

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

The Planning Assessment Commission of New South Wales (the Commission) having considered all relevant matters prescribed under Section 75I(2) of the *Environmental Planning and Assessment Act 1979* (the Act), grant project approval pursuant to Section 75J of the Act to the Proposal referred to in Schedule 1, subject to the conditions in Schedule 2.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.



Member of the Commission



Member of the Commission

Sydney

22 February 2011

File No: 10/02017

SCHEDULE 1

Application No:	08_0154
Proponent:	AGL Upstream Infrastructure Investments Pty Ltd and its successors and assigns.
Approval Authority:	Planning Assessment Commission.
Land:	Land required for the development of the proposal, otherwise referred to as the Site.
Proposal:	<p>Stage 1 project comprising the pre-construction, construction, commissioning, operation, decommissioning and rehabilitation of the:</p> <ul style="list-style-type: none">• <i>Stage 1 Gas Field Development Area</i> - 110 gas wells and associated infrastructure including gas and water gathering lines, within an approximately 50 km² section of the overall 210 km² gas field development area, between the townships of Gloucester and just south of Stratford in the Gloucester local Government area;• <i>Central Processing Facility</i> - a facility for the compression and processing of the extracted gas, and associated

infrastructure (including extracted and treated water storage ponds, salt evaporation ponds, water treatment plant, options for treated water disposal (excluding groundwater re-injection) and an up to 15 megawatt gas-fired electricity generating facility) at one of two locations in the Gloucester Shire local Government area: site 1 (within the property owned by the Proponent known as the "Tiedeman" property) or site 7 (land currently owned by Gloucester Coal, adjacent to a rail loop which currently services the Stratford Colliery);

- *Gas Transmission Pipeline* - an approximately 95-100 kilometre length pipeline between the central processing facility and existing gas supply network at Hexham (located within an overall assessment corridor of 100 metres width), traversing the Gloucester Shire, Great Lakes Shire, Dungog Shire, Port Stephens, Maitland City and Newcastle City local Government areas;
- *Hexham Delivery Station* - a gas delivery station at Hexham to deliver the transported gas to the existing Newcastle-Sydney gas supply pipeline, in the Newcastle City local Government area; and
- associated ancillary infrastructure such as access roads, temporary construction facilities and construction personnel camps.

Major Project:

The proposal was declared a Major Project under section 75B(1)(a) of the *Environmental Planning and Assessment Act 1979*, because it is development of a kind described in clauses 6 and 26A of Schedule 1 of *State Environmental Planning Policy (Major Development) 2005*.

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SCHEDULE 2

Act, the	<i>Environmental Planning and Assessment Act, 1979</i>
Conditions of Approval	The Minister's conditions of approval for the project.
Construction	All pre-operation activities associated with the project other than pre-construction and commissioning.
Councils	Gloucester Shire, Great Lakes Shire, Dungog Shire, Port Stephens, Maitland City and Newcastle City
DECCW	NSW Department Environment, Climate Change and Water
DSEWPaC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
Department, the	Department of Planning
Director-General, the	Director-General of the Department of Planning (or delegate).
Director-General's approval/ agreement or satisfaction	A written approval from the Director-General (or delegate).
DII	Industry and Investment NSW
Dust	Any solid material that may become suspended in air or deposited.
Environmental Assessment	<i>Gloucester Gas Project Environmental Assessment</i> , dated November 2009 and prepared by AECOM
HCRCMA	Hunter-Central Rivers Catchment Management Authority
NOW	NSW Office of Water
Operation	Operation comprises the following, however does not include commissioning activities: <ul style="list-style-type: none"> • for the Stage 1 Gas Field Development Area – when wells commence gas extraction; • for the Central Processing Facility - when gas commences to be processed at the facility; and • for the Pipeline and Hexham Delivery Station – when gas commences to be transported via the pipeline.
Publicly Available	Available for inspection by a member of the general public (for example available on an internet site or at a display centre).
Pre-construction	Activities including survey, acquisitions, fencing, investigative drilling or excavation, building/road dilapidation surveys or other activities determined by the Environmental Representative to have minimal environmental impact such as minor access roads, minor adjustments to services / utilities, or minor clearing (except where threatened species, populations or ecological communities would be affected).
Reasonable and Feasible	Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.
RTA	NSW Roads and Traffic Authority
Site	Land required for the development of the project.
Statement of Commitments	Statement of Commitments contained in the Environmental Assessment
Submissions Report	<i>Gloucester Gas Project Submissions Report</i> , dated May 2010, and prepared by AECOM

1. ADMINISTRATIVE CONDITIONS

Terms of Approval

- 1.1 The Proponent shall carry out the project generally in accordance with the:
- a) Major Project Application 08_0154;
 - b) *Gloucester Gas Project Environmental Assessment*, dated November 2009 and prepared by AECOM;
 - c) *Gloucester Gas Project Submissions Report*, dated May 2010, and prepared by AECOM;
 - d) *Gloucester Basin Stage 1 Gas Field Development Project Preliminary Groundwater Assessment and Initial Conceptual Hydrogeological Model*, dated July 2010, and prepared by SRK Consulting;
 - e) additional information on offset site(s) and pre-construction surveys submitted to the Department by email on 10 August 2010 and 31 August 2010, respectively;
 - f) draft management plans on acid sulphate soil and the threatened species *Grevillea Parviflora sub. Species parviflora*, submitted to the Department by email on 12 October 2010;
 - g) the concept plan approval granted with respect to the Gloucester Gas Project (08_0154); and
 - h) the conditions of this approval.
- 1.2 In the event of an inconsistency between:
- a) the conditions of this approval and any document listed from condition 1.1a) to 1.1f) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and
 - b) any document listed from condition 1.1a) to 1.1f) inclusive, the most recent document shall prevail to the extent of the inconsistency.
- 1.3 The Proponent shall comply with any reasonable requirement(s) of the Director-General arising from the Department's assessment of:
- a) any reports, plans or correspondence that are submitted in accordance with this approval; and
 - b) the implementation of any actions or measures contained in these reports, plans or correspondence.

Limits of Approval

- 1.4 This project approval shall lapse five years after the date on which it is granted, unless the Proponent has demonstrated to the satisfaction of the Director-General prior to this time that orders have been placed for key plant/ elements essential and fundamental for the development of at least two project components (gas extraction, central processing facility, pipeline and/or Hexham Delivery Station).
- 1.5 To avoid any doubt, this approval only allows for the development of a single central processing facility at either site 1 or site 7.
- 1.6 To avoid any doubt, this approval does not authorise the following activities or works unless the subject of additional assessment and approval as part of a modification application under section 75W of the Act:
- a) construction or operation of a transmission line connection between the central processing facility (15 megawatt gas-fired electricity generating facility) and existing electricity grid; and
 - b) direct re-injection of groundwater produced during gas well development, back into groundwater aquifers as a water disposal option.

Statutory Requirements

- 1.7 The Proponent shall ensure that all necessary licences, permits and approvals required for the development of the project are obtained and maintained as required throughout the life of

the project. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such necessary licences, permits or approvals.

- 1.8 The Proponent may elect to construct the project in discrete work packages or stages. Where that occurs, these conditions of approval need only be complied with to the extent that they are relevant to that discrete work package or stage.

2. PROJECT DESIGN REQUIREMENTS

- 2.1 The Proponent shall in consultation with DII and NOW ensure that gas wells within the Stage 1 Gas Field Development Area are located consistent with the locational principles identified in Statement of Commitment 3 (concept area) of the Environmental Assessment, with consideration to flood prone land and with consideration to minimising the risk of groundwater impacts consistent with the requirements of condition 3.10. Prior to the commencement of construction of the Stage 1 Gas Field Development Area, the Proponent shall submit to DII location sheets identifying the final location of wells including associated infrastructure such as gas/water gathering lines and access roads. Where gas development is phased, the Proponent shall submit the above information (with appropriate updates) to DII prior to the commencement of each phase.

Nothing in this condition precludes the Proponent from submitting the above required information as part of the Field Development Plan referred to in condition 3.10.

- 2.2 The Proponent shall finalise the route alignment of the gas transmission pipeline within the 100 metre assessment corridor identified in the Environmental Assessment, in consultation with affected landowners, with the aim of maximising the length of route within existing disturbed areas (including existing infrastructure easements) and minimising conflict with private properties and landuse. Where the route is proposed to traverse existing infrastructure easements, the Proponent shall ensure that the pipeline route is located in consultation with the owners of existing infrastructure within the easement with the aim of minimising conflict with the ongoing operation and future upgrade/ maintenance requirements of that infrastructure. Prior to the commencement of construction of the gas transmission pipeline, the Proponent shall submit to the Department route alignment sheets identifying the final location of the pipeline.
- 2.3 The Proponent shall ensure that the final design of the gas transmission pipeline makes provisions for all reasonable requirements of the Mine Subsidence Board, where the gas pipeline route traverses a Mine Subsidence District.
- 2.4 The Proponent shall ensure that engineering measures are incorporated into the design of the central processing facility so that the associated flare plant is shielded (visually and in relation to noise emissions) from nearest sensitive receptors, as far as reasonable and feasible. The Proponent shall also ensure that gas wells are designed so as to ensure that associated flaring is visually shielded from nearest sensitive receptors as far as reasonable and feasible. The Proponent shall submit details of engineering measures incorporated into the design of the flare plant and gas wells for the approval of the Director-General, prior to the commencement of construction.

