NSW GOVERNMENT | Office of Environment & Heritage

Our reference: DOC11/28120; File No. FIL10/11970
Contact: Peter Hughes (02) 4908 6819

Belinda Scott
Senior Planning Officer
Infrastructure Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Ms Scott

RE: Comments on Environmental Assessment for Newcastle Gas Storage Facility, Tomago – MP10_0133

Reference is made to the Department of Planning (DoP) letter received 15 June 2011 requesting comments on the accompanying "*Environmental Assessment, Newcastle Gas Storage Facility Project*", dated May 2011 (the EA). The Office Environment and Heritage (OEH) has reviewed the document and provides the following comments.

If development consent is granted the proposal will require an Environment Protection Licence (EPL) under the Protection of the Environment Operations Act for the scheduled activities of "Petroleum and fuel production" and "Chemical Storage (petroleum products storage)". After carefully considering the proposal OEH considers that it could issue an EPL for the proposal if identified air impact issues are addressed prior to consent being granted. Threatened species and ecosystem issues will also need to be adequately addressed, however OEH is of the opinion these matters could be adequately addressed post-approval under appropriate conditions of consent.

Detailed comments are provided in **Attachment A** and EPL conditions are included in **Attachment B**. Recommended consent conditions are included in **Attachment C.**

Please contact Mr Peter Hughes on (02) 4908 6819 if you wish to discuss this matter further.

Yours sincerely

29-7-11

PETER JAMIESON
Head Regional Operations Unit – Hunter Region
Office of Environment and Heritage
Department of Premier and Cabinet

Encl: Attachment A, B and C

The Department of Environment, Climate Change and Water is now known as the Office of Environment and Heritage, Department of Premier and Cabinet

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ATTACHMENT A - OEH REVIEW OF THE ENVIRONMENTAL ASSESSMENT

Air Impact Assessment

The EA modelling predicts exceedances of the OEH one hour impact assessment criteria for sulphur dioxide (SO_2) at two residences, but these are not attributed to the proposed project emissions and OEH is working with the source of these emissions to reduce SO_2.

Occasionally, the 24-hr background SO_2 concentration is greater than the OEH goal (of 228 $\mu g/m^3$) and OEH was concerned that possible cumulative impacts may occur due to the project. However, the SO_2 increment from the LNG plant is very small and wind conditions which result in the higher background concentrations would not result in a combining of high SO_2 from the main source and additional SO_2 from the liquid natural gas (LNG) facility. Therefore, during such conditions, the LNG plant would not contribute to increased cumulative impacts.

OEH considers that emission discharge limits, and monitoring, for sulphur dioxides, oxides of nitrogen, solid particles and volatile organic compounds on two discharge stacks are necessary, along with a post commissioning air emissions report. Appropriate conditions are included in Attachment A.

Outstanding Air Issues

OEH's detailed review of the exhibited EA has identified several potentially minor air issues that should be resolved before consent is granted. These include:

a) The EA or subsequent correspondence should discuss the implications of CALMET's underprediction of calm weather conditions.

   The modelling in the EA uses CALMET-generated meteorological data that combines on-site monitoring data and TAPM-generated data. The EA shows that CALMET predicts almost 50% lower percentage of calms compared to observed data, but does not appear to address this discrepancy by exploring how this impacts the modelling outcomes (which showed very little impact from the facility).

b) Dehydration during natural gas processing

   OEH notes Glycol solutions are generally used to dehydrate natural gas and glycol regeneration may release quantities of BTEX (benzene, toluene, ethylbenzene, and xylene) as well as a variety of less toxic organics. The EA or subsequent correspondence should clarify if glycol hydrator vent stream(s) would be present at the LNG plant and if so, include this aspect in the modelling.

c) The types of emissions during scenario 3 of the three modelling scenarios assessed.

   Scenario 3 (start up/shut down, Table 2) appears to include *natural gas flaring* as the only emission source. OEH seeks clarification why the gas-fired heater and LNG vaporiser (and hence liquefaction and re-gasification) as well as the sour gas flare were not included in this scenario.

d) Fuel chemical composition

   Whilst there is no mention in the EA of the H_2S concentration in sour gas, an SO_2 emission rate of 0.11 g/s has been assumed for the sour gas flare tip. The EA should provide fuel analysis information to clarify the assumptions made in arriving at the emission rate. Based on the AP42 Chapter 5 equation for determining the SO_2 emission factor (below) the assumed H_2S concentration appears to be 0.005 mole% (50 ppm).

   $EF\ (SO_2) = S * 26.98\ kg/1000\ m^3$ sour gas [S = mole or volume% sour gas]

Further, similar information (typical chemical composition) should be provided for the natural gas expected to be processed at the LNG plant.

e) Two Editorial Issues

Stack temperatures for the *Liquefaction (hot oil heater)* and *LNG Vaporiser* listed in Tables 7.1 and 7.3 (of Appendix 14) appear to be inconsistent with each other. A 320° C temperature is used in Table 7.1 and 320 degrees Kelvin in Table 7.3. Any subsequent errors in the calculated emission rates should be identified and rectified.

