Appendix A

Detailed Responses to Submissions

Appendix A Detailed Responses to Submissions

Response to Agency Submissions

Table 27 Response to Submissions – Government Agencies

Ref #	Category	Issue	Response
Heritage Branch (formerly Department of Planning, now Office of Environment and Heritage)			
DOPH_01	Heritage	The Heritage Branch supports the revised Final Cultural Heritage Assessment and proposed mitigation measures. Compliance with these measures are requested as a condition of consent, with the following minor additions: - Table 1 – The gas gathering line between RA09 and RA03 - (Milestones on the western side of Campbelltown Road). Add the following: *Ensure that all project personnel are aware of the 'stop work provision' should any milestones or relics of milestones be unearthed during any phase of the project work*. - Table 1 - CU06 WSL Section 5 (Upper Canal - Badgelly Tunnel). Add the following: *Consider under-boring the GGL under the tunnel, in consultation with SCA and the Heritage Branch*. - Statement of Commitments for the discovery of a relic - 13. In accordance with section 146 of the *Heritage Act 1977*, the Proponent will stop work and notify the Heritage Council of NSW if any historical archaeological 'relics' (within the definition in that Act) are disturbed or discovered by the proposed works.	Noted and agreed. AGL commits to Heritage Branch comments relating to stop work provisions. AGL considered underboring the Upper Canal for the gas gathering line from CU06. However, consultation undertaken with the SCA since the public exhibition of the EA has confirmed that SCA prefers that AGL construct crossings over the Upper Canal rather than to underbore. The location and design of these crossings would be developed and agreed with SCA prior to construction.
NSW Office of Water			
NOW_01	Licensing and other approvals	NOW requests that AGL gain the appropriate licences and approvals, including a 30ML/year entitlement.	Refer to **Section 3.2.2** of this Submissions Report. AGL commits to obtain the appropriate licences and approvals under the *Water Management Act 2000*.

Ref #	Category	Issue	Response
NOW_02	Surface Water	NOW suggests that the level of detail in the EA does not allow an adequate assessment of the likelihood of impact of proposed stream crossings (either access roads or gas/water collection pipes) on either natural movement of water or the integrity of the riparian system.	Refer to **Section 3.5.2** of this Submissions Report for further information relating to watercourse crossings. Watercourse crossings would be designed, constructed and rehabilitated to a state that reflects its original condition, allowing natural flow and the restoration of vegetation (where vegetation may have been impacted). Further, mitigation measures would be implemented and included in the updated SWMSP for the Amended Project. These are detailed in **Section 3.5.3** Due to the ephemeral nature of watercourses within the Surface Project Area, impacts on stream crossings on natural movement of water and riparian integrity are considered to be minimal. An assessment of flora and fauna habitats within the assessment envelopes is presented in **Section 5.2** and **Appendix** D of this Submissions Report. Minimal impacts would occur to vegetation which is of moderate to high value, including any riparian areas within the well assessment envelopes.
NOW_03	Surface Water	NOW recommends that although exempt from the need to obtain a controlled activity approval under the *Water Management Act 2000*, that AGL be required to design watercourse crossings in a way which takes into account *Controlled Activities: Guidelines for Water Crossings* (NOW, 2010), where relevant.	Watercourses crossings would be designed in accordance with the principles and design considerations identified in the *Controlled Activities: Guidelines for Water Crossings* (NOW, 2010), which would include: - Site-specific management plans; - Maintenance of existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse; - Protection against scour; and - Stabilisation and rehabilitation of disturbed areas including topsoiling, revegetation, mulching, weed control and maintenance in order to adequately restore the integrity of the riparian corridor. These measures would be implemented in addition to the proposed watercourse crossing methods and management measures described in **Section 3.5.2** of the Submissions Report.
NOW_04	Licensing and Other Approvals	NOW requests that the construction of all wells must be undertaken by a driller holding a water driller's licence, valid in NSW.	Noted and agreed. AGL would ensure that all drillers are appropriately licensed.

Ref #	Category	Issue	Response
NOW_05	Groundwater	NOW suggests that the lack of information in the EA with regards to groundwater is disappointing and that groundwater information is not sufficient to ensure a licence allocation of 30ML/ year is adequate. NOW recommends a groundwater monitoring program to assess possible impacts of the operation both on the target and upper aquifers, particularly those used by other licence holders, or those which support other environmental features, including surface water.	**Section 3.2.2** of this Submissions Report provides a discussion on groundwater licensing and entitlements. **Section 3.4** of this Submissions Report provides a discussion on groundwater issues raised in NOW's submission. AGL has committed to and commenced developing and implementing a groundwater monitoring network to monitor water levels and water quality in the major aquifer zones. Contingencies would be identified, that would be implemented in the event that impacts are detected in the major aquifer zones. A Phase 1 Groundwater Assessment has been prepared and an initial Phase 2 Groundwater Assessment has commenced (refer to **Appendix** B and **Appendix** C)). Groundwater monitoring is ongoing to better characterise the local and regional hydrogeological environment (refer to **Appendix** C).
NOW_06	Groundwater	NOW is concerned regarding references to fraccing with regards to the materials injected into the aquifer and the aquifer water quality. A full list of the chemicals used must be identified, and risks to target aquifers, surrounding aquifers, and surface storage and treatment of these chemicals both prior to use and when subsequently pumped out after use, must be considered.	**Section 3.4** of this Submissions Report provides a discussion on groundwater issues raised in NOW's submission. **Section 3.4.2** responds to the specific issues relating to fraccing.
Office of Environment and Heritage (formerly NSW Department of Environment, Climate Change and Water)			
OEH_01	Land Use	To address potential land use conflict issues, OEH recommends that the additional mitigation measures documented in the EA should be implemented when new development proceeds in this area. In addition the *Locational Guidelines: Development in the Vicinity of Operating Coal Seam Methane Wells* (DoP, 2004) should also be applied to any new development undertaken in these or any other future development areas.	The locational guidelines (refer to Section 4.2.1 of the EA) have been applied to the Northern Expansion Project since its inception to establish the location of well surface locations and gas gathering infrastructure, and would continue to inform the implementation and operation of the Amended Project into the future. The locational guidelines have been re-applied at various stages and more recently in the development of the Amended Project (refer to **Section 4.0**).
OEH_02	Land Use	OEH recommends further consideration is given to the appropriateness of the location of the proposed wells given that land in the Project Area has been released for urban development. In this regard, OEH recommends that consultation be undertaken with the relevant planning authorities to ensure that land use conflicts are addressed and minimised.	Camden Council has been consulted regarding the future land use in the area. Similarly, AGL has consulted with the various developers that may be affected by the Amended Project in proposed future development precincts. Consultation with the landowners and developers is ongoing to ensure that potential land use conflicts are minimised. The Amended Project has been developed in consideration of future urban development and release areas in order to minimise land use impacts.

Ref #	Category	Issue	Response
OEH_03	Flora and Fauna	OEH seeks a more detailed assessment of all practical and feasible options to avoid or minimise impacts on CPW. In the event that impacts on CPW cannot be avoided or mitigated, any residual impact must be compensated. Accordingly, should compensatory measures be required, DECCW seeks a Statement of Commitment for the development of a suitable biodiversity offset package as outlined at Attachment 1.	Wells VV07 and VV11 were to be located within a stand of CPW vegetation. However, with the removal of these wells from the Amended Project, potential impacts to CPW have been avoided (refer to **Section 3.3** and **Appendix** E of this Submissions Report). As no listed threatened flora species or communities would be directly affected, compensatory measures have not been proposed.
OEH_04	Licensing and Other Approvals	AGL should clarify whether the RPGP has sufficient operational capacity to accommodate the additional gas generated by the Northern Expansion. Further, AGL would need to make a separate application to vary the existing EPL should project approval be granted.	AGL does not intend to alter the approved 14.5PJ operational capacity of the RPGP at this time and would manage gas inputs to ensure compliance with this current limit (refer to **Section 3.2.1** of this Submissions Report. AGL notes that any proposal to increase the capacity of the RPGP in the future would be subject to separate assessment and approval processes.
OEH_05	Flora and Fauna	The EA states that while the 'project area contains areas of Cumberland Plain Woodland (CPW) a critically endangered ecological community (CEEC), no removal of CPW is required as part of the project.' However, Appendix E of the EA states that approximately 0.1 hectares of CPW would be directly impacted at a section of the VV07 gas gathering line (GGL) west of the VV07 well surface location. In addition, Appendix 4 in Appendix E of the EA states that a further 3.74 hectares of CPW may be impacted during construction of the gas gathering lines. In light of the above, the EA should clarify the area and conservation significance of CPW to be modified and/or removed by the proposal.	Appendix E of the EA correctly stated that 0.1 ha of CPW would be directly affected. However, since the public exhibition of the EA, amendments have been made to the Northern Expansion Project, including the removal of well VV07. The Amended Project now does not directly impact on any CPW (refer to **Section 3.3** and **Appendix** E of this Submissions Report).

Ref #	Category	Issue	Response
OEH_06	Project Description	While fracing is proposed in the EA as a contingency approach if it is required, there is no corresponding information in the EA on this technique. OEH recommends that DP&I seek further information from AGL including: - The number and location of wells to be stimulated by fraccing; - A full description of the fraccing process for new wells and also (if undertaken) remediation fraccing of older wells; - A complete inventory and characterisation of the chemicals used within the fraccing process including indicative volumes, chemical formulations, active constituents and concentrations in both concentrated and diluted forms including toxicity data. This must include all components of the fraccing process for example including biocides, corrosion inhibitors, pre-frac acid washing and fraccing fluid breakdown chemicals. OEH recommends that petroleum products be excluded from the fraccing process, in particular those containing any benzene/ toluene/ ethylene/ xylene (BTEX); - Estimates or likely range of percentage recovery of fraccing fluids from the coal seam aquifer; - Assessment of the fate of residual fraccing chemicals retained in the target coal seam aquifer; - Proposed management (including storage, reuse and waste disposal options) of fraccing fluid back at the surface pad area; and - An overall environmental risk assessment which includes: hazards associated with this process that could cause harm to the environment; the environmental consequence if these hazards were to occur; the magnitude of the consequences to the environment; the probability of the consequences to the environment; significance of the risk to the environment; and proposed management and design measures to minimise and manage these risks to the environment.	**Section 3.4** of this Submissions Report provides a discussion on groundwater issues raised in OEH's submission. **Section 3.4.2** responds to specific issues relating to fraccing, including composition of the fraccing fluids. It is noted that fraccing fluids do not contain BTEX. AGL cannot determine the number of wells that require hydraulic fracture stimulation prior to well construction. However, it is noted that the construction of Surface-to-Inseam (SIS) wells, which are proposed as part of the Amended Project, will not require stimulation by fraccing compared to traditional vertical wells. It is estimated that as few as 10-20% of the wells proposed in the Northern Expansion may require fraccing, however this would not be known until the wells are constructed and, accordingly, it is also possible that greater than 20% of wells would require fraccing. The EA contained a conservative assessment of the impacts of fraccing wells. In addition to the above, AGL would be required to comply with the new Code of Practice for Fracture Stimulation activities which contains detailed provisions regulating the management of fraccing. In particular, the Code of Practice requires: • the preparation and implementation of a fracture stimulation management plan (FSMP); • that the FSMP: o contain a full description of the fraccing process; o contain a an inventory and characterisation of chemicals used within the fraccing process; o address proposed management measures for fraccing fluid; and o demonstrate that all risks to the environment, existing land uses, the community and work force, as a result of the fracture stimulation activity, are managed though an effective risk management process that includes identification of hazards, assessment of risks, implementation of control measures and monitoring of the integrity and effectiveness of the control measures. It is estimated that 100% of the fracturing fluid would be recovered plus coal seam formation water. In order to ensure this, AGL would log, test and dispose of 150% of the volume of fracturing fluid as flowback water, ensuring that all fracturing fluid is recovered. After this volume is recovered AGL usual produced water management regime will apply after which time it would revert to produced water.

Ref #	Category	Issue	Response
OEH_07	Statement of Commitments	Refer recommended conditions for land use, noise, biodiversity (including offset plan), rehabilitation, and heritage, identified in Appendix 1 of OEH submission	The locational guidelines have been used in the siting of wells. The potential for land use conflict has been primarily minimised through the implementation of the environmental envelope assessment approach (refer to **Section 3.1.1** of this Submissions Report). Noise limits recommended by OEH for CU06, CU26 and CU29 are considered achievable. Additional mitigation measures would be employed by AGL where required to achieve appropriate noise outcomes (refer to **Section 5.3.3** of this Submissions Report). **Section 3.3.2** of this Submissions Report addresses the issue of the need for biodiversity offsets. The LRMSP would incorporate additional mitigation landscaping and rehabilitation measures, including consistency with B*est Practice Standards for Bushland Management and Restoration Contained in the draft Recovery Plan for Cumberland Plain Woodland* (DECCW, 2009) and *Recovering Bushland on the Cumberland Plain: Best Practice Guidelines for the Management and Restoration of Bushland* (DEC 2005). Consultation has been undertaken with the local Aboriginal community and DP&I in updating the ACHMSP. Ongoing consultation would ensure that the Aboriginal community is kept informed of developments with respect to the management of Aboriginal objects, sites and potential Aboriginal deposits where potential impacts may occur.
Department of Trade and Investment, Regional Infrastructure and Services (formerly Department of Industry and Investment)			
DTIRIS_01	Licensing and Other Approvals	A petroleum production lease (PPL) would be required for the proposed wells and gathering system	Noted. As stated in the EA, a new PPL would be sought from the Department of Trade and Investment, Regional Infrastructure and Services for the activities proposed to take place outside of existing PPL 5, including proposed wells and gathering system.
DTIRIS_02	Groundwater	A targeted groundwater assessment is recommended to be developed to verify fraccing does not impact aquifers overlying the Illawarra Coal Measures	**Section 3.4** of this Submissions Report provides a discussion on groundwater issues raised in DTIRIS's submission. A Phase 1 Groundwater Assessment has been prepared and an initial Phase 2 Groundwater Assessment has commenced (refer to **Appendix** B and **Appendix** C)). Groundwater monitoring is ongoing to better characterise the local and regional hydrogeological environment (refer to **Appendix** C). **Section 3.4.2** of this Submissions Report responds to specific issues relating to fraccing.

Ref #	Category	Issue	Response
DTIRIS_03	Rehabilitation	It is recommended that a 'Rehabilitation Management Plan' be required in the approval conditions	Noted. AGL has an existing LRMSP which would be updated prior to construction. The LRMSP establishes the requirements, management measures and monitoring for rehabilitation and landscaping of CGP components. In addition to an overarching LRMSP, a site-specific site rehabilitation plan, or Landscape and Rehabilitation Management Plan (LRMP), would be prepared for each well surface location. The LRMP would be provided to DP&I (and DTIRIS if requested) prior to construction of the well surface location.
DTIRIS_04	Commercial	The Proponent should provide compensation /mitigation for landholders that experience draw down levels that negatively impact existing bores near the proposed gas extraction sites that are used for agriculture	Noted. A Phase 1 Groundwater Assessment has been prepared (refer to **Appendix** B) and further groundwater investigations as part of the Phase 2 Groundwater Assessment are currently underway (refer to **Appendix** C). These investigations include consideration of the role of faults in groundwater flow, as well as the development of a dedicated groundwater monitoring network to monitor water levels and water quality in the major aquifer zones. Triggers for changes in water level/quality at monitoring sites and private water bores and management responses are identified in the Groundwater Management Plan (Appendix D). Consultation with relevant landowners would be ongoing throughout the project.
DTIRIS_05	Flora and Fauna	Council is to be informed of any notifiable noxious weeds encountered	Noted. Noxious weeds present on site would be recorded in the Flora and Fauna Management Sub Plan (FFMSP) and the LRMSP. It is noted that implementation of the *Noxious Weeds Act 1993* generally rests with the local council. The relevant local council would therefore be notified of the removal of noxious weeds from the site. Weed control and disposal would be undertaken as described in the LRMSP and according to relevant Council requirements.
DTIRIS_06	Groundwater	Any proposed disposal to land of extracted water should be tested for salinity and contaminants to ensure that soils/pasture are not damaged	Disposal of extracted water to land is not part of the Amended Project. Produced water would be stored temporarily in lined storage dams at each well pad. All storage dams for produced water would be fully lined to prevent leaching of potential contaminants through the ground surface. Produced water would either be reused in fraccing campaigns, or disposed of to a licensed facility.
DTIRIS_07	Commercial	Landholder compensation for the use of agricultural land should be adequate for the level of disturbance to the agribusiness or agricultural education establishment	Minimal disturbance to agricultural productivity of the land is expected as final rehabilitation of well surface locations and GGLs would return the land to its pre-existing condition. Compensation for the use of the land would be negotiated with affected landholders and provided under the land access agreement. Agreements with the landowners would be in place prior to construction.

Ref #	Category	Issue	Response
Sydney Catchment Authority (SCA)			
SCA_01	Project Description	The EA describes and assesses a main spine gas gathering line located on the eastern side of the Upper Canal. The SCA is currently investigating options for the refurbishment or replacement of the Upper Canal and has advised AGL that the eastern side of the canal is now the preferred location for future water supply infrastructure. Commercial land negotiations with AGL would focus on locating the main spine line to the western side of the canal, but would provide for the SCA to nominate a route for future water supply infrastructure anywhere within the Upper Canal corridor. The SCA therefore requests that DP&I require AGL to prepare additional information assessing the impact of locating the main spine line to the western side of the Upper Canal. If the Project is approved, the approval should provide for flexibility to locate the main gas gathering line within the Upper Canal corridor with the location being dependent upon detailed designs and consultation with the SCA.	Noted. The Amended Project includes the relocation of the main spine line to the western side of the Upper Canal in response to consultation undertaken with the SCA. This would allow the SCA to have flexibility when nominating a route for future water supply infrastructure within the Upper Canal corridor. AGL is committed to ongoing consultation with the SCA. **Section 5.0** of this Submissions Report sets out the additional assessment relating to the potential impacts of locating the main spine line to the west of the Upper Canal.
SCA_02	Land Use	The SCA advises that in its capacity as the landowner of the land on which gas well VV11 is intended to be located, that it does not consent to the location of that well on the SCA's land.	Noted. AGL has removed VV11 from the Amended Project.
SCA_03	Surface Water	The construction and operation of the proposed works has the potential to adversely affect the quality of water in the Upper Canal. The mitigation measures identified in the EA, including updating AGL's existing Soil and Water Management Sub Plan, are considered adequate provided SCA is consulted during that process. As this is currently not a stated commitment, an appropriate condition is requested.	Noted. AGL would comply with all conditions any planning approval for the Amended Project, including implementation of the mitigation measures identified in the EA and AGL's Soil and Water Management Sub Plan. The EMS would be updated to take into account the Amended Project and would include specific measures relating to the Upper Canal (refer to **Section 0** of this Submissions Report).

