Appendix 3

The SEPP 33 Screening Process

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A3.1 The SEPP 33 Screening Process

In accordance with the DGRs, the Project has been screened for potential hazards across the Project Site to determine the potential for off-site impacts and for any requirement for a Preliminary Hazard Analysis (PHA).

The application of SEPP 33 considers the following three questions.

- Does the proposal require development consent?
- Is the proposal 'potentially hazardous'?
- Is the proposal 'potentially offensive'?

A3.1.1 Does the Proposal Require Development Consent?

The proposed development requires the consent of the Minister for Planning pursuant to the NSW Major Projects SEPP and will undergo planning assessment and determination by the Minister under Part 3A of the *Environmental Planning and Assessment Act 1979*.

A3.1.2 Is the Proposal 'Potentially Hazardous'?

The proposed development of the gas gathering system, flow line and power station expansion has undergone a screening exercise to determine the potential for off-site impacts and for any requirement to complete a PHA in accordance with the Department's *Hazardous Industry Planning Advisory Paper No.3, Hazardous Industry Planning Advisory Paper No.6* and *Multi Level risk Assessment*.

A3.1.3 Is the Proposal 'Potentially Offensive'?

The full SEPP33 Screening Document can be found in the following sections.

An 'offensive industry' is one which, even when controls are used, has emissions which result in a significant level of offence (DUAP, 1997).

The proposed expansion of the Wilga Park Power Station has the potential to impact on the local and regional environment from the emission of greenhouse gases from the combustion of coal seam gas. The level of potential offence created by the facility will increase proportionally to the increase in output capacity and will require assessment against:

- DECC air quality impact assessment critera asset out in the Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales (2005); and
- Point source air pollutant concentration criteria as set out in the *Protection of the Environment Operations Regulation 2002* .

A3.2 Hazardous Materials

A3.2.1 Potential Hazardous Materials

The identification of hazardous materials used in the proposed development and the quantity of each likely to found within the operational project site are listed in **Table A3.1**.

The operation of the Wilga Park Power Station requires the storage and consumption of three potentially hazardous materials.

Table A3.1
Specifications of Potentially Hazardous Materials Stored at Wilga Park

Material	Storage Quantity	Classification	Storage Location	Physical Properties
Q8 Mahler MA Lubricating Oil	2x 10 000L (used and fresh oil ($20m^3$)	Not applicable	Approved tanks within impervious bunds	Not volatile. BP >300°C FP >200°C
Cummins DCA4 (Coolant Additive)	205L	Poison Schedule S6.	Approved container within storage facility	Volatile component approx 80% (vol)
Caltex XL Corrosion Inhibitor (Coolant Additive)	600L	Not Applicable	Approved container within storage facility	Physical properties not available.

Transportation information for these potentially hazardous materials is presented in **Table A3.2**.

Table A3.2
Indicative Transportation Requirements for Potentially Hazardous Materials at Wilga Park

	Average Loads per week	Quantity of Load
Q8 Mahler MA Lubricating Oil	0.125 (approx 6.5 per year)	10 000L per load
Cummins DCA4 (Coolant Additive)	0.019 (approx 1 per year)	205L
Caltex XL Corrosion Inhibitor (Coolant Additive)	0.019 (approx 1 per year)	600L

The indicative transportation requirements for materials required to operate and maintain the Wilga Park Power Station are very low in number and frequency. No further transportation studies are necessary to characterise the potential hazard or offence likely to result from the long term operation of the facility.

A3.2.2 Spill Management

Each of the hazardous materials held at the Wilga Park Power Station is contained within appropriate enclosures; either the internal storage facility within the workshop (coolant additives) or the bunded oil storage infrastructure.

Approved spill kits are available on site to contain small spills within the workshop area and around the power generation infrastructure itself.

A3.3 Gas Flow Line Hazard Screening

A desktop based hazard screening is required to assess the potential for any significant impacts associated with operating a buried gas transmission flow line. This will assist in the determination of whether a Preliminary Hazard Analysis is required.

A3.3.1 Description

The proposed gas transmission infrastructure linking the Bibblewindi CSG Pilot and Bohena CSG Pilot to the Wilga Park Power Station will incorporate a buried, 256mm diameter low pressure glass reinforced epoxy (GRE) pipe. The higher strength of GRE over alternatives such as polyethylene permits greater capacity as the requisite wall thicknesses required for pressure containment is lower and internal diameters are greater.