Numbers from Table 7.2 were compared against an OEH analysis of emission rates of NOx, CO and VOC for a normal process flare tip. The EA emission rates appear to be under-estimated by an order of magnitude when compared to OEH estimates of the same. This issue should be clarified.

Noise and Vibration Impact Assessment

The Noise Impact Assessment is considered generally satisfactory. Noise modelling in the EA indicates that OEH's project specific noise goals, which are different to those detailed in the EA, would be satisfied at all reference receiver locations under all meteorological scenarios assessed except one site in 217 Old Maitland Road, Hexham. The EA notes that during the detailed design of the Hexham receiving station widely used additional noise controls will be implemented to ensure that the project goals are met.

OEH has proposed noise limits, which we recommend to DoP as conditions of consent. Please note that the actual LNG facility will need to be licensed by OEH, but the Hexham receiving station will not be licensed. Hence DoP will need to ensure appropriate noise controls are in place to meet the limits associated with the Hexham receiving station.

Recommended EPL and consent conditions are included in Attachment B. It is also recommended that a Traffic Noise Management Strategy be implemented and this is included as a consent condition in Attachment C.

Water

OEH notes domestic wastewater will be tankered off-site for appropriate disposal.

OEH is also aware of recent negotiations between Hunter Water Corporation and the proponent which involve treatment of stormwater via a gross pollutant trap and wetland/holding pond prior to pumping stormwater to the street drainage system of Old Punt Road. It is anticipated this discharge will be of good quality and will not be licensed by OEH and must not result in pollution of waters.

Disposal of hydrostatic test water is addressed as a condition of consent.

Threatened Species

In correspondence on the 'Adequacy of the EA' report (dated 17 March 2011) OEH provided detailed comments on a number of issues. The proponents (AGL) provided DoP with a 'Comments on Submissions Report', which coupled with a meeting on 6 May 2011 between OEH, AGL and their environmental consultants, provided further clarification on the matters raised by OEH. OEH was also advised by DoP (in email correspondence dated 2 May 2011) that the proponents were no longer considering the pipeline option that goes beneath the SEPP 14 wetlands, and as such this largely alleviated OEH concerns regarding survey adequacy in this area and potential impacts on threatened species and ecological

communities. OEH reviewed the submissions document and identified outstanding issues in our correspondence dated 9 May 2011.

OEH reviewed the current EA report and noted two issues were still outstanding, namely (i) the lack of details on a suitable offset package to compensate threatened species (e.g. *Eucalyptus parramattensis* subsp. decadens) and their habitat, and (ii) the additional targeted flora searches for wetland / aquatic species that may be impacted upon if indirect activities adversely affect their habitats. With respect to all other matters previously raised in our earlier correspondence pertaining to survey adequacy and assessment thoroughness (including the threatened species assessment), OEH is of the opinion the EA has adequately addressed these matters.

OEH does not draw the same conclusions as those presented in the ecological assessment of the EA, which concludes the proposal will not have a significant impact on threatened species, their habitat and ecological communities. The proposal will remove native vegetation that is considered important resident, foraging and movement habitat for a variety of threatened species, and in some instances it represents either (i) key foraging resources that would place undue pressure on a species survival in the local area, and / or (ii) adversely impact or fragment areas of suitable habitat for certain species (e.g. Swift Parrot). Additionally the proposal will impact on a small area of EEC and remove, albeit planted, 67 *Eucalyptus parramattensis* subsp. *decadens* trees. Hence an offset is deemed necessary.

AGL have consulted with and engaged OEH staff extensively over the last 2-3 months with respect to providing an adequate offset package that meets OEH standards and guidelines. This has included various meetings and on-site inspections. Most recently AGL and their environmental consultants met with OEH on 21 July 2011 and reached general agreement on the efforts required to provide an appropriate offset to compensate the adverse impacts on threatened species and biodiversity, and any additional targeted surveying requirements. Essentially from this meeting the proponent and OEH agreed in principle to the following:

Compensatory Habitat Package

The compensatory habitat package is divided into two specific sections, namely:

(a) Biodiversity offset site to compensate for the clearing of vegetation which represent threatened species habitat and ecological communities, and
(b) Rehabilitation project to compensate the loss of 67 *Eucalyptus parramattensis* subsp. *decadens* and their habitat – 'Woodland Regeneration' complex, which had previously been planted in the area as part of mine rehabilitation works.

A. BIODIVERSITY OFFSET PACKAGE

Adequacy: - to determine the adequacy of the offset and whether or not it meets OEH offset principles the proponent conducted biodiversity assessments of both the proposed offset site(s) and the development site using the BioBanking Assessment Methodology under Biodiversity Banking and Offsets Scheme, as outlined in the '*BioBanking Assessment Methodology and Credit Calculator Operational Manual*' (DECC 2009a). This will be used as a guide, in consultation with OEH, to assess and determine the suitability of the currently proposed offset with respect to size, scale and type of biodiversity habitat required. OEH acknowledges that the use of the biobanking methodology is a voluntary process and not a requirement under Part 3A, and as such the tool will be used as a guide.