Ref #	Category	Issue	Response
SCA_04	Heritage	As noted in the EA, the Upper Canal is State Heritage listed. The construction of the proposed works has the potential to adversely impact on individual items of heritage significance within the curtilage of the Upper Canal, such as flumes, stone work or distance markers. The mitigation measures identified in the EA, including updating AGL's existing European Heritage Management Sub Plan, are considered adequate provided the SCA is consulted during that process. As this is currently not a stated commitment, an appropriate condition is requested	Noted. The SCA has been consulted throughout the assessment process. The SCA would continue to be consulted during the update of the European Heritage Management Sub Plan (EHMSP) for further comment.
SCA_05	Groundwater	Although the EA concludes that fraccing and subsurface drilling activities are unlikely to have any measurable effect on the groundwater regime, the SCA is concerned that potential impacts from these activities on water quality in the Upper Canal via very shallow groundwater or surface waters have not been specifically addressed. The SCA therefore requests that DP&I require AGL to prepare additional information assessing the impact of the use of fraccing and/or drilling fluids on water quality in the Upper Canal.	Refer to **Section 3.4.2** of this Submissions Report. The presence of extensive and thick claystone formations in the stratigraphic sequence would hydraulically isolate shallow aquifers and the Upper Canal from the underlying Illawarra Coal Measures. This claystone formation would prevent potential contamination of the Upper Canal, surface water and shallow aquifers from CSG extraction activities occurring at depth (including the use of fraccing compounds). Notwithstanding, even if the claystone formation does not form a complete barrier between shallow aquifers and deeper coal measures, the pumping of water from the Illawarra Coal Measures as part of the CSG extraction process and associated depressurisation of the coal measure would produce a pressure gradient that would facilitate migration of potential contamination towards the gas wells, rather than towards the surface. This effect would provide an additional barrier against potential impacts on shallow aquifers and water quality in the Upper Canal.
SCA_06	Statement of Commitments	SCA recommend conditions to be included in the conditions of consent	AGL commits to the following conditions recommended by SCA: - *Ensure that the works do not damage the water supply infrastructure or reduce the safety of the operation of the infrastructure*; and - *Repair, or pay all reasonable costs associated with repairing Sydney Catchment Authority infrastructure that is damaged by the project*; and - *Relocate, or pay all reasonable costs associated with relocating any infrastructure that the Sydney Catchment Authority considers needs to be relocated as a result of the project*. AGL would update the existing EMS including the relevant sub plans for soil and water and heritage, in consultation with the SCA as per the recommended conditions. AGL is committed to ongoing consultation with the SCA.

Ref #	Category	Issue	Response
SCA_07	Consultation	The SCA would appreciate being involved in any further environmental assessment and consultation process associated with the application and the opportunity to comment on any draft conditions.	Noted. AGL would continue to consult the SCA regarding the assessment process. The opportunity to comment on any draft conditions would require consultation between SCA and the DP&I.
Roads and Maritime Service (formerly NSW Roads and Traffic Authority)			
RMS_01	Traffic	The RTA raises issues regarding access off Camden Valley Way and St Andrews Rd - no driveway access would be granted off Camden Valley Way or Campbelltown Road, if alternative vehicular access points are available via the local road network. Appropriate setbacks should be designed into access off St Andrews Rd and measures implemented to limit potential impacts during the RTA upgrades of Camden Valley Way.	Noted. The proposed works would be staged and implemented to avoid conflict with the construction upgrade of Camden Valley Way. No driveway access on to Camden Valley Way or Campbelltown Rd is required. The removal of VV07 and VV11 from the Amended Project has relieved the need to utilise St Andrews Rd for access.
RMS_02	Traffic	Details of any works which involve installation of pipes beneath the road reserve of a classified road, excavation works, or removal of kerb and gutter, details of the works must be approved by the RTA Sydney Asset Management section.	Noted. Any works within classified road reserves would be referred to the Roads and Maritime Services (RMS, formerly RTA) for approval prior to construction.
RMS_03	Traffic	Trenching along the South Western Freeway corridor is not supported by the RTA. No part of the gas mining project would be permitted within the Freeway reserve.	Noted. No trenching is proposed along the South Western Freeway.
RMS_04	Traffic	No pits or other items shall be installed within 5m of the edge of the existing pavement on Narellan Rd	Noted. Construction footprints would not be within 5m of the edge of the existing pavement on Narellan Rd.
RMS_05	Traffic	Open trenching across Narellan Rd is not permitted.	Noted. No open trenching across Narellan Rd is proposed.
RMS_06	Traffic	All pipes shall be installed at least three metres below the road surface, and this depth shall extend for the full width of the road corridors	Noted.

Ref #	Category	Issue	Response
RMS_07	Traffic	Prior to any commencement of construction, a section 138 consent shall be obtained from the RTA for any proposed works within the road reserve of Narellan Road and Campbelltown Road.	Noted.
RMS_08	Traffic	In the event of works which require the use of cranes or other construction vehicles which occupy the road reserve, approval of Council and the NSW Police under section 186 of the Law Enforcement Power and Responsibilities Act is required	Noted.
RMS_09	Traffic	AGL shall be responsible for all public utility adjustments/relocation works, necessitated by the above work and as required by the various public utility authorities and/or their agents.	Noted.
RMS_10	Traffic	All works/regulatory signposting associated with the proposed development are to be at no cost to the RTA.	Noted.
Camden Shire Council			
CAM_01	Noise	Further consideration should be given to noise mitigation strategies during the construction phase,	Additional mitigation measures would be employed where required to meet project specific noise goals as described in Section 13.5 of the EA.
CAM_02	Consultation	Camden Council requests to be included in discussions held with landowners in the determination of the final well locations.	Noted. Camden Council is a member of the CCC and will be kept informed of final well locations.
Campbelltown City Council			
CBLTN_01	EA Process	Campbelltown City Council raised a number of issues relating to AGL and DP&I's response to adequacy comments made by Council, and the review process of the EA placed on exhibition.	A large portion of Campbelltown City Council's submission relates to the response to its comments raised during the adequacy process. A response to these issues was prepared and provided to the DP&I in accordance with statutory requirements. AGL responded to the issues raised by Council to the satisfaction of the DP&I.

Ref #	Category	Issue	Response
CBLTN_02	EA Process	Council's previous submission requested a range of further amendments to the draft EA prior to its public exhibition, including: - The inclusion of any intended expansion work at the RPGP; - The incorporation of sub-plans that specifically relate to Stage 3 of the Project; and - A more definitive assessment of the potential impacts of all components of the project on the condition of surface and groundwater as well as biodiversity.	No expansion work at the RPGP is proposed. Refer to **Section 3.2.1** of this Submissions Report. The EA placed on public exhibition directed readers to the location of the existing EMS and associated sub plans which are publically available on the AGL website (www.agl.com.au). These plans would be updated to specifically reflect impacts related to the Amended Project to the satisfaction of the DP&I and DTIRIS. In addition, AGL would submit site-specific plans for each well surface location including information about site management and rehabilitation works. These site-specific plans would be approved by the appropriate Department prior to works commencing at the site. **Sections 3.4** and **0** of this Submissions Report provide additional discussions in relation to groundwater and surface water, respectively. **Section 5.2** of this Submissions Report provides additional information on biodiversity.
CBLTN_03	EA Process	The EA is not considered to have complied with the Director-General's Requirements for the Project regarding the assessment of the potential impacts of the Project on surface and groundwater resources (including salinity), the assessment of cumulative impacts on air and water quality and impacts on biodiversity. Council also considers that Planning Assessment Commission (PAC) should be established to investigate the Project.	AGL responded to adequacy comments raised by various public authorities, including Council, to the satisfaction of the DP&I prior to the EA being released to public exhibition. **Sections 3.4** and **0** of this Submissions Report provide additional discussions in relation to groundwater and surface water, respectively. A Phase 1 Groundwater Assessment has been completed (refer to **Appendix** B) and groundwater monitoring is ongoing to characterise the local and regional hydrogeological environment (refer to **Appendix** C). As AGL has made a political donations disclosure, the application is bound to be determined by the PAC rather than senior officers of the DP&I.

Ref #	Category	Issue	Response
CBLTN_04	Flora and Fauna	It is noted that the DP&I (in its submission on the original draft EA) reiterated the need for an accurate estimate of any vegetation clearing by requesting that 'the draft EA be revised to provide details on *the total estimate of vegetation clearing, not just the quantity of Cumberland Plain Woodland*'. It is also recognised that the original draft EA has been amended to include more detail regarding this matter. However, the EA (as exhibited) is not considered to adequately comply with the above item by providing a sufficiently accurate estimate of vegetation clearing to be undertaken as part of the project within recognised operational constraints, (e.g. the possible need for the adjustment of nominated well sites to maximise the extraction yield of coal seam gas).	**Section 3.3.1** of this Submissions Report provides clarification on the total vegetation clearing associated with the Amended Project. The updated Flora and Fauna Assessment (refer to **Appendix** E) concludes that no removal of CPW would be required for the Amended Project as construction methods (such as under-boring) are able to adequately avoid direct impacts such as clearing of CPW.
CBLTN_05	EA Process	The EA is not considered to have adequately assessed potential impacts associated with the proposed development. The inclusion of statements within the document to the effect that detailed assessment of certain potential environmental impacts is dependent on factors such as the preparation of final layouts for well locations and further detailed assessment for the location of the gas gathering pipelines, creates unacceptable uncertainty.	Refer to **Section 3.1.1** of this Submissions Report. The identification of constraints within an environmental envelope allows AGL to site the final location in areas to avoid these constraints. In order to do this, all possible locations and impacts (a 'worst-case' scenario) within the envelope have been assessed.
CBLTN_06	Project Description	Council's previous submissions have requested that the location of the gas wells and pathways of the gas gathering pipelines be clearly defined in the EA rather than alternate approval mechanisms such as a requirement for AGL to obtain a 'modification to consent' approval from the DP&I. Council's subsequent submission on the draft EA stated that the inclusion of A3 maps was not considered an adequate response due to the maps only indicating the location of the assessment 'envelope' rather than the sites. Consequently, Council requests that the DP&I require AGL to undertake site design studies that, at a minimum, would enable the intended location range within individual assessment envelopes associated with each gas well and pipeline associated with the project prior to consideration of project determination. Council also requests that the mapping and relevant sections of the EA be updated to incorporate these design plans.	The environmental envelope for each well surface location provides the intended location range for each gas well, subject to avoidance of identified biodiversity and other environmental constraints. Maps produced as part of the Amended Project (as included in this Submissions Report) show the preferred locations for wells and associated infrastructure, as well as the assessment envelope for each. As discussed in **Section 3.1.1** of this Submissions Report, the envelope allows the flexibility to avoid environmental and land use constraints and the precise location of infrastructure at the work site locations and gas gathering lines has not been determined. However as all potential impacts have been assessed within the environmental envelope, a modification to move infrastructure within these envelopes would not be required. As previously stated, clearing of vegetation identified within the environmental envelope for each of the work site locations and gas gathering lines would be avoided by siting infrastructure away from identified constraints.

Ref #	Category	Issue	Response
CBLTN_07	Project Description	Council officers consider 'in-field processing' to be a component of the amended project application based on the interpretation of the above advice that such processing is necessary to enable extracted gas from the northern wells to be refined at the RPGP into a form that is suitable for use by AGL customers. Consequently, Council requests that the DP&I require the amendment of the EA prior to project determination to include the following: - The nomination of the well sites within the project area where 'in-field processing' will be required; - The description of construction and operational details associated with the 'in field' process; and - The assessment of potential impacts associated with the 'in field' process on a site specific basis for each relevant well site and appropriate site specific environmental safeguards.	AGL cannot conclusively determine which wells would require in-field compression at this stage as it is dependent on production pressures over time. It has previously been stated that it is likely that wells in the northern surface area may require in-field compression to boost pressures to deliver gas to the RPGP. The DP&I has been consulted regarding AGL's approach to in-field compression. In-field compression will be assessed on its own merit if and when it is required, to the satisfaction of the DP&I. As described in Section 4.3.3 of the EA, in-field compression infrastructure may be located within the Northern Expansion Surface Project Area, or within other stages of the CGP, depending on locational criteria and environmental constraints. If and when required, the installation of in-field compression would be subject to a separate assessment and approvals process in accordance with the requirements of the EP&A Act.
CBLTN_08	EA Process	The following action by the DP&I to address deficiencies (as outlined in previous submissions) in the assessment of impacts on surface waters associated with the gas wells is requested prior to consideration of project approval: - That the DP&I require AGL to prepare a Site layout Plan outlining site specific potential environmental impact as a consequence of activities associated with both the construction of the wells (e.g. sediment runoff) and operational component (e.g. storage and disposal of wastewater) for each well site; - Require the amendment of the EA to consider the potential for evaporation from the settling ponds and associated implications for surface water within a broader context; and - That the DP&I require AGL to update the Soil and Water Plan specifically applying to Stage 3 of the CGP that would provide an overarching document to the individual site plans	AGL is currently preparing a Site Layout Plan for wells implemented as part of the CGP in accordance with existing approval conditions. Each Plan is provided to the DP&I for approval prior to construction of the well (called a LRMP). Produced water would be transferred into lined and bunded drill pits or water storage tanks, allowing at least a 300 mm freeboard at all times (refer to SWMSP). With these mitigation measures in place, it is considered unlikely water would escape onto nearby properties and watercourses. Drill pits would be fully lined and constructed in accordance with DTIRIS requirements. These pits are not intended to be utilised as evaporation ponds. Open drill pits would be used only as temporary storage devices from which point the water would be transported to future drilling/fracture stimulation operations or removed to licensed facilities for treatment. The existing AGL EMS is the overarching document relating to the CGP. Within the EMS, a SWMSP identifies management of surface water for well sites and gathering lines and also enables reference to specific management plans prepared on a case by case basis. AGL agrees to update the SWMSP as described in **Section 3.5.3** of the Submissions Report.

Ref #	Category	Issue	Response
CBLTN_09	Surface Water	Council would request DP&I require the amendment of the EA to outline the intended volumes and types of chemicals, storage procedures and intended safeguards to prevent impacts on nearby surface waters. Council would further request that this matter be considered as part of the preparation of Site Layout Plans for each well site referred to above. In addition, the recent specialist advice received by Council expressed the view that the EA should discuss the potential for gas migration via any wellbores as well as geological pathways. It is recognised that the geologic stratum in the project area is distinctly different to that of southern Queensland. However this specialist advice contends that the contamination of surface waters as a consequence of gas migration associated with extraction activity is a potential impact associated with the project. The DP&I is therefore requested to require the EA to consider this potential impact.	AGL holds material safety data sheets (MSDS) for each chemical used during well construction, in addition to measures for handling, storage and use contained in the EMS. An Emergency Response Plan (ERP) is in place and would be referred to in the unlikely event these measures fail. The ERP includes a list of emergency contacts (such as the OEH) and emergency procedures. Refer to **Section 0** of this Submissions Report. The presence of extensive and thick claystone formations in the stratigraphic sequence would hydraulically isolate shallow aquifers and the Upper Canal from the underlying Illawarra Coal Measures. This claystone formation would prevent potential contamination of the Upper Canal, surface water and shallow aquifers from CSG extraction activities occurring at depth (including gas migration and the use of fraccing compounds). Notwithstanding, even if the claystone formation does not form a complete barrier between shallow aquifers and deeper coal measures, the pumping of groundwater as part of the CSG extraction process and associated depressurisation of the coal measure would produce a pressure gradient that would facilitate migration of gas and potential contamination towards the gas wells, rather than towards the surface. This effect would provide an additional barrier against potential impacts on shallow aquifers and water quality in the Upper Canal.
CBLTN_10	Surface Water	Council's previous submissions requested clarification in regard to the location principles in the draft EA that inferred gas gathering lines may be located within or adjacent to creeklines. The DP&I is requested to note Council's disappointment that this clarification has not occurred and accordingly require that the EA be amended in accordance with Council's previous submission prior to its finalisation. The previous submission also requested that the DP&I require AGL to consult with the NOW regarding appropriate crossing strategies and safeguards in response to statements in the draft EA that underboring techniques would not be used in creeks that are ephemeral in nature. The response by AGL (to this comment) indicates consultation has occurred. However, Council requests the DP&I require the amendment of the EA to include details and outcomes of these discussions.	Refer to **Section 3.5.2** of this Submissions Report. Consultation with NOW is ongoing. AGL's response to issues formally raised by NOW in its submission is provided within this Submissions Report. AGL would comply with relevant NOW guidelines for works in proximity to watercourses.

Ref #	Category	Issue	Response
CBLTN_11	Groundwater	Previously raised comments regarding the assessment of salinity related impacts have not been addressed. The conclusion by AGL in its response that "*increases in surface salinity are not expected as impact to shallow aquifers is not anticipated*" is not supported based on inaccurate utilisation and interpretation of the Salinity Landscape Maps produced by the Department of Infrastructure, Planning and Natural Resources (now incorporated into the NOW) in 2002. Inaccurate description of the depth of saline soils at more than 1.2 metres in studies undertaken for Council as part of the development application process has identified saline soils at less than this depth. Inadequate assessment of potential impacts on salinity levels of surface and groundwater as a consequence of any aquifer interconnectivity that occurs as either part of the insertion of the bore or extraction of gas. Council requests that the DP&I require a site specific salinity assessment for any activity involving potential disturbance to groundwater as a component of the Soil and Water Management Plan to be submitted prior to project approval.	The Amended Project is not anticipated to affect shallow groundwater flows in the area, and as such saline soils are unlikely to be impacted. The project would operate under a SWMSP as part of the EMS. This will include mitigation measures such as bunding, diversion drains, silt fences and immediate initial revegetation. AGL is required to implement all practicable measures to minimise soil impact and discharge of water pollutants. The presence of extensive and thick claystone formations in the stratigraphic sequence would hydraulically isolate, and prevent contamination of, shallow aquifers and, therefore, also soils from the underlying Illawarra Coal Measures. Accordingly, the limited interconnectivity between surface and groundwater aquifers is unlikely to increase salinity levels in overlying aquifers as a result of the extraction of gas. Given the conclusions of the Phase 1 and initial Phase 2 reports, the Project is not likely to result in increased salinity of surface and groundwater as a result of any aquifer interconnectivity. In addition, water extracted during the dewatering and early production phases would be collected at closed storage points located at well surface locations that are easily accessible. These storage points would consist of either the lined drill pits utilised during drilling and fracture stimulation or underground or aboveground storage tanks. A centralised water collection point would also be considered, where feasible. The waters would then be transported to future drilling/fracture stimulation operations or removed to licensed treatment facilities.