The proposed gas flow line will be buried for their entire length with a cover not less than 750mm and will be located within a declared corridor or Right Of Way (ROW) following where possible existing fence lines and crop boundaries. The area of disturbance within the corridor will be typically 10m wide although can be reduced to as little as 3m where land use and environmental factors dictate.

A3.3.2 Construction Activities

The construction activities required to install the flow line will be confined to the specified easement along its entire length. Access to the construction zone will be facilitated by the many forestry tracks and shire roads intersected along the disturbance corridors length.

The process of construction will be typical of similar pipe installation.

- Route surveyed and centrelines marked.
- Vegetation removed where required topsoils stockpiled.
- Flow line trench opened and spoil stockpiled.
- Pipe length strung out beside the trench before being joined.
- Joined pipe lowered into trench.
- Flow line integrity testing (hydrotesting).
- Trench backfilled and magnetic marker strip installed above the pipe.
- Site rehabilitated as per stated environmental management plan.

A3.3.3 Hazard Screening

The screening of potential hazards associated with the proposed activity are designed to identify whether off site impacts are likely and to determine whether further hazard analysis is required via the completion of a PHA.

The screening of hazards is carried out using a method consistent with Australian Standard 2885.1-1997 (Gas and Liquid Petroleum) and involved:

- identification of general and location specific threats to the integrity of the proposed flow line; and
- assessment of these threats through a general risk management process involving likelihood of occurrence and the consequences of such occurrences.

The consequences associated with each threat were considered from public, employee, environmental and economic perspectives and take into account the mitigation strategies incorporated into project design, construction and operations planning.

A3.3.4 Overview of Gas Flow Line Route

The 32km (approx) gas flow line will be located upon a declared corridor of up to 10m in width and traverse two land use types namely, Crown Lands State Forest (15km) and freehold farmlands (17km). Intersected along the way are a number of forestry tracks, one major highway and various shire roads in addition to a 5km section running parallel to an existing 66kV power line easement.

In terms of the proposed route and its proximity to residences, the closest the flow line will come to an inhabited residence will be 200m.

A3.3.5 Risk Mitigation Measures

The following measures have been incorporated into the project design as part of the risk mitigation strategy.

- The gas flow line will be buried for its entire length to ensure a minimum cover of 750mm or greater where land use and infrastructure requirements (e.g. road crossings) dictate. AS 2885 will be applied in determining the appropriate depth of burial.
- The nominal wall thickness of the GRE pipe is designed to specifically withstand both internal pressure requirements and external loads associated with its burial depth, construction stresses and surface interference (vehicular loads).

- The erection of clear signage along the flow line route as per AS 2885.
- The installation of magnetic marker tape for post rehabilitation flow line locating.

A3.3.6 Frequency of Occurrence

The predicted frequency of each identified threat, as included in Attachment 1, has been assessed according to the descriptions presented in the **Table A3.3**.

Table A3.3
Frequency Categories for Hazard Screening

Frequency	Description
Frequent	Expected to occur typically once per year or more
Occasional	Expected to occur several times in the life of a flow line
Unlikely	Not likely to occur within the life of a flow line, but possible
Remote	Very unlikely to occur within the life of the flow line
Improbable	Have been known to occur, but not anticipated
Hypothetical	Theoretically possible, but not known to have occurred

A3.3.7 Consequences

The possible consequences of each identified threat, should it occur, have been assessed taking into account the potential for:

- human injury or fatality;
- environmental damage; and
- economic impact resulting from loss of gas supply.

The severity of each identified threat has then been estimated according to categories set out in the following table

Table A3.4
Severity Categories for Hazard Screening

Severity	Description
Catastrophic	Only applicable where many fatalities would result
Major	Few fatalities, loss of supply, major environmental damage
Severe	Injuries, supply restriction, minor environmental damage
Minor	No injuries or supply problems

A3.3.8 Risk Ranking

According to estimated frequencies of occurrence and consequences, the risk ranking of each identified threat has been determined and is included in the following table. Risk rankings have been formulated on the basis of the basis of the following risk matrix.