OEH has agreed to support and assess the proponent's proposed offset package and will endeavour to assist in its development, where requested, providing it is in general accordance with the outputs of the agreed BioBanking methodology approach.

To date, the proponent has provided preliminary Biobanking assessments comparing the proposed offset site(s) against the development footprint, which indicates reasonable matches with respect to the 'like for like' principle and vegetation types. Also the investigations of the offset sites have shown other environmental values which OEH would consider valuable, such as adjacent to existing national park estate, greater EEC vegetation component and likely habitat for additional threatened species. OEH also supports the ecological consultant's view that additional targeted searches of the offset area will likely result in additional threatened species being detected, which will value add to the offset proposal. However, an overall package is yet to be finalised, and as such OEH reserves its comments on the final submitted proposal.

- Adequate surveying of the proposed offset area: - to determine the suitability of the offset area, OEH requires specific details on the biodiversity values. This should include (but not be limited to) details on what vegetation types / communities are present, flora and fauna species, habitat types, regional connectivity, and links to existing conservation estate lands. Similar surveying and reporting requirements as occurred on the development site are required for any offset site. The proponent has agreed to, or has already conducted, further investigations on the currently proposed offset area, using survey and assessment methods consistent with the following OEH publications:
  - the *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians* (DECCW, 2009b)
  - *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004), and
  - Threatened species survey and assessment guideline information on: www.environment.nsw.gov.au/threatenedspecies/surveyassessmentgdlns.htm.

  OEH would expect the results of all surveys to be presented in the final offset package report, and that any such report should also address how the offset strategy meets either or both OEH 'offset principles' (DECC 2007) and/or the BioBanking Assessment Methodology (DECC 2009a).

- Conserving the Offset: - details and commitment of how the offset will be conserved in perpetuity. Offsets will require the proponent to consider adequate conservation in perpetuity, appropriate management regimes and financial security with respect to ongoing management. OEH would typically consider suitable measures to ensure conservation in perpetuity as (but not limited to):
  - The establishment of a biobanking site with biobanking agreements under the *Threatened Species Conservation Act (TSC) 1995*,
  - The dedication of land under the *National Parks and Wildlife (NP&W) Act 1974*,
  - A Conservation Agreement under the *NP&W Act 1974*;
  - A Trust Agreement under the *Nature Conservation Trust Act 2001*; and
  - A Planning Agreement under s 93F (soon to be s116T) of the *Environmental Planning and Assessment Act 1979.*

  With respect to this matter OEH has recommended and has a preference for BioBanking agreements, given that it secures a site in perpetuity and all management costs are addressed in perpetuity.

- Managing the Offset: - details of appropriate management actions required on the offset site, such as, but not limited to:
  - weed management (both control and suppression) and monitoring,
  - management of retained native vegetation and habitat (including buffer zones),
  - feral animal control,
  - fire management (including asset protection zones [APZs]),
  - public access (including restriction of, increased traffic, and associated impacts, such as increased refuse and pets),

- size and management of buffer zones,
- minimisation of edge effects and fragmentation,
- stormwater control and changes to hydrology (including stormwater / runoff control and sediment / erosion control measures),
- management of specific habitat enhancement measures (e.g. hollow / habitat trees, animal fencing to facilitate movement [e.g. Koala 'floppy-top fencing'], artificial hollows and nest boxes etc.),
- fauna displacement and if appropriate translocation (including any licence requirements),
- proposed surveys, such as pre-extraction baseline, pre-clearance and rehabilitation surveys,
- details of long-term monitoring (including proposed timing),
- details of any rehabilitation program, including details of timing (including proposed staging details), rehabilitation measures (including details of proposed revegetation and species mix), and post-rehabilitation monitoring,
- measures to ensure conservation in perpetuity (e.g. transfer to national park estate, conservation agreements or covenants), and
- funding details of long-term financial commitment to any proposed conservation measures, including any mechanisms to be implemented to achieve this.

OEH does not expect a detailed management plan to be presented but requests an overview document be provided outlining the management actions required and how these will be implemented and/or completed Ultimately, OEH would expect that a plan of management would be developed for any proposed offset lands, but we do not need to review such a document.

B. REHABILITATION OFFSET PACKAGE

The proponent has proposed a rehabilitation project that will offset the loss of the planted *Eucalyptus parramattensis* subsp. *decadens* and their habitat within the development footprint. The habitat rehabilitation component should involve collecting seed from all strata, so that a representative sample of the species will be planted in any proposed regeneration areas. This will involve:

- On-site seed collection from the development footprint of the *Eucalyptus parramattensis* subsp. *decadens* (Earp's Gum) and species commensurate with the taxa occurring in the 'Woodland Rehabilitation' complex (as described in the current EA). OEH would expect (i) that all seed collecting activities be in accordance with best practice measures, specifications and principles outlined in the following nationally accepted guidelines - *Flora Bank Guidelines* (1998-2000, located at http://www.florabank.org.au/default.asp?V_DOC_ID=755); and (ii) be restricted to the development footprint. OEH notes that if seed collecting is proposed prior development consent a licence under the *TSC Act 1995* (e.g. Section 91) and/or *NP&W Act 1974* (e.g. Section 132c) would likely be needed.