Ref #	Category	Issue	Response
CBLTN_12	Groundwater	Impacts to groundwater quality as a result of the use of chemicals as part of the gas extraction and fraccing process. Council is opposed to the use of potentially harmful chemicals. Issues associated with groundwater aquifer interference as a consequence of coal seam gas extraction activities – Council is concerned with the potential impact to the quality and total availability of groundwater as result of aquifer interference at various depths.	**Section 3.4** of the Submissions Report provides a discussion of groundwater issues. **Section 3.4.2** responds to specific issues relating to fraccing, including composition of the fraccing fluids. No chemicals would be used during the drilling process or well construction. As discussed in **Section 3.4.1** of this Submissions Report, the Phase 1 Groundwater Assessment has identified that the presence of extensive and thick claystone formations in the stratigraphic sequence that overlies the Illawarra Coal Measures is likely to impede the vertical flow of groundwater such that overlying aquifer zones would be hydraulically isolated. However the possibility for major fault zones to provide a hydraulic pathway through claystone horizons and that some shallow groundwater impacts may be observed in close proximity to those structures cannot be ruled out. As such, further groundwater investigations are under way by AGL for the Amended Project Area, including investigations near a known fault, as well as the development of a groundwater monitoring network to monitor water levels and water quality in the major aquifer zones. Initial results from the first nested monitoring bore location at Denham Court are provided in a recent letter report (PB, 2012; refer to **Appendix** C). In addition a Groundwater Management Plan (AGL, 2012) has recently been completed, and endorsed by the NSW Office of Water and the Environment Protection Authority, for the whole CGP (including the Amended Project Area) that includes a groundwater monitoring program and response triggers and management responses should there be unexpected water level and water quality trends. These responses would be implemented in the event that impacts are detected in the major aquifer zones. This Groundwater Management Plan is included as **Appendix** D of this Submissions Report.
CBLTN_13	Groundwater	Inadequate detail in the description of the existing groundwater environment including baseline data	**Section 3.4** of the Submissions Report provides a discussion on groundwater issues. The Phase 1 Groundwater Assessment and Hydrogeological Model undertaken for the Northern Expansion Project is provided in **Appendix C**. In addition, results to date from the baseline investigation (Phase 2 Groundwater Assessment) are included in **Appendix D**.

Ref #	Category	Issue	Response
CBLTN_14	Flora and Fauna	Council's submission on the draft amended EA noted that the OEH had requested a number of amendments to the document to achieve consistency with the draft Threatened Biodiversity Survey and Assessment Guidelines it produced in 2004. This submission stated that Council supported the requested amendment from the OEH due to consistency with Council's Sustainable City Development Control Plan. Council is extremely disappointed that the EA has not been amended in relation to this matter in response to its previous submissions as well as the submission from the OEH. However, the provision of further comment to address deficiencies is considered difficult as a consequence of the refusal of the DP&I to provide details of any submission by the OEH on the revised EA.	AGL responded to issues raised by OEH during adequacy review to the satisfaction of the DP&I. It should be noted that OEH has raised no concerns in regards to the survey methodology used in the ecological assessment in its submission on the publically exhibited EA. The *Camden Gas Project: Northern Expansion Flora and Fauna Assessment October 2012* (refer to **Appendix** E) has been revised in light of the Amended Project and complies with the draft *Guidelines for Threatened Species Assessment* (DEC & DPI, 2005). As outlined in the assessment document, the methodology used conforms to standards outlined in the guidelines including adhering to survey and assessment requirements and field survey techniques.
CBLTN_15	Flora and Fauna	Adequacy of the flora and fauna surveys and assessment of impacts. Council's original submission (dated 31 March 2010) requested clarification in regard to the extent of survey and impact assessment. Council's subsequent submission acknowledged the amendment of the original EA to list potential impacts on biodiversity associated with the gas wells and pipelines but reiterated previously expressed concerns regarding constraints associated with the adopted 'envelope assessment approach' in assessing impacts on a site specific basis. Assessment of vegetation clearance. The response by AGL is not considered to be adequate in regard to the accurate description of vegetation to be removed associated with the installation of well sites and gas gathering pipelines. In addition, previous Council submissions have referred to the inclusion of native grasses in the definition of Cumberland Plain Woodland (CPW) contained in the Scientific Committee's Final Determination listing of this community as a Critically Endangered Ecological Community. In this regard, the EA is not considered to have included the intended removal of 12.43ha of grassland in the total area of Cumberland Plain Woodland to be cleared as a consequence of the project.	AGL responded to issues raised by OEH during adequacy review to the satisfaction of the DP&I. Submissions associated with the envelope assessment approach have been addressed in **Section 3.1.1** of this Submissions Report. The *Camden Gas Project: Northern Expansion Flora and Fauna Assessment* (refer to **Appendix E**) has been revised in light of the Amended Project. Additional field surveys were conducted in June/July 2011 and June 2012. Refinements were made to the Amended Project layout to avoid impacts to biodiversity values and to further avoid impacts to native vegetation, particularly CPW and CPSW. Additional methods such as under-boring and excluding areas of assessment from potential works would be implemented to avoid or minimise as far as possible impacts to CPSW or CPW. The Flora and Fauna Assessment concluded that no clearing of CPW and CPWS would be required for the Amended Project.

Ref #	Category	Issue	Response
CBLTN_16	Visual	Impacts on the landscape values of the Scenic Hills within the project area. It is requested that impacts on the distinct values of the Scenic Hills be considered as part of the site specific assessments associated with individual well sites as well as the gas pipelines. As advised previously, it is Council's preferred view that these assessments occur prior to project approval.	Under the Campbelltown LEP District 8 (Central Hills Lands), the locality of 'Scenic Hills' is defined as Central Hills Lands, and has been included as part of the site assessment and investigation included in the EA, as originally requested by Campbelltown City Council (refer to Section 1.6.3 of Appendix J of the EA) and again in the revised historic heritage assessment included as **Appendix H** of this Submissions Report. These values of the Scenic Hills were considered as part of the historic cultural heritage assessment. A visibility assessment was undertaken as part of the EA and considered all phases of the Northern Expansion Project from construction to closure and final rehabilitation. Due to the nature of the CGP, visual impacts would be largely limited to the construction period due to the influx of machinery and heavy vehicles. The existing CGP operations have demonstrated that project infrastructure can coexist with other natural environments with minimal disturbance. Given the transient nature of the Amended Project, visual impacts are considered temporary and would not have an ongoing visual impact on the Scenic Hills Environment Protection Area, or result in industrialisation of the existing land use. The envelope assessment approach for each well surface location, and the routes of access tracks and GGLs, has essentially precluded the need for additional site-specific assessments.
CBLTN_17	Air Quality	Impacts of the amended project application on air quality. The further amendment of the EA in response to Council's request to include a statement that the RPGP has sufficient capacity to receive the increase volume of gas for processing without requiring further expansion is welcome. However, Council requests further clarification in regard to any increase in emitted pollutant levels from this facility as a consequence of the amended application.	Refer to **Section 3.2.1** of this Submissions Report. Impacts associated with operation of the RPGP were assessed as part of the development application for that facility. The Amended Project does not include any changes to the RPGP or its currently approved emission levels.

Ref #	Category	Issue	Response
CBLTN_18	Heritage	Impacts on Aboriginal and European heritage. Council's preferred view is that all sub-plans referred to in the EA accompany the project application in a format that can be readily implemented following project approval. Consequently, and in accordance with this viewpoint, the DP&I is requested to require that the existing ACHMP (applying to Stages 1 and 2 of the CGP) be updated to specifically relate to Stage 3 of the project prior to consideration of project approval.	Noted. The existing EMS would be applied to the Amended Project with minimal update given the similar drilling techniques, mitigation measures and rehabilitation methods used. However, due to site-specific considerations such as the Upper Canal and other heritage items identified in the Heritage Assessments (**Appendices** F and G of this Submissions Report), AGL would update the existing ACHMP to have reference to these specific sensitive issues. The update of sub plans or site specific plans would be provided prior to construction or as otherwise agreed with the Director-General in consultation with the relevant authorities where appropriate. The existing EMS and associated sub plans which are publically available on the AGL website (www.agl.com.au) would be updated to specifically reflect impacts related to the Amended Project to the satisfaction of the DP&I and DTIRIS.
CBLTN_19	Heritage	Assessment of impacts on European heritage. Council has responsibilities in regard to the local heritage register and also is responsible for reviewing and providing comment on applications that potentially impact on items listed on the State Heritage Register. Consequently, Council would appreciate being provided with notification in regard to the details and timing of any work that potentially impacts on State listed items. In addition, the provision of a copy of the independent review of the assessment of impacts on items of European heritage (as requested in previous Council submissions) would also be appreciated.	Campbelltown Council would be notified prior to the construction of wells within the Campbelltown LGA and anticipated timing for the construction period. State Heritage items that have the potential to be impacted by the proposed works have been identified in **Section 5.5** and **Appendix H** of the Submissions Report. Adequate mitigation measures have been proposed by AGL as supported by the Heritage Branch (refer to Submission DOPH_01).

Ref #	Category	Issue	Response
CBLTN_20	Land Use	Detailed review of constraints and implications for Council associated with the proposed location of well sites situated within the Campbelltown LGA. Previous Council submissions have not provided comment in regard to site-specific issues associated with the proposed location of individual well sites due to the considered potential for these sites to be amended during the preparation of the EA. However, a description of the identified environmental constraints and implications associated with each proposed well site is presented in Table 3 (presented in Attachment 3) that should be read in conjunction with the map (also presented in Attachment 3). It is understood that Camden Council is submitting a submission on the EA which will refer to any issues it has identified in regard to the proposed location of wells situated in this LGA.	Refer to **Section 4.2** of this Submissions Report for comments relating to assessment of each proposed well site. It is noted that each environmental envelope has been assessed for constraints and those constraints have been identified and described in the EA. The environmental envelope approach allows the final situation of wells to avoid identified constraints. Site planning and specific Site Layout Plans would be prepared and approved prior to construction to ensure sufficient management as agreed between AGL, DP&I and the landowner. Potential impacts on biodiversity have been assessed as part of the EA, and a Flora and Fauna Assessment Report was included as Appendix D of the EA. The report identified that habitat for endangered and threatened fauna are generally disturbed and suitable habitat is located in other areas. The Flora and Fauna Assessment Report has been updated having regard to the changes to the Amended Project, as outlined in this Submissions Report.
CBLTN_21	Land Use	Issues associated with potential sterilisation of land for future use as a consequence of the project. Council has previously requested that the DP&I require further amendment of the draft EA to consider potential implications associated with land sterilisation (for a period of 15 to 20 years over the lifespan of the wells) in terms of impacts on future development and any restrictions on such use as a consequence of the drilling operations. The potential implications include restrictions on the layout and construction of new urban release areas and possible reduction in land values and associated reduction in revenue to Council in the form of rates. Consequently, Council requests the DP&I require the amendment of the EA prior to its finalisation to discuss this matter in accordance with previous submissions.	Refer to **Section 3.6** of this Submissions Report. AGL has consulted with the developers of future release areas and consultation is ongoing. As a result of issued raised in submissions and as a result of further consultation with those individual groups and landowners, several well surface locations have been re-located to minimise impacts to future release areas. The Amended Project is discussed in detail in **Section 4.0** of this Submissions Report.

Ref #	Category	Issue	Response
CBLTN_22	Subsidence	Impacts associated with lateral drilling activities in the subsurface project area. It is considered imperative that the EA accurately quantify the short and long -term extent of surface subsidence that could occur within urban areas of the Campbelltown LGA as a consequence of lateral drilling in the subsurface areas.	The existing CGP has utilised several different drilling techniques including vertical, directional and SIS (as discussed in Table 4-3 of the EA). A subsidence report was prepared as part of the Stage 2 expansion of the CGP and was included as Appendix L to the EA. The report identified that subsidence impacts are minimal to non-observable at the surface due to the nature of the drilling techniques and underlying geology. The report considered drilling of lateral wells up to 2,000 m. Due to the similar underlying geology and drilling techniques to be used in the Amended Project Area, similar results are expected. Long term impacts are considered negligible.

Response to Individual and Community Submissions

Table 2 Response to Submissions - Community

Ref #	Category	Issue	Response
Dart West			
DART_01	Land Use	AGL has identified one well (known as CU06) and a gas gathering line within the residential project Gregory Hills. While it is acknowledged that the final locations of the well and the gas gathering line have not yet been determined, Dart West would like to formally raise an objection to the location of CU06 within the residential zoned land. Even if AGL is able to demonstrate after DP&I assessment that the wells are temporary and safe, Dart West believes it is poor planning to place a well on a site zoned for residential development. The existence of the well would force master planning to be altered and would compromise the sale process for land in the vicinity of the well. Dart West is not aware of any insurmountable technical reason why this well could not be relocated outside the residential zoned land.	Noted. CU06 was originally located Within the south east corner of the Turner Road Development Area. CU06 has been moved following discussions with the landowner/developer. CU06 has been relocated approximately 380m south from its original location to outside the boundaries of the Turner Road Development Area, thereby addressing previous concerns regarding the location of the well in a residential zoned land.
DART_02	Land Use	The proposed gas gathering pipeline appears to have been located without regard for the layout of Gregory Hills, as set out in DP&I's Indicative Layout Plan for the Turner Road precinct. Instead, it appears to have been located on a now disused and significantly demolished private road. Should this pipeline still be required, Dart West seeks that it be delivered in a manner by AGL which is coordinated with the staged delivery of the Gregory Hills road network. Such delivery would need to be at no cost to Dart West and may involve relocation of the pipeline to accommodate the staged rollout of Gregory Hills. This would depend on the relative timeframes of the AGL and Gregory Hills projects.	AGL will liaise with the developer to ensure that the staging of the development of the wells will complement the staging of the Gregory Hills Development Area. As a result of consultation with Dart West, the GGL for well CU02 has been re-routed north-east through open grazing paddocks to the main spine line. This minimises construction impacts through a shorter line route, as well as reducing impacts by avoiding residential zoned land within the Gregory Hills Development Area.
DART_03	Commercial	Dart West has had preliminary discussions with AGL representatives over the last 12 – 18 months. However, DP&I should be aware that no commercial arrangement has been negotiated and at no stage has the proposed well location or the route of the gas gathering pipeline been endorsed by either the Marist Brothers, as landowner, or Dart West as developer.	Noted. Consultation and negotiations with both Dart West and Marist Brothers is ongoing. CU06 was originally located adjacent to St Gregory's College, within the south east corner of the Turner Road Development Area. This well site has now been relocated approximately 380m south from its original location. Additionally, the gathering line from CU02 has been re-routed north-east through open grazing paddocks to the main spine line. This avoids proposed residential land and the area adjacent to St Gregory's College.

TN Consulting			
TNC_01	Land Use	It has come to TNC's attention that as part of the gas project that the surface gas wells identified as CU 20 and CU 22 are situated in areas of proposed residential development (CU 20) or situated adjacent to proposed residential development (CU 22), as shown on attached plan. On behalf of the Landowners, we are seeking assurance that gas wells CU 20 and CU 22 should be relocated in a westerly direction to be sited further away from proposed residential zoned land in areas identified as Open Space Corridors, and as a consequence the impact of the proposed gas wells and buffer area upon the proposed residential zoned land would be reduced.	AGL had located well site locations CU20 and CU22 within green space based on consultation with the former developer, Sekusui, which previously had options over this land. The options held by this developer have recently expired, and consequently, AGL has since commenced negotiations directly with the current landowners. Following consultation with the landowner and as part of the Preferred Project, CU22 has been relocated approximately 900m east from its formerly proposed location to avoid proposed residential land. CU20 has been removed from the Amended Project.
TNC_02	Land Use	The landowners are concerned with the exhibition of this EA report and that the location of the gas wells CU20 and CU22 would impact on the impending residential development of the subject property. DP&I intends to rezone the land through Draft LEP 151 by June 2011. The landowners intend to lodge Development applications for residential Development in July 2011, with construction of the residential lots to commence in late 2011, or early 2012. There are concerns that any potential residential purchasers would be affected by the gas well locations and the 200m buffer that may adversely affect the sale of residential lots.	Refer to response to TNC_01 above.

Discalced Carmelites (Friary)			
DC_01	Land Use	Industrialisation of the Scenic Hills Environment Protection Area	The scale of infrastructure that would remain on site is not considered to be substantial, and has been designed to consider the surrounding environment in terms of materials, colour schemes and landscaping, and is therefore not considered to be visually intrusive. The gas gathering system would be located entirely underground and would not cause any visual disturbance. It is unlikely there would be any visual industrialisation of the Scenic Hills on this basis. The existing CGP operations have demonstrated that this infrastructure can coexist with other natural environments with minimal disturbance. Under the Campbelltown LEP District 8 (Central Hills Lands), the locality of 'Scenic Hills' are defined as Central Hills Lands, and have been included under site assessment and investigation as part of the EA, as originally requested by Campbelltown City Council (refer to Section 1.6.3 of Appendix J of EA). The values of the Scenic Hills were considered as part of the historic cultural heritage assessment. Given the transient nature of the Amended Project, it is considered that visual impacts are temporary and would not have an ongoing visual impact on the Scenic Hills Environment Protection Area, nor result in industrialisation of the existing land use.
DC_02	Noise	Disruption from noise, heavy traffic (rigs, water tankers)	Impacts of noise and heavy traffic are expected largely during the construction stage of the Amended Project. The construction phase of the Amended Project is expected to be staged over approximately nine months, subject to relevant approvals and licences. Due to the temporary nature of construction activities, disruption from noise would also be temporary. Once the wells are in production, noise emissions from infrastructure and traffic would be minimal. Heavy traffic is associated with the influx of machinery and heavy vehicles in order to install and commission the field infrastructure during the construction stage. Once the wells are commissioned, only light vehicles would visit the sites for maintenance. It is therefore unlikely the project would result in ongoing heavy traffic. The AGL EMS contains a Noise Management Sub Plan (NMSP) and a Traffic Management Sub Plan (TMSP) for both construction and operation of the CGP. These plans would be updated where appropriate to reflect specific impacts of the Project Area and to identify further actions and mitigation where required.

DC_03	Air Quality Subsidence Surface Water Groundwater	Long term issues associated with air pollution, subsidence and damage to quality of surface and groundwater.	Impacts on local air quality were assessed as part of the EA. Potential impacts to air quality would be managed through the update and continued implementation of the existing Air Quality Management Sub Plan (AQMSP). Long term impacts are considered negligible. The existing CGP has utilised several different drilling techniques including vertical, directional and SIS (as discussed in Table 4-3 of the EA). A subsidence report was prepared as part of the Stage 2 expansion of the CGP and was appended to the EA (Appendix L of the EA). The report identified that subsidence impacts are minimal to non-observable at the surface due to the nature of the drilling techniques. Due to the similar underlying geology and drilling techniques to be used in Stage 3, similar results are expected. Long term impacts are considered negligible. A SWMSP is currently implemented for the CGP and would be updated to incorporate the Amended Project works. Refer to **Section 3.5.3** of this Submissions Report.
DC_04	Land Use	Consequences of the Project would directly affect continued ability to live a religious life on the site and run the retreat centre	Potential impacts related to religious life are considered to be largely related to amenity impacts, including air quality, noise and traffic. It should be noted that the EA has included technical assessments for air quality, noise and traffic. Given the implementation of mitigation measures as identified in the EA, the Amended Project has been assessed to meet the relevant criteria. It is considered that potential nuisance impacts are therefore manageable and would only result in short-term, localised impacts limited to the construction phase. Additional mitigation measures would also be employed in sensitive areas where required (such as additional noise walls).