3. SPECIFIC ENVIRONMENTAL CONDITIONS

Surface Water Quality

- 3.1 Except as may be expressly provided by an Environment Protection Licence for the project, the Proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* which prohibits the pollution of waters.
- 3.2 Soil and water management measures consistent with Landcom's *Managing Urban Stormwater: Soils and Conservation* shall be employed during the construction of the project for erosion and sediment control.

Watercourse Crossings

- 3.3 All pipeline crossings of the Karuah River, Williams River, Hunter River, Deadmans Creek and any wetlands listed under *State Environmental Planning Policy No 14 – Coastal Wetlands* shall be undertaken using horizontal directional drilling techniques.
- 3.4 Unless otherwise agreed to by the Director-General, the Proponent shall ensure that any disturbance to watercourses and/or associated riparian vegetation is rehabilitated to a standard equal to or better than the existing condition in consultation with the NOW, HCRCMA and DII (Fisheries). Measures to facilitate the long-term rehabilitation of the site (including land stabilisation and re-vegetation) shall be implemented within six months of the cessation of construction activities at the relevant area.

Unless otherwise agreed to by the Director-General, the Proponent shall monitor and maintain the condition of the rehabilitated area until such time that the area (including re-vegetated areas) has been verified by an independent and suitably qualified expert (whose appointment has been agreed to by the Director-General) as being well established, in good health and self sustaining and rehabilitated to the standard required by this condition.

Groundwater Management

- 3.5 The Proponent shall implement all reasonable and feasible measures to ensure that gas wells are constructed, operated and decommissioned to avoid and minimise gas migration risks and adverse impacts to beneficial aquifers including associated groundwater users, surface waters and groundwater dependent ecosystems.
- 3.6 Unless otherwise agreed to by the Director-General, prior to the commencement of construction of the Stage 1 Gas Field Development Area, the Proponent shall identify and plug with cement any abandoned or old exploration wells located within a 500 metre radius of finalised gas well locations to minimise the risk of gas migration via these wells.
- 3.7 The Proponent shall ensure that no fracking fluids containing Benzene, Toluene, Ethylbenzene and Xylene (BTEX) chemicals are used in gas field development.

Baseline Monitoring and Updated Hydrogeological Model

- 3.8 Prior to the commencement of construction the project, the Proponent shall in consultation with NOW update the conceptual hydrogeological model developed during the assessment stage of the project (referred to in the document listed in condition 1.1d) based on baseline data gathered from (but not necessarily limited to), the pre-construction investigations identified below:
- a) seismic surveys of the site to identify geological features of risk;
 - b) preliminary field sampling of hydraulic conductivity, groundwater levels, groundwater quality and surface water quality based on a packer, pump and slug testing program and surface water sampling; and
 - c) long-term baseline monitoring (i.e. at least six months) at groundwater and surface water locations determined in consultation with NOW, to ensure representative baseline data on pre-construction conditions (including seasonal variability) in relation to the shallow rock and alluvial beneficial aquifers, deeper coal seam water bearing zones, groundwater users and surface waters.
- 3.9 The updated conceptual hydrogeological model referred to in condition 3.8 shall be submitted for the Director-General's approval, prior to the commencement of construction and shall include:
- a) updated assessment of the potential for drawdown and displacement of shallow rock and alluvial beneficial aquifers, considering impacts to nearby registered bore users, based on detailed baseline data gathered from condition 3.8 a) to c);
 - b) optimal areas for gas well location within the Stage 1 Gas Field Development Area based on minimising the risk of gas migration and of interaction with beneficial aquifers and the outcomes of the updated assessment;

- c) recommendations for phased gas well development including identifying the maximum number of gas wells that would be developed during the first phase of development and associated operational groundwater monitoring strategy consistent with the requirements of condition 4.1; and
- d) include an independent peer review by an appropriately experienced and qualified hydrogeologist (who is approved by the Director-General for the purposes of this condition) on the robustness and technical veracity of the model.

In submitting the updated conceptual hydrogeological model for the Director-General's approval, the Proponent shall provide written evidence of consultation with NOW on the robustness and technical veracity of the model (including well location areas and phasing program) identifying the issues raised by NOW and how these have been addressed by the Proponent.

Field Development Plan Implementation during Operation

- 3.10 Unless otherwise agreed to by the Director-General, the Proponent shall ensure that gas wells within the Stage 1 Gas Field Development Area are developed in a phased manner to avoid and minimise adverse impacts to beneficial aquifers consistent with the requirements of condition 3.5. Prior to the commencement of construction of the Stage 1 Gas Field Development Area, the Proponent shall in consultation with NOW develop and submit to the Director-General a **Field Development Plan**, which includes a phasing program for the development of gas wells and details of the final location of gas wells and associated infrastructure such as gas/water gathering lines and access roads for at least the first phase of gas well development identified in the Field Development Plan. As gas field development progresses, the Proponent shall in consultation with NOW update the Field Development Plan with phasing and location details of gas wells and associated infrastructure for subsequent phases, and submit the plan to the Director-General prior to the commencement of each phase.

The first phase of gas well development within the Field Development Plan shall be as per the requirements of condition 3.9c). All subsequent phases of gas field development shall be consistent with the outcomes of the groundwater monitoring program and associated numerical hydro-geological model implemented in accordance with conditions 4.1 and 4.2, demonstrating satisfactory management of groundwater risks consistent with the requirements of condition 3.5, to the satisfaction of the Director-General in consultation with NOW. Subsequent phases shall be undertaken in accordance with any requirements of the Director-General (in consultation with NOW) following its review of groundwater monitoring results in accordance with conditions 4.1 and 4.2.

Rate of Groundwater Extraction

- 3.11 Prior to the commencement of any groundwater extraction associated with the project, the Proponent shall ensure that all relevant Water Licence(s) have been obtained from NOW for groundwater extraction at the volumetric rate of two mega litres per day (averaged over a 12 month period). Except as may be expressly provided by a Water Licence for the project, the Proponent shall ensure that the volumetric rate of groundwater extraction for the project is no greater than two mega litres per day (averaged over a 12 month period).

Extracted Water Management

- 3.12 Unless otherwise agreed to by the Director-General, prior to the commencement of construction of the project, the Proponent shall develop an **Extracted Water Management Strategy** in consultation with DII, NOW, HCRCA, DECCW and relevant Councils and to the satisfaction of the Director-General, which:
- a) identifies the final suite of water disposal and re-use option(s) that would be implemented to manage groundwater extracted from the gas production wells;
 - b) identifies the water quality required to achieve the disposal/ re-use option(s) identified in a) above including the procedure for monitoring of treated water to ensure that required water quality criteria are achieved;

- c) if discharge to surface waters is proposed – identifies details of all practical measures investigated to prevent, control, abate or mitigate that discharge; details of the receiving environment including water quality and flow conditions; proposed discharge rate and frequency; and details of all practical measures investigated to protect the environment from harm as a result of that discharge including demonstration that any discharge would satisfy the requirements of condition 3.1;
- d) if re-use for irrigation is proposed – demonstrates that there is demand for the volumes of water to be generated, details of all practical measures investigated to protect the environment from harm including details of optimal application rates to prevent over-irrigation and associated salinity issues or groundwater contamination, and demonstration that any discharge would satisfy the requirements of condition 3.1;
- e) if extracted water is proposed to be made available to the market – demonstrates that suitable buyers of the water have been secured and where the water is proposed to supplement drinking water supplies, demonstration that the water quality is suitable for drinking water supplies;
- f) identifies the final option for the management of the salt volumes produced from the extracted water treatment process;
- g) includes a contingency strategy for the management of extracted water should the volumetric rate of groundwater extraction be greater than two mega litres per day (consistent with the requirements of condition 3.11), including analysis of associated risks to groundwater users and/ or surface waters and groundwater dependent ecosystems-
- h) provides an assessment of the need for control measures to be implemented at the extracted water and brine evaporation ponds to minimise wildlife (including bird) access to these ponds, with consideration to the water quality and associated risks to wildlife likely to be posed by these storage ponds; and
- i) provide for the development of site specific water quality criteria in accordance with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (ANZECC 2000 Guidelines), as necessary, in consultation with DECCW, for the purposes of conditions b), c), d) and e) above.

3.13 The Proponent shall ensure that any water storage ponds developed at the central processing facility or on the Tiedeman property as part of the project (including extracted water, treated water and brine evaporation ponds) are appropriately lined to ensure no leaching of stored waters and designed consistent with a 1 in 100 year flood design standard.