- Seed propagation in accordance with best practice measures, specifications and principles outlined in nationally accepted guidelines:
  - *Flora Bank Guidelines* (1998-2000, at http://www.florabank.org.au/default.asp?V_DOC_ID=755);
  - *Germplasm conservation guidelines for Australia* (Germplasm Working Group 1997); and
  - *Guidelines for the Translocation of Threatened Plants in Australia* (Vallee *et al.* 2004).

AGL has advised seed propagation will be undertaken in partnership with Hunter Botanic Gardens, who will be responsible for propagating the Earp's Gum and associated woodland taxa, including seed and/or seedling storage. As such OEH would expect written evidence confirming their involvement in any offset package. To offset the impact on the planted Earp's Gums it was agreed that a minimum of 200 plants be planted on the proposed regeneration area(s). As such OEH would expect that any propagation program account for this number, but also allow for any loss due to

adverse conditions. OEH also recommended that AGL may wish to consider additional seed collection / storage and propagation of the Earp's Gum to promote the long-term conservation efforts of the species.

- A regeneration area or areas representing the Earp's Gum and the 'Woodland Regeneration' complex needs to be established that is commensurate with the area being impacted by the development (i.e. minimum 4.79 hectares as indicated in Table 20, in Section 5.1 of the EA). A minimum of 200 Earp's Gums must be planted on the site. OEH understands that AGL are currently discussing suitable regeneration sites with Hunter Water Corporation and National Parks and Wildlife Service.

- All regeneration area(s) be conserved and managed in perpetuity. OEH would expect these areas conserved with an appropriate conservation mechanism (as listed above) which is underpinned with an appropriate management document, such as a management plan, and adequate finances in perpetuity.

OEH recommends that if the above issues are addressed and incorporated into the conditions of consent, then OEH would likely support the project. However, OEH notes that it has a consultative role, and should be kept informed of the outcomes, particularly in regards to any further impacts on threatened species, populations, ecological communities and their habitats, and in assessing the adequacy of any offset package proposed. OEH has provided recommended conditions of consent at Attachment C.

Targeted Flora Surveys:

Given that pipelining activities will now be diverted around the wetland that adjoins the Hunter River, direct impacts on this wetland should be avoidable. However, appropriate targeted flora surveying for *Persicaria elatior*, *Maundia triglochinoides* and *Zannichellia palustris* will still be required if physical incursion and /or adverse indirect impacts , such as pollution, surface runoff and frac–outs, occur or are likely to occur to any of their habitats, namely the 'Freshwater Wetland Complex' and 'Phragmites Rushland' vegetation communities (as schematically shown on Figure 7 'Vegetation Communities' of the ecological assessment of the EA). A suggested condition of consent for this issue is provided at Attachment C.

References:

DEC (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities*. Draft, Department of Environment and Conservation, Hurstville; available at: http://www3.environment.nsw.gov.au/pdfs/tbsa_guidelines_draft.pdf.

DECC (2007) *Biodiversity Certification of Environmental Planning Instruments: Working Draft*. April 2007. Department of Environment and Climate Change (NSW).

DECC (2009a) *BioBanking Assessment Methodology and Credit Calculator Operational Manual*. Department of Environment and Climate Change NSW, Sydney; available at: http://www.environment.nsw.gov.au/resources/biobanking/09181bioopsman.pdf.

DECC (2009b) *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians*. April 2009. Department of Environment and Climate Change (NSW), Goulburn Street, Sydney.

Harden, G.J. (ed.) (1990-2002) *Flora of New South Wales: Volumes 1 - 4*. New South Wales University Press, Kensington.

Floodplain and Water Management Act

OEH commented on 17 March 2011 that the EA makes no reference to:

- NSW Government's Flood Prone Land Policy and the Floodplain Development Manual 2005, and
- Chapter 5, Part 2 of the Water Management Act 2000, which relates to development within the declared floodplain.

This does not appear to be covered in the exhibited EA. Under the Flood Prone Land Policy management of flood prone land is primarily the responsibility of local councils. Development must be in accordance with

the NSW Government's Flood Prone Land Policy, the Manual and Port Stephens and Newcastle City Councils' flood policies and DCPs.

OEH commented on 17 March 2011 that the proposal involves an underground pipeline crossing of the declared floodplains of Tomago and Hexham and the proposed above ground gas receiving station is located within the Hexham declared floodplain. The Minister's consent appears to be required under s256 (1) (b) of the Water Management Act (as consent is required for constructing a flood work on a floodplain, in relation to Hunter Valley flood mitigation works), and a formal request for consent must be made to OEH for consideration. As no such application has so far been received OEH again requests it be submitted as soon as possible.