DC_05	Consultation	There was no mention [during consultation] that there might be any environmental issues with the process	AGL has undertaken a consultation process in accordance with statutory requirements (refer to Chapter 6 of the EA). This process included clause 8F notification through newspaper advertisement and several Community Consultative Committee (CCC) meetings where enquiries were welcomed. It has been communicated that an environmental assessment is required during the application process. AGL has submitted the EA for public exhibition, which outlines a worst case scenario assessment of environmental impacts. AGL has responded to comments raised by the public and Government agencies throughout the process, inclusive of this Submissions Report. The assessment and consultative process undertaken by AGL meets statutory requirements and guidelines enforced by the DP&I. AGL believes the landowner has been involved in the consultation process and is committed to ongoing consultation to clarify issues raised.
DC_06	Statutory Planning	The project is defined as a public utility undertaking. It is hard to know how extractive mining of coal gas is a public utility.	Refer to **Section 3.2.3** of this Submissions Report.
DC_07	Commercial	The Project is a commercial enterprise of primary benefit to its shareholders.	Under the EP&A Act, this is not a relevant planning consideration in assessing a development.

DC_08	EA Process	AGL has not given clear or sufficient information about the processes involved in the proposed project for it to be adequately assessed.	The EA was prepared in accordance with the requirements of the EP&A Act. Comments on the draft EA were received by the relevant Government agencies and the EA was updated prior to public exhibition. This Submissions Report has been prepared to clarify details or issues raised by the Government agencies as well as the public as part of the assessment process. Chapter 4 of the EA provides the details of the Northern Expansion Project including construction and drilling processes, field infrastructure implementation, management and rehabilitation. AGL has provided details of the Northern Expansion Project and (through this Submissions Report) of the Amended Project and assessed the potential environmental impacts associated with the Northern Expansion Project and the Amended Project. The process is well understood and the Northern Expansion Project has been discussed at community meetings since 2008. The assessment and consultative process undertaken by AGL meets statutory requirements and guidelines enforced by the DP&I. In addition, further consultation has been undertaken with agencies and landowners since the public exhibition of the EA and receipt of submissions presented within this Submissions Report. Detailed designs of each site, including site specific LRMPs, would be provided to the DP&I for approval prior to construction.
DC_09	Groundwater	There is no hydrology study for surface and groundwater	An assessment of surface water and groundwater hydrological impacts was included in Chapters 9 and 11 of the EA. In addition, a Phase 1 Groundwater Assessment has since been undertaken and is included in this Submissions Report (**Appendix** B). AGL is committed to further investigation through the Phase 2 Groundwater Assessment which has commenced via the installation of nested monitoring bores and collection of baseline data. Initial results are included as **Appendix** C of this Submissions Report. Initial results are in line with and confirm the understanding of aquifer characteristics and the conceptual hydrogeological model presented in the Phase 1 Groundwater Assessment.

DC_10	Surface Water	If there is any spill of contaminated water from at least some of the wells then that waste would flow through our property to Bunbury Curran Creek and into the Georges River. The environmental consequences would affect the whole river system.	The Amended Project will operate under an environmental protection licence which will regulate all emissions to the environment. A spill kit would be kept on site and in vehicles during the construction period, and with all maintenance vehicles when conducting maintenance works in accordance with the CGP EMS. Stringent environmental management measures would be in place to mitigate contamination of surrounding surface waters within the catchment. Extracted water would be transferred into a water storage tank(s), allowing at least a 300mm freeboard at all times (refer to SWMSP). With these mitigation measures in place, it is considered unlikely that water would escape onto nearby properties and watercourses. An Emergency Response Plan (ERP) is in place and would be referred to in the unlikely event these measures fail. The ERP includes a list of emergency contacts (such as the OEH) and emergency procedures.
DC_11	Project Description	Grouping of wells is a relatively new procedure with a number of uncertainties. AGL asserts that concrete reinforcing will provide strength. This has not to our knowledge been tested.	Grouping of wells has been undertaken by AGL for several years and has been proven in the existing CGP. Concrete reinforcing of the well is to compound the well site during production. Concrete reinforcing of the well is undertaken in order to prevent vertical migration of water from deeper to shallower aquifers. This also prevents shallow aquifers from being drained or impacted by the extraction of gas from the coal seam.
DC_12	Subsidence	Drilling will extend up to 2,500m. This is a significant area that may well be subject to subsidence.	Refer to the response for CBLTN_22.

DC_13	Heritage	The Scenic Hills are an environmental protection area which is visually important for the City of Campbelltown. The Scenic Hills Area also protects historical heritage and landscape, including Aboriginal use of the land, for which there is much evidence. In addition, historical homes in the area such as Varroville House are evidence of historical heritage in the area. For these reasons, residents in the area are concerned about the preservation and protection of this area and landscape.	A historical and Aboriginal heritage assessment was undertaken as part of the EA process and was appended to the EA for public exhibition. These assessments have been updated since this time and the revised reports are appended to this Submissions Report (refer Appendix G and H of this Submissions Report). The historical assessment included a field survey of the areas where surface infrastructure would be located and therefore where there is potential for impacts to occur. Several historic sites and areas were identified including Varroville House, Molles Maine, and the Scenic Hills area. Similarly, the Aboriginal assessment included a field survey in order to identify existing or new sites of significance that may be affected by the Amended Project. Impacts at the surface would be predominately limited to the construction phase of the Amended Project. Areas identified as having heritage value would be avoided where possible through the implementation of the environmental envelope approach. Further, the existing ACHMSP would be updated and adopted for the Amended Project. The existing operation of the CGP has demonstrated that a project can be implemented with minimal impact on heritage.

DC_14	Subsidence	The impact of the Project on the land through subsidence, as well as the flora and fauna of the area	A subsidence report was prepared as part of the Stage 2 expansion of the CGP and was included as Appendix L to the EA. The report identified that subsidence impacts are minimal to non-observable at the surface due to the nature of the drilling techniques and underlying geology. The report considered drilling of lateral wells up to 2,000 m. Due to the similar underlying geology and drilling techniques to be used in the Amended Project Area, similar results are expected. Long term impacts are considered negligible. Refer to **Section 3.3** for a response to the flora and fauna concerns raised.
DC_15	Air Quality	Possibility that air pollution may compromise the Discalced Carmelites continued healthy living	An Air Quality Impact Assessment (AQIA) was undertaken as part of the EA (refer Appendix G of the EA). The Northern Expansion Project was assessed in accordance with the DECCW air quality assessment criteria for pollutants that are relevant to this study. The assessment criteria provide benchmarks, which if met, are intended to protect the community against the adverse effects of air pollutants. These criteria are generally considered to reflect current Australian community standards for the protection of health and protection against nuisance effects. Air quality modelling did not predict exceedances of this criteria resulting from the Northern Expansion Project. The Amended Project reduces the number of wells proposed in the EA. Accordingly, the air emissions from the Amended Project will be , reduced from those assessed in the EA. Refer to Appendix G of the EA for further information on the predicted air emissions. Previous stages of the CGP have demonstrated that well surface locations can coexist with other land uses with minimal impact. No combustion products would be released from the well sites, with all gas being captured and transferred through the gas gathering lines to the RPGP. Therefore it is not expected that the Amended Project would pose a risk to the health of the local community through its operation, as demonstrated by the co-existence of the existing CGP and local residents.
Brown Consulting			

BRN_01	Land Use	The surface gas well identified as CU02 in Catherine Fields is situated adjacent to this residential property and the 200m buffer area impacts on the residential development. It is stated in the EA report that CU02 is to be located in "future open space area within the Turner Road" release area. This gas well needs to be relocated approximately 150 – 160m to the west to be placed in the open space corridor in the identified Employment Area. Should the gas well be relocated to the west as suggested the buffer areas would not affect the residential development.	AGL has consulted with Brown Consulting and has agreed to amend the 200m assessment envelope to exclude the residential zoned land identified by Brown Consulting. The gas gathering line for CU02 has also been relocated north east through open grazing paddocks to the main spine line. This will minimise construction impacts through a shorter route, and reduce impacts associated with being located within residential areas. Consultation with the landowner/ developer would be ongoing.
BRN_02	Land Use	The developer intends to lodge a development application with Camden Council in January 2011 for construction of the residential lots to commence in March 2011. The concern is that any potential purchasers of residential lots would have drawn to their attention the gas well location and the 200m buffer area that may adversely affect the sale of the lots.	
Carmelite Nuns			
NUN_01	Land Use	Objection to exploitation of the Scenic Hills for industrial and commercial purposes. The Carmelite Nuns do not support the construction of gas wells and infrastructure, including access roads for heavy traffic such as semi-trailers and prime movers (Main Report, page 19-9) in this protected area, which is essential green space for residents of the City of Campbelltown.	Refer to response DC_01 and **Section 3.6** of this Submissions Report.

NUN_02	Project Justification	In favour of research and development into renewable sustainable sources of energy, rather than exploitation of finite carbon-rich fossil fuels	AGL has assets in traditional energy generation (gas and coal). However, the CGP and extraction of coal seam methane has advantages over the traditional fossil fuels. Natural gas has the advantage that it burns cleaner than other fossil fuels, such as oil and coal, and produces fewer greenhouse gas emissions per unit of energy released. While AGL's current primary energy generation sources are in traditional sources, AGL is also in favour of research and development of renewable sustainable sources of energy. This is demonstrated by its current energy generation portfolio of which 55% comprises renewable energy and low-emission generation assets (including hydro, wind, landfill gas and biogas). AGL has also influenced climate change policy with its study - "Options for Moving Towards a Low Emission Future" now adopted by policy makers worldwide. AGL received the Climate Change Leadership Award and the Business Sustainability Award from the 2010 Green Globe Awards for its contributions to climate change and renewable energy. While AGL continues to investigate renewable energy, traditional energy is still needed to meet the current consumer demand and baseload power generation.
NUN_03	Statutory Planning	Although the Project does not fall within the definition of industry under SEPP 33, it involves gas mining/extraction, and therefore we question the legal basis for the premise that the Project is 'appropriately' designated a 'public utility undertaking'. If it were, one would expect the Preliminary Hazard Analysis (Appendix D) to be concerned about the risk to the public of loss of supply of gas. But this risk is assessed as not critical (Appendix D, page 8).	Refer to the response for DC_06. The issue of the permissibility of the Amended Project is addressed in **Section 3.2.3** of this Submissions Report. The PHA is the first stage in risk assessment. The PHA has been reviewed by DP&I and accepted as satisfactorily covering the risk screening requirements.
NUN_04	EA Process	Concern about the apparent lack of regulatory controls on coal seam gas extraction. Much of the Main Report is couched in vague, non-specific language, which gives us no confidence that the real impacts of the Project are known or understood by the Proponents. It appears to us that the precautionary principle is paid only lip service in the Environmental Assessment (Main Report, page 26-3).	There are stringent regulatory controls in place for coal seam gas extraction. CGP operations are undertaken in accordance with relevant approvals issued by DP&I, DTIRIS, EPA and NOW. AGL will comply with all relevant statutory requirements, including the conditions of its approvals and the applicable codes of practice. AGL has assessed the impacts of the Northern Expansion Project (including in relation to the precautionary principle) in accordance with the requirements under the EP&A Act and DP&I. AGL has also assessed the impacts of the Amended Project as set out in this Submissions Report.

NUN_05	Surface Water	The Carmelite Community is concerned about the potential impact of the Project (specifically hydro-fracturing) on surface and groundwater in the semi-rural area of the Scenic Hills. Varroville is in a localised rain shadow area, and water is a scarce resource here.	Refer to **Section 3.4** of this Submissions Report.
NUN_06	Groundwater	The EA does not include a site-specific hydrology study. In this respect, the EA fails to meet the standards recently specified by the National Water Commission. The Commission strongly argues for the careful, transparent and integrated consideration of water-related impacts in all approval processes. The current Project does not meet these criteria.	Refer to the response to DTIRIS_02 and **Section 0** of the Submissions Report.
NUN_07	Project Description	On page 9-3 it is stated that drilling and fracture stimulation water would be delivered from previous drilling and fracture stimulation campaigns, other approved sources (which?) or from licensed stand-pipes in the local area. Does this mean that large tankers will rumble up and down St Andrews Road from the stand-pipe opposite the Mount Carmel Parish Church and outside the front gate of Varro Ville (heritage) House in order to reach VV07? The next paragraph states that 'the proposed works would include the construction of water storage tanks at some locations.' Exactly which locations? These details should be specified in advance of public consultation. Since they are not, and specific information is not available for any well location, the public is not in a position to make informed assessment of the proposals.	The stand-pipe opposite the Mount Carmel Parish Church and outside the front gate of Varro Ville House will not be used. VV07 has been removed and no longer forms part of the Amended Project. Therefore, no large tankers or other traffic will pass through St Andrews Road. The EA stated that lined drill pits and/or water storage tanks would be used to capture extracted water from the well site. The EA assessed a worst case scenario where water storage tanks may be located at some sites, resulting in a greater visual impact. Depending on the volume of extracted water the most suitable option, in consideration of identified constraints, would be used. A Site Layout Plan, including initial rehabilitation and landscaping, of each well surface location would be provided to the DP&I for approval prior to construction commencing. This process is currently undertaken for the approved wells in the existing CGP well fields in accordance with consent conditions. AGL intends to continue this process as part of the Amended Project.
NUN_08	Project Description	Similar uninformative non-specific comments are made in several places on page 9-5: 'A water management system, including water gathering lines where necessary (Where will it be necessary?); 'Where feasible, a central water collection point would be considered' (Where might this be? What determines feasibility?); 'Saline water produced from the wells would be stored either in lined drill pits or water storage tanks' (Who and what determines this decision? How will waste water be stored at well location VV07?).	Should large volumes of water be produced at several well surface locations, it may be feasible to use water gathering lines and a central water collection point, however, AGL does not envisage that this would be required. Well VV07 has been removed from the scope of the Amended Project.

NUN_09	Land Use	The livelihood of both communities of friars and nuns would be threatened by industrialisation of the Scenic Hills. The Main Report for the Project makes no mention of these sensitive land uses at Varroville. Particular concern about the possibility of noise disturbance from the proposed wells VV07 (adjacent to us) and VV11 across the Upper Canal. Whilst the Noise and Vibration Impact Assessment undertaken by Heggies Pty Ltd (Appendix F) appears comprehensive, the measurement of noise impact is inadequate in various respects as it relates to Varroville.	Refer to **Section 4.2** of this Submissions Report. Under the Campbelltown LEP District 8 (Central Hills Lands), the locality of 'Scenic Hills' are defined as Central Hills Lands, and have been included under site assessment and investigation as part of the EA, as originally requested by Campbelltown City Council (refer to Section 1.6.3 of Appendix J of EA) and again in the revised assessment included as Appendix H of this Submissions Report. These values of the Scenic Hills were considered as part of the historic cultural heritage assessment. A visibility assessment was undertaken as part of the EA and considered all phases of the Project from construction to closure and final rehabilitation. Due to the nature of the CGP, visual impacts would be largely limited to the construction period due to the influx of machinery and heavy vehicles. The existing CGP operations have demonstrated that project infrastructure can coexist with other natural environments with minimal disturbance. In addition, wells VV07 and VV11 have been removed from the Amended Project layout. Thus, noise impacts related to these well surface locations are no longer relevant to the Amended Project. Given the transient nature of the Amended Project, impacts related to it are considered temporary and would not have an ongoing impact on the Scenic Hills Environment Protection Area, or result in industrialisation of the existing land use.
NUN_10	Noise	Noise monitoring should have been undertaken at Varroville (east of the Upper Canal), on or close to our property (345 St Andrews Road), which is best described as rural rather than suburban. The Carmelite Nun's property is a residential property, housing 13 residents (nuns) in the Carmel of Mary and Joseph. Since it seems that the background noise levels for our specific situation have not been accurately described, it is considered that the operational project-specific criteria and construction noise goals also need to be reviewed and amended to reflect our sensitive land-use situation.	VV07 and VV11 have been removed from the Amended Project. VV03 is located approximately 900m from the resident's dwelling, and therefore it is unlikely that significant noise impacts would be experienced at this location. AGL commits to implementing all reasonable and feasible measures to minimise noise impacts at the Carmelite Nun's property.

NUN_11	Noise	The conclusion that no mitigation is required for night-time drilling at VV07 is incorrect, since our monastery lies within the relevant (sic) night-time construction noise goal for residential locations in the subject area (Figure 21). Moreover, we consider it unsatisfactory that 'the sound power level of the actual drilling equipment to be utilised for the Northern Expansion project is, as yet, unknown' (Appendix F, page 27).	The sound power level utilised in the assessment is based on noise levels typical of this type of equipment used in other stages of the CGP, and are therefore considered to be representative of the type of noise levels generated. A conservative estimate of worst-case sound power levels for drilling equipment has been applied as part of the noise assessment. Noise impacts associated with drilling would therefore be no worse (and potentially significantly better) than the predictions presented in the EA. AGL commits to implementing all reasonable and feasible measures to minimise noise impacts at the monastery.
NUN_12	Noise	Since this is an area zoned Environmental Protection (Scenic), we consider it inappropriate to install ugly temporary noise mitigation measures such as shipping containers (Appendix F, page 27) or permanent measures such as fencing and earth mounds.	Shipping containers have been used in the previous stages of the CGP to great effect. AGL has consulted with noise attenuation experts, and developed specific noise barriers that can be utilised to mitigate noise during the construction period. Additionally, the barriers have been painted to mitigate visual impact. Such noise barriers could be expected to reduce noise by up to 10dB(A) at the receiver The use of noise barriers would be a temporary measure only, and would be removed from site when no longer required. Where fencing or earth mounds are proposed, these would be detailed in the LMRP and would be designed to be sympathetic to the surrounding visual environment.
NUN_13	Land Use	Disturbed that the proposal includes locating a portion of the gas gathering system within the Mount Annan Botanical Gardens, which are variously described as Sydney's largest (Main Report, page 8-3) and Australia's largest (Main Report, page 8-2) botanic gardens. Outraged that DP&I could allow a commercial development to encroach upon or be located within the confines of a botanical garden, which by its very nature is of State and National significance.	Mount Annan Botanical Gardens has been consulted as part of the EA process. AGL intends to locate the gas gathering lines within an existing infrastructure easement owned by Endeavour Energy (formerly Integral Energy) in order to minimise impacts in accordance with the locational guidelines. Endeavour Energy has also been consulted as part of the Northern Expansion Project (and also the Amended Project) and has granted permission to share the easement.