Noise Impacts

Construction Hours

3.14 With the exception of construction of the pipeline, the Proponent shall only undertake construction activities associated with the project that would generate an audible noise at any sensitive receptor during the following hours:

- a) 7:00 am to 6:00 pm, Mondays to Fridays, inclusive;
- b) 8:00 am to 1:00 pm on Saturdays; and
- c) at no time on Sundays or public holidays.

This condition does not apply in the event of a direction from police or other relevant authority for safety reasons or emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

Construction works associated with the gas pipeline that would generate audible noise at any sensitive receptor shall only be undertaken during the following hours: 7.00 am to 6.00 pm Monday to Saturday and 8.00 am to 6.00 pm Sundays or public holidays for a maximum period of 28 days at a time, separated by a minimum respite period of nine days.

3.15 Blasting associated with the construction of the project shall only be undertaken during the following hours:

- a) 9:00 am to 5:00 pm, Mondays to Fridays, inclusive;

- b) 9:00 am to 1:00 pm on Saturdays; and
 - c) at no time on Sundays or public holidays.
- 3.16 The hours of construction activities specified under conditions 3.14 and 3.15 of this approval may be varied with the prior written approval of the Director-General. Any request to alter the hours of construction specified under condition 3.14 and 3.15 shall be:
- a) considered on a case-by-case basis;
 - b) accompanied by details of the nature and need for activities to be conducted during the varied construction hours including alternatives considered;
 - c) accompanied by details of the likely noise levels at nearest sensitive receptors with and without mitigation;
 - d) accompanied by details of all reasonable and feasible measures identified to minimise noise impact at nearest sensitive receptors;
 - e) accompanied by details of consultation and notification undertaken with surrounding receptors (including, in respect to proposed gas drilling works on a 24 hour basis – written agreement from affected landowners, where relevant construction noise goals are not expected to be achieved); and
 - f) accompanied by written evidence demonstrating consultation with the DECCW in relation to the proposed variation in construction times (including consideration of any comments made by the DECCW).

Construction Noise

- 3.17 The Proponent shall implement all reasonable and feasible measures to minimise noise generation from the construction of the project consistent with the requirements of the *Interim Construction Noise Guideline* (DECC, July 2009) including noise generated by heavy vehicle haulage and other construction traffic associated with the project.

Construction Blasting

- 3.18 The Proponent shall ensure that air blast overpressure generated by blasting associated with the project does not exceed the criteria specified in Table 1 when measured at the most-affected residential or sensitive receiver.

Table 1 – Airblast Overpressure Criteria

Air blast Overpressure (dB(Lin Peak))	Allowable Exceedance
115	5% of total number of blasts over a 12 month period
120	Never

- 3.19 The Proponent shall ensure that the ground vibration generated by blasting associated with the project does not exceed the criteria specified in Table 2 when measured at the most-affected residential or sensitive receiver.

Table 2 – Peak Particle Velocity Criteria

Peak Particle Velocity Criteria (mms ⁻¹)	Allowable Exceedance
5	5% of total number of blasts over a 12 month period
10	Never

- 3.20 Prior to each blasting event, the Proponent shall notify the relevant local council and potentially-affected landowners, including details of time and location of the blasting event and providing a contact point for inquiries and complaints.

Vibration Impacts

- 3.21 The Proponent shall ensure that the vibration resulting from construction and operation of the project does not exceed the preferred values vibration (for low probability of adverse

comment) presented in *Assessing Vibration: A Technical Guideline* (DECC, February 2006), at any surrounding sensitive receptor.

Operational Noise

3.22 The Proponent shall design, construct, operate and maintain the project to ensure that the noise contributions from the project do not lead to an exceedence of the noise limits specified in Table 3 (at the locations and during the periods indicated) for the operation of the project unless subject to a negotiated noise agreement established consistent with Section 8.3 of the *New South Wales Industrial Noise Policy* (EPA, 2000). The noise limits apply under wind speeds up to 3 ms⁻¹ (measured at 10 metres above ground level), or under temperature inversion conditions of up to 3 °C/ 100 metres and wind speeds of up to 2m/s at 10 metres above the ground.

This condition only applies to the project operating under normal operating conditions and does not apply to:

- a) start-up, shut-down or emergency situations (emergency situations being defined as situations where there is the potential for the loss of lives, property and/ or environmental harm); or
- b) the re-drilling and/ or re-fracking activities of previously operational wells or gas well maintenance activities, which are specifically agreed to by the Director-General in writing, on a case by case basis, and which are undertaken in accordance with an approved noise management protocol prepared in accordance with the requirements of condition 7.4e)(iii).

Table 3 - Operational Noise Limits

Project Component	Location	Project Specific Noise Limit (all time periods)	
		dB(A) L _{Aeq} (15 minute)	dB(A) L _{A1} (1 minute)
Gas Wells	Nearest Sensitive Receptor	35	45
Central Processing Facility (Site 1)	P7	36	46
	P8	36	46
	P9	35	45
	P10	36	46
	P11	36	46
	P12	36	46
Central Processing Facility (Site 7)	P13	36	46
	P1	36	46
	P2	42	52
	P3	37	47
	P4	35	45
	P5	35	45
Hexham Delivery Station	P6	35	45
	P15	45	55
	P16	43	53
	P17	43	53

3.23 For the purpose of assessment of noise contributions specified under condition 3.22 of this approval, noise from the project shall be:

- a) measured at the most affected point within the residential boundary or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary to determine compliance with the L_{Aeq}(15 minute) noise limits;
- b) measured at 1 metre from the dwelling façade to determine compliance with the L_{A1} (1 minute) noise limits; and
- c) subject to the modification factors provided in Section 4 of the *New South Wales Industrial Noise Policy* (EPA, 2000).

Notwithstanding the above, should direct measurement of noise from the project be impractical, the Proponent may employ an alternative noise assessment method deemed acceptable by the DECCW (refer to Section 11 of the *New South Wales Industrial Noise Policy* (EPA, 2000)). Details of such an alternative noise assessment method accepted by

the DECCW shall be submitted to the Director-General prior to the implementation of the assessment method.

Detailed Design Noise Report

- 3.24 Unless otherwise agreed to by the Director-General, at least 3 months prior to the commencement of construction of the central processing facility and Hexham Delivery Station, the Proponent shall in consultation with DECCW prepare and submit a **Detailed Design Noise Report** for the Director-General's approval to confirm the predicted noise levels associated with the central processing facility and Hexham Delivery Station considering all reasonable and feasible at-source control measures (based on detailed design) at the sensitive receptors identified in Table 3.

Acquisition Rights

- 3.25 Unless otherwise agreed to by the Director-General, where the **Detailed Design Noise Report** required to be prepared under condition 3.24 predicts exceedences of greater than 5 dB(A) of project specific noise limits at any sensitive receptor identified in Table 3 for either the operation of the central processing facility or the operation of the Hexham Delivery Station, the relevant receptors shall be subject to acquisition rights in accordance with condition 3.26 unless a negotiated agreement is in place with respect to that receptor in accordance with condition 3.22. The Proponent shall ensure that any receptor subject to acquisition rights is notified of his/her rights as outlined in condition 3.26 within one month of the Department's approval of the Detailed Design Noise Report.
- 3.26 Within three months of receiving a written request from a landowner with acquisition rights under condition 3.25 of this approval, the Proponent shall make a binding written offer to the landowner based on:
- a) the market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project;
 - b) the reasonable costs associated with:
 - i) property relocation;
 - ii) obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is acquired; and
 - c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land, and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to:

- a) consider submissions from both parties;
- b) determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired having regard to the matters in a), b) and c) above; and
- c) prepare a detailed report setting out the reasons for any determination and provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's determination, the Proponent shall make a written offer to purchase the land at a price not less than the independent valuer's determination.

If the landowner refuses to accept the Proponent's binding written offer within six months of the date of the Proponent's offer, the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.

The Proponent shall bear the reasonable costs of any valuation or survey assessment requested by the independent valuer or the Director-General and the reasonable costs of determination referred to above.

Any receptor, for which acquisition rights have ceased in accordance with the requirement of this condition, would nevertheless be eligible to receive at-receptor acoustic treatments in accordance with condition 3.27.

At-Receptor Acoustic Treatment

3.27 Unless otherwise agreed to by the Director-General, where the **Detailed Design Noise Report** required to be prepared under condition 3.24, predicts exceedences of project specific noise criteria of no greater than 5 dB(A) at any sensitive receptor identified in Table 3 for either the operational of the central processing facility or the operational of the Hexham Delivery Station, the relevant receptors shall be eligible to receive at-receptor acoustic treatments, at the Proponent’s expense, to minimise noise impacts at the receptors as far as reasonable and feasible, unless operational noise monitoring undertaken in accordance with condition 4.3 confirms that project specific noise limits would be achieved at these receptors. All receptors eligible for at-receptor mitigation measures in accordance with the requirements of this condition shall be informed of their rights following the confirmation of noise levels at these receptors as part of the Noise Verification Report required to be prepared under condition 4.3, within one month of the Director-General’s approval of that Noise Verification Report.