Frequency	**Risk Rankings (Severity Class)**			
	Catastrophic	**Major**	**Severe**	**Minor**
Frequent	High	High	High	Intermediate
Occasional	High	High	Intermediate	Low
Unlikely	High	High	Low	Low
Remote	High	Intermediate	Low	Low
Improbable	High	Intermediate	Low	Low
Hypothetical	Intermediate	Low	Negligible	Low

A3.3.9 General and Specific Threats

The key threats to the structural and operational integrity of the proposed gas flow line are discussed and assigned a risk ranking.

a) Third party interference

Whether accidental or intentional, interference with the buried flow line is a key threat. Examples of inference include construction activities (fences, dwellings), service or infrastructure development (water, telephone, electricity and roads maintenance) and farming activities (deep ripping or ploughing).

Frequency: Unlikely

Consequence: Severe

Risk Ranking: Low

b) Failure of flow line

The materials utilised in the flow line manufacture and construction processes comply with the relevant codes and standards for gaseous and liquid petroleum transmission including the following.

- Materials and components comply with API 15 LR.
- Flow line shall be manufactured to comply with ASTM D2996.
- Flow line designed in accordance with ISO 14692 Part 3.

Post construction integrity verification will include hydrotesting to 125% of designed working pressures in accordance with AS 2885.5-2004.

Frequency: Remote

Consequence: Severe

Risk Ranking: Low

c) Over pressure of flow line

The potential for transmission pipes to become over pressured leading to rupture and gas leaks is negligible. Inlet control systems (installed where gas enters the flow lines) will incorporate duplicate (active and standby) overpressure control systems. The pressure control systems will be fail-safe. That is, should they fail they will automatically inhibit gas flow and prevent over-pressure.

Frequency: Improbable

Consequence: Minor

Risk Ranking: Low

d) Escape of flammable contents

The risk of spontaneous explosions or an ignition of leaking gas is dependent upon three main factors which include a source of gas (ie. leak, failure or third party interference, the introduction of oxygen in critical quantities and the presence of a source of ignition itself). When considered with quickly dispersive physical properties of methane, the risk of explosion is very small if not negligible.

Frequency: Remote

Consequence: Severe

Risk Ranking: Low

e) Road crossings

The flow lines will intersect a number of forestry tracks, private access and public roads including the Newell Highway.

The Newell Highway will be crossed in one place via a subsurface horizontal bore hole which commences off the highway easement and in amongst moderately dense vegetation.

Minor private and public road crossings will be completed by open-trenching and occur as per published RTA guidelines and Council approved management plans for partial road closures. The crossing design will be engineered to avoid road subsidence and pipe stress.

The key threat to the installed flow line at or near road crossings will be exposure of the pipe to accidental interference. In these terms, the stated requirements of the Narrabri Shire for the construction of a flow line across a shire road is that the depth to the top of the flow line must be a minimum for 1.5m below the existing table drain.

Frequency: Improbable

Consequence: Minor

Risk Ranking: Low

f) Creek crossing

The proposed gas flow line will intersect Bohena Creek approximately 2 300m west of the gas gathering system inlet hub located at Bibblewindi-5. As the creek is ephemeral in nature, the crossing will be constructed using either an open trench construction technique or subsurface horizontal bore similar to the Newell Highway Crossing described Section 3 of the *Environmental Assessment*. If the open trench method is used, the flow line will be installed at a depth of approximately 2m under the sand creek bed surface and anchored with pre-cast concrete weights.

The key threat to the installed flow line at or near the proposed creek crossing will be exposure of the pipe to accidental interference. In these terms, the stated depth of burial below the creek bed surface will be a minimum of 2.0m and be additionally protected from exposure by the placement of pre-cast concrete ballast.

Frequency: Improbable

Consequence: Minor

Risk Ranking: Low

The Proponent has also examined the risk of bushfire as a result of fire / explosion at either of the compression facilities at Bibblewindi and Bohena and established the following.

- The operating pressures for the pipeline system (including compression) are such that the risks of over pressurisation are negligible. In these terms, the estimated operating pressure required to transport 12 Tj/d is 1 000kPa. The static pressure rating for the Centron SPH GRE pipeline is 3 150kPa.

- The compression facilities are to be located in the middle of existing clearings (Bibblewindi-5 and Bohena-3) where a 'fire' break between surface infrastructure and uncleared vegetation approximates 40m on all sides of the surface facilities.
- The compression facility inlet control systems incorporate duplicate (active and standby) overpressure control systems with an integrated fail safe system.
- The pipeline infrastructure is undergoing engineering design in accordance with AS2885 which includes a spec ific bushfire hazard and risk assessment. The combined risk attenuation achieved with the pipeline / compression system features and their proximity to combustible materials on site, the risk of bushfire from leak / vent of gas is negligible.