NUN_14	Construction	It is noted by the Carmelite Nuns that water truck movements alone in the Menangle Park well field averaged five per week including weekends (Main Report, page 19-9). This was for one well, not for six wells at each location. Infrastructure construction will include temporary camp sites with demountables, lighting and signage. All this would generate noise, disturb or dispel colonies of native birds and animals, and possibly adversely affect Aboriginal and European heritage in the area.	The Menangle Park well field was assessed and approved as a major project under Part 3A of the EP&A Act. Similar to the Northern Expansion Project, the Menangle Park wells were assessed as several well surface locations, each with up to six well heads at each site. The water truck movements noted by the author of the submission are actually with regard to one well surface location. Currently within the well field, up to five wellheads have been co-located at one site. VV03 is now part of the Amended Project and would be located in a position to access gas reserves in place of both VV07 and VV11 locations, which have been removed from the Amended Project. VV03 also avoids impact to CPW and any conflict with existing and future land uses. Access to VV03 would be via an access track from Raby Road south of VV03, eliminating the need for northern access tracks previously planned for VV07 and VV11 access. Traffic impacts on the landowner's property would therefore be minimised. Given the temporary nature of the construction phase, traffic impacts are considered acceptable and would decline over time. Temporary construction sites would accommodate one staff member only - a caretaker for security purposes. The construction site would include site offices, security lighting and signage. The construction site would be deconstructed after the construction period and rehabilitated to its reduced footprint as described in Section 21 of the EA. Flora and fauna and heritage assessments were undertaken as part of the EA and have been revised and included as Appendix D, E and F to this Submissions Report. Field surveys of the assessment envelopes were undertaken for proposed infrastructure and identified heritage items present and/or likely to be impacted. While several heritage sites are present in the area, impacts to heritage items in the vicinity of well surface locations are expected to be minimal. AGL is committed to the implementation of mitigation measures to avoid impacts to heritage items, and a stop work policy would be implemented in accordance with the recommendations raised by the Heritage Branch.

NUN_15	Hazard and Risk	The Preliminary Hazard Analysis gives no site-specific information. Indeed, there is no evidence that the author has even visited the Project Area. The text of the report reads like a preliminary draft; it is full of typographical errors (pages 17-18, 29 and passim), Figures 2-4 are illegible, the lists of Figures and Tables are not numbered consecutively and do not match the text, and Appendix 4, which is referred to twice in the text (pages 37 and 40) does not exist. We wonder whether the depiction of wellhead 1 in Figure 8 (Calculation of Domino Effect Factor, page 41) is correct.	Planager endeavoured to minimise spelling errors in reports. In addition, the reference to Appendix 4 should read Appendix 2. With respect to Planager's familiarisation of this area, Planager has been visiting the subject area since late 2002, when another proponent (other than AGL) was looking at exploring the coal seam gas in the area. Planager has since visited the area on a number of occasions and has followed the proposed development closely. With respect to wellhead 1 in Figure 8, – this comment is correct, the first well head has been mirror imaged in the figure. Please note that this does not impact in any way the calculations or results presented in the risk assessment.
NUN_16	Hazard and Risk	No hazard analysis has been provided for in-field compression of gas, yet in-field compression is likely to be needed to enable gas to reach Rosalind Park Gas Plant from the most northerly part of the Surface Project Area (Main Report, page 4-11). Although the need for in-field compression may not arise for some two to five years from Project commencement, it is necessary for those of us likely to be affected by it to know at this stage what hazards it might pose.	Infield compression does not form part of the Amended Project. If and when infield compression is required it will be separately assessed.

NUN_17	Hazard and Risk	Insufficient detail is given about the potential hazards of locating six wells close together, particularly in residential areas and areas of sensitive land use. The possibility of bushfires or grass fires in the Upper Surface Project Area has not been considered, and these do occur on occasions when vandals burn stolen cars at night in secluded parts of the locality. The potential for a well location to be damaged in the unlikely event of a light plane crash (since the area is over-flown daily by flights from Camden Airport) has been overlooked.	The PHA appended to the EA was prepared in consideration of a worst case scenario where each well surface location would have up to six wells co-located. Further, areas of the existing CGP have demonstrated that well site locations can co-exist with existing land uses with minimal risk. This has been achieved in the Menangle Park well field where well surface locations operate multiple wells at one location. The PHA follows the DP&I's locational guidelines. The likelihood data used in these guidelines is statistical and represents the likelihood of failure of pipelines etc. from similar developments elsewhere in the world (as discussed in the PHA, Appendix D of the EA). The same source for likelihood data is used in the PHA. The statistical data includes causes of failure from a number of threats to the wells, including from mechanical impact, third party interference, and failure in maintenance practices as well as from external threats such as fires and aircraft impact. The objective of the PHA is to assess impact on land use from a particular development at an early stage of a development. If determined to be necessary, certain aspects may be assessed in further details as part of a particular development. For example, the threat of bushfires on a development may, if regarded as a particular concern, form part of a separate bush fire study. Such studies are often prepared at a later stage of a project and may form part of a condition of consent. It should be noted that the PHA is only the first stage of assessment in a series of hazard analysis and safety assessments that occur prior to construction. These assessments would continue to be undertaken in consultation with DP&I. Further, the existing EMS contains an

NUN_18	EA Process	It is noted that each revision of this document [PHA] has been written and authorised by the same person. There appears to have been no peer review, no oversight and no accountability during the preparation of the Preliminary Hazard Analysis. We consider this to be unsatisfactory and unacceptable. A further revision needs to be prepared, peer reviewed and made available for public consultation as a pre-condition for determination of the Project.	Planager's PHA report is prepared and authorised by Planager's Director and Principal Risk Consultant. Each revision has also been reviewed by a Planager Risk Consultant. Further, the report has undergone adequacy review by the DP&I. The PHA is an assessment that is undertaken prior to final design to identify the potential hazards and risks associated with the project and design components. The PHA is only a preliminary hazard assessment and is only used to inform the final design. The PHA has been reviewed by DP&I and accepted as satisfactorily covering the risk screening requirements. It should be noted that given the Amended Project does not fall within the definition of hazardous of offensive development, a PHA is not strictly required. However, AGL has undertaken a PHA to demonstrate AGL's commitment to ensuring that any risks in relation to the proposal are addressed as part of the environmental assessment process.
NUN_19	Project Description	The size of the Project seems to be consistently downplayed by the mention of 12 well surface locations, instead of accurately describing the worst case scenario of 72 wells in the Surface Project Area. Passing comments are made about the possibility of future modifications to the Project requiring additional approval, and we note the history of many modifications of the Camden Gas Project to date (Main Report, pages 1-2 to 1-4).	AGL has accurately described the worst case scenario of wells in the EA, where the project comprises: *…Up to 12 well surface locations containing up to 6 well heads each Further, the glossary at the front of the EA defines a well surface location as an area that may incorporate up to 6 co-located wells at one site or compound.* The Amended Project presents an alteration to the number of well surface locations since the original lodgement of the application. As per **Section 4.0** of this Submissions Report, there would be up to 11 well surface locations within the Surface Project Area. AGL intends to convey that there would be up to six wells at each site, to a total of 66 wells across the Surface Project Area.
NUN_20	Licensing and other approvals	We already know that in-field compression is anticipated as a likely future development (Main Report, page 4-11). Can we be confident that approval for a gas plant in the Upper Surface Area of the Northern Expansion will not be sought by AGL in the future?	Infield compression does not form part of the Amended Project. If and when infield compression is required it will be separately assessed. As the EA made clear, the project does not include a new gas plant, rather the existing RPGP will be utilised for the Amended Project..

Frisic and Bernatovic			
F&B_01	Consultation	No communication, written or verbal, was received from the gas company or its consultants. Landowners object to any works being carried out on its property unless they are fully consulted and in agreement with the proposal.	The original location of wells CU20 and CU22 on properties of the concerned residents have been altered, with well CU20 being removed from the project, and CU22 located approximately 900m north-east from its original location. CU22 is no longer located on the property of the concerned resident. AGL had consulted directly with the former developer (Sekusui) of the land on behalf of the landowners (families of Frisic, Bernatovic, Galluzzo and Pisciuneri). This developer previously had options over this land. The options held by this developer have recently expired, and consequently AGL commenced negotiations directly with the current landowners. AGL will continue to consult with all relevant landowners in the area in respect of wells on or in the vicinity of local properties.
Galluzzo and Pisciuneri			
G&P_01	Consultation	No communication, written or verbal, was received from the gas company or its consultants. Landowners object to any works being carried out on its property unless they are fully consulted and in agreement with the proposal.	Refer to response F&B_01.
Henrys			
K&H_01	Consultation	[As adjoining landowners] to this stage we have not been contacted in regards to the proposal during the consultative process	AGL has consulted all landowners that would be directly impacted by the Northern Expansion Project. AGL's consultative process is ongoing and includes discussions raised from received submissions, subject of this Submissions Report, in which all members of the public are invited to comment on the project. AGL has undertaken a consultation process in accordance with statutory requirements (refer Chapter 6 of the EA). This process included clause 8F notification through newspaper advertisement and several Community Consultative Committee (CCC) meetings where enquiries were welcome. Letter box drops of the local area in regards to project updates have been distributed. Project Open days have been conducted, and AGL has attended the Camden and Campbelltown Show and made project information available. AGL also keeps its website up to date in regards to project developments.

K&H_02	Land Use	Concern about the nature of what the impact of this is going to have on our land given it is so close; concerns about long term sterilisation of land and implications for land value	Refer to **Section 3.6** and specifically **Section 3.6.2** of this Submissions Report.
K&H_03	Surface Water	Concerned about contamination due to run-off into creeks, streams and land.	Refer to response to DC_10 in this table.
K&H_04	Surface Water	Concerns about impact of VV11 on the dam's water supply.	VV11 has been removed from the Amended Project.
K&H_05	Surface Water	The impact of possible interrupted [water] supplies, possibility of contamination and long-term impact on the soil.	Refer to **Sections 3.4** of this Submissions Report.
K&H_06	Surface Water	Concern about livestock which rely on pastures, drink from the creeks, streams, dams and the like which may become contaminated. What impact would this have on the cattle: deaths lower birth rates.	As surface water contamination is not expected (as described in **Section 0** of this Submissions Report) and several mitigation measures are in place to respond to an event should a spill occur, the potential for livestock to be impacted is considered negligible.
K&H_07	Surface Water	Drinking water contamination.	Refer to **Section** 3.4 of this Submissions Report.
K&H_08	Flora and Fauna	Concern for wildlife – koala and black wallaby which is endangered.	Clearing of mature trees would be avoided. Flora and fauna impacts are assessed in **Appendix** E of this Submissions Report, and a range of mitigation measures are provided to ensure that fauna identified, or with the potential to occur in the Surface Project Area are minimised.
K&H_09	Air Quality	The impact of emissions from wells also needs to be considered.	An Air Quality Impact Assessment (AQIA) was undertaken as part of the EA and was included as Appendix G to the EA. The conclusions set out in the AQIA continue to be valid and applicable to the Amended Project. Further, previous assessments have also been undertaken for existing well fields and well surface locations of the CGP. Emissions from the well are minimal and given the implementation of appropriate buffer from sensitive receivers, would not have an impact on ambient air quality of the surrounding environment.

K&H_10	Visual	AGL is coming along and proposed to put an eyesore smack bang in the middle of the Scenic Hills which is potentially dangerous to flora and fauna.	Refer to response to CBLTN_16 in this table.
K&H_11	Groundwater	Leeching of toxic chemicals and contamination of groundwater.	Refer to **Section 3.4** of this Submissions Report. An assessment of surface water and groundwater hydrological impacts was included in Chapters 9 and 12 of the EA, which included an assessment of potential pathways for contamination of surface water and groundwater associated with drilling and fraccing activities. A Phase 1 Groundwater Assessment has been undertaken and is included in this Submissions Report (**Appendix** B), as well as preliminary results from Phase 2 Groundwater Assessment, which included the installation of dedicated groundwater monitoring bores and baseline data collection (**Appendix** C). In addition, a Groundwater Management Plan has also been prepared, and endorsed by the NSW Office of Water and the Environment Protection Authority, for the whole CGP (including the Northern Expansion Area). This Plan (included in this Submissions Report as **Appendix** D) provides a groundwater monitoring program as well as early response triggers and management responses should there be any significant change in the quality of the groundwater in the area.
K&H_12	Geology and Soils	Further erosion of the land.	The existing AGL EMS and SWMSP identify mitigation measures to manage erosion during and following construction. These measures include bunding, diversion drains, silt fences, and immediate initial rehabilitation including contouring and revegetation. The existing EMS would be updated to reflect the Amended Project works. Well surface locations would be designed to incorporate soil and water management measures such as suitable level and drainage diversions. These are presented in a Site Layout Plan which would be approved by the DP&I prior to construction. Once initial rehabilitation is completed, it is considered that well surface locations would not increase erosion of land at the site. Rehabilitation would be monitored regularly in accordance with the EMS.
K&H_13	Noise	Noise pollution.	Noise impacts were assessed in **Section 5.3** of this Submissions Report and Appendix F of the EA.

K&H_14	Air Quality	Emissions [Scenic Hills].	Refer to response to DC_15 in this table.
K&H_15	Land Use	Two schools in close proximity, one of which will be relying on dam water	A PHA was prepared as part of the EA which assessed hazard and risk of the project on surrounding sensitive land uses. These land uses included residences (urban and rural), schools, and other infrastructure such as electrical transmission feeders and existing underground pipelines. Due to the distance of the proposed works from schools (greater than 200m), potential impacts relating to hazard and risk are considered negligible. Local dams are primarily recharged by rainfall. The drilling of wells would not impact the recharge of dams and are unlikely to contaminate dams from surface water contamination as all contaminants would be contained on site.
K&H_16	Land Use	AGL needs to reconsider its project placement and look for other opportunities outside of this protected zone of the Scenic Hills.	The Amended Project has been designed to minimise the potential for conflicts with existing and potential future developments, as discussed in Section 5.3 of the EA and **Sections 3.6** and **5.1** of this Submissions Report.
Varroville House			
VV_01	EA Process	Scepticism is noted in relation to the timing of the public exhibition period so close to the year's major holiday period and determination due before the next NSW election. There appears "unseemly haste" attached to the project despite the number of concerns that have been raised.	The EA was publically exhibited once the adequacy review period was completed. The timing of public exhibition was extended by the DP&I given it was so close to the year's major holiday period, and further, submissions were accepted after the official close date (the most recently received submission is dated 25 June 2012). This Submissions Report has been prepared to respond to those submissions received and for provision to the DP&I for assessment and final determination. The timing of the approval would be determined in accordance with the EP&A planning requirements and as required by DP&I.

VV_02	Land Use	The EA's focus on 'surface project areas' and 'development envelopes' shows a limiting understanding of the significance of context for heritage properties and the relationship between the property and the surrounding environment. The landowners contend that the value of the property (house and estate) is far more significant than indicated in the EA.	An assessment of European heritage was undertaken as part of the EA (refer Appendix J of the EA) which identified sites within the Surface Project Area. An impact assessment of those sites was undertaken and concluded that given the implementation of the assessment envelope, impacts to heritage items are able to be avoided (refer to **Section 3.1.1**). Further heritage assessments were undertaken for the Amended Project and are included as **Appendix G** and **H**. Given the transient and temporary nature of the Amended Project, it is unlikely long-term impacts on heritage sites or items would be experienced within the Amended Project Area. Mitigation measures for the preservation of European heritage were provided in Section 16.4 of the EA. These measures have been supported by the Heritage Branch who raised no other objections to the assessment.
VV_03	Heritage	With approval of the Project, the landowners feel the DP&I would contradict its previous advice and commitment to preserving the environmental protection zone and demonstrate a disregard for important NSW heritage.	Mitigation measures for the preservation of European heritage were provided in Section 16.4 of the EA. These measures have been supported by the Heritage Branch who raised no other objections to the assessment. These mitigation measures were reiterated in the assessment for the Amended Project which is included in **Appendix H**.
VV_04	Groundwater	Landowners express concerns about the potential water depletion and contamination associated with coal seam gas mining (namely hydrofracturing) especially with regard to a number of dams established in colonial times which add to the heritage value of the estate.	Refer to **Sections 3.4** and 3.5 of this Submissions Report.
VV_05	Management and Monitoring	Landowners express concern with regard to environmental monitoring where no base line data is collected at the outset and responsibility for pollution such as increased salinity can therefore be avoided.	The Phase 1 Groundwater Assessment undertaken by Parsons Brinckerhoff (refer Appendix C) recommended the establishment of a Groundwater Monitoring Network prior to commissioning, to establish baseline data and to monitor and assess impacts of well production moving forward. AGL has since commenced a Phase 2 Groundwater Assessment , which includes installation of dedicated groundwater monitoring bores and collection of baseline data (since November 2011). The groundwater monitoring network has been and will continue to be established in consultation with NOW.
VV_06	Groundwater	AGL has not conducted hydrology/hydrogeology studies, stating that they will do so post project approval. Landowners find this unacceptable as without this information, they are unable to address and comment on possible issues of contamination and water depletion.	Refer to **Section 3.4** of this Submissions Report.

VV_07	EA Process	The EA's non-inclusion of site specific studies and environmental monitoring suggest a disregard for the environment and heritage areas until community pressure is applied.	Environmental management responsibilities and monitoring regimes are identified in the relevant sub plans within the existing and approved EMS. Detailed designs of each site, including site specific management plans would be implemented for each well surface location and watercourse crossing, and provided to the DP&I for approval prior to construction.
VV_08	Heritage	Any degradation to the water systems, biodiversity and protected Cumberland Plains Woodland caused by the CGP Stage 3 would compromise the heritage value of the Varro Ville and Scenic Hills areas. Varro Ville House and estate landowners express concern as to the consequences of such damage to the house's heritage listing at both National Trust and State levels and their legal obligation to conserve and maintain the property at their own expense, in line with these listings.	Mitigation measures for the preservation of European heritage were provided in Section 16.4 of the EA. These measures have been supported by the Heritage Branch who raised no other objections to the assessment.
VV_09	Heritage	The EA discounts impacts on Macquarie Fields House and Denham Court House because they are outside of the study area, not because they will not be affected.	As stated in the EA, the field survey was limited to the Surface Project Area as potential impacts within the Subsurface Project Area were considered negligible due to the distance of activities from the surface and the subsequent low probability of impact upon heritage items. Visual impacts have been assessed in the EA and considered a number of factors including extent of visibility, viewing distance and number of viewers. Visual impacts were considered to be minimal given the implementation of mitigation measures (refer Section 17.5 of the EA). Given the implementation of mitigation measures and the transient and temporary nature of the Amended Project, it is considered that visual impacts on heritage curtilages would not be significant.
VV_10	Visual	The EA states that impacts on the view corridor from Varro Ville to Macquarie Fields House and Denham Court House are predicted to be negligible due to the presence of buildings of a greater scale and visual presence than the proposed infrastructure. The landowner states that there are no buildings currently visible in those view lines from Varro Ville House and the presence of such buildings is not necessarily adverse (as long as such buildings are consistent with the rural heritage character of the area of which AGL's structures are not). Presence of existing buildings in the Varro Ville and Scenic Hills area is not reason to further compromise the area with new development	Refer to response to VV_09 in this table.