Air Quality Impacts

Dust Generation

3.28 The Proponent shall employ all reasonable and feasible measures (including temporary cessation of relevant works, as appropriate) to ensure that the project is constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site, as far as practicable.

Odour

3.29 The Proponent shall not permit any offensive odour, as defined under section 129 of the *Protection of the Environment Operations Act 1997*, to be emitted from the site which impacts on any sensitive surrounding receptor.

Monitoring and Discharge Points

3.30 For the purposes of this approval, air monitoring/ air discharge points shall be identified as provided in Table 4 below.

Table 4 - Identification of Air Monitoring and Discharge Points

Monitoring / Discharge Point Identifier	Monitoring/ Discharge Point Location
1	Water Bath Heater, Hexham Delivery Station
2	Internal Combustion Engine, Power Generation Facility, Central Processing Facility
3	Reciprocating Multistage Compressor, Gas Compression Plant, Central Processing Facility
4	Alternator, Central Processing Facility
5	Triethylene Glycol Regeneration Skid, Central Processing Facility
6	Triethylene Glycol Boiler, Central Processing Facility

Discharge Limits

3.31 The Proponent shall design, construct, operate and maintain the project to ensure that for each discharge point, identified in condition 3.30, the concentration of each pollutant listed in Table 5 is not exceeded during the operation of the project. This condition only applies to the

project operating under normal operating conditions and does not apply during start-up, shut-down or emergency situations.

Table 5 - Maximum Allowable Discharge Concentration Limits (Air)

Discharge Point	Pollutant	Units of Measure	100 Percentile limit (mgm ⁻³)	Averaging Period	Reference conditions
1	Oxides of Nitrogen	mg/m ³	350	1 hour	dry, 273 K, 101.3 kPa, and 3% O ₂
	Volatile Organic compounds or carbon monoxide	mg/m ³	40 (VOCs or 125 (CO))	Rolling 1-hour	dry, 273 K, 101.3 kPa, and 3% O ₂
2	Oxides of Nitrogen	mg/m ³	450	1 hour	dry, 273 K, 101.3 kPa, and 3% O ₂
	Formaldehyde	mg/m ³	6	1 hour	dry, 273 K, 101.3 kPa, and 3% O ₂
	Volatile Organic compounds or carbon monoxide	mg/m ³	40 (VOCs or 125 (CO))	Rolling 1-hour	dry, 273 K, 101.3 kPa, and 3% O ₂
3	Oxides of Nitrogen	mg/m ³	250	1 hour	dry, 273 K, 101.3 kPa, and 13% O ₂
	Formaldehyde	mg/m ³	10	1 hour	dry, 273 K, 101.3 kPa, and 13% O ₂
	Volatile Organic compounds or carbon monoxide	mg/m ³	40 (VOCs or 125 (CO))	Rolling 1-hour	dry, 273 K, 101.3 kPa, and 13% O ₂
4	Oxides of Nitrogen	mg/m ³	60	1 hour	dry, 273 K, 101.3 kPa, and 13% O ₂
	Formaldehyde	mg/m ³	10	1 hour	dry, 273 K, 101.3 kPa, and 13% O ₂
	Volatile Organic compounds or carbon monoxide	mg/m ³	40 (VOCs or 125 (CO))	Rolling 1-hour	dry, 273 K, 101.3 kPa, and 13% O ₂
5	Oxides of Nitrogen	mg/m ³	35	1 hour	dry, 273 K, 101.3 kPa, and 3% O ₂
	Formaldehyde	mg/m ³	5	Rolling 1-hour	dry, 273 K, 101.3 kPa, and 3% O ₂
6	Oxides of Nitrogen	mg/m ³	60	1 hour	dry, 273 K, 101.3 kPa, and 3% O ₂
	Formaldehyde	mg/m ³	5	Rolling 1-hour	dry, 273 K, 101.3 kPa, and 3% O ₂

Gas Flare Management

3.32 In relation to gas wells under flare during the commissioning of the Stage 1 Gas Field Development Area, the Proponent shall ensure that a separation distance of at least 500 metres is maintained for flaring wells positioned in a straight line (maximum of five wells simultaneously flaring) and 800 metres for flaring wells positioned in a triangular grid (maximum of four wells simultaneously flaring). If additional wells are to be flared simultaneously a four kilometre separation distance shall be maintained between flaring well clusters.

3.33 The Proponent shall ensure that records of gas venting from the central processing facility, either through flare or directly to the atmosphere shall be recorded and reported to the Director-General and DECCW on an annual basis.

Biodiversity Offset

3.34 Unless otherwise agreed to by the Director-General, prior to the commencement of construction of the project, the Proponent shall in consultation with DECCW and DSEWPaC finalise and secure in perpetuity (through appropriate legal mechanisms), a compensatory habitat package, which offsets the biodiversity impacts of the project as specified below to

the satisfaction of the Director-General. Unless otherwise agreed to by the Director-General, the package shall be finalised following:

- a) targeted surveys of the gas transmission pipeline corridor to confirm the project's impacts on the following listed flora species, based on survey methodology determined in consultation with DECCW: *Asperula conferta* (Trailing Woodruff), *Galium australe* (Tangled Bedstraw), *Callistemon linearifolius* (Nettled Bottle Brush), *Cryptostylis hunteriana* (Leafless Tongue Orchid), *Cynanchum elegans* (White-flaxed Wax Plant), *Grevillea Parviflora sub. Species parviflora* (Small-flower Grevillea), *Persicaria elatior* (Tall Knotweed), *Pomaderris queenslandica* (Scant Pomaderris), *Rhizanthella slateri* (Eastern Australian Underground Orchid) and *Tetradthea juncea* (Black-eyed Susan);
- b) survey of the offset site identified in the documents listed under condition 1.1e) in consultation with DECCW and consistent with DECCW's Biobanking Methodology to confirm the ecological values of the site(s);
- c) based on b) above, demonstration that the offset site referred to in b) above, provides suitable offset (consistent with the principles of "maintain or improve") for the biodiversity impacts of the project on:
 - i) *Grevillea Parviflora sub. Species parviflora*, any additional listed flora species identified to be impacted by the gas transmission pipeline corridor based on a) above, and the habitat of any listed flora species identified to have a medium to high potential of occurring within the remaining disturbance footprint of the project;
 - ii) habitat of the Grey-crowned Babbler species and any other fauna species identified to have a medium to high potential of occurring within the disturbance footprint of the project;
 - iii) the Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions endangered ecological community; and
 - iv) important native vegetation and habitat values within the disturbance footprint of the project;
- d) where the offset site referred to in b) above does not provide all required offset values as identified in c) above, the identification of additional offset measures and / or sites in consultation with DECCW and DSEWPaC, to address residual offset requirements including survey of additional offset sites in accordance with b) above, where required; and
- e) finalisation of the management measures required to maintain the biodiversity values of each offset option identified, in perpetuity in consultation with DECCW and DSEWPaC.

In submitting the compensatory habitat package for the Director-General's approval, the Proponent shall clearly detail the consultation undertaken with DECCW and DSEWPaC, including opportunity provided to review draft versions of the package (should this be required by the agencies) and identification of the issues raised by the agencies and how these have been addressed in the package.

Heritage Impacts

- 3.35 If during the course of construction the Proponent becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the objects managed in accordance with the requirements of condition 7.2g)iv), in consultation with registered Aboriginal stakeholders.
- 3.36 The Proponent shall ensure that the Stage 1 Gas Field Development Area is developed such as to avoid impacts to AHIMS 38-1-0008 and AHIMS 38-1-0031.
- 3.37 The Proponent shall ensure that pipeline construction in the vicinity of AHIMS 28-1-0006 and AHIMS 38-4-0010 is restricted to the existing disturbed road alignment to ensure no disturbance or interference with these sites. The Proponent shall ensure that a qualified archaeologist and relevant Aboriginal stakeholders are on site at all times during construction works in the vicinity of these sites to monitor the construction works and ensure that appropriate buffer distances are maintained to these sites to avoid disturbance.

- 3.38 Should the Central Processing Facility or any temporary construction facilities be located within Site 1, the Proponent shall prior to the commencement of construction provide opportunity for representatives from the Forster Local Aboriginal Land Council to survey the site, re-locate and salvage the three isolated finds that have been previously identified on site (but which were unable to be relocated during studies undertaken as part of the Environmental Assessment).
- 3.39 If during the course of construction the Proponent becomes aware of any unexpected historical relic(s), all work likely to affect the relic(s) shall cease immediately in the vicinity of the relics and the Heritage Office notified in accordance with the *Heritage Act 1977*. Works shall not recommence until the Proponent receives written authorisation from the Heritage Office.