Aboriginal Cultural Heritage Assessment

The Aboriginal cultural heritage assessment is considered satisfactory and conditions of development consent are listed in Attachment C.

Attachment B – Environment Protection Licence Conditions

ADMINISTRATIVE CONDITIONS

A1. Information supplied to the EPA

A1.1 Except as expressly provided by these conditions, works and activities must be carried out in accordance with the proposal contained in the Environmental Assessment, dated May 2011 prepared by Coffey Natural Systems Pty Ltd, unless otherwise specified in the following conditions.

A2. Fit and Proper Person

A2.1 The applicant must, in the opinion of the EPA, be a fit and proper person to hold a licence under the *Protection of the Environment Operations Act 1997*, having regard to the matters in s.83 of that Act.

OPERATING CONDITIONS

O1 Dust

O1.1 The premises must be maintained in a condition which minimises, or prevents, the emission of dust from the premises.

O2 Offensive Odour

O2.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence (EPL) as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

O2.2 No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

O6. Bunding

O6.1 All above ground tanks containing material that is likely to cause environmental harm must be bunded, or have an alternative spill containment system in-place.

DISCHARGES TO AIR

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Point No.	Type of monitoring point	Type of discharge point	Description of location
1	Air emissions monitoring	Discharge to air	Stack associated with the Gas Liquefaction system, identified as point 9 in Fig 2.1 of Appendix 14 of the Environmental Assessment, dated May 2011
2	Air emissions monitoring	Discharge to air	Stack associated with the Regasifier or LNG Vaporiser, identified as point 4 in Fig 2.1 of Appendix 14 of the Environmental Assessment, dated May 2011

LIMIT CONDITIONS

L1 Air Concentration Limits

L1.1 For each monitoring/discharge point or utilisation area specified in the tables below (by point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

Point 1

Pollutant	Units of measure	100 percentile limit	Reference conditions
Nitrogen Oxides as NO_2	mg/m^3	250	273K, 101.3 kPa
Volatile organic compounds (VOCs)[1] or Carbon monoxide, CO	mg/m^3	5 (VOCs) or 100 (CO)	Dry, 273K, 101.3 kPa, and 3% O_2
Solid particles	mg/m^3	5	273K, 101.3 kPa
Sulfur Oxides (includes SO_2 and SO_3 or sulphuric acid mist)	mg/m^3	60	273K, 101.3 kPa

[1] as n-propane

Point 2

Pollutant	Units of measure	100 percentile limit	Reference conditions
Nitrogen Oxides as NO_2	mg/m^3	170	273K, 101.3 kPa
Volatile organic compounds (VOCs)[1] or Carbon monoxide, CO	mg/m^3	20 (VOCs) or 125 (CO)	Dry, 273K, 101.3 kPa, and 3% O_2
Solid particles	mg/m^3	40	273K, 101.3 kPa
Sulfur Oxides (includes SO_2 and SO_3 or sulphuric acid mist)	mg/m^3	5	273K, 101.3 kPa

[1] as n-propane

Noise Limit Conditions

L6.1 Noise generated at the premises must not exceed the noise limits presented in the Table below. The location(s) referred to in the table below are shown in the Report "Construction and Operation Noise and Vibration Assessment Newcastle Gas Storage Facility Project – (Report No. 41.6592.R1:CFCD5 Rev 05), dated May 2011.

Noise Limits Table

Location	Daytime $LA_{eq(15\ minute)}$	Evening $LA_{eq(15\ minute)}$	Night $LA_{eq(15\ minute)}$	Night $LA_{1(1\ minute)}$
217 Old Maitland Road	49 dB(A)	42 dB(A)	42 dB(A)	55 dB(A)
Hunter Botanical Gardens	50 dB(A)	50 dB(A)	50 dB(A)	N/A
5 Graham Drive	35 dB(A)	35 dB(A)	35 dB(A)	45 dB(A)
185 Old Maitland Road	35 dB(A)	35 dB(A)	35 dB(A)	45 dB(A)
45 School Drive	35 dB(A)	35 dB(A)	35 dB(A)	45 dB(A)
Tomago Caravan Park	35 dB(A)	35 dB(A)	35 dB(A)	45 dB(A)

L6.2 For the purpose of condition L6.1;

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.
- Evening is defined as the period 6pm to 10pm.
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.

L6.3 The noise limits set out in condition L6.1 apply under all meteorological conditions except for the following:

a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
b) Stability category F temperature inversion conditions when wind speeds are greater than 2 metres/second at 10 metres above ground level; or
c) Stability category G temperature inversion conditions.

L6.4 For the purposes of condition L6.3:

a) Data recorded by the meteorological station identified as EPA Identification Point <?> must be used to determine meteorological conditions ; and
b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E2 of Appendix E to the NSW Industrial Noise Policy.