VV_11	Land Use	Landowners are concerned that the CGP Stage 3 development will set a precedent for other new developments in the Varro Ville and Scenic Hills area which are not in line with the area's rural colonial character and subsequently compromise the heritage of the site.	Noted. AGL cannot control the development of any other proposed projects in the area.
VV_12	EA Process	AGL has not specified the in-field compression and performance of wells.	The DP&I have been consulted regarding AGL's approach to in-field compression. In-field compression will be assessed on its own merit once it is required, to the satisfaction of the DP&I.
VV_13	EA Process	The data used in the EA and its appendices is generalised and not site specific and a number of sub reports are still outstanding. The EA fails to demonstrate an understanding of the complex and interactive nature of the environment. The overall quality and standard of the EA is of much concern and AGL makes no commitments, only 'considers' doing things.	The CGP has been in operation for several years and is well understood by AGL and regulatory authorities. Environmental management responsibilities and monitoring regimes are identified in the relevant sub plans within the existing and approved EMS (available online at www.agl.com.au). Site specific management plans would be implemented for each well surface location and watercourse crossing. The DP&I and government agencies were generally satisfied with the level of detail provided in the EA. Where additional detail has been requested, additional information has been provided by AGL through the responses contained within this Submissions Report. AGL would continue to meet requirements of the agencies in any Project Approval.
VV_14	EA Process	Landowners object to the entire CGP Stage 3 project and support a moratorium on new approvals of coal and coal seam gas developments. The moratorium is to allow a period of independent research to assess the impact of the industry on areas of social and environmental concern.	Noted.
VV_15	Statutory Planning	Landowners support Campbelltown Council's call for the establishment of a Planning Assessment Commission to specifically investigate the project.	Noted. The Minister for Planning and Infrastructure has delegated the assessment of the project to the PAC.
Scenic Hills Association			
SHA_01	EA Process	Timing of the public exhibition period and the determination due date limited the ability of responders to research and seek professional expertise in order to make a quality submission. An imbalance is noted in the length of time given for AGL to make its proposal and for the community to respond.	Timing for public exhibition is nominally a minimum of 30 days. However, the EA for the Northern Expansion was exhibited for a total of 43 days, from 26 October 2010 to 7 December 2010. It should be noted that submissions were also accepted after this date, with the most recent submission accepted dated 25 June 2012.

SHA_02	Statutory Planning	AGL's classification of the Project as a 'public utility undertaking' or 'public utility installation in petroleum production' is thought misleading and insincere, for the intent of making it permissible within the respective LEPs. Extractive industries and mining are specifically prohibited under the Environmental Protection zoning and within Campbelltown LEP. AGL's interpretation of the legislation is incorrect.	Refer to **Section 3.2.3** of this Submissions Report.
SHA_03	Land Use	The CSG project is incompatible with the Environmental Protection zoning of both Campbelltown and Camden LGAs. The EA states that much of the undeveloped and agricultural land has been rezoned or proposed to be rezoned for planned future growth. This is incorrect for the Scenic Hills area.	Refer to **Section 3.2.3** of this Submissions Report. With regard to land use within the Scenic Hills area, it is noted in the EA that parts of this area is not proposed for redevelopment and rezoning.
SHA_04	EA Process	The data used in the EA and its appendices is generalised and not site-specific and a number of sub reports are still outstanding. These site-specific sub reports are deemed essential prior to project determination. The lack of site specific data suggests a disregard for the environment and heritage areas and undermines the integrity of the EA as community members are unable to comment on information that is not provided. The community's local knowledge and expertise identifies a number of incorrect conclusions regarding the European Heritage, Noise, Hazard and Risk and Consultation sections of the EA (as discussed in previous submissions). A lack of quality control and peer review is also noted.	The CGP has been in operation for over ten years and is well understood by AGL and regulatory authorities. Environmental management responsibilities and monitoring regimes are identified in the relevant sub plans within the existing and approved EMS (available online at www.agl.com.au). Site specific management plans would be implemented for each well surface location and watercourse crossing. The DP&I and government agencies were generally satisfied with the level of detail provided in the EA. Where additional detail has been requested, additional information has been provided by AGL through the responses contained within this Submissions Report. AGL would continue to meet requests of the agencies in the Project Approval conditions. AECOM Australia Pty Ltd is an independent company commissioned by AGL to undertake the environmental assessment of the project. DP&I, OEH and other agencies provided independent review and assessment of the documentation prepared by AECOM. As per the AECOM Document and Record Control Policy and Procedure - part of the company's externally accredited AS/NZS ISO 9001 Integrated Management System - a stringent quality control and peer review process is undertaken for all documents released to the public by the company.
SHA_05	Groundwater	AGL has not conducted hydrology/hydrogeology studies or provided technical details of its proposed use of hydrofracturing, stating that they will do so post project approval. The EA therefore fails to meet the standards recently specified by the National Water Commission in its assessment of water related impacts.	Refer to **Section 3.4** of this Submissions Report.

SHA_06	EA Process	The EA's focus on 'surface project areas' and 'development envelopes' shows a limiting understanding of the complex relationship between surface and subsurface environments. The EA envelope methodology is flawed, limiting the assessment to a certain geographic area and only considering the above ground affects.	Field surveys and assessments were generally limited to the Surface Project Area as potential impacts within the Subsurface Project Area were considered negligible due to the distance of activities from the surface and the subsequent low probability of impact upon the surface environment. This is due to the findings that subsidence impacts as a result of subsurface drilling is negligible (refer to Appendix K of the EA). Subsurface impacts have been considered with respect to groundwater. A Phase 1 and initial Phase 2 groundwater assessment have been undertaken to identify the connectivity between aquifers. The groundwater monitoring network would be established in consultation with NOW.
SHA_07	Project Description	AGL has downplayed the expected impact of the project by concealing the project size. The description of 12 well sites associated with well heads (instead of 72 wells) is misleading. The EA also omits details of ancillary infrastructure, central water storage points, infield compression and well performance, simply stating that additional infrastructure is to be implemented "where required". AGL seeks permission for this project with many elements still unknown.	AGL has accurately described the worst case scenario of wells in the EA, where the project comprises: *…Up to 12 well surface locations containing up to 6 well heads each* Further, the glossary at the front of the EA defines a well surface location as *an area that may incorporate up to 6 co-located wells at one site or compound*. The Amended Project presents an alteration to the number of well surface locations since the original lodgement of the application. As per Section 4.0 of this Submissions Report, there would be up to 11 well surface locations within the Surface Project Area, with up to six wells at each site, for a total of 66 wells across the Surface Project Area.
SHA_08	EA Process	There is a lack of economic analysis in the EA, including a lack of assessment of the cost to the community and quantitative data to support the "do nothing" option	Economic impacts were assessed in Section 20.3.2 of the EA.

SHA_09	Land Use	The EA has failed to outline rare and unique properties of the area, undervaluing the significance of heritage, sensitive land uses and the natural environment. The proposal is not compatible with the sensitive land uses of the Scenic Hills area and threatens the way of life of such uses (monasteries, churches and schools).	A description of the existing land use within the Surface Project Area was provided in Section 8.1 of the EA and has been readdressed in Section 3.6 of this Submissions Report and the revised Indigenous and European Cultural Heritage Assessments (refer to **Appendices** F and G of this Submissions Report). The significance of heritage in the area was determined through desk and field investigations, which informed archaeological significance. The significance of the natural environment in the area, and potential impacts to this, was the focus of the environmental impact sections of the EA (Sections 8.0 to 25.0 of the EA). Particular elements of this have again been considered in this Submissions Report. In addition, through the use of the environmental envelope and locational guidelines, land use constraints have been identified and avoided where possible. Issues of significant environmental concern were addressed through specific specialist assessments (refer to appendices to the EA). With particular regard to addressing land use impacts, the Preliminary Hazard Analysis (PHA) (refer Appendix D of the EA) was undertaken with consideration to DP&I's Locational Guidelines for Development in the Vicinity of Operational Coal Seam Methane Wells (2004) (Locational Guidelines), and demonstrated the potential land use risks presented by the construction and operation of the Amended Project. The Locational Guidelines describe the use of separation distances to ensure an appropriate buffer between developments (including monasteries and schools) and an existing or future operating CSM well and its associated equipment.

SHA_10	Project Justification	Submissions raise the question of whether the quality of CSG deposits and ease of extraction justifies the potential damage to the community and surrounding area. No discussion of renewable energies as an alternative.	Alternative energy sources for NSW were considered in Section 3.2.1 of the EA. AGL has considered that with regard to alternative energy sources, coal seam gas is considered to be a superior option for bringing a cleaner and more energy efficient, indigenous fuel source to the market. While AGL's current primary energy generation sources are in traditional sources (gas and coal), AGL is also in favour of research and development of renewable sustainable sources of energy. This is demonstrated by its current energy generation portfolio of which 55% comprises renewable energy or low-emission generation assets (including gas fired, hydro, wind, landfill gas and biogas). AGL has also influenced climate change policy with their study - "Options for Moving Towards a Low Emission Future" now adopted by policy makers worldwide. AGL received the Climate Change Leadership Award and the Business Sustainability Award from the 2010 Green Globe Awards for its contributions to climate change and renewable energy. AGL supports the introduction of the Commonwealth Government's Clean Energy Future package, and specifically placing a price on carbon from 1 July 2012. AGL wishes to see the bipartisan emission reduction target achieved at the lowest cost to our customers and all Australian families and businesses. While AGL continues to investigate renewable energy, traditional energy is still needed to meet the current consumer demand.
SHA_11	Statutory Planning	Concern raised that the 'state significant' CGP Stage 3 development will set a precedent for other new developments within the Scenic Hills area which are not in line with the area's rural colonial character and subsequently compromise the heritage of the site.	Legislation determines whether a project is 'state significant' or a 'major development'. Further information of the Northern Expansion Area as a major project was detailed in Section 5.2.9 of the EA. The repeal of Part 3A and information regarding state significant development (SSD) is outlined in **Section 1.3** of this Submissions Report.
SHA_12	EA Process	Support for a moratorium on new approvals of coal and coal seam gas developments. The moratorium (Lock the Gate Alliance) is to allow a period of independent research to assess the impact of the industry on areas of social and environmental concern.	Noted.
SHA_13	EA Process	Supports Council's call for the establishment of a Planning Assessment Commission to specifically investigate the project.	Noted. The Minister for Planning and Infrastructure has delegated the assessment of the Project to a PAC (for more detail refer to **Section 1.3.1** of this Submissions Report).

SHA_14	Heritage	Damage to the landforms, soil and water in turn threatens the rural use and European heritage of the area. This notion is backed by a report from the NSW Heritage Council and National Trust (2000), which states that such Colonial landscapes are of exceptional significance in demonstrating the interaction of early European settlers with the Australian landscape.	AGL acknowledges the importance of heritage items within Chapter 16 of the EA and within Appendix J of the EA. The Northern Expansion Project and the Amended Project have been designed and assessed such that areas of environmental constraints, including heritage items, can be avoided thus avoiding impacts to those areas of environmental sensitivity. Management sub plans for soil and water and landscapes already exist for the CGP. These plans would be updated to reflect the works of the Amended Project and the mitigation measures presented in the EA and this Submissions Report. It should be noted that the mitigation measures proposed in the EA to protect European heritage has been supported by the Heritage Branch.
SHA_15	Land Use	The EA dismisses the Mount Annan Botanic Garden as a "local tourist attraction", diminishing its value as the largest botanic garden in Australia.	The EA states the following in Section 8.1.2: *The Mount Annan Botanical Gardens located in the south of the Surface Project Area (Figure 6) is the largest botanic garden in Australia and provides valuable tourism and environmental conservation values to the local community. It covers 416 ha including some remnant Cumberland Plain Woodland and houses Horticultural Research facilities.* AGL has acknowledged the value of the Mount Annan Botanic Gardens in the EA and has also been in consultation with the Gardens to ensure impacts within the site are minimised and managed in accordance with its conservation significance.
SHA_16	Heritage	There is no importance given to the Aboriginal heritage of the area, including the Yandel'ora special meeting place or significance of the Scenic Hills area.	The indigenous heritage significance of the Northern Expansion Area is specifically addressed in **Appendix G** of this Submissions Report and Appendix I of the EA. The Yandel'ora meeting place is located within the Mount Annan Botanic Gardens. This area would not be impacted by the proposed gas gathering lines or well surface locations. Moreover, this area is contained in the boundaries of the Tharawal Local Aboriginal Land Council, members of which were involved in all aspects of field survey, two formal consultation meetings and consultation regarding proposed recommendation and mitigation measures for the project. Consultation with Registered Aboriginal Parties is ongoing.

SHA_17	Air Quality	Air pollution is already too high. Further damage to the Scenic Hills area will affect its use as a greenspace buffer zone.	The surrounding ambient air quality was assessed as part of the AQIA for the project (Appendix G of the EA). The contribution of emissions from the Northern Expansion Project on the existing ambient air quality was assessed as having a negligible impact. This conclusion remains the same in relation to the Amended Project. The Amended Project would not affect the land's use as a greenspace buffer zone.
SHA_18	Air Quality	Concern expressed for increases in air pollution and its impact on instances of lung disease.	Air quality impacts were assessed in Appendix G of the EA. The contribution of emissions from the Northern Expansion Project on the existing ambient air quality was assessed as having a negligible impact. Air quality impacts of the Amended Project were also assessed and as the total number of well surface locations has been reduced, the Amended Project would have a reduced impact on air quality and are still considered negligible.
SHA_19	Land Use	The Project goes against Campbelltown Council's regard for the area as the backdrop or unique setting for the City of Campbelltown. Council notes this project has potential to adversely affect implementation of strategic planning documents that apply to the area.	The potential for land use conflict has been minimised through the implementation of the environmental envelope assessment approach (refer **Section 3.1.1**), and consultation with developers and planning authorities in relation to future land use zoning. Consideration has also been given to historic heritage values in the local area, through the Historic Cultural Heritage Assessment (refer to **Appendix** G of this Submissions Report). While much of the surrounding environment is likely to experience a change in character due to the future development of the South West Growth Centre and other future urban (residential, commercial and industrial) development, the presence of field infrastructure is not considered to sterilise the land for future uses or negatively impact on the use of surrounding land.

SHA_20	Management and Monitoring	AGL admitted no environmental monitoring has taken place in the last 10 years of the Stage 1 and 2 of the CGP and that any such monitoring after this time would be pointless as no baseline measurements had been taken. AGL's experience, noted in the EA, is therefore subjective. The EA states further environmental management and monitoring would be incorporated into existing EMS of which AGL has indicated there has been none. Concern has been raised that this is indicative that there will continue to be no monitoring for Stage 3.	AGL understands that this submission relates to groundwater monitoring. Refer to **Section 3.4** of this Submissions Report. During stages 1 and 2 of the CGP, AGL has collected groundwater data from each of its operational wells. In addition, AGL currently undertakes groundwater monitoring of operations at the CGP via a network of dedicated monitoring bores in accordance with the requirements of its water licences, planning approvals and Environment Protection Licence. In particular, AGL's current water licences and approved groundwater management plan require groundwater monitoring which AGL carries out. The current approved Groundwater Management Plan already contains monitoring requirements which will apply to the Amended Project if approved.
SHA_21	Consultation	The EA states that community was consulted as to the location of wells, gas gathering lines and access roads and that these sites were chosen to accommodate the primary existing land use. Community members of the Scenic Hills area are not aware of any such communication or consultation prior to the release of the EA.	The Northern Expansion Project was introduced to the community in March 2009 through the Community Consultative Committee (CCC) and notice of the component parts of the project was given through and advertisement published on the 11 March 2009 in the Campbelltown-Macarthur Advertiser. Further updates for the Project were provided on 16 July 2009 and 18 November 2009 to the CCC. Additional consultation was undertaken in relation to the Amended Project (i.e. alterations to well sitings and access tracks). Consultation has been undertaken in accordance with statutory requirements.
SHA_22	EA Process	Campbelltown City Council's submission states that the EA has not satisfactorily addressed all the Director-General Requirements.	The DP&I and Government agencies were satisfied with the level of detail provided in the EA. Where additional detail has been requested, additional information has been provided by AGL through the responses contained within this Submissions Report.
SHA_23	EA Process	There is a perceived complicity between AGL and DP&I to allow flaws, errors and unspecified items in the EA. The DP&I's acceptance of the EA for public exhibition, without requests of Campbelltown City Council, gives no confidence that the sub-reports would be of the appropriate standard either. AGL states that it has met the requirements of the DP&I, if so the DP&I has not met community expectations.	The DP&I and Government agencies were satisfied with the level of detail provided in the EA. Where additional detail has been requested, additional information has been provided by AGL through the responses contained within this Submissions Report.

SHA_24	Management and Monitoring	AGL fails to ensure confidence that damage will not occur giving no criteria for what damage can and cannot be avoided. The community is given no confidence in AGL's ability to self-monitor as it appears that such decisions are made only at AGL's discretion.	AS outlined above, the CSG industry is heavily regulated. AGL's current approvals for the CGP contain stringent conditions aimed at avoiding and mitigating damage and impacts. Any approvals granted for the Amended Project will contain similar conditions. Non-compliance with any such conditions may result in regulatory action and the imposition of sanctions. The environmental monitoring and management of the CGP is externally audited by an independent party through a regular Independent Environmental Audit (IEA) process which is monitored and approved by DP&I. The results of the IEA are also publically available.
SHA_25	EA Process	Consultants that are described as independent are perceived to be acting under the control and supervision of AGL.	AGL is required by law to undertake an environmental assessment in accordance with relevant planning instruments. AGL does not have the expertise to undertake required assessments (e.g., heritage) and requires the expertise of technical specialists. AGL must therefore engage independent impact assessment consultants. AECOM Australia Pty Ltd is an independent company commissioned by AGL to undertake the environmental assessment of the Northern Expansion Project and to prepare the Submissions Reports for the Amended Project. DP&I, OEH and other agencies provided independent review and assessment of the documentation prepared by AECOM.
SHA_26	Project Description	AGL refuses to provide written detail of risk areas such as the potential hazards associated with hydrofracturing stating that it is too technical, therefore avoiding proper scrutiny of the process.	Refer to **Section 3.4.2** of this Submissions Report.
St Sava College			
SAV_01	Land Use	The Project is incompatible with the land use zoning and the existing St Sava development.	Refer to response to NUN_09 in this table and to **Sections 3.6** and **5.1** of this Submissions Report.

