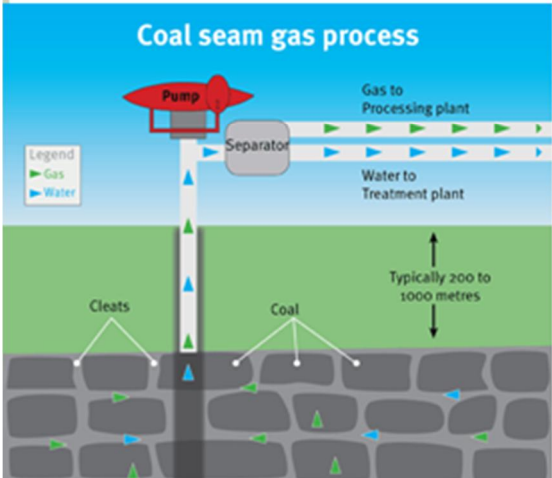
As BTEX is part of lots of different things we use in our environment, we are exposed in lots of different ways. Examples are uses in fuels, cars, mowers. All vehicle emissions have BTEX in them. Industry, gas and heating, tobacco smoke and a whole range of household products etc.

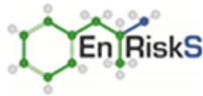
When we look at BTEX in the flowback water we look at the risk due to the compounds.

BTEX IN FLOWBACK WATER – WHAT ARE THE RISKS?

- Need to evaluate how the water is handled and stored, the nature of the chemicals present, who may be able to be exposed and how they may be exposed

- For this project the only way people can be exposed to BTEX is via inhalation of vapours that come from the storage tank





It is really important that this process is done upfront. In relation to the flowback water that comes out of the wells it is a closed system as the water comes from the wells, it is pumped and goes to the pipelines; it does not come in contact with people at all. There is no exposure – no risk. The only way to be exposed is through inhaling vapours from the surface of that water, that mix in the atmosphere. Hydrocarbons prefer to be in a gas phase which is why we call them volatiles. It means they can go into the air, and once they are there we can breathe them in. This is what we assessed as far as risk is concerned.

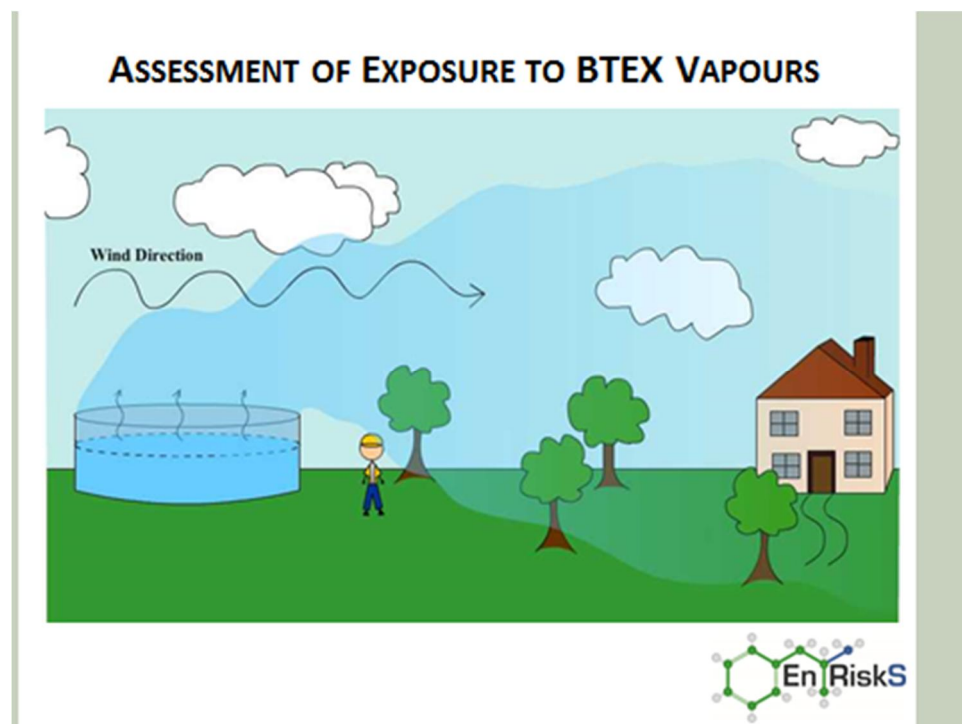
This is a picture of the above ground storage tank.

Notes

Action



We are looking at the vapours that come off this water surface. They travel with wind and mix and disperse. They will become less concentrated the further away you are from the tank.