L6.5 To determine compliance:

a) with the $L_{eq(15\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located:

- approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
- within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) with the $L_{A1(1\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located within 1 metre of a dwelling façade.

c) with the noise limits in condition L6.1, the noise measurement equipment must be located:
- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by conditions L6.5(a) or L6.5(b).

L6.6 A non-compliance of condition L6.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:
- at a location other than an area prescribed by conditions L6.5(a) and L6.5(b); and/or
- at a point other than the most affected point at a location.

L6.7 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

L6.8 The noise limits in L6.1 do not apply to construction activities. For a period of 36 months from the commencement of construction activities associated with the gas plant and 9 months for commencement of construction of the pipeline and Hexham Receiving Station, construction times shall be limited to the hours 7am to 6pm Monday to Friday and 8am to 1pm Saturdays; and at no other time without the prior approval of the EPA.

L7. Waste

L7.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by a licence under the Protection of the Environment Operations Act 1997.

L7.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if it requires an environment protection licence under the Protection of the Environment Operations Act 1997.

MONITORING AND REPORTING CONDITIONS

M1 Requirement to monitor concentration of pollutants discharged

M1.1 For each monitoring/discharge point or utilisation area specified below (by point number), the applicant must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The applicant must use the sampling method, units of measure and sample at the frequency, specified opposite in the other columns:

Discharge Points 1 and 2

Pollutant	Units of measure	Frequency	Sampling Method[1]
Nitrogen Oxides	mg/m^3	Special Frequency	TM-11
Volatile organic compounds (VOC)	mg/m^3	Special Frequency	OM-2
Solid particles	mg/m^3	Special Frequency	TM-15
Sulfuric acid mist and sulphur dioxide	mg/m3	Special Frequency	TM-3
Sulfur dioxide	mg/m3	Special Frequency	TM-4
Dry gas density	kg/m^3	Special Frequency	TM-23
Moisture	%	Special Frequency	TM-22
Molecular weight of stack gases	g/g.mole	Special Frequency	TM-23
Oxygen	%	Special Frequency	TM-25
Carbon dioxide	%	Special Frequency	TM-25
Temperature	K	Special Frequency	TM-2
Velocity	m/s	Special Frequency	TM-2
Volumetric flow rate	m^3/s	Special Frequency	TM-2
Selection of sampling positions	NA	Special Frequency	TM-1

Special Frequency is defined as monitoring quarterly for the first year following commissioning. Monitoring for any pollutant can be discontinued if two consecutive test results are non-detects. The monitoring frequency will be reviewed after one year of normal operations of the plant.

M2 Testing methods - concentration limits

Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

(a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or

(b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

(c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The POEO Clean Air Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

Noise Monitoring Conditions

M7.1 The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in condition M7.2.

M7.2 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature	°C	Continuous	1 hour	AM-4
Wind direction	°	Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4
Sigma theta	°	Continuous	15 minute	AM-2 & AM-4
Rainfall	Mm	Continuous	15 minute	AM-4
Relative humidity	%	Continuous	1 hour	AM-4

M8 Requirement to Monitor Noise

M8.1 To assess compliance with Condition L6.1, attended noise monitoring must be undertaken in accordance with Conditions L6.5 and:

a) at each one of the locations listed in Condition L6.1;
b) occur annually in a reporting period;
c) occur in the period when noise transmittance will generally be at its worst, that is, generally winter conditions;
d) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy.

Note: the EPA will, upon request after three monitoring events, assess the necessity to continue the noise monitoring as detailed in this condition.

R4.1 Noise Monitoring Report

A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the yearly monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include:

a) an assessment of compliance with noise limits presented in Condition L6.1; and
b) an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in Condition L6.1.

R4.2 Post Commissioning Air Emissions Report

Within 12 months of project commissioning the licensee must submit a written report to the EPA's Regional Manager Newcastle detailing the results of post commissioning source air emissions sampling and analysis undertaken in accordance with the requirements specified in the Environment Protection Licence. This report must assess compliance with the limit conditions specified and make recommendations based on the findings, including but not limited to an appropriate monitoring regime (if any) for the ongoing operation of the facility.

Mandatory Conditions for all Environment Protection Licences

Administrative conditions

Other activities

This licence applies to all activities carried on at the premises.

Pollution of waters

Except as may be expressly provided by a licence under the *Protection of the Environment Operations Act 1997* in relation of the development, section 120 of the *Protection of the Environment Operations Act 1997* must be complied with in connection with the carrying out of the development.

Operating conditions

Activities must be carried out in a competent manner

Licensed activities must be carried out in a competent manner.

This includes:

a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and

b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

Maintenance of plant and equipment

All plant and equipment installed at the premises or used in connection with the licensed activity:

a) must be maintained in a proper and efficient condition; and

b) must be operated in a proper and efficient manner.

Monitoring and recording conditions

Recording of pollution complaints

The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

The record must include details of the following:

a) the date and time of the complaint;

b) the method by which the complaint was made;

c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;

d) the nature of the complaint;

e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and

f) if no action was taken by the licensee, the reasons why no action was taken.