SAV_02	Land Use	The masterplan for the St Sava site includes an aged care facility exactly within the area deemed to be affected by the proposed placement of well W07. A determination which would allow the digging of this well would deem the provision of such facilities impossible.	Refer to **Section 4.2** of this Submissions Report. VV07 has been removed from the project. Well surface location VV03 now forms part of the Amended Project. It is located in a position to access gas reserves in place of both VV07 and VV11 Amended Project. VV03 also avoids impact with existing and future land uses, as it is located approximately 5km south-east of VV07 and away from the former site. Access to VV03 would be via an access track from Raby Road south of VV03, eliminating the northern access tracks previously planned for VV07 and VV11 access.
SAV_03	Traffic	The use of the existing access roads which extend through the middle of our property are objectionable in every respect. Student safety and the inevitable constant disruption caused by trucks and commercial vehicles passing through the school would be sufficiently objectionable. However, the transportation of toxic waste through the very heart of the school and the very real threat of spillage is of much graver concern.	As per **Section 4.0** of this Submissions Report, the access roads which are the subject of this submission would no longer be impacted by the Amended Project. Well surface locations VV07 and VV11 have been removed from the Amended Project. Traffic impacts to this landholder would be minimised. Any hazardous wastes would be disposed offsite and would be classified, transported and disposed of in accordance with the Waste Classification Guidelines which includes safe transportation of waste (OEH, 2008).
Anonymous			
ANON_01	Land Use	AGL's proposal is industrialising the Scenic Hills – violating and threatening the survival of the Hills.	Refer to response to DC_01 in this table.
ANON_02	Groundwater	AGL plans to use the controversial 'fraccing' process to extract gas, which is proving to have very detrimental environmental and health consequences.	**Section 3.4.2** of this Submissions Report discusses specific issues relating to fraccing, including composition of the fraccing fluids.

ANON_03	Land Use	AGL plans to put wells close to residential properties and on 'sensitive' land (including, schools, churches and a monastery).	The EA has included technical assessments for air quality, noise and traffic. Land use impacts with regard to sensitive receivers have been addressed in **Section 3.6** of this Submissions Report. Given the implementation of mitigation measures as identified in this Submissions Report and in the EA, the Amended Project has been assessed to meet the relevant criteria. It is considered that potential nuisance impacts are therefore manageable and would only result in short-term, localised impacts limited to the construction phase. Additional mitigation measures would also be employed in sensitive areas where required (such as additional noise walls). This Submissions Report has demonstrated that acceptable environmental, amenity and safety outcomes can be met at all residential properties and on sensitive land, through the amendments to the Amended Project layout which were largely driven by the avoidance of land use conflicts.
ANON_04	Heritage Flora and Fauna	Rich layers of heritage in the Hills are threatened – Aboriginal 'places' and artefacts of high sensitivity, "critically endangered" Cumberland Plain Woodland, colonial landscapes and historic states that shaped the beginning of pastoral industry in NSW and Australia.	Refer to response to DC_13 in relation to heritage and **Section 3.3.1** of this Submissions Report in relation to potential impacts on CPW.
ANON_05	Land Use	AGL plans to run its main gas spine line through the Australian Botanical Garden at Mount Annan (Australia's largest botanical garden), and along Sydney's water canal (Upper Canal), threatening Sydney's water supply and publicly owned State heritage.	Mount Annan Botanical Gardens has been consulted as part of the EA process. AGL intends to locate the GGLs within an existing infrastructure easement owned by Endeavour Energy (formerly Integral Energy) in order to minimise impacts in accordance with the locational guidelines. Endeavour Energy has also been consulted as part of the Northern Expansion Project and the Amended Project, and have granted permission for the Main Gas Spine Line to be located within the existing easement. Given the location of the Main Gas Spine Line within an existing easement, significant impacts on the Mount Annan Botanical Gardens are not anticipated. The Main Gas Spine Line has been located within the Upper Canal to meet the requirements of the Sydney Catchment Authority and to the satisfaction of the Heritage Branch (refer to DOPH_01). The Amended Project would not have a significant impact on the heritage value of the Upper Canal during construction or operation. For further detail on surface water, ecological and heritage impacts refer to **Sections 3.5** and **5.7** (surface water), **3.3** and **5.2** (ecology) and **5.4** and **5.5** (heritage) of this Submissions Report.

ANON_06	EA Process	AGL's Environmental Assessment is inadequate leaving too many 'unknowns'.	The EA for the Northern Expansion Project was prepared in accordance with the requirements of the EP&A Act and was accepted by the DP&I as complying with the Director-General's Requirements. Additional information regarding the Amended Project and specific environmental issues have been clarified in this Submissions Report. This information will assist in the approval assessment process.

Ref #	Category	Issue	Response
Mary Lou Potts Pty Ltd			
MLP_01	Groundwater	AGL has failed to implement or conduct operations so as to ensure there is no pollution or contamination of groundwater aquifers in the petroleum production leases. As a consequence, whether there has been pollution or contamination of groundwater over the last nine years is yet to be determined. Currently groundwater is not part of its monitoring program.	No groundwater pollution associated with the CGP has been identified. A Phase 1 Groundwater Assessment was undertaken for the project and is provided in **Appendix** B to this Submissions Report. AGL has committed to further groundwater investigations for the Amended Project Area, including investigation into the role of faults in groundwater flow, and their potential for transmitting groundwater, as well as the development of a groundwater monitoring network to monitor water levels and water quality in the major aquifer zones. A Phase 2 Groundwater Assessment investigations has commenced (since November 2011) and initial results are included in **Appendix C** to this Submissions Report. In addition a Groundwater Management Plan (AGL, 2012) has recently been completed, and endorsed by the NSW Office of Water and the Environment Protection Authority, for the whole CGP (including the Amended Project Area) that includes a groundwater monitoring program and response triggers and management responses should there be unexpected water level and water quality trends. These responses would be implemented in the event that impacts are detected in the major aquifer zones. This Groundwater Management Plan is included as **Appendix D** of this Submissions Report.
MLP_02	Groundwater	It is our view that a study of the hydrochemistry of and hydraulic connectivity between aquifers in the CGP subsurface area is essential.	A Phase 1 and initial Phase 2 Groundwater Assessment was undertaken for the project and is provided in **Appendix** B of this Submissions Report. Further groundwater investigations as part of the Phase 2 Groundwater Assessment have commenced by AGL for the Amended Project Area, including investigations near a known fault, as well as the development of a groundwater been monitoring network to monitor water levels and water quality in the major aquifer zones. Initial results from the first nested monitoring bore location at Denham Court are included in this Submissions Report (PB, 2012; refer to **Appendix** C). In addition, a Groundwater Management Plan (AGL, 2012) has recently been completed, and endorsed by the NSW Office of Water and the Environment Protection Authority, for the whole CGP (including the Amended Project Area) that includes a groundwater monitoring program and response triggers and management responses should there be unexpected water level and water quality trends. These responses would be implemented in the event that impacts are detected in the major aquifer zones. This Groundwater Management Plan is included as **Appendix** D of this Submissions Report.

Ref #	Category	Issue	Response
MLP_03	Groundwater Surface Water	The Project is in close vicinity of the Sydney catchment area, pollution or contamination of groundwater, let alone Sydney's drinking water, is an unacceptable risk which no amount of money can rehabilitate.	Refer to **Sections 3.4** and 3.5 of this Submissions Report.
MLP_04	Groundwater	The potential impacts of coal seam gas mining on the surrounding groundwater includes: - Pollution of groundwater from the heavily salinated coal seam water and BTEX chemicals found in the coal seam, - Pollution and potential contamination of groundwater from hydrofraccing chemicals; - Pollution and potential contamination of groundwater with methane; - Dewatering of the coal seam aquifers resulting in lowering of the water table and dewatering of overlying aquifers.	Groundwater extracted from the coal seam would carry various compounds, including salts and traces of other elements associated with its interaction with the coal seam. These compounds and elements already exist within the aquifer within the coal seam, and would not be added by the Amended Project to existing groundwater. Water produced during the extraction process would be carefully managed in lined pits and/ or tanks at each well site to ensure that groundwater from the wells sites does not impact on surface water or other aquifers. BTEX chemicals are not used in fraccing fluids for the development of wells in the CGP, and AGL does not intend to use BTEX chemicals as part of the Amended Project. Refer to **Section 3.4.2** of this Submissions Report in relation to fraccing chemicals. The process of CSG extraction requires depressurisation of the aquifer within the coal seam to release the gas for extraction. This depressurisation focus on the point of extraction (around the well), and the pressure gradient formed means that coal seam gas would tend to migrate towards the well, rather than away from it. The potential for contamination of surrounding groundwater with methane is therefore unlikely. The potential implications of groundwater depressurisation were considered in detail in Chapter 12 of the EA.
MLP_05	Groundwater	The reduction in hydrostatic pressure within the coal seam can result in subsidence, faulting and consequent hydraulic connectivity between aquifers that overlie or underlie the coal seam aquifer.	Refer to response to DC_14 in this Table.
MLP_06	Groundwater	AGL has obligations to protect groundwater: - Under its petroleum production lease; - Under its petroleum exploration lease; - As part of the Director-General's Requirements; - Under the *Protection of the Environment Operations Act 1997*; - Under its Protection of Environment Operations Licences; and - Under the *Contaminated Land Management Act 1997*. Yet it has ignored those obligations in Stages 1 and 2 of the CGP.	AGL has not ignored its current legal obligations. Rather, AGL seeks to undertake its operations in accordance with relevant statutory requirements and any relevant approvals. Further, no groundwater pollution associated with the CGP has been identified.

Ref #	Category	Issue	Response
MLP_07	Groundwater	AGL is currently in breach of the *Water Act 1912* for failing to have licences for each of its 123 wells.	AGL is not in breach of the *Water Act 1912 (NSW)*. Each of AGL's current wells are appropriately licensed. AGL currently holds a water licence across its CGP operations under the *Water Act 1912 (NSW)* with a combined entitlement of 30 ML per year. It has lodged a separate application for a further 30 ML per year allocation with NOW, which is currently under assessment.
MLP_08	Groundwater	No consideration should be given to the Stage 3 application until AGL has remediated breaches within Stages 1 and 2 and it is found that there is no pollution or contamination of groundwater in the subsurface Camden Gas project area.	As outlined above, no groundwater pollution associated with the CGP has been identified. Potential for pollution or groundwater contamination as part of the Amended Project has been assessed as part of the EA and this Submissions Report through the provision of the Phase 1 Groundwater Assessment (**Appendix** B). AGL is committed to undertaking further assessment (including the ongoing Phase 2 Groundwater Assessment) and implementing the recommended groundwater monitoring network, including as set out in the approved Groundwater Management Plan.
MLP_09	Groundwater	To fulfil those obligations of identifying and implementing operations to ensure no pollution or contamination of groundwater, testing of the chemistry, positioning and connectivity between coal seam aquifers and surrounding aquifers is essential, and regular monitoring thereafter should be mandatory. This should be done by an independent body whose fees should be drawn from AGL's security under its PPLs, which AGL should then top up. This study must be conducted by a totally independent body, not one which is instructed or paid for directly by AGL, and the results of the testing and monitoring should be made available to the public immediately on production.	A Phase 1 Groundwater Assessment was undertaken for the project and is provided in **Appendix** B of this Submissions Report. Further groundwater investigations as part of a Phase 2 Groundwater Assessment are under way by AGL for the Amended Project Area, including investigations near a known fault, as well as the development of a groundwater monitoring network to monitor water levels and water quality in the major aquifer zones. Initial results from the first nested monitoring bore location at Denham Court are provided in a recent letter report (PB, 2012; refer to **Appendix** C). Contingencies would be identified, which would be implemented in the event that impacts are detected in the major aquifer zones. AGL is required by law to undertake an environmental assessment in accordance with relevant planning instruments. AGL does not have the expertise to undertake its own studies (e.g., heritage) and requires the expertise of technical specialists. AGL must therefore engage independent impact assessment consultants. AECOM Australia Pty Ltd and Parsons Brinckerhoff are independent companies commissioned by AGL to undertake the environmental and groundwater assessments related to this project. DP&I, OEH and other agencies provided independent review and assessment of the documentation prepared by AECOM, including the Phase 1 Groundwater Assessment (refer **Appendix** B of this Submissions Report).

SJB Planning - SH Camden Valley Way Pty Ltd			
SJB_01	Land Use	Well CU02 appears to be located in close proximity to future alignment of North Spine Road, as identified in the Turner Road DCP, or within the B5 Business Development zoned portion of the land. Concerns that proposed well location has potential to sterilise this part of site and affect future subdivisions and alignment of North Spine Road.	As noted in Section 8.2.2 of the EA, CU02 is located within land earmarked for Business Development under the zoning plan for the Turner Road precinct. Final wellhead infrastructure would require a minimal area of land, along with an appropriate buffer between the well surface location and certain land uses. It has been demonstrated through previous stages of the CGP that CSG infrastructure can co-exist within an urban environment with no significant residual impact. The potential for the sterilisation of land for future development and subdivisions is considered to be low. The alignment of North Spine Road will be unaffected by this well location. In accordance with Locational Guidelines (refer to Section 5.2.14 of the EA), well surface locations have been chosen in consultation with landowners. AGL would continue to consult with the relevant landowners within the Turner Road Development Area. In particular, consultation with the landowner was undertaken with respect to the location of CU02 and the associated gas gathering and access roads. The well surface location has been sited in a location that avoids conflict with the proposed future development of businesses. The location of CU02 has been sited with a minimum buffer of 20m from the nearest residential development as recommended by the Locational Guidelines. The maintenance of this buffer distance would be maintained throughout the Amended Project. Moreover the well site would be fenced as described in the Project Description section of the EA. Overall, the flexibility built into the Amended Project would ensure that there minimal impact or constraint imposed upon land uses or future development on surrounding land as a result of the Amended Project.
SJB_02	Land Use	Written confirmation requested to support verbal confirmation by Adam Lollback from AGL in 2011 that well CU22 will remain on eastern side of Sydney Catchment Authority – Water Supply Canal.	As stated in **Section 4.2.1** of this Submissions Report, CU22 has been relocated approximately 900m east from its formerly proposed location and is no longer located in the Scenic Hills/Gledswood Estate development area. However, the location of CU22 remains on the eastern side of the SCA Upper Canal. The assessed envelope for CU22 is shown on **Figure 3** of this Submissions Report.
SJB_03	Land Use	Confirmation requested that well CU20 will not be located on western side of Sydney Catchment Authority's – Water Supply Canal.	As per **Section 4.0** of this Submissions Report, CU20 has been removed from the Amended Project.

SJB_04	Air Quality	Air quality assessment is based upon existing residential receivers, and does not take into consideration the potential impact of gas venting upon future occupants within land holdings of SH Camden Valley Pty Ltd. Request for air quality assessment to be updated to reflect location of future residents within these landholdings.	Potential impacts relating to air quality are primarily limited to the construction phase and are therefore short term and are unlikely to impact future residential receivers dependent on the timing of construction in relation to the timing of future development. Previous well field developments in the CGP have demonstrated that impacts are relatively minor and long term impacts are considered negligible. Stages 1 and 2 of the CGP have demonstrated that the construction and operation of well surface locations can coexist with future development areas with minimal impact provided effective mitigation measures are implemented. Potential impacts to air quality would be managed through the update and continued implementation of the existing Air Quality Management Sub Plan (AQMSP). The likelihood of venting is discussed in the AQIA appended as Appendix G to the EA. Venting may be a necessary but is a rare event during commissioning/ production of a well, however there are several methods used to control or remove the need for venting. The Amended Project is proposing a tie-in connection to the existing CGP. In particular, wells in the southern part of the Amended Project Area would aim to immediately tie-in and send gas to the existing RPGP, which would remove the need to vent emissions at those locations (including CU02). It is therefore considered unlikely that a venting event would occur in the vicinity of the SH Camden Valley holdings and impact future occupants.
SJB_05	Air Quality	Request for surface wells CU02, CU20 and CU22 to be immediately tied-in to gas gathering system during (well) commissioning to ensure gas venting events do not occur.	The following was stated in Section 14.3.2 of the EA: *Some wells (such as those proposed in the southern part of the project area) would include immediate tie-in of gas gathering lines to the existing RPGP during commissioning, which would remove the need to vent emissions. As the CGP develops (through the commissioning of additional wells), venting will be less required as tie-ins to the existing system become more feasible.* If practical at the time of commissioning, wells in the central surface project area - CU02 and CU22 - would be immediately tied-in to the gas gathering system. CU20 has been removed from the Amended Project.

SJB_06	Air Quality	EA does not accurately quantify or assess potential odour impacts originating from the Project. No environmental mitigation measures relating to odour impacts are outlined in Section 14.4 of the EA. Request for odour assessment to be undertaken with mitigation measures determined which would result in zero impact on development.	An AQIA was prepared and included as Appendix G of the EA and assessed both potential air quality and odour issues in relation to the project. It was prepared in accordance with the *Assessment and Management of Odours from Stationary Sources in NSW – Technical Framework and Technical Notes* (DECC, 2006). The AQIA concluded that the potential for significant impacts related to either air quality or odour is considered unlikely based on AGL's past experience from similar drilling operations and given the distance of well surface locations from the nearest residential receivers (refer Section 5.1 of the AQIA). Mitigation measures would include the measures identified in the existing Air Quality Management Sub Plan in the existing CGP EMS, to ensure potential air quality and odour impacts during construction are minimised. As per the EA findings, odour is considered to be a low risk impact associated with the development, with regard to both the likelihood and severity of the potential impact.
SJB_07	Air Quality	Request to seal access roads to ensure dust generation during operation is minimised, particularly dust generated during high wind events.	Some access roads in the area are sealed. All unsealed surfaces would be sprayed with water to minimise excessive dust generation if necessary (such as on dry days in combination with high wind events). Mitigation measures to manage excessive dust will be followed as per the Air Quality Management Sub Plan in the existing CGP EMS, which will be updated to encompass the Amended Project.
SJB_08	Hazard and Risk	Minimum distance required to minimise probability of a fatality is outlined in PHA as 20 metres. Unclear whether analysis took into account future residents within land holdings of SH Camden Valley Pty Ltd, or hazards and risks following decommissioning of wells/gathering lines that will remain in-situ. Wells CU02, CU20 and CU22 could be unreasonably located in proximity to land holdings.	The PHA (refer to Appendix D of the EA) assessed potential impacts to the areas immediately surrounding the wells, including residential suburbs and businesses, that have the potential to be affected by hazardous impacts resulting from surface infrastructure works. The 20m buffer specified in the PHA was applied in consideration of both existing and future residences, including relevant land within the holdings of SH Camden Valley Pty Ltd. The PHA concluded that risks associated with the project are acceptable, provided the appropriate environmental safeguards are implemented.The conclusions drawn in relation to the hazards and risks associated with the Northern Expansion Project remain valid and applicable to the Amended Project. As per **Section 4.2** in this Submissions Report, CU20 has been removed and CU22 will be relocated to avoid land use conflict with proposed residential zoned land. The preferred locations for these wells have been determined in consultation with landholders and land developers.