Notes

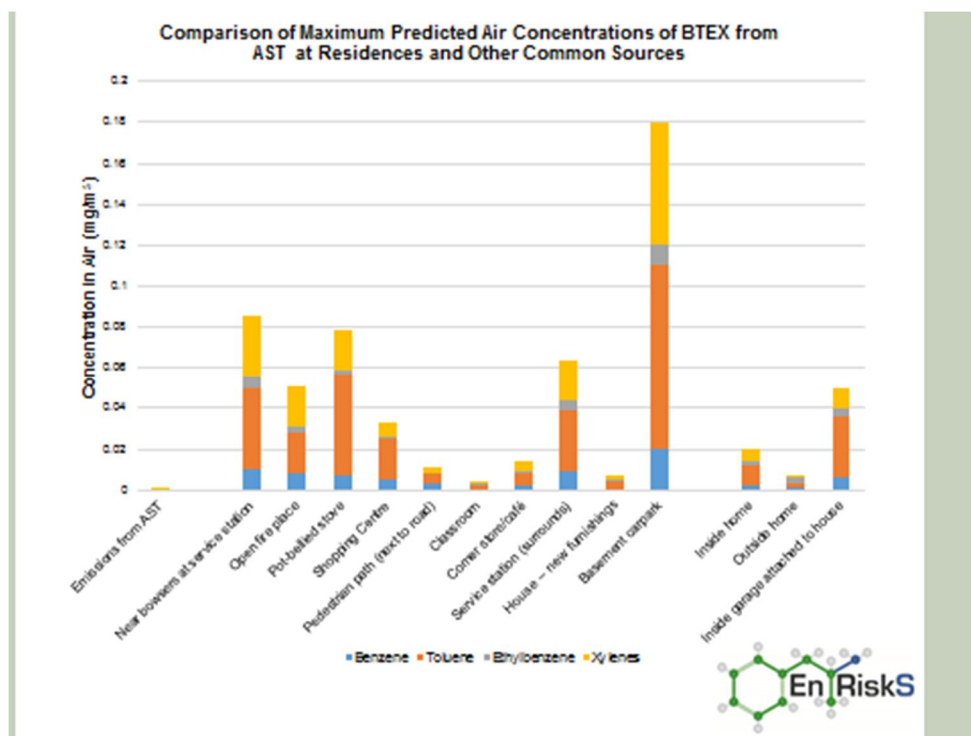
Action

We looked at how much of those vapours come off the tank and get into the air and reach a point 30 metres from the tank where we assume a worker is going to be, or the closest residential home. We estimated the concentrations at these two locations and took a worst case scenario. We assumed that the maximum concentration from the wells was present in the tank all the time and that the wind always blew from tank to the worker/house all the time. It was intended to provide the worst case scenario you could possibly have as far as exposure is concerned.

JG: Did you look at inversion?

JW: We don't need to. The modelling is worst case meteorological data file, so it goes through all the met types of conditions. This includes high and low wind speeds, stable and unstable atmospheres and gives the maximum concentration that could occur which would include an inversion.

When we are looking at exposures that are 30 metres away and a couple of hundred meters away there's not enough mixing that goes on here to worry that an inversion is going to trap it down lower as we are pretty close to the source.



NOTE: In the above chart the above ground storage tank is labelled as AST.

We calculate the concentration that people might be exposed to and essentially it's a negative in concentration, you couldn't measure it. It's not associated with any risks to health.

This is a comparison graph.

The first column is a calculation of the air at residences from the above ground storage



Notes	Action
<p>tank. It is split into the different colours of Benzene, Toluene, Ethylbenzene and Xylenes (BTX). It is very low, it is a tiny amount that could get into the air in an amount that we could breathe it.</p> <p>The rest of the table is a concentration comparison to what you are normally exposed to. Petrol bowsers, car, open fireplace, shopping centre, inside your house or just standing next to the road etc.</p> <p>NC: The first column is to the nearest residents. Do you have data for the workers on site?</p> <p>JW: The worker is about half as much again. It is too small so you can't see it. The risk is very low.</p> <p>It is to give you an idea of context. The risk is very low, the concentration is very low. It is well mixed into the environment.</p> <p>AH: If you were to say 'I'd be concerned over x amount of concentration', 'or the Australian Standard is' Where are we sitting with that?</p> <p>JW: Our guideline in our NEPM for ambient air is typically around here <i>*JW pointed at graph on screen to roughly 0.04* for the NEPM (National Environment Protection Measure).</i></p> <p>That's for a total concentration in the air, when we do a risk assessment, for Benzene we also look at the incremental risk of cancer in a community, and we have guidelines to meet that. As far as an incremental increase we want to be low and we are well below any of those guidelines.</p> <p>RW: Are you are modelling based on 24/7 exposure for the worker?</p> <p>JW: We are doing 8 hours a day 240 days a year for 30 years.</p> <p>RW: As far as the rest of the graph... what is that?</p> <p>JW: With this graph I have tried to compare like and like.</p> <p>I have put up here an 8 hour average. Assuming that is the maximum concentration that can occur in an 8 hour period of time at the residence.</p> <p>At the service station it is about a 1 hour average.</p> <p>These ones that come from a publication of measurements that came from our commonwealth environment department are at 12 hour average. That is reasonably comparable to this 8 hour.</p> <p>Inside and outside the home, these are 24 hour averages. Reasonably comparable.</p> <p>I have tried to make graph comparable. In the report itself there are a whole lot of averaging times, whether it is a year or a peak hour – we looked at the worst case hour.</p> <p>ER: The stuff from the tank. This is just based on the four Waukivory wells?</p> <p>JW: Correct. I have taken the maximum from the wells themselves not the tank. The concentration in the tank is lower due to dilution. I have assumed it will be replenished all the time so the concentration remains the same to get this worst case scenario.</p> <p>MU: I hope we can make sense of this in the minutes as some are 1 hour, some are 8 etc.</p> <p>JW: 8 hours, 12 hours, 24 hours is essentially the same. It is intended to give a</p>	