The record of a complaint must be kept for at least 4 years after the complaint was made.
The record must be produced to any authorised officer of the EPA who asks to see it.

Telephone complaints line

The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.
This condition does not apply until 3 months after the licence takes effect.

Reporting conditions

Annual Return documents

The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

a) a Statement of Compliance; and

b) a Monitoring and Complaints Summary.

Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA

Period covered by Annual Return

An Annual Return must be prepared in respect of each reporting, except as provided below
Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Where this licence is transferred from the licensee to a new licensee,

a) the transferring licensee must prepare an annual return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and

b) the new licensee must prepare an annual return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

Where a licence is surrendered by the licensee or revoked by the DEC or Minister, the licensee must prepare an annual return in respect of the period commencing on the first day of the reporting period and ending on

a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or

b) in relation to the revocation of the licence – the date from which notice revoking the licence operates.

Deadline for Annual Return

The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Notification where actual load can not be calculated

Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date.

The notification must specify:

a) the assessable pollutants for which the actual load could not be calculated; and

b) the relevant circumstances that were beyond the control of the licensee.

Licensee must retain copy of Annual Return

The licensee must retain a copy of the annual return supplied to the EPA for a period of at least 4 years after the annual return was due to be supplied to the EPA.

Certifying of Statement of Compliance and Signing of Monitoring and Complaints Summary

Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

a) the licence holder; or

b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

A person who has been given written approval to certify a Statement of Compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review this licence.

Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act

Notifications must be made by telephoning the OEH's Pollution Line service on 131 555.

The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Written report

Where an authorised officer of the EPA suspects on reasonable grounds that:

(a) where this licence applies to premises, an event has occurred at the premises; or

(b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,

and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

The request may require a report which includes any or all of the following information:

a) the cause, time and duration of the event;

b) the type, volume and concentration of every pollutant discharged as a result of the event;

c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; and

d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;

e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;

f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event;

g) any other relevant matters.

The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the DEC within the time specified in the request.

General conditions

A copy of this licence must be kept at the premises or on the vehicle or mobile plant to which the licence applies.

The licence must be produced to any authorised officer of the EPA who asks to see it.

The licence must be available for inspection by any employee or agent of the licensee working at the premises or operating the vehicle or mobile plant.

The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

Attachment C - Recommended Development Consent Conditions

Threatened Species

1. Targeted flora surveys in accordance with DEC (2004) survey guidelines must be undertaken within the 'Freshwater Wetland Complex' and 'Phragmites Rusland' vegetation communities (as schematically shown on Figure 7 'Vegetation Communities' of the ecological assessment of the EA) for the following wetland threatened flora species, if adverse direct or indirect impacts occur or are likely to occur to their habitat on site:,

   - **Tall Knot-weed (*Persicaria elatior*)** – flowers January to February (February - April for fruiting); inflorescence required to separate species in genus (i.e. small clusters / individual flowers cf. dense spikes, elongated [as in *P. elatior*] or sub-globose spike-like racemes [Harden 2001]). General baseline vegetation surveys are not considered to be appropriate targeted searches.
   - **Small Water-ribbons (*Maundia triglochinoides*)** – flowers November to January, in the warmer months (Harden 1993). General baseline vegetation surveys are not considered to be appropriate targeted searches.
   - **Horned Pondweed (*Zannichellia palustris*)** – flowers during the warmer months, namely summer (Harden 1993). General baseline vegetation surveys are not considered to be appropriate targeted searches.

   'Indirect impacts' include, but not limited to, surface runoff or discharges from pipelining operations that harm the physical nature of the above communities. This may include, but not limited to, the damage / loss of vegetation and/or their habitat (e.g. substrate) due to adverse runoff / pollution events, chemical and thermal changes to their habitat, and intrusions into their habitat not directly associated with the development footprint.

   If any targeted threatened species are detected during the survey, then a 'threatened species assessment' (Section 5A of the *Environmental Planning and Assessment Act 1979*) in accordance with OEH "Assessment of Significance Guidelines' (DECC 2007) must be undertaken. If threatened species are significantly impacted upon they will need to be avoided or mitigated against, or in instances where this is not possible then they will need to be adequately covered within any compensatory offset developed. Under this scenario Office of Environment and Heritage (OEH) must be consulted with respect to the adequacy of such an offset package.

2. A 'Biodiversity offset package' must be developed in consultation with OEH and consistent with the BioBanking Assessment Methodology under Biodiversity Banking and Offsets Scheme, as outlined in the '*BioBanking Assessment Methodology and Credit Calculator Operational Manual*' (DECC 2009). This package will result in a 'biodiversity offset site(s)' (i.e. parcel of land) being set up which must be to be underpinned by a Plan of Management and an appropriate conservation mechanism that ensure long-term conservation and financial security, such as:

   - The establishment of a biobanking site with biobanking agreements under the *Threatened Species Conservation Act (TSC) 1995*,
   - The dedication of land under the *National Parks and Wildlife (NP&W) Act 1974*,
   - A Conservation Agreement under the *NP&W Act 1974*;
   - A Trust Agreement under the *Nature Conservation Trust Act 2001*; and
   - A Planning Agreement under s 93F (soon to be s116T) of the *Environmental Planning and Assessment Act 1979*.