Visual Amenity Impacts

- 3.40 The Proponent shall minimise the use of reflective building elements and maximise the use of building materials and treatments which visually complement the surrounding landuse.
- 3.41 The Proponent shall ensure that all external lighting associated with the project is mounted, screened, and directed in such a manner so as not to create a nuisance to the surrounding environment, properties and roadway. The lighting shall be the minimum level of illumination necessary and shall comply with *AS 4282(INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting*.
- 3.42 Unless otherwise agreed to by the Director-General, within six months of the completion of the construction of the central processing facility, the Proponent shall implement all reasonable and feasible landscaping measures within the central processing facility site to screen views of this facility from nearest sensitive receptors. The Proponent shall monitor and maintain the health of these landscape plantings for the life of the central processing facility, including replacing of any plantings which fail.

Traffic, Transport and Access Impacts

- 3.43 The Proponent shall ensure that any disturbance to public roads associated with the pipeline crossing or any road upgrades to accommodate the construction or operational traffic associated with the project is designed and constructed in consultation with and to meet the reasonable requirements of the relevant road authority (relevant Council or the RTA), to the satisfaction of the Director-General.
- 3.44 Prior to the commencement of construction of the project, the Proponent shall commission a suitably qualified expert to assess the condition of all public roads proposed to be traversed by construction traffic associated with the project (including over-mass or over-dimensional vehicles) in consultation with relevant Councils and the RTA, and identify any upgrade requirements to accommodate project traffic for the duration of construction (including culvert, bridge and drainage design; intersection treatments; vehicle turning requirements; and site access) considering final traffic volumes. The road dilapidation report shall be submitted to the Director-General prior to the commencement of construction clearly identifying recommendations made by the Council and the RTA and how these have been addressed. The Proponent shall ensure that all upgrade measures identified in the report are implemented to meet the reasonable requirements of the relevant Council and the RTA, prior to the commencement of construction, to the satisfaction of the Director-General.
- 3.45 Prior to the commencement of operation of the project, the Proponent shall commission a suitably qualified expert to assess the condition of all public roads traversed by construction traffic associated with the project (including over-mass or over-dimensional vehicles) in consultation with Council and the RTA. Should the pre-operational dilapidation survey report identify any damage to roads attributable to construction traffic associated with the project, the Proponent shall repair the roads consistent with the recommendations of the pre-

operational dilapidation survey report, within such time as agreed to with the relevant Council and the RTA and to meet the reasonable requirements of the relevant Council and the RTA. The pre-operation road dilapidation report shall be submitted to the Director-General prior to the commencement of operation, clearly identifying recommendations made by relevant Councils and the RTA and how these have been addressed, to the satisfaction of the Director-General.

Hazards and Risk

Technical Controls

- 3.46 The design, operation and technical controls for the well heads shall be consistent with the requirements of the Department's Guideline – *'Development in the Vicinity of Operating Coal Seam Methane Wells'*.

Pre-Construction

- 3.47 The Proponent shall prepare and submit the following studies to the Director-General no later than one month prior to the commencement of construction of the project, or within such further period as the Director-General may agree. Construction, other than of works that are outside the scope of the hazard studies, shall not commence until study recommendations have been considered and, where appropriate, acted upon. The Proponent shall submit:
- a) a **Fire Safety Study** covering the relevant aspects of the Department's *'Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'*. The study shall meet the requirements of the NSW Fire Brigades. For the Central Processing Facility, the study shall also consider the New South Wales Government's *'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'*;
 - b) a **Hazard and Operability Study** for the Central Processing Facilities, including any abnormal operating modes such as flare and blowdown operations, chaired by a qualified person, independent of the project. The study shall be consistent with the Department of Planning's *'Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'*;
 - c) a **Final Hazard Analysis** consistent with the Department's Hazardous Industry Planning Advisory Paper No. 6, *'Guidelines for Hazard Analysis'*. The final design shall apply appropriate risk mitigation measures for the Export Sales Pipeline (ESP) in locations where the pipeline risk transects exceed the Department's risk criteria. Further, the final design shall consider all recommendations in Table A1.1 to A1.5 of the Preliminary Hazard Analysis presented in the Environmental Assessment; and
 - d) a **Construction Safety Study**, consistent with the Department's Hazardous Industry Planning Advisory Paper No. 7, *'Construction Safety Study Guidelines'*. The study should consider the bush fire risk during construction of the project.

Pre-commissioning

- 3.48 Prior to the commencement of commissioning, the Proponent shall develop and implement the plans and systems set out below. The Proponent shall submit to the Director-General documentation describing the plans and systems no later than two months prior to the commencement of commissioning of the project, or within such further period as the Director-General may agree:
- a) a comprehensive **Emergency Response Plan** detailing emergency procedures for the Central Processing Facility. The plan shall include detailed procedures for the safety of all people outside of the project who may be at risk from the project. The plan shall be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 1, *'Industry Emergency Planning Guidelines'*; and
 - b) a document setting out a comprehensive **Safety Management System** for the Central Processing Facility, covering all on-site operations. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. The Safety Management System shall be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 9, *'Safety Management'*.

Pre-Operation

- 3.49 At least one month prior to the commencement of operation of the project, the Proponent shall submit to the Director-General, a report detailing compliance with conditions 3.47 and 3.48, including:
- a) dates of study/plan/system completion;
 - b) actions taken or proposed, to implement recommendations made in the studies/plans/systems; and
 - c) responses to each requirement imposed by the Director-General following its review of the studies/ reports.

Post Operation

- 3.50 Three months after the commencement of operation of the project, the Proponent shall submit to the Director General, a report verifying that:
- a) the Emergency Response Plan required under condition 3.48a) is effectively in place and that at least one emergency exercise has been conducted; and
 - b) the Safety Management System required under condition 3.48b) has been fully implemented and that records required by the system are being kept.

Waste Generation and Management

- 3.51 The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.
- 3.52 Except in the case of water or salt waste managed in accordance with condition 3.12, the Proponent shall maximise the reuse and/or recycling of waste materials generated on site as far as practicable, to minimise the need for treatment or disposal of those materials off site.
- 3.53 The Proponent shall ensure that all liquid and/or non-liquid waste generated on the site is assessed and classified in accordance with *Waste Classification Guidelines* (DECC, 2008), or any future guideline that may supersede that document and where removed from the site is only directed to a waste management facility lawfully permitted to accept the materials.

Temporary Construction Facilities

- 3.54 Prior to the commencement of construction of the Project, the Proponent shall prepare a **Temporary Construction Facilities Management Strategy** in consultation with DECCW and relevant Councils to the satisfaction for the Director-General detailing:
- a) the final location of all temporary construction facilities including construction camps, demonstrating that the facilities have been located consistent with the location principles identified in Statement of Commitment 4 (project area) of the Environmental Assessment; within the assessed footprint of the project; and to ensure that the facilities would not result in any increased impacts (including biodiversity, heritage items and noise) as assessed in the Environmental Assessment and Submissions Report;
 - b) the scale and dimension of facilities including duration of establishment;
 - c) utility and service requirements (such as sewage, water supply and electricity) required to operate the facilities for the duration of construction including demonstration that all relevant approvals for these services and connections have been obtained;
 - d) management measures that would be implemented on site including behavioural protocols to ensure that the facilities do not pose a disturbance to surrounding receptors including noise, air quality, visual (and lighting), and traffic impacts;
 - e) protocols that would be put in place to control or avoid any unintended social impacts (such as anti-social behaviour), particularly from the construction camps; and
 - f) detailed decommissioning and rehabilitation requirements at the cessation of the construction period.

Rehabilitation

- 3.55 The Proponent shall ensure that all surface areas of the project footprint which are disturbed during the construction but which are not required for the ongoing operation of the project (including temporary construction facility sites, construction access roads, relevant areas of

the pipeline construction corridor and buried gas and water gathering lines) are rehabilitated consistent with existing landuse in consultation with affected landowners, to a standard better than or equal to existing. In relation to areas which were vegetated prior to disturbance, this shall comprise a program of revegetation to a standard equal to or better than the existing condition (where this does not conflict with the ongoing operation of the gas transmission pipeline).

Measures to facilitate the long-term rehabilitation of applicable surface areas (including land stabilisation and re-vegetation measures) shall be implemented within six months of the cessation of construction activities, at the relevant area unless an alternative timeframe is agreed to with the landowners. Unless otherwise agreed to by the Director-General, the Proponent shall monitor and maintain the condition of the rehabilitated areas until such time that the areas (including re-vegetated areas) have been verified by an independent and suitably qualified expert (whose appointment has been agreed to by the Director-General) as being well established, in good health and self sustaining and rehabilitated to the standard required by this condition.

- 3.56 The Proponent shall ensure that all gas wells are decommissioned and rehabilitated at the cessation of operation in accordance with the requirements of and to the satisfaction of DII. Unless otherwise agreed to by DII, the Proponent shall ensure that the decommissioning and rehabilitation of gas wells are independently verified within three-months of the decommissioning of the well, to the satisfaction of DII.