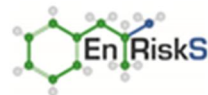
Notes	Action
reasonably consistent timeframe of exposure. The difference between 8 and 24 hours is nothing. You still can't see it.	
AH: If you had 100 times the volume would you end up with 100 times the concentration?	
JW: No. The concentration is the concentration of the water as a mass per unit volume. You are handling a greater volume but the concentration is still the same.	
AH: What if you had a much greater surface area?	
JW: If you change the surface area you may increase it a little bit. With a bigger area there are more emissions. It's not double if you double the area though; it's a little less than double.	
LS: The concentration in the water is based on data monitoring. Is that concentration likely to change?	
JD: Modelling is based on the highest concentration from one of four wells in the pilot. It is producing some BTEX, what we used here is about seven to eight hundred, another well is in the low teens. When you put that into the same tank the dilution process brings down the actual number. I think the maximum is around 40. What we see when we have been pumping these wells is they get higher trace values for the first few days, then they quickly trend down.	
The answer is it decreases pretty much.	
AK: What was the actual concentration of BTEX in the water?	
JD: The worst case?	
JW: I can't remember off the top of my head. Its total BTEX of around 700-800 parts per billion.	
RW: To put context to it. The distance from Tiedman's from the tank?	
IS: It would be kilometres.	
RW: If you were to transport the flowback to the Tiedman east dam, with the larger surface area, it's more removed?	
JW: We looked at that, whether Tiedman's presents a bigger risk. It is a bigger dam, with a larger surface area. It is further away from where people are. The actual above ground storage tank was the worst case location.	
AH: Are you going to cover it? That one well was significantly higher which I found interesting. Is there an explanation? Have you investigated?	
JD: The reason that was higher was because it is a deeper well, it's perforated, and over more zones. The natural occurrence within the tanks compounds within the coal seams. That's one of reason to get a range of depths so we can collect data.	

TRIGGER LEVELS

- Trigger levels have been developed for use in evaluating water quality:

When is the concentration in water at a level that may be of concern to human health or the environment?

- Looked at 3 scenarios for exposure: 2 for human health and 1 for the environment

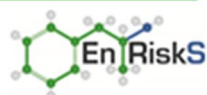
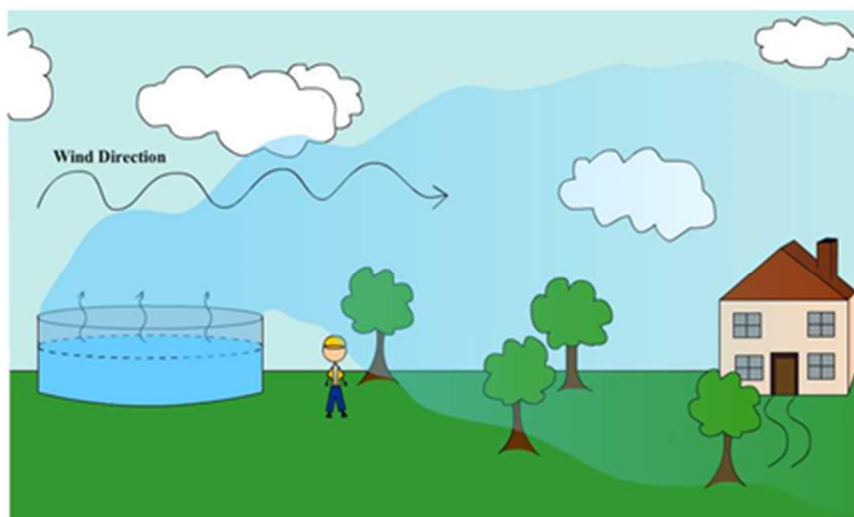


JW: After the initial assessment of the risks we moved onto setting some trigger levels. We are evaluating water quality for ongoing works.

What was the concentration of water that would result in a level that met that guideline? Instead of being a long way below where we currently are. What is the concentration that would meet the guideline?

We look at three different scenarios to come up with the trigger level.

SCENARIO 1: INHALATION OF VAPOURS FROM AST



Scenario 1:

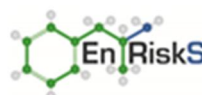
This is the same one that we did when looking at the BTEX risk. We want to meet guidelines here so what will the water concentration in the tank need to be to meet those guidelines? Therefore the concentration in the tank became a trigger level. If you are below it you are protective of health, if you are above it, you need to do something.