3. A 'Rehabilitation offset package' must be developed in consultation with OEH which results in the establishment of an 'Earp's Gum (*Eucalyptus parramattensis* subsp. *decadens*) and associated woodland complex' regeneration' area, to a minimum 4.7 hectares, and containing the successful planting of at least 200 *Eucalyptus parramattensis* subsp. *decadens* trees. This package must be underpinned by a Plan of Management and an appropriate conservation mechanism (as per Condition 2).

Water

4. Disposal of hydrostatic test waters and stormwater must be conducted in such a manner so as to not pollute waters as defined in the *Protection of the Environment Operations Act 1997*

Aboriginal Cultural Heritage

5. The proponent must continue to consult with and involve all the registered local Aboriginal representatives for the project, in the ongoing management of the Aboriginal cultural heritage values. Evidence of this consultation must be collated and provided to the consent authority upon request.

6. The proponent shall develop a Cultural Heritage Management Plan (CHMP) as a component of the Construction Environmental Management Plan for the project area. The CHMP is to be implemented in consultation with the registered local Aboriginal stakeholders. The plan must include procedures for ongoing Aboriginal consultation and involvement; details of the responsibilities of all stakeholders; details of proposed mitigation and management strategies of all sites; including any additional investigation processes proposed (in accordance with OEH's '*Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (2010)*'), monitoring strategies, salvage activities, etc; procedures for the identification and management of previously unrecorded sites (excluding human remains); identification and management of any proposed cultural heritage conservation/relocation area(s); details of an appropriate keeping place agreement with local Aboriginal community representatives for any Aboriginal objects salvaged through the development process; include maps or plans identifying those areas subject to archaeological monitoring and salvage activities; detail protection measures for Aboriginal sites which will remain in situ within the project area, to be protected in perpetuity; details of an Aboriginal cultural heritage education program for all contractors and personnel associated with construction activities; and compliance procedures in the event that non-compliance with the CHMP is identified.

7. The proponent is to provide fair and reasonable opportunities for the registered local Aboriginal stakeholders to monitor any initial ground disturbance works associated with the entire extent of the Primary Project Area, any Aboriginal site(s), and in those areas immediately adjacent to Aboriginal site(s) (i.e. at the very least within a 20m buffer surrounding the sites) identified within the project area to be impacted by the development. In the event that additional Aboriginal objects are uncovered during the monitoring program, the objects are to be recorded and managed in accordance with the requirements of sections 85A and 89A of the *National Parks and Wildlife Act 1974.*

8. In the event that surface disturbance identifies a new Aboriginal object, all works must halt in the in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeologist and the registered Aboriginal representatives must be contacted to determine the significance of the object(s). The site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) (managed by OEH) and the management outcome for the site included in the information provided to the AHIMS. The proponent will consult with the Aboriginal community representatives, the archaeologist and OEH to develop and implement management strategies for all objects/sites.

9. If human remains are located during excavation or other works on-site, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police must be contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact OEH's Enviroline on

131555 and representatives of the local Aboriginal community. No works are to continue until OEH provide written notification to the proponent.

10. All reasonable efforts must be made to avoid impacts to Aboriginal cultural heritage at all stages of the development works. If impacts are unavoidable, mitigation measures are to be negotiated with the local Aboriginal community and OEH. All sites impacted must have an OEH Aboriginal Site Impact Recording (ASIR) form completed and be submitted to OEH's AHIMS Registrar within 3 months of completion of these works.

11. An Aboriginal Cultural Education Program must be developed for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted and when, for the duration of the project. The program should be developed and implemented in collaboration with the local Aboriginal community.

Traffic Noise Impact

12. A Traffic Noise Management Strategy (TNMS) "Driver Code of Conduct" must be prepared for management of construction traffic noise impacts prior to commencement of construction. The proponent shall ensure that all feasible and reasonable noise management strategies for vehicle movements associated with construction of the facility are identified and applied. It must include but, not necessarily be limited to, the following:

    - Consideration of construction traffic noise impacts;
    - driver training to ensure that noisy practices such as the use of compression engine brakes are not unnecessarily used near sensitive receivers,
    - best noise practice in the selection and maintenance of vehicle fleets,
    - movement scheduling where practicable to reduce impacts during sensitive times of the day.
    - communication and management strategies for non licensee/proponent owned and operated vehicles to ensure the provision of the Code are implemented,
    - a system of audited management practices that identifies non conformances, initiates and monitors corrective and preventative action (including disciplinary action for breaches of noise minimization procedures) and assesses the implementation and improvement of the Code,
    - specific procedures to minimize impacts at identified sensitive areas,
    - clauses in conditions of employment, or in contracts, of drivers that require adherence to the noise minimization procedures and facilitate effective implementation of the disciplinary actions for breaches of the procedures.