4. ENVIRONMENTAL MONITORING AND AUDITING

Ground Water Monitoring

- 4.1 Prior to the commencement of construction of the Project, the Proponent shall develop a **Groundwater Monitoring Program** in consultation with NOW and to the satisfaction of the Director-General, covering the operation of the Stage 1 Gas Field Development Area. The program shall detail the monitoring strategy that would be implemented to measure dewatering and water quality impacts of gas well development on beneficial aquifers (including associated groundwater users, surface waters and groundwater dependent ecosystems) during the implementation of the Field Development Plan for the Stage 1 Gas Field Development Area and measure any residual impacts following the decommissioning of wells. The program shall:
- a) identify surface and groundwater monitoring locations demonstrating their appropriateness for obtaining representative water quality and water level data on operational impacts in relation to beneficial aquifers, groundwater users and surface waters. In the first instance the monitoring locations shall focus on the first phase of gas well development in the Field Development Plan, as identified under condition 3.10 and shall be updated as well development progresses;
 - b) provide details of the monitoring points (including location, depth of monitoring, duration and frequency of monitoring and parameters to be monitored);
 - c) identify performance criteria for gas well development, including monitoring criteria to detect early indicators of drawdown impacts to beneficial aquifers or of cumulative drawdown effects and hold points (based on risk assessment) for further development where adverse impacts are identified;
 - d) identify the frequency of reporting on monitoring results including at a minimum prior to the commencement of each phase of the Field Development Plan (subsequent to the first phase) in accordance with the requirements of condition 3.10;
 - e) include provisions for the monitoring of coal seam dewatering rates and hold points (based on risk assessment) in the case that water volumes are greater than the predicted two mega litres per day (unless managed in accordance with condition 3.12g);
 - f) include provisions for monitoring the potential for gas migration to the surface;
 - g) provide detailed specifications (including information on toxicity and/ or carcinogenicity) of fracking fluids to be used in gas well development, with annual updates;
 - h) include provisions for ongoing monitoring, post decommissioning of wells to determine any residual impacts;

- i) identify a procedure for contingency or remedial action where adverse impacts are identified including compensation to groundwater users and/or rehabilitation measures where affects to groundwater dependent ecosystems/ communities are attributed to the project; and
- j) identify mechanisms for the regular review and update of the program in consultation with NOW as required.

In submitting the program for the Director-General's approval, the Proponent shall provide written evidence of consultation with NOW on the robustness and acceptability of the monitoring program, including issues raised by NOW and how these have been addressed.

The monitoring program shall be updated in consultation with NOW to the satisfaction of the Director-General, prior to the commencement of each phase of the Field Development Plan, taking into account the recommendations of the Numerical Hydrogeological Model developed in accordance with condition 4.2.

- 4.2 The Proponent shall in consultation with NOW develop a **Numerical Hydrogeological Model** of the Stage 1 Gas Field Development Area building on the detailed conceptual hydrogeological model developed in accordance with conditions 3.8 and 3.9 and based on the monitoring results from the operation of the project, obtained in accordance with condition 4.1. The Model shall be used as a predictive, adaptive management and verification tool to guide the ongoing operation and implementation of gas wells as part of the Field Development Plan including feeding into recommendations on the phasing of gas wells in accordance with condition 3.10 (this includes identifying any impacts of the project from the previous phase of gas well development and the mitigation and contingency measure employed to control any impacts including their effectiveness and the recommended number and location of gas well to be developed in the next phase). The Model shall also feed into recommendations on updates to the Groundwater Monitoring program in accordance condition 4.1.

Noise Monitoring

- 4.3 Within 90 days of the commencement of operation of the project or as otherwise agreed by the Director-General, and during a period in which the project is operating under normal operating conditions, the Proponent shall undertake a program to confirm the noise emission performance of the project. The program shall meet the requirements of the DECCW, and shall include, but not necessarily be limited to:
- a) noise monitoring, consistent with the guidelines provided in the *New South Wales Industrial Noise Policy* (EPA, 2000), to assess compliance with condition 3.22 of this approval;
 - b) methodologies, locations and frequencies for noise monitoring;
 - c) identification of monitoring sites at which pre- and post-project noise levels can be ascertained; and
 - d) details of any entries in the Complaints Register (condition 6.3 of this approval) relating to noise impacts.

Unless otherwise agreed to by the Director-General, a report providing the results of the program shall be submitted to the Director-General and the DECCW within 28 days of completion of the testing required under a).

- 4.4 In the event that the program undertaken to satisfy condition 4.3 of the approval indicates that the operation of the project, under normal operating conditions, will lead to greater noise impacts than permitted under condition 3.22 of this approval, then the Proponent shall provide details of remedial measures to be implemented to reduce noise impacts to levels required by that condition, including (but not necessarily limited to) at-receptor acoustic screening as required under condition 3.27. At-receptor acoustic screening shall only be considered where other at-source methods of acoustic amelioration are found to not be reasonable or feasible. A report providing details of the remedial measures and a timetable

for implementation shall be submitted to the Director-General for approval within such period as the Director-General may require, and be accompanied by evidence that the DECCW is satisfied that the remedial measures are acceptable.

Following review of the report, the Director-General may require additional noise monitoring to confirm the performance of the implemented remediation measures. Where such additional noise monitoring indicates exceedences of project specific noise criteria specified in condition 3.22 of this approval at any sensitive receptor identified in Table 3 after the implementation of all reasonable and feasible remedial measures, these receptors (unless otherwise agreed to by the Director-General) shall be subject to noise agreements within such time period as agreed to by the Director-General or in the case that exceedences greater than 5dB(A) are indicated, subject to acquisition criteria in accordance with condition 3.26 (except in the case where a noise agreement is in place).

Air Quality Monitoring

4.5 The Proponent shall determine the pollutant concentrations and emission parameters specified in Table 6 below, at each of the discharge points (established in strict accordance with the requirements of test method TM-1 as specified in *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2001)). Monitoring shall be undertaken during operation of the project, at the frequency indicated in the Table, unless otherwise agreed by the DECCW.

Table 6 – Periodic Pollutant and Parameter Monitoring (Air)

Discharge Point	Pollutant/ Parameter	Units of Measure	Method	Frequency
1	Oxides of Nitrogen	mgm ⁻³	TM-11	Post commissioning and annually thereafter
	Carbon Monoxide or Volatile Organic Compounds	mgm ⁻³	TM 34 or TM 32	
	Velocity	m/s	TM-2	
	Volumetric flow rate	m ³ /s	TM-2	
	Temperature	°C	TM-2	
	Moisture	%	TM-22	
	Dry gas density	kgm ⁻³	TM-23	
	Molecular weight of stack gases	g/gmol	TM-23	
	Oxygen	%	TM-25	
	Carbon dioxide	%	TM-24	
	Selection of Sampling Positions	-	TM-1	-
2	Oxides of Nitrogen	mgm ⁻³	TM-11	Post commissioning and annually thereafter
	Formaldehyde	mgm ⁻³	US EPA Method 323, upon confirmation by DECCW in accordance with condition 0.	
	Carbon Monoxide or Volatile Organic Compounds	mgm ⁻³	TM 34 or TM 32	
	Velocity	m/s	TM-2	
	Volumetric flow rate	m ³ /s	TM-2	
	Temperature	°C	TM-2	
	Moisture	%	TM-22	
	Molecular weight of stack gases	g/gmol	TM-23	
	Oxygen	%	TM-25	
	Carbon dioxide	%	TM-24	
	Oxides of Nitrogen	mgm ⁻³	CEM-2	Continuous
	Temperature	°C	TM-2	
	Moisture	%	TM-22	
	Volumetric flow rate	m ³ /s	CEM-6	
	Oxygen	%	CEM-3	

	Selection of Sampling Positions	-	TM-1	-
3, 4, 5 and 6	Oxides of Nitrogen	mgm ⁻³	TM-11	Post commissioning and annually thereafter
	Formaldehyde	mgm ⁻³	US EPA Method 323, upon confirmation by DECCW in accordance with condition 0.	
	Carbon Monoxide or Volatile Organic Compounds	mgm ⁻³	TM 34 or TM 32	
	Velocity	m/s	TM-2	
	Volumetric flow rate	m ³ /s	TM-2	
	Temperature	°C	TM-2	
	Selection of Sampling Positions	-	TM-1	

4.6 Unless otherwise agreed to by the Director-General, prior to the commencement of construction, the Proponent shall confirm the methodology for the monitoring of formaldehyde from discharge points 2, 3, 4 and 5 in Table 6 to the satisfaction of DECCW. The monitoring methodology agreed to by DECCW shall apply to discharge points 2, 3, 4 and 5 for the purposes of condition 4.5.

Air Quality Performance Verification

4.7 Unless otherwise agreed to by DECCW, the Proponent shall in consultation with DECCW, prior to the commencement of construction, establish a meteorological station(s) at a representative location(s) to collect meteorological information representative of the Gloucester Valley, to enable air quality performance verification for the central processing facility in accordance with condition 4.8. At least one year's data must be collected for the purpose of undertaking the air quality performance verification required under condition 4.8 for the central processing facility.