SCENARIO 2: DIRECT CONTACT WITH WATER

Incidental contact by workers during maintenance or transfer of water

Occur infrequently

Most likely to be prevented with use of workplace PPE



Scenario 2:

Direct contact with water. No-one in the general public can come into contact with the water. Maybe some workers who have to do maintenance of some pipes or the tank itself and might have to transfer it into trucks. They might have some incidental contact with the water. We looked at some criteria for workers having some incidental contact. We didn't assume any personal protective equipment was used (gloves etc). The reality is that they have guidelines they have to follow. We set guidelines based on protecting worker health to make sure it doesn't harm them. Again, what concentration was in the water that met the guidelines for protecting their health?

NC: What if a duck flew into the water and swum around. Will there be effects to it?

JW: Essentially, that's what this is for. We don't look at specific animals. Usually when we come up with guidelines it covers direct contact that is protective of human health and animals like ducks and so forth. A very small amount of a ducks body would be exposed. It's about the amount of surface area is quite small which will have a different kind of effect.

ER: Those smaller animals are breathing that vapour?

JW: Yes, these human health guidelines are also protective of creatures in the environment. There's nothing particularly unique about the guidelines for public health which are protective of the most sensitive humans in our society, and our birds, insects etc.

NC: Wouldn't there be some form of ingestion when birds clean themselves?

JW: Yes, when we do this it is also dealing with ingestion, so it deals with all pathways of exposure.

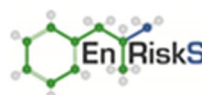
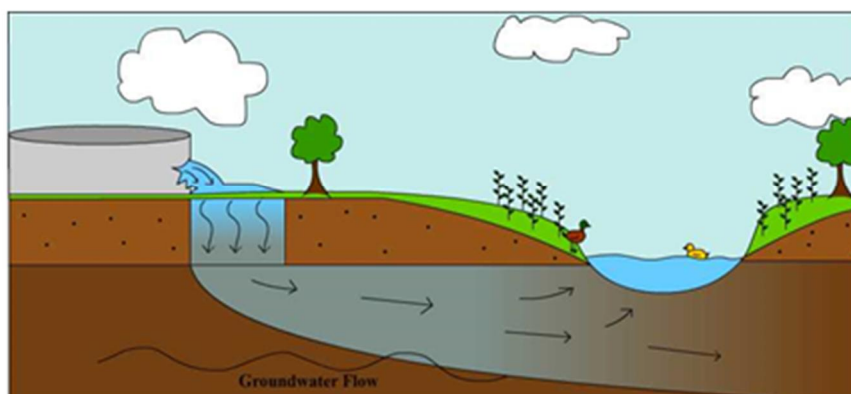
Notes

Action

MU: You are setting this up to ask what is the concentration required under the scenarios you are about to discuss and where does it need to be to reach the guidelines?

JW: Yes. If it's less than the guidelines it is protective of health and the environment, if it is more than the guideline action needs to be taken.

SCENARIO 3: FAILURE OF AST AND IMPACT TO AQUATIC ENVIRONMENT



Scenario 3:

We want to look at the environment. There is no way the water gets into the environment as it is currently stored and managed, So we came up with a worst case scenario which is essentially a catastrophic failure of the tank. Where the whole contents of the tank leaks onto the ground, seeps into dry soil, down through the dry soil and into the ground water table, merges with the groundwater and discharges into a freshwater creek.

We also looked at the locations of Tiedman's and the above ground storage tank and fresh water distances and the tank was worst case.

We assumed the concentration would be diluted as it moved through these various different environments to get into the freshwater system. We didn't account for the fact that a lot of those compounds biodegrade really quickly, as soon as they are released into the environment, or that they would be absorbed into the soil, which a lot of them do. We just assumed that none of those processes happened and that the only thing that may happen is for it to dilute.

Notes

Action

AH: You are looking specifically at BTEX here?

JW: No, we have actually been looking at a range.

AH: Is salinity included in this analysis?

JW: Yes we have considered it, but it isn't presented here. This is the result for BTEX as that's been the primary concern but we have been using the same process for everything else that is there.

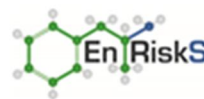
Salinity will dilute, just like everything else.

We were meeting guidelines for the protection of aquatic species and so forth.

Summary of trigger levels for flowback water – Comparison with measured levels

Analyte	Trigger level (when there is the need to assess if additional protection is required)	Highest concentration in wells (WK11, 8 May 2015)	Highest concentration in AST 2 (7 May 2015)
Benzene, ppb	19,000	386	15
Toluene, ppb	3,600,000	501	18
Ethylbenzene, ppb	1,600,000	10	<2
Xylenes, ppb	1,500,000	170	4

Trigger level is lowest value from the 3 scenarios evaluated



Out of those, the trigger level is the lowest value that comes from all three scenarios.