In summary, for each general and specific threat to pipeline integrity that contributes to an increased risk of gas leak or pipe failure, industry standards are available and adhered to to mitigate any such hazard. Risks arising from the development and operation of the Project have been assessed as low and in these terms a preliminary hazard assessment was not necessary to mitigate any perceived or calculated residual risks.

The Proponent has determined to use glass reinforced epoxy (GRE) pipe for a range of reasons. The relevant issues relating to the use of the GRE pipe and the potential hazards and risks are set out as follows.

Static Buildup on the Inside Surface of the GRE Pipe

Since GRE pipe has a relatively low conductivity, static build-up can occur in dry gas or non-conductive fluid streams. ISO 14692 Pt 2 Annex G provides some guidelines to determine the electrostatic properties of the selected GRE pipe. Also, Clause 10 in ISO 14692 Pt 3, discusses hazard determination and associated mitigation measures.

Furthermore, static build-up on the inside of a GRE pipeline is not the major concern since the gas is not flammable/explosive on its own. The gas needs to be mixed with the correct amount of air (5-15% Gas to Air) in order for combustion to occur. Static build-up is more a concern on exposed above-ground lines where there is:

(a) a potential for a significant gas leak adjacent to a facility; and

(b) static electricity discharge occurring on the outside of the pipe.

Compliance with Australian Standards

The relevant Australia Standard for the gas flow pipe is AS 2885-1-2007 which applies to the GRE pipe to be used. This standard is relevant provided that:

- the fibreglass pipe material complies with either the API or ISO Standards referred to in Clause 3.2.2(d) and are used in accordance with the pressure/temperature rating contained in those Standards. The pipe material to be used will be manufactured in accordance with ISO 14962-1 and ISO 14962-2 and will be used in accordance with the pressure/temperature rating in those Standards; and

- they have the pressure strength, temperature rating, and design life specified by the engineering design. The pipe to be used has been selected to adequately meet the engineering design requirements for pressure capability, temperature rating and design life.

In relation to minimum cover, the location class as designated in Clause 4.3.4 (a) of AS2885.1 – 2007 is Rural (R1). Table 5.5.2 at page 73 requires minimum cover of 750mm for normal excavation for fibreglass pipe in that location class. The Standard does not require that special consideration be given to the fact that the pipe is fibreglass. The pipe's capability to meet the loading requirements of this depth of cover are satisfied by its compliance with Clause 3.1.

In order to be able to apply AS2885.1 – 2007 to the design of the pipeline, it is necessary for the pipe materials to comply with API SPEC 15LR, API 15HR or ISO 14692-1 and ISO 14692-2 (refer Clause 3.3.2(c) of AS2885.1 – 2007). The pipe material selected is manufactured to ISO 14962-1 and ISO 14962-2. For clarity, the full descriptions of these two parts of the Standard are as follows.

- ISO 14962-1 Petroleum and natural gas industries -- Glass-reinforced plastics (GRP) piping -- Part 1: Vocabulary, symbols, applications and materials.
- ISO 14962-2 Petroleum and natural gas industries -- Glass-reinforced plastics (GRP) piping -- Part 2: Qualification and manufacture.

The pipe will be manufactured in accordance with the whole of the Standard.

Based upon the above discussions, the risks associated with the use of GRE pipe are negligible provided the provisions of the Standard are satisfied.

A3.3.10 Flow Line Hazard Conclusions

For each of the general and specific threats, Industry standard practices are available for mitigation of hazards associated with the proposed gas flow line system.

Sufficient design and operational safeguards have been incorporated into the Project to account for potential risks.

Risks arising from development and operation of the Project have been assessed as low and in these terms it is not necessary to undertake a Preliminary Hazard Assessment.

A3.4 SEPP 33 Conclusions

The completion of the SEPP33 assessment for the proposed development indicates that three potentially hazardous materials will be stored within the project site subject to this project application.

Consultation with the *Australian Code for Transportation of Dangerous Goods by Road and Rail* (Dangerous Goods Code) indicates that all three products are not classified as dangerous goods under this code.