SJB_09	Groundwater Surface Water	Unclear whether Project will result in reduction in volume or quality of surface and groundwater. Request for this issue to be addressed further and true impact determined. Request for assurance that there would be zero impact on surface and groundwater.	Groundwater is discussed in **Section 3.4** of this Submissions Report and a Phase 1 Groundwater Assessment has been prepared and is included as **Appendix** B. A Phase 2 Groundwater Assessment has also been initiated and initial results are included as **Appendix B**. The approved Groundwater Management Plan is included in **Appendix D**. Potential surface water impacts are outlined in Section 9 of the EA, and have been re-addressed in **Section 3.5.2** of this Submissions Report. The volume of surface water is not expected to decrease as a result of the Amended Project. Mitigation measures outlined in Section 9.3 of the EA and in the revised Statement of Commitments in this Submissions Report, would significantly minimise the risk of impacts to surface water. In addition, the Soil and Water Management Plan would be updated as part of the review of the existing EMS.

SJB_10	Noise and Vibration	Request that noise and vibration assessment be updated to include assessment of future residents and clearly set out what mitigation measures would be necessary to achieve noise criterion.	A Noise and Vibration Impact Assessment was prepared for the EA (refer Appendix F of EA). As detailed plans for future residential locations were not available at the time of writing, the Noise and Vibration Impact Assessment provided a conservative assessment based on the potential for any future residences surrounding individual well sites. Noise contours for both free-flowing (lesser noise impact) and pump-assisted wells (greater noise impact) were modelled to indicate potentially affected areas. With consideration to this, it was anticipated that with recommended noise mitigation measures in place for each original well site that operations would not be unduly restricted as a result of noise emission levels and that the relevant construction noise goals could be achieved at all residential and other noise-sensitive locations. Operational noise emission levels from the proposed well locations were predicted to meet the relevant Project specific noise goals at all existing residential dwellings. It was noted in the report that operational noise emission levels have the potential to impact on the proposed Turner Road Development Area. Noise mitigation options for the proposed wells at CU02, CU20 and CU22 were provided. However, ambient noise levels in this area are likely to increase as the area is developed. Since the completion of the Noise and Vibration Assessment, the preferred locations of wells presented in this Submissions Report provide beneficial outcomes for noise-related impacts. The removal of well CU20 from the project will remove all noise impacts that had the potential to affect land owned by SH Camden Valley Way Pty Ltd. The preferred siting of well CU22 approximately 900m east from its formerly proposed location (outside of the Scenic Hills/Gledswood Estate development area) will reduce the impact of potential noise associated with these wells on future development. An Addendum Report on Noise and Vibration has been prepared for the Amended Project and included as **Appendix F**. Specific mitigation measures to achieve noise criterion were provided in Section 13.5 of the EA. The AGL EMS, including the Noise Management Sub Plan (NMSP) and TMSP for both construction and operation of the CGP would be updated where appropriate to reflect specific impacts of the Amended Project and to identify further actions and mitigation where required.

SJB_11	Social and Economic	Gas project has potential to jeopardise redevelopment of land holdings due to negative public perception of project, resulting in impact to future land sales and reduced value of SH Camden Valley land holdings.	The potential impact of gas developments on the value of land holdings and impacts of future sales is a common concern of landholders in areas where gas projects are operational. There is conflicting evidence regarding whether coal seam gas developments are detrimental to local property markets in the vicinity of developments, with most evidence anecdotal, from which conclusive findings cannot be drawn. It is noted that in AGL's ten year experience of gas production in Camden, there have not been any observed degradation in land values as a result of hosting or being located near gas wells. Whilst AGL acknowledges the concern that has been expressed by the communities in which it operates, there has been no conclusive evidence presented which suggests a negative impact on property values.
SJB Planning - SH Camden Lakeside			
SJB2_01	Land Use	Concern that should the project progress, well CU20 may be relocated north east of the Sydney Catchment Authority's – Water Supply Canal. Concern that the well has the potential to sterilise part of the SH Camden Lakeside holdings. Submission states that any relocation of the well north of the water supply canal has the potential to affect future residential subdivision of this land. Request for well CU20 not to be located on the northern side of the water supply canal.	Well CU20 has been removed and is no longer part of the Amended Project.
SJB2_02	Air Quality	Noted that the air quality assessment is based upon existing residential receivers and does not take into consideration the potential impact of gas venting upon future occupants within property owner's land holdings.	Refer to response for SJB_04 in this table.
SJB2_03	Air Quality	Unclear from EA report if 'immediate tie-in to gas gathering system' will be undertaken for well CU20 located in the vicinity of property owner's holdings. Request that air quality assessment be updated to reflect the location of future residents within property owner's landholdings. Request for well CU20 to be immediately tied-in to gas gathering system during (well) commissioning to ensure gas venting events do not occur.	Refer to response to SJB_04 and SJB_05 in this table.

SJB2_04	Air Quality	EA report does not accurately quantify or assess potential odour impacts originating from the Project. There are no environmental mitigation measures relating to odour impacts in the Environmental Safeguard commitments outlined in Section 14.4 of the EA report. Request for odour assessment to be undertaken and mitigation measures, which result in zero impact on property owner's development, be determined and implemented.	Refer to response to SJB_06 in this table.
SJB2_05	Air Quality	Request to seal access roads to ensure dust generation during operation is minimised, particularly dust generated during high wind events.	Refer to response to SJB_07 in this table.
SJB2_06	Hazard and Risk	Minimum distance required to minimise probability of a fatality is outlined in PHA as 20 metres. Unclear whether analysis took into account future residents within land holdings of SH Camden Lakeside, or hazards and risks following decommissioning of wells/gathering lines that will remain in-situ. Probability that wells CU20 could be unreasonably located in proximity to land holdings with potential to sterilise redevelopment of landholdings or placing future residents at risk.	Refer to response to SJB_08 in this table.
SJB2_07	Hazard and Risk	Unclear whether PHA took into account future residents within our land holdings or hazards and risk following decommissioning of wells/gas gathering lines that will remain in-situ.	Refer to response to SJB_08 in this table.
SJB2_08	Groundwater	Unclear whether Project will result in reduction in volume or quality of surface and groundwater. Request for this issue to be addressed further and true impact determined. Request for assurance that there would be zero impact on surface and groundwater.	Refer to response to SJB_09 in this table.
SJB2_09	Groundwater	Unclear if the Project will result in increased construction costs to development by SH Camden Lakeside given the increased salinity risk associated with proposed hydro-fracturing and associated increased movement of groundwater. Request for assurance that the Project will not result in an increased salinity risk to development of SH Camden Lakeside.	Refer to response to SJB_09 in this table.

SJB2_10	Noise	Request that noise and vibration assessment be updated to include assessment of future residents and clearly set out what mitigation measures would be necessary to achieve noise criterion.	Refer to response to SJB_10 in this table.
SJB2_11	Social and Economic	Gas project has potential to jeopardise redevelopment of land holdings due to negative public perception of project, resulting in impact to future land sales and reduce value of SH Camden Valley land holdings.	Refer to response to SJB_11 in this table.
Narellan Properties			
NP_01	Groundwater	Concern that well CU20 will be relocated onto existing golf course land, with potential groundwater impacts and risk of salinity as a result of the proposed gas project. Request for assurance that Project will not result in increased salinity risk to Narellan Properties' development.	As per **Section 4.0** of this Submissions Report, CU20 has been removed from the project application.
NP_02	Land Use	Concern that relocation of well CU20 north of Sydney Catchment Authority's – Water Supply Canal – has potential to sterilise part of the golf course, and may impact on future redevelopment of part of golf course estate residential subdivision by SH Camden Lakeside Pty Ltd. Request confirmation that well CU20 will not be relocated on northern side of water supply canal.	As per **Section 4.0** of this Submissions Report, CU20 has been removed from the project application.
NP_03	Groundwater Surface Water	Concern about lack of clarity on whether the Project will result in a loss of water storage and water quality to existing dams in area, and implications on the continued use of underground water aquifers (to service the golf course) impacting on vegetation or land degradation.	A Phase 1 Groundwater Assessment was prepared and has been included as **Appendix** B to this Submissions Report. Groundwater related issues are discussed in detail in **Section 3.4** of this Submissions Report and potential surface water impacts are discussed in **Section 3.5.2**. Potential impacts to surface water were identified in Section 9.0 of the EA and **Sections 3.5** and **5.7** of the Submissions Report and included leakages, spillages and sediment-laden runoff associated with operational equipment or accidents related to the produced storage tanks. A loss of water storage and water quality in existing dams in the area is not considered a likely impact resulting from the development. Mitigation measures outlined in the EA would significantly minimise the risk of impacts to surface water and groundwater in addition to the continued implementation of SWMSP and ERP. AGL is also committed to further groundwater investigations (i.e., Phase 2 Groundwater Assessment) and the implementation of a groundwater monitoring network as recommended by the Phase 1 Groundwater Report (refer to **Appendix** B).

Karbic			
K_01	General	The submission objects to the project and suggests the findings of the EA are unproven.	Noted. The existing CGP has been in operation for over 10 years and has successfully drilled and managed 143 wells within the Sydney Basin. As many of the findings contained within the EA have used the existing CGP as a baseline for assessment it is considered that the findings are proven for this project. AGL has demonstrated through the existing CGP that the well surface locations can coexist with existing urban development with minimal or manageable impacts.
K_02	Subsidence	Land subsidence and resulting damage to structure of home, garage and driveway and garden of property owner.	A subsidence report was prepared as part of the Stage 2 expansion of the CGP and was included in the EA. The report identified that subsidence impacts are negligible at the surface due to the nature of the drilling techniques and underlying geology. The report considered drilling of lateral wells up to 2,000 m. Due to the similar underlying geology and drilling techniques to be used in the Amended Project, similar results are expected. Long term impacts are considered negligible. In addition, no significant subsidence impacts have been observed within existing CGP well fields in the last decade.

K_03	Air Quality	Methane leaks resulting from process of hydraulic fracturing will contaminate air.	A PHA was undertaken for the project to determine risk associated with CSM leaks (refer to Appendix D of the EA). The investigation found that the predominant sources of hazard for the Northern Expansion Project are potential CSM leaks, though these would only have the potential to cause injury or damage if there was ignition, which would result in fire or explosion. A consequence assessment was undertaken in order to evaluate potential incidents and associated leak sizes, and the associated societal risk. The assessment concluded that risks associated with the Northern Expansion Project are acceptable provided the environmental safeguards outlined in the PHA and EA are implemented. In addition, the gas gathering route would be inspected annually by a specialist third party Gas Detection inspection service that performs a leakage survey of the underground pipelines to maintain the pipelines to best-practice standard and minimise environmental impacts. The conclusions drawn in the PHA remain valid and applicable to the Amended Project. An Air Quality Impact Assessment was undertaken for the Northern Expansion project (refer to Appendix G of the EA) which did not find that contamination of air resulting from methane leaks was a likely significant impact associated with the project.The conclusions drawn in relation to the air quality impact of the Northern Expansion Project remain valid and applicable to the Amended Project.
K_04	Groundwater Surface Water	Fraccing will crack or break water pipes and contaminate drinking water, as well as aquifers, watercourses and potentially the ocean.	Refer to **Section 3.4** of this Submissions Report. An assessment of surface water and groundwater hydrological impacts was included in Chapters 9 and 12 of the EA, which included an assessment of potential pathways for contamination of surface water and groundwater associated with drilling and fraccing activities. In addition, a Phase 1 Groundwater Assessment has since been undertaken and is included in this Submissions Report (**Appendix** B). Phase 2 of the Groundwater Assessment is underway, which includes the development of a groundwater monitoring network to monitor water levels and water quality in the major aquifer zones. Initial results from the first nested monitoring bore location at Denham Court are included in this Submissions Report (PB, 2012; refer to **Appendix** C).

K_05	Geology and Soil	Contamination of soil will occur as a result of the project.	The potential impacts to geology and soils are outlined in Chapter 18 of the EA. The potential for impacts resulting from the Amended Project include the disturbance of soil and minor alterations to landform due to trenching, drilling and excavation for the construction of well surface locations, gas gathering systems and access roads, as well as the potential for soil contamination through accidental spillages etc. However these impacts are expected to be minor and anticipated to have a negligible effect on the area. The potential for soil contamination would be minimised with spill kits kept at all construction sites. It is therefore not anticipated that the construction and operation of the Amended Project would result in significant adverse effects on the landform, geology or soils within the Project Area or Subsurface Project Area.
K_06	Health	Contamination of food will occur as a result of the project.	Potential contamination of soils, surface water and groundwater were assessed as part of the EA and again in this Submissions Report (refer to **Sections 3.4**, 3.5, **5.7** and **5.8.3**). Food contamination is not considered a likely impact associated with the project and has therefore not been assessed in the EA or in this Submissions Report. For concerns about soil contamination refer to response to submission K_05.
K_07	Groundwater	Concerns relating to the contaminated water resulting as a by-product of the process of hydraulic fracturing and storage of this contaminated water.	The process of hydraulic fracturing and surface water impacts are addressed in **Sections 3.4** and 3.5 of this Submissions Report respectively.
K_08	Health	Concerns over all resulting detrimental effects to health to humans and animals, caused by all facets of the industry's operations.	The PHA (refer to Appendix D of EA) prepared for the Northern Expansion Project assesses the risks associated with the project, with regard to the safety of the project to humans, including the risk to human fatality. Air emissions criteria with which the project complies, also takes human health needs into consideration. The PHA has concluded that with appropriate implementation of the outlined mitigation measures, the project would not pose a significant societal risk on humans or animals. The conclusions drawn in the PHA remain valid and applicable to the Amended Project.

K_09	Hazard and Risk	Concerns over potential for explosion.	A PHA was undertaken for the Northern Expansion Project to determine risk associated with CSM leaks, including the potential of explosion events (refer Appendix D of the EA). The investigation found that the predominant sources of hazard for the project are potential CSM leaks, though these would only have the potential to cause injury or damage if there was ignition, which would result in fire or explosion. A consequence assessment was undertaken in order to evaluate potential incidents and associated leak sizes, and the associated societal risk. The assessment concluded that risks associated with the Northern Expansion Project are acceptable provided the environmental safeguards outlined in the PHA and EA are implemented. The conclusions drawn in the PHA remain valid and applicable to the Amended Project.
K_10	EA Process	Objection to AGL gas treatment plant application that has been accepted for Rosalind Park Gas Plant at Menangle, despite the fact that DoP knew it was not fully specified. Property owners are concerned that AGL may later seek a modification to reinstate gas treatment plant to original location in Ingleburn, once Stage 3 wells have been drilled.	Noted. The existing CGP has been in operation for over 10 years and has successfully drilled and managed 143 wells within the Sydney Basin. As many of the findings contained within the EA have used the existing CGP as a baseline for assessment it is considered that the findings are proven for this project. AGL have demonstrated through the existing CGP that the well surface locations can coexists with existing urban development with minimal or manageable impacts. The Camden North Gas Treatment Plant has been removed and the Amended Project has been designed for the gas to flow to the existing RPGP. There is therefore no requirement to reinstate or replace the Camden North plant. Refer to **Section 3.2.1** of the Submissions Report for information regarding the Rosalind Park Gas Plant approval.
K_11	Social and Economic	Concern over potential for development to reduce value of property and surrounding area.	Refer to response to SJB_11 in this table.

Kukic			
KU_01	General	The submission objects to the project and suggests it is unproven.	Noted. Refer to response to K_01 in this table.
KU_02	Subsidence	Land subsidence and resulting damage to structure of home, garage and driveway and garden of property owner.	Refer to response to K_02 in this table.
KU_03	Air Quality	Methane leaks resulting from process of hydraulic fracturing will contaminate air.	Refer to response to K_03 in this table.
KU_04	Groundwater Surface Water	Fraccing will crack or break water pipes and contaminate drinking water, as well as aquifers, watercourses and potentially the ocean.	Refer to response to K_04 in this table.
KU_05	Geology and Soil	Contamination of soil will occur as a result of the project.	Refer to response to K_05 in this table.
KU_06	Health	Contamination of food will occur as a result of the project.	Refer to response to K_06 in this table.
KU_07	Groundwater Surface Water	Concerns relating to the contaminated water resulting as a by-product of the process of hydraulic fracturing and storage of this contaminated water.	Refer to response to K_07 in this table.
KU_08	Health	Concerns over all resulting detrimental effects to health to humans and animals, caused by all facets of the industry's operations.	Refer to response to K_08 in this table.
KU_09	Hazard and Risk	Concerns over potential for explosion.	Refer to response to K_09 in this table.

KU_10	EA Process	Objection to AGL gas treatment plant application has been accepted for Rosalind Park Gas Plant at Menangle, despite the fact that DoP knew it was not fully specified. Property owners are concerned that AGL may later seek a modification to reinstate gas treatment plant to original location in Ingleburn, once Stage 3 wells have been drilled.	Noted. Refer to response to K_10 in this table.
KU_11	Social and Economic	Concern over potential for development to reduce value of property and surrounding area.	Noted. Refer to response to SJB_11 in this table.
Woodbine			
W_01	Social and Economic	Concern over industrialisation of sustainable lifestyle, woodlands and cultural heritage.	The existing CGP operations have demonstrated that this infrastructure can coexist with other natural environments with minimal disturbance. Given the transient nature of the Amended Project, it is considered that visual impacts are temporary and would not have an ongoing visual impact on the Scenic Hills Environment Protection Area, nor result in industrialisation of the existing land use.
W_02	Surface Water	Risk of heavy metals poisoning to waterways.	No heavy metals would be used in the development of wells.
W_03	Health	Residents do not wish for carcinogenic health hazard in the area where they live. Wish for further plans for this development to stop.	Noted. The PHA (refer to Appendix D of EA) prepared for the Northern Expansion Project assesses the risks associated with the project, with regard to the safety of the project to humans, including the risk to human fatality. Air emissions criteria with which the project complies, also takes human health needs into consideration. The PHA has concluded that with appropriate implementation of the outlined mitigation measures, the project would not pose a significant societal risk on humans or animals. The conclusions drawn in the PHA remain valid and applicable to the Amended Project.

Inspire Design and Planning – D and A.I Pty Ltd			
IDP_01	Land Use	Objection to the proposed siting of well surface location and a request that VV11 and the assessment envelope be relocated further east and/ or north east away from the submitter's property for the following reasons: - insufficient consideration in the EA of future use of the property; - sterilisation of land for future uses; - No certainty regarding minimal environmental and amenity impact in relation to operation of VV11; and - Unnecessary siting of VV11 in close proximity to D and A.I Pty Ltd property	VV11 has been removed from the Amended Project.