These here are the trigger levels in PPB [parts per billion] for BTEX. They are quite high numbers. Because we don't have much exposure.

This gives you some comparison. Here is the highest level in one well in May. You can see they are well below the trigger level and this is the actual concentration of the storage tank and you can see it is lower than the wells. AGL has also adopted an "action level" which is 10 times lower than the trigger level. It presents a point to ask why are we reaching a level that is only 10 times lower than the trigger level, we don't want to reach them so what could we do if they continued to increase?

RW: Out of those three scenarios, what is highest risk?

JW: The driving scenario for benzene is the inhalation of vapours by workers. For the others the driving scenario was protection of the aquatic environment. It's very much

Notes	Action
chemical dependant.	
RW: The holding tank under high rainfall being super saturated. The escaped material travelling towards the water...or would that just be diluted?	
JW: There is far more dilution. In the event it had huge rainfall and did overflow. There is such a high level of dilution for the amount of water. We have been deliberately conservative about how we have measured our dilution.	
RW: In the tank scenario. If the BTEX levels became catastrophically high. Would covering the tank help alleviate?	
JW: That may be an action. They have to monitor what is in the flow back water very regularly. They have to monitor trends. If something is approaching the action level, one of the things they may consider is covering the tank. That will get rid of this pathway.	
RW: That would be the complete overview based on the three scenarios you just put up?	
JW: Yes.	
NC: Why aren't they [the ASTs] covered now?	
IS: It is a storage tank, designed to have water in it.	
NC: My water tank is covered at home.	
IS: You have a reason to cover it. You want to drink that water, we don't. We are just storing it.	
MU: I guess it is similar to a farm dam.	
NC: I ask because the community wouldn't be so concerned about evaporation.	
IS: The reason for this presentation is to show you that the risk, in my view, is minimal. By comparison to other things the community are exposed to.	
AK: Regarding the guidelines. They are the same levels for human and the aquatic environment?	
JW: They are not the same. There has been enough work done to show that what is protective for human health for vapours in air is protective for birds etc. When it comes to the specific aquatic environment there are specific guidelines. There are other guidelines for drinking water, for direct contact etc.	
AH: In terms of the trigger action response. I assume this will be built into the ordinary process of AGL monitoring. Is that already done?	
JD: Yes it's built in.	
ER: Earlier in the piece you likened flow back water to stormwater then put an exception on it because the salinity wasn't right.	
In your graph phosphorous is rather high, and total dissolved solids in rather high. We have had an ongoing problem with definitions in this committee. I find the likening of this to stormwater shouldn't be part of it. It is flowback water and it should be called that.	
JW: Yes, I agree. It is flowback water and I wouldn't want to call it anything else. We put a comparison on to give people an understanding of the quality of it. It's not an	

Notes	Action
<p>industrial discharge out of a factory that has very high concentration of something in particular. This is something very similar to storm water. Stormwater does have very variable levels of phosphates and nitrates depending on how close you are to farming. A lot of those things are quite variable and quite high in storm water.</p> <p>It wasn't intended to say this <i>is</i> storm water. It is not storm water. It has to be handled and managed. It is just for comparison to get some perspective about what the concentrations are.</p> <p>AH: Regarding the PH. Is that generally consistent with storm water?</p> <p>JW: It depends where you go. Some waters are more naturally alkaline than others. It's not high enough that is presents a concern.</p> <p>LS: Are we storing the water because we don't have a disposal option at the moment?</p> <p>JD: The above ground storage tank is the first point where the water comes together from the four wells. There it is stored and then disposed of by a third party contractor offsite.</p> <p>NC: But you do have approval to transfer in to Tiedmans dam?</p> <p>JD: Yes.</p> <p>NC: Is there water already in that dam?</p> <p>JD: No it is empty at the moment.</p> <p>AK: Comparing flowback water to storm water will be very controversial. For me it is controversial because I'm a water quality specialist. Flowback is completely different to storm water. If you say it is similar it will raise controversy in the community. I would maybe say that it has similar levels of pollution or something specific. Storm water can be everything. It will be controversial.</p> <p>NC: Flowback water is essentially the fracking fluid with some of the produced water that's come out. In regards to BTEX wouldn't there be a higher concentration in the produced water than the flowback?</p> <p>JD: No. That's not what we find from our background monitoring of the ground water and previous produced water from the basin. It is not what the trends are showing us as we move through this flowback phase. The BTEX levels are reducing.</p> <p>RW: Have any of these nasties we are talking about, in relation to triggering asthmatic reactions. Are any of these things significant to asthmatics?</p> <p>JW: No. High concentrations of anything can be hazardous. But not at this level.</p> <p>At a high level a number of these will affect the respiratory system but only at a very very high level.</p>	

4. Community engagement update

➔ Gloucester Community Investment Program

- To date, signed Letters of Agreement have been received from seven community organisations in the latest funding round:
 - RSL Sub Branch – portable public address system