The residual environmental risk posed by any incidental loss of these materials can be adequately accounted for the corresponding environmental management plans and spill policy. Operational safeguards for the handling and utilisation of these materials and the mitigation of any health risks from short or long term exposure can be accounted for in the corresponding materials handling procedures currently in use at the power station facility.

Based upon the risk screening method guidelines, the storage and transport of materials utilised during the operation of the proposed power station expansion is not considered hazardous as per SEPP 33 and does not require any further hazard assessment in terms of a PHA.

A3.4.1 Offence Assessment

The Proponent commissioned Heggies Pty Ltd (Heggies) to conduct the appropriate Air Quality and Greenhouse Gas Assessment for the proposed development that will assist in demonstrating that the expanded power station model is not an offensive industry in accordance with NSW SEPP33 guidelines.

A3.4.1.1 Supporting Information

The Environmental Assessment for the Project contains an Air Quality and Greenhouse Gas Impact Assessment based upon the specialist consultants report prepared by Heggies. The Proponent considers this report, which is included as Part 1 of the *Specialist Consultant Studies Compendium*, as adequate supporting information for the SEPP33 Screening process in particular the assessment of potentially offensive developments.

A3.4.1.2 Regulation Emission Limits

The assessment criteria applicable to air quality have been adopted from available NSW guidelines including DECC air quality criteria for nitrogen dioxide and the *Protection of the Environment Operations (Clean Air) Regulation 2002*. They are as follows.

Pollutant	Averaging Time	Max Allowable Conc.
NO_2 (ambient)	1 hour	246µg/m^3 (on ground)
	Annual	62µg/m^3 (on ground)
NO_2/NO or both (as NO_2 equiv)	N/A	450mg/m^3 (in stack conc.)

A3.4.1.3 Performance against Regulation Emission Limits

Heggies compare the performance of the Wilga Park Power Stations in-stack NOx concentrations against the criteria specified the *Protection of the Environment Operations (Clean Air) Regulation 2002*.

Manufacturer's data for the GE Jenbacher JGS620GS-S.L gas engines states a maximum emission concentration of 450mg/Nm^3 of NOX. The results are based on reported in-stack normalised concentrations using a reference O_2 concentration of 3 percent and a discharge volume of 12 293Nm^3/hour as taken from Clarke Energy technical specifications for the GE Jenbacher engines. The above test data indicates that predicted in-stack concentrations are predicted to satisfy the Regulation emission-based limits for scheduled activities.

A3.4.1.4 Efficiency and Performance Compliance

The GE Jenbacher reciprocating gas engines to be installed at the Wilga Park Power Station represent the most advanced electricity generation systems available at the present time. Pre-combustion chambers ensure maximum efficiency and lean burn control ensures minimal emissions. These units currently represent best practice in emissions control.

To ensure that maximum efficiencies and performance of the gas driven engines are achieved and maximum in stack NO_2 concentrations are met to the satisfaction of the *Protection of the Environment Operations (Clean Air) Regulation 2002*, scheduled maintenance of the units and associated electricity transmission infrastructure will be undertaken. The maintenance schedule will be established in accordance with the requirements of the manufacturer and in close consultation with the DECC regulations for the operation of electricity generation facilities and the minimisation of gaseous emissions.

A3.4.1.5 Odour Assessment and Management

The operation of the gas transmission infrastructure linking the CSG pilots and the Wilga Park Power Station pose no measurable risk to the surrounding environment, land uses or landholders from odours or activities associated with the proposal and in consideration of the *Approved Methods for Modelling Air Pollutants in NSW (DEC, 2005)* or the *Technical Framework - Assessment and Management of Odour from Stationary Sources in NSW* (DEC, 2006).

The gas gathering system and flow line infrastructure does not possess any air discharge points that require an assessment under this guideline. Furthermore, the CSG produced and transported via the infrastructure is odourless and poses no measurable likelihood of impacting on the environment at its origin or destination or on any receptor within the vicinity of the Project Site.

A3.4.2 Is the Project potentially Offensive?

The Proponent has considered the relevant guidelines for the assessment of potentially offensive industry against the air quality and greenhouse gas assessment completed by Heggies Pty Ltd for the Narrabri Coal Seam Gas Utilisation Project.

After considering these matters and the results of the specialist consultants report, the Proponent is confident that the Project does not constitute potentially offensive development.