4.8 Within 90 days of the commencement of operation of the project or as otherwise agreed by the Director-General, and during a period in which the project is operating under normal operating conditions, the Proponent shall undertake a program to confirm the air emission performance of the project. The program shall include, but not necessarily be limited to:

- a) point source emission sampling and analysis subject to the requirements listed under condition 4.5 to determine compliance with the discharge concentration limits identified in condition 3.31;
- b) a comprehensive air quality impact assessment in accordance with the methods outlined in *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DECC, 2005), using actual air emission data collected under condition 4.5 to determine performance against the ground-level concentrations for air pollutants predicted for the project; and
- c) details of any entries in the Complaints Register (condition 6.3 of this approval) relating to air quality impacts.

A report providing the results of the program shall be submitted to the Director-General and DECCW within 28 days of completion of the testing required under a).

4.9 In the event that the program undertaken to satisfy condition 4.8 of this approval indicates that the operation of the project, under normal operating conditions, will lead to:

- a) greater point source emissions than the discharge concentration limits identified in condition 3.31; or
- b) greater ground-level concentrations of air pollutants than that predicted for the project in the documents listed under condition 1.1 of this approval;

then the Proponent shall provide details of remedial measures to be implemented to reduce point source emissions to no greater than the discharge concentration limits identified in condition 3.31 and to reduce ground-level concentrations of air pollutants to no greater than

that predicted for the project in the documents listed under condition 1.1 of this approval and under no circumstance greater than the limits detailed in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DECC, 2005). Details of the remedial measures and a timetable for implementation shall be submitted to the Director-General for approval within such period as the Director-General may require, and be accompanied by evidence that the DECCW is satisfied that the remedial measures are acceptable.

Hazard Audit

- 4.10 Twelve months after the commencement of operations of the project and every three years thereafter, or at such intervals as the Director-General may agree, the Proponent shall carry out a comprehensive Hazard Audit of the project and submit the audit report to the Director-General within one month of the audit report being completed. The audits shall be carried out by a qualified person or team, independent of the project and shall be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 5, '*Hazard Audit Guidelines*'.

5. COMPLIANCE MONITORING AND TRACKING

- 5.1 The Proponent shall develop and implement a **Compliance Tracking Program** to track compliance with the requirements of this approval. The Program shall be submitted to the Director-General prior to the commencement of construction. The Program shall relate to both construction and operational stages of the project and shall include, but not necessarily be limited to:
- a) provisions for periodic review of the compliance status of the project against the requirements of this approval, Statement of Commitments and relevant environmental approvals, licences or permits required and obtained in relation to the project;
 - b) provisions for periodic reporting of compliance status against the requirements of this approval and Statement of Commitments to the Director-General including at least one month prior to the commencement of construction and operation of the project;
 - c) a program for independent environmental auditing in accordance with *AS/NZ ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing*; and
 - d) mechanisms for rectifying any non-compliance identified during environmental auditing or review of compliance.

6. COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT

- 6.1 Subject to confidentiality, the Proponent shall make all relevant documents required under this approval available for public inspection on request.

Complaints Procedure

- 6.2 Prior to the commencement of construction of the project, the Proponent shall ensure that the following are available for community complaints for the life of the project (including construction and operation):
- a) a telephone number on which complaints about construction and operational activities at the site may be registered;
 - b) a postal address to which written complaints may be sent; and
 - c) an email address to which electronic complaints may be transmitted.

The telephone number, postal address and email address shall be published in a newspaper circulating in the local area prior to the commencement of construction of the project. The above details shall also be provided on the website required by condition 6.4 of this approval.

- 6.3 The Proponent shall record details of all complaints received through the means listed under condition 6.2 of this approval in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to:
- a) the date and time, where relevant, of the complaint;
 - b) the means by which the complaint was made (telephone, mail or email);

- c) any personal details of the complainant that were provided, or if no details were provided, a note to that effect;
- d) the nature of the complaint;
- e) any action(s) taken by the Proponent in relation to the complaint, including any follow-up contact with the complainant and the timing for implementing action; and
- f) if no action was taken by the Proponent in relation to the complaint, the reason(s) why no action was taken.

The Complaints Register shall be made available for inspection by the Director-General upon request.

The Complaints Register for the project may be incorporated into an existing complaints handling system managed by the Proponent if it is demonstrated to meet the requirements of condition 5.3.

Provision of Electronic Information

- 6.4 Prior to the commencement of construction of the project, the Proponent shall establish a dedicated website or maintain dedicated pages within its existing website for the provision of electronic information associated with the project subject to confidentiality. The Proponent shall publish and maintain up-to-date information on this website or dedicated pages including, but not necessarily limited to:
- a) information on the statutory context and current implementation status of the project;
 - b) the documents referred to under condition 1.1 of this approval;
 - c) a copy of this approval and any future modification to this approval;
 - d) a copy of each relevant environmental approval, licence or permit required and obtained in relation to the project;
 - e) all plans, monitoring programs and strategies required under this project approval; and
 - f) details of the outcomes of compliance reviews and audits of the project.

Community and Stakeholder Engagement Plan

- 6.5 The Proponent shall prepare a **Community and Stakeholder Engagement Plan** which outlines measures for disseminating information on the development status of the project and methods for actively engaging with surrounding landowners, members of the community and affected stakeholders regarding issues that would be of interest/ concern to them during the detailed design, construction and operation of the project. This may include distribution of community newsletters, stakeholder meetings, community consultative committees and opportunities for site visits. The Plan shall include but not be limited to:
- a) procedures to finalise the detailed design of the project including gas well locations and gas transmission pipeline route in consultation with landowners;
 - b) measure and procedures to work consultatively with landowners during construction and operational activities so as to minimise intrusion and disruption to existing landuse including agricultural activities;
 - c) measure and procedures to consult with affected stakeholders (including the owners of existing infrastructure within the proposed pipeline easement, mineral titleholders and quarry and mining operators) to minimise design, construction or operational impacts on existing infrastructure and future development potential and to manage cumulative impacts from neighbouring development;
 - d) procedures to inform the local community of planned construction activities including construction traffic routes, potential traffic disruptions, high noise generating activities and works outside of normal construction hours; and
 - e) dispute resolution processes in case of disagreement between parties including provision for an independent arbitrator.

The Community and Stakeholder Engagement Plan shall be submitted for the approval of the Director-General prior to the commencement of the detailed design stage of the project covering at least the community engagement and consultation measures to be implemented

during the detailed design phase. An updated plan shall be subsequently submitted for the approval of the Director-General, prior to the commencement of the construction stage and prior to the commencement of the operational stage of the project covering the community engagement and consultation measures to be undertaken in these respective stages of the project.

7. ENVIRONMENTAL MONITORING AND MANAGEMENT

Environmental Representative

- 7.1 Prior to the commencement of any construction activities, or as otherwise agreed by the Director-General, the Proponent shall nominate for the approval of the Director-General a suitably qualified and experienced Environmental Representative(s) independent of the design, construction and operation personnel. The Proponent shall engage the Environmental Representative(s) during any construction activities. The Environmental Representative(s) shall:
- a) oversee the implementation of all environmental management plans and monitoring programs required under this approval, and advise the Proponent upon the achievement of these plans/programs;
 - b) consider and advise the Proponent on its compliance obligations against all matters specified in the conditions of this approval and the Statement of Commitments as referred to under condition 1.1c) of this approval, and any other relevant environmental approval, licence or permit required and obtained in relation to the project; and
 - c) have the authority and independence to recommend to the Proponent reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts, and, failing the effectiveness of such steps, to recommend to the Proponent that relevant activities are to be ceased as soon as reasonably practicable if there is a significant risk that an adverse impact on the environment will be likely to occur.

Construction Environmental Management Plan

- 7.2 The Proponent shall prepare and implement a **Construction Environmental Management Plan** (CEMP) prior to the commencement of construction of the project to outline environmental management practices and procedures to be followed during construction of the project. The CEMP shall be consistent with *Guideline for the Preparation of Environmental Management Plans* (DIPNR, 2004) and shall include, but not necessarily be limited to:
- a) a description of all activities to be undertaken on the site during construction including an indication of stages of construction, where relevant;
 - b) identification of the potential for cumulative impacts with other construction activities or existing development (including mining) in the vicinity and how such impacts would be managed;
 - c) identification of the location of temporary construction sites, details of construction material sourcing (including gravel and water requirements);
 - d) a description of the statutory obligations that the Proponent is required to fulfil prior to and during construction including all relevant approvals, licences and permits required and applicable key legislation and policies;
 - e) evidence of consultation with relevant public authorities including all applicable Councils, identifying how issues raised by these public authorities have been addressed in the plan;
 - f) a description of the roles and responsibilities for all relevant employees and contractors involved in the construction of the project including relevant training and induction provisions for ensuring that all employees, contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval;
 - g) an environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be monitored and managed to meet acceptable outcomes including what actions will be taken to address identified potential adverse environmental impacts. In

particular, the following environmental performance issues shall be addressed in the Plan:

- i) measures to monitor and manage **dust emissions** including dust generated by traffic on unsealed public roads and unsealed internal access tracks;
- ii) measures to monitor and manage **noise, vibration and blasting** impacts with consideration to cumulative impacts from surrounding development including: identification of nearest sensitive receptors and relevant construction noise and vibration goals applicable, identification of all reasonable and feasible measures proposed to be implemented to minimise construction noise and vibration impacts (including construction traffic noise impacts), measures for notifying surrounding receptors of noisy activities or works outside of standard hours, measures for monitoring compliance and responding to complaints and contingency strategy in the case that project related vibration or blasting results in damage to buildings or structures;
- iii) measures to monitor and manage **traffic impacts** in consultation with relevant road authorities (Council and RTA, as relevant) including: identification of construction traffic routes and traffic volumes along each route with considering to minimising traffic on local/ residential streets, potential traffic disruptions considering road safety and level of service, specific measures for minimising traffic impacts and mechanisms to monitor road condition during construction and remediate any damage attributable to the project (should such remediation be required prior to the requirements of condition 3.45 taking effect);
- iv) measures to monitor and manage **Aboriginal heritage impacts** in consultation with registered stakeholders and DECCW including:
 - i. details of management measures to be carried out in relation to already recorded sites and potential Aboriginal deposits (including further archaeological investigations and/ or salvage measures);
 - ii. procedures for dealing with previously unidentified Aboriginal objects excluding human remains (including halting of works in the vicinity, assessment of the significance of the item(s) and determination of appropriate mitigation measures including when works can re-commence by a qualified archaeologist in consultation with registered Aboriginal stakeholders, assessment of the consistency of any new Aboriginal heritage impacts against the approved impacts of the project, and registering of the new site in the DECCW AHIMS register);
 - iii. procedures for dealing with human remains (including halting of works in the vicinity and notification of the NSW Police, DECCW and registered Aboriginal stakeholders and not-recommending any works in the area unless authorised by DECCW and/ or the NSW Police); and
 - iv. Aboriginal cultural heritage induction processes for construction personnel and procedures for ongoing Aboriginal consultation and involvement; and
- ii) emergency management measures including measures to control bushfires; and
- h) procedures for the periodic review and update of the Construction Environmental Management Plan as necessary.

The Plan shall be submitted for the approval of the Director-General no later than one month prior to the commencement of Construction of the project or within such period as otherwise agreed by the Director-General. Construction shall not commence until written approval has been received from the Director-General.

- 7.3 As part of the Construction Environmental Management Plan for the project, required under condition 7.2 of this approval, the Proponent shall prepare and implement the following:
- a) a **Flora and Fauna Management Plan** to manage the construction impacts of the project on flora and fauna. The Flora and Fauna Management Plan shall be prepared in consultation with the DECCW and the HCRCMA and shall include, but not necessarily be limited to:

- (i) detailed constraint mapping of the final project area clearly identifying sensitive vegetation/habitat areas to be avoided and/or areas where site-specific management measures are required;
 - (ii) measures for minimising and managing impacts to native vegetation and important habitat features including but not necessarily limited to: pre-clearance surveys by a qualified ecologist to identify sensitive vegetation areas or habitat features (such as hollow bearing trees and surface rock) and weed and pest management (including phytophthora management);
 - (iii) measures to minimise disturbance of riparian and instream habitat including pre-construction surveys of each water crossing to identify habitat sensitivity (in particular habitat suitability for sensitive frog species) and measures to be undertaken to avoid and minimise impacts to riparian and instream habitat, including for sensitive frog species;
 - (iv) small-flower Grevillea Management strategy in consultation with the DECCW and DSEWPaC to manage impacts to the population identified within the pipeline corridor including pre-construction baseline surveys to identify the distribution and extent of the species and construction methodology to minimise construction widths and disturbance as far as practicable;
 - (v) construction practices to avoid direct interaction/ injury to fauna including but not necessarily limited to:
 - i. timing of construction so as to take into account sensitive life cycle stages for sensitive species;
 - ii. pre-construction surveys for the presence of sensitive fauna by a qualified ecologist and protocols for the safe capture and release of fauna to adjacent habitat where fauna are identified to be in danger of injury or harm from construction; and
 - iii. measures to minimise the potential for fauna to get trapped in trenches during construction and measures for monitoring and rescuing any species should they become trapped including ensuring that monitoring and rescue measures are undertaken by a qualified ecologist; and
 - (vi) measures for progressive rehabilitation during construction including identification of performance indicators and completion criteria for revegetation works and measures for the monitoring and maintenance of revegetation works consistent with the requirements of condition 3.55;
- b) a **Watercourse Crossing Management Strategy** prepared in consultation with NOW and DII (Fisheries) to manage the construction impacts of pipeline waterway crossings including:
- (i) baseline surveys of each water crossing to identify habitat sensitivity and water course integrity;
 - (ii) design details of each water course crossing;
 - (iii) site specific mitigation measures to be implemented to minimise disturbance during construction; and
 - (iv) rehabilitation requirements to stabilise bank structure and rehabilitate affected riparian vegetation including performance and completion criteria (based on base line surveys) and monitoring requirements; and
- c) a **Soil and Water Management Plan** prepared in consultation with NOW and DII (Fisheries) to manage the water quality impacts during construction. The plan shall detail:
- (i) pre-construction investigations including: soil testing to determine the likely potential for uncovering acid sulphate soils, investigation of the risk of groundwater interception (particularly, shallow perched groundwater tables) during pipeline trenching or horizontal directional drilling, and identification of any sites of potentially contaminated soils which require remediation prior to the commencement of construction (such as previous industrial land use or intensive agricultural activity);
 - (ii) base-line water quality monitoring (both up stream and down stream of the construction sites) and where required pre-construction monitoring of groundwater quality (particularly where there is a high risk of groundwater interception coupled with potential acid sulphate soils);

- (iii) a management strategy to control acid sulphate soil impacts at any identified acid sulphate soil areas and should they be uncovered during construction (including measures for testing, treatment, and disposal; protection and treatment of groundwater; and contingency measures in the case of an incident);
- (iv) site specific erosion and sediment control plans (detailing measures to control and protect waterways from runoff, control measures in the case of groundwater interception, measures to minimise the extent and duration of soil disturbance, measures for ground stabilisation including progressive rehabilitation, and contingency measures in the case of an incident);
- (v) strategy for contaminated soil management should any such areas be uncovered during construction (including measures for pre-construction testing, treatment, and disposal; measures for surface groundwater protection; and contingency measures in the case of an incident); and
- (vi) a water quality monitoring strategy to monitor down stream impacts to water quality during the construction phase, including a program for monitoring groundwater quality (where required) and trigger and hold points for compliance actions should adverse water quality be detected.

Operation Environmental Management Plan

7.4 The Proponent shall prepare and implement an **Operation Environmental Management Plan** to detail an environmental management framework, practices and procedures to be followed during operation of the project. The Plan shall be consistent with *Guideline for the Preparation of Environmental Management Plans* (DIPNR 2004) and shall include, but not necessarily be limited to:

- a) a description of key operational and maintenance activities associated with the project;
- b) identification of all statutory and other obligations that the Proponent is required to fulfil in relation to operation of the project, including any approvals, licences, approvals and consultations;
- c) a description of the roles and responsibilities for all relevant employees and contractors involved in the operation of the project including relevant training and induction provisions for ensuring that all employees, contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval;
- d) overall environmental policies and principles to be applied to the operation of the project;
- e) an environmental risk analysis to identify the key environmental performance issues associated with the operation phase and details of how environmental performance would be monitored and managed to meet acceptable outcomes including what actions will be taken to address identified potential adverse environmental impacts. In particular, the following environmental performance issues shall be addressed in the Plan:
 - (i) measures to monitor and manage groundwater impacts including residual impacts following decommissioning of gas wells in accordance with conditions 4.1 and 4.2;
 - (ii) measures to monitor and manage flood risks including risks of equipment damage or disconnection during flood events and measures for clean up and restoration;
 - (iii) measures to monitor and manage noise emissions including measures for regular performance monitoring of noise generated by the project (in addition to measures identified in conditions 4.3) and 4.4), measures to proactively respond to and deal with noise complaints and procedure for the development of a case-specific noise management protocol in consultation with DECCW to manage short-term noise amenity impacts at surrounding receptors in the case of works identified in condition 3.22b);
 - (iv) measures to monitor and manage air quality impacts in accordance with the requirements of this approval;
 - (v) measures to monitor and manage landscape plantings and revegetation measures;

- (vi) measures to monitor and manage operational traffic impacts particularly during maintenance events where operational traffic volumes associated with the project may increase and procedures for restoring any damage attributable to the project during the operation phase;
 - (vii) hazard and safety and emergency management measures including measures to control bushfires; and
 - (viii) rehabilitation and completion criteria for the decommissioning and rehabilitation of the project; and
- f) procedures for the periodic review and update of the Operation Environmental Management Plan as necessary.

The Operation Environmental Management Plan shall be submitted for the approval of the Director-General no later than one month prior to the commencement of Operation of the project or within such period as otherwise agreed by the Director-General. Operation shall not commence until written approval has been received from the Director-General.