Notes

Action

- Bucketts Way Neighbourhood Centre – laptops for training centre; Literacy and Numeracy Program for Adults delivered throughout the year
- Westpac Rescue Helicopter Service – Gloucester Volunteer Support Group – annual sponsorship 2015 to purchase a fuel spillage container to store fuel drums
- Wirragulla Polo Club – sponsorship of the Hunter Polo Challenge Dungog
- Lions Club Gloucester – Upgrade Lions Park including a community BBQ
- Gloucester Wormi First People's Aboriginal Corporation – NAIDOC day celebrations, Bush Tucker Garden in partnership with Gloucester Public School
- Science and Engineering Challenge – to be held in Dungog on 4 September
- The Gloucester team recently ran a 'scrap cash for community' initiative and donated the proceeds received from the sale of scrap to the following local community organisations:
 - Gloucester Junior Rugby League
 - Gloucester Junior Cricket Association
 - Dungog Flood Relief Appeal
- The application form and guidelines can be found on the web. www.agl.com.au/Gloucester, or by contacting the Gloucester office.

Consultation and Stakeholder Engagement

- AGL has developed a suite of communication and consultation tools to implement when there are key project activities.
- Recent project activities included Waukivory Pilot Project (WPP) REF variation, approval for Pipeline Licence Stratford to Tomogo, disposal of flowback water, and EnRiskS evaluation of BTEX detections at WPP.
- Communication channels included:
 - Consultation with landholders, tenants and neighbours;
 - Letter of notification to residents in Forbesdale;
 - An update to GCCC; Local Council/s, Gloucester Dialogue; Gloucester Business Chamber, Advance Gloucester and Government agencies;
 - AGL website & YourSayAGL;
 - Social media updates via Twitter;
 - Media releases;
 - E-news;
 - Meetings, information sessions and site visits.

Upcoming events AGL has been invited to participate in:



Notes	Action
<ul style="list-style-type: none">○ Christmas in July Fun Fare in Stroud (4th July)○ AGL Glowalman Junior Rodeo Championships (8 & 9 July)○ Chill Out Festival (26 July)○ Science and Engineering Challenge (4 September in Dungog) <p>NC: Regarding the Science and Engineering challenge. What is that? Do you promote coal seam gas or technologies for renewable energy?</p> <p>KL: There is no promotion of coal seam gas; we just think it is a really great initiative, and is also supported by a lot of other community groups in town. We partner with the university to help put it on. We take our time and help set up and are involved in it.</p> <p>IS: The Science and Engineering Challenge is a Rotary initiative, very broad spectrum. Mid Coast Water sponsors and is the major sponsor of the Taree one that I have been to. It is about challenging young people to think scientifically. It has nothing to do with our project.</p> <p>AH: Most importantly, it is a program run by the University of Newcastle.</p> <p>IS: It is run in Western Australia too.</p> <p>AH: It is Australia wide.</p> <p>RW: I have noticed one of the beneficiaries is the NAIDOC group. Is there scope for them on this committee?</p> <p>KH: It is all under the same umbrella.</p>	

5. Exploration Update

- Waukivory Pilot Project

AGL has been granted conditional approval by the NSW Government to temporarily store flowback water from the Waukivory Pilot in the double-lined dam at AGL's Tiedmans property as a back-up option until a third party contractor is confirmed. AGL is in the final stages of negotiating a contract with an EPA approved waste treatment and disposal company.

AH: The approval said August. Is it likely to be processed offsite?

IS: Yes

- Geotechnical Surveys

The geotechnical surveys are currently on hold due to the wet weather.

Stage 1 Project Update

- FEED (Front End Engineering Design) phase:

AGL's planning and design for the Gloucester Gas Project remains on track and is progressing well. AGL continues to work toward addressing the conditions of project approval.



Notes

Action

- Pipeline

The pipeline licence for the Stratford to Tomago pipeline has now been gazetted.

- Environmental Assessment Modification 2

AGL are continuing to complete the Environmental Assessment (EA) for the 2nd Modification to the Project Approval. Currently it is proposed to lodge the EA at the end of July. The following provides a summary list of the proposed modifications:

Project component Detail of changes

Central Processing Facility

Layout	Change from gas driven to electricity driven compressor units. Inclusion of electricity substation. Power station to be removed. Administration building and construction laydown moved to southern block. Updated traffic management plan.
Flaring	Up to 6 field flares for in-field flaring prior to compressor commissioning operating 24hrs a day. High pressure and low pressure safety flare with random day or night operation.
Construction hours	24hr 7 days per week construction of CPF with low noise activities outside standard construction hrs.
Telemetry	SCADA monitoring rather than manned requirements.
Site selection	Confirm that Site 7 is the preferred site for CPF.
Height of components	Some components may be higher than 12 m – TBC.
Field	
Transmission Line	Construction of 132kV line from existing Transgrid line to the CPF substation.
Drilling	24hr drilling for 4 to 6 days at each location using attenuated rig.
Hydraulic fracturing	Sporadic day time only fracing for 4 to 5 days at each location using noise attenuated plant.
Workovers	Workover completions for 4 to 6 days at any location during day time only using attenuated workover rig.
Pad dimensions	Need for 130m by 130m to allow for cut and fill for some sites – approximately 10-20% of sites.
Rehabilitation dimensions	Change in final fenced enclosures – TBC.
Gathering lines	High point vent and low point drainage point locations.
Construction camp	Increase from 100 people to max of 3-400 people at Tiedmans property.
Water Storage	Inclusion of the Tiedmans East storage.



Notes		Action
Flaring	Up to 6 field flares for in-field flaring prior to compressor commissioning operating 24hrs a day	
Pipeline		
Testing phases	24hr testing phases with no to low noise during out of hours periods – need to assess and confirm it is a low noise activity.	
Construction hours	Amend that 28 days on / 9 days off to refer to sensitive receptors exposure rather than whole pipeline. (The crew will be rotated with this period) Comparison of proposed pipeline construction duration near each receiver to confirm it meets respite period requirements etc in ICNG [interim construction noise guideline].	
Discharge points	Water bath heater, emergency generator, Triethylene Glycol Regeneration Skid (TGRS).	
Other		
Groundwater	Clarifications to groundwater modelling plan conditions.	

KH: Where will the substation go?

IS: At the central processing facility.

ER: Is that an update of the existing facility or a new one?

IS: This will be an update.

ER: Is the existing run going to be strong enough to handle it or are you going to put in another run?

IS: It has to come off the main.

ER: Is that big enough?

IS: Yes.

AH: This says up to six fields. That means we would expect that the maximum is to have six flares in the valley at any one time, once the project starts to move into production?

IS: The planning is to put in place the gathering systems early on in the development. You need to have the capacity to flare until you have a critical mass to compress the gas and send it down. In the EA approval there are certain conditions regarding that.

It is raised with landholders. The plan is that those flares will be taken away and hopefully would be at the central processing facility or perhaps the Tiedman property. If you go into the approval conditions there are approvals for infield flaring and there are restrictions.

AH: The intention is to centralise the flaring process. At what stage...Is it day one that the gas is suitable for the pipeline or does it have a time period?

IS: The gas is of a quality to be used from the start. Once it has been through the process of drying and compression. You need critical mass to work the compressor. The quality here is exceptionally good. From the gas analysis I have seen, it is very high, 90 percent methane.

6. Water update

Period - From late April 2015 to present with upcoming items (to occur after 18 June

Notes	Action
2015) shown in italics.	
General	
<ul style="list-style-type: none"> • Water portal telemetry now live for groundwater and surface water data at Waukivory. Visit: http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/water-portal • Water quality data sets required under our EPL are now published on AGL main website under: http://www.agl.com.au/about-agl/how-we-source-energy/monitoring-data (note these data reports are comprehensive and reports are split into Irrigation Program reports and Waukivory Pilot reports) • All technical/scientific reports continue to be released, published and archived on the AGL Gloucester website at http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/natural-gas-projects/gloucester-gas-project • Technical/scientific reports relating to the Waukivory Pilot Project are published and archived on the AGL Waukivory website at http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/natural-gas-projects/gloucester-gas-project/waukivory-pilot-program 	
Groundwater Investigation Program:	
<ol style="list-style-type: none"> 1. Groundwater monitoring program: <ul style="list-style-type: none"> • Ongoing quarterly (water level) monitoring program across whole network (Sep, Dec, Mar, and Jun). • March quarter FY15 monitoring update report published. • <i>Next (regional) monitoring bore water sampling program will be in June 2015</i> • <i>Annual report will be prepared for FY15 – due for release Sep/Oct 2015.</i> 	
<ol style="list-style-type: none"> 2. Waukivory Pilot Testing Program: <ul style="list-style-type: none"> • All monitoring bores and surface water gauge sites operational and data available via Water Portal (except for WKmb05) • Agencies have released their investigation findings on BTEX, MEA, and THPS advising that the occurrences are largely natural and are not the result of fracture stimulation activities • Minor recovery of flowback water (and storage on site at AST2) occurred during the period to (i) reduce gas pressures (ii) sample for BTEX and H₂S concentrations in the flowback water 	
AH: Regarding those H ₂ S concentrations. Are they of sufficient levels to be of concern of corrosion?	
JD: They are zero. Seventeen days of pumping and no detection.	
<ul style="list-style-type: none"> • <i>Flowback water pumping will recommence once AGL has confirmed disposal arrangements with Third party contractor</i> • <i>AGL have also submitted an addendum to the REF to seek approval to store flowback water at the Tiedman East Dam</i> 	
ER: You are hoping to transport water but not pump it?	
JD: Yes, our number one priority is to transport it off site and dispose off site. If we are for some reason prevented from doing that we will take it to Tiedman's East to store it.	

Notes	Action
NC: That approval for Tiedmans East is only temporary?	
JD: Yes it is currently, until 31 December. There are other permissions around that approval.	
<ul style="list-style-type: none"> • A second quarterly report detailing water quality and level trends for water monitoring locations - Waukivory Pilot for the period 1 January to 31 March was issued 28 May 2015. <p>3. New drilling programs and monitoring network expansion:</p> <ul style="list-style-type: none"> • Monitoring ongoing at Wards River: <ul style="list-style-type: none"> ◦ <i>Potentially two new monitoring bores to be added in coal outcrop areas</i> • <i>New monitoring bore site towards Weismantels planned for drilling and completion in FY16.</i> 	
ER: Is there any indication when the REF for the Wards River Pilot will go in?	
JD: Not during 2015.	
<p>4. Other investigation water studies:</p> <ul style="list-style-type: none"> • No new investigations. • Release of the following technical reports since April: <ul style="list-style-type: none"> ◦ Gloucester Gas Project – FY15 Q3 Monitoring Update – March 2015. ◦ Waukivory Pilot Project: Surface Water and Groundwater Monitoring Report to 31 March 2015 ◦ <i>WKMB06A and WKMB06B Drilling Completion Report – Gloucester Gas Project (pending)</i> <p>5. Numerical modelling</p> <ul style="list-style-type: none"> • No change except dates are slipping because of Waukivory Pilot delays • <i>Updated Conceptual Model report in preparation (update to the 2013 report)</i> • Phase 3 numerical groundwater modelling ongoing – two models: local scale (fault) model and regional model (whole basin) under way. <ul style="list-style-type: none"> ◦ Local scale modelling mostly complete (<i>Final draft report expected Q3 2015 after initial Waukivory testing program results</i>). ◦ Regional model under way (<i>Draft report expected Q4 2015 after additional work programs</i>). ◦ <i>Note that the timing for the numerical modelling is dependent on the recovery of flowback water and the recommencement of the pilot testing program (NB ideally 3 months of depressurisation and produced water data from the gas wells/monitoring bores is required for modelling purposes)</i> 	
<p>6. Tiedman Irrigation Program (TIP):</p> <ul style="list-style-type: none"> • The TIP approval expired on the 30 April 2015 • Only 6ML of blended water remaining at the end of the program (this volume contained the remaining 1ML of produced water from earlier exploration programs) • Water and soil monitoring sampling programs are almost complete: <ul style="list-style-type: none"> ◦ water and soil sampling events completed in May 2015 ◦ <i>data is being compiled and analysed at present.</i> 	



Notes	Action
<ul style="list-style-type: none"><i>Final water and soil monitoring program reporting under way – two compliance reports to be released late August</i> <p>ER: So you have 6 megalitres in Tiedman's South dam?</p> <p>JD: Yes</p> <p>ER: And 1 megalitre in Tiedman's North?</p> <p>JD: There is around 4 megalitres in Tiedman's North.</p> <p>ER: So this 1 megalitre of produced water? That's in with the 6?</p> <p>JD: Yes that's blended in.</p> <p>Extracted Water Management Strategy</p> <ul style="list-style-type: none">Currently preparing Final Draft for Agency/Council review	
<p>7. Moving forward following the CCC extraordinary meeting:</p> <p>MU: If you have ideas for new representatives or if you would like to nominate other members please to email me and we will have more to discuss at the next meeting.</p> <p>Regarding our discussions about placing an ad in the local paper about the CCC and its activities. I have drafted some content for an ad. Its explaining what we do and who the members are. I will email that to you if you have any feedback.</p> <p>Do we think we should have the membership listed as it stands today? *no objection*</p> <p>Is everyone happy to have names in the paper? Without phone numbers.</p> <p>*no objection*</p> <p>They are also available on the AGL website.</p> <p>KH: How many short are we of the normal committee?</p> <p>MU: Maybe one, that hasn't been replaced. But also there is less representation from some Councils.</p> <p>ER: Anywhere between 8 and 15 is ok in my opinion.</p> <p>MU: We did discuss potential representation from other groups at the extra-ordinary meeting.</p> <p>AH: One or two more representatives could be easily absorbed. I don't think we need more than that. This is a good time to see if we can get them.</p> <p>IS: We have some groups that oppose and some that do not.</p> <p>MU: Ok thanks I have enough information to proceed.</p>	<p>Action: CCC members to email the Chair with suggestions for new members.</p>
<p>8. General Business</p> <p>*No general business*</p>	
<p>9. Next meeting</p> <p>20 August 2015 10:00 am to 12:00 noon</p> <p>RD: I will be apology for that meeting.</p>	



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Notes

Action

Meeting closed at 12:38 pm

Michael Ulph

GHD – Stakeholder Engagement

ACTION ITEMS	
Action	Responsibility
Respond to attendance letters highlighting a more detailed agenda.	Michael Ulph
Email draft advertisement content to CCC members.	Michael Ulph
Clarify Karen Hutchinson as an apology in April meeting minutes.	Michael Ulph
CCC members to email the Chair with suggestions for new members.	All CCC Members
Standing action: CCC members to submit questions to AGL via the Chair two weeks before each meeting if possible.	All CCC Members