

# » D

## EIS COMMITMENTS SUMMARY

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## Appendix D Commitments Summary

A measure of the average of the quiet periods in the ambient noise in the absence of the noise source of interest. Measured using the LA90 descriptor it is typically applied as a measure of the sensitivity of the noise environment when establishing noise assessment criteria.

The purpose of this attachment is to collate all the (avoidance, mitigation, management, inspection and monitoring) commitments that appear in the impact assessment chapters of the Environmental Impact Statement (EIS) (i.e., Sections 8 to 31).

These commitments were obtained from the individual specialist studies (as provided in the appendices), Arrow's knowledge of the Project area and experience in design, construction and operation of coal seam gas (CSG) infrastructure within regulatory environments.

Commitments that relate to the Social environment are include in the Social Impact Management Plan (SIMP) (Appendix V) and not this commitment summary.

Each commitment has been identified consistently throughout the EIS with a unique identifier (e.g. [B001]) to facilitate cross referencing.

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Air Quality	Air Quality chapter (Section 9.7)	B001	Further assessment of cumulative impacts from all emission sources in the local airshed is recommended once potential Project facility and well locations have been identified, especially in the case of possible clustering and the suitability of these locations	Construction / Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B002	To construct and operate in a manner that minimises impacts on ambient air quality. Ensure relevant air quality guidelines are met at sensitive receptors to maintain human and environmental health	Construction / Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B003	Conduct site-specific air quality modelling once site locations are known to ensure Project-related air emissions meet EPP (Air) objectives at the nearest sensitive receptor	Construction / Operation
Air Quality	GHG chapter (Section 10.5.4), Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B004	Select equipment with consideration for low emissions to air (NO <sub>x</sub> , SO <sub>x</sub> ), high energy efficiency and fuel efficiency	Construction / Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B005	Design facilities to meet relevant EPP (Air) objectives at sensitive receptors	Construction / Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B006	Minimise fuel consumption of vehicles by optimising transport logistics	Design
Air Quality	GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B007	Select gaskets, seals and vehicle exhaust systems that are suitable for the task	Design / Construction
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B008	Arrow will develop a greenhouse gas management plan that will take into account both biodiversity and economic values of carbon	Construction / Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B009	Consider energy efficiency programs both locally and across the company that contribute to greenhouse gas emission reductions	Construction / Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B010	Arrow will participate actively in any government-approved emissions trading scheme	Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B011	Consider supporting gas industry initiatives that seek to improve technology or processes, such as contributions to or sponsorship of research and development	Design / Construction / Operation / Decommissioning
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B012	Consider supporting through corporate community involvement programs the development of energy efficiency initiatives in the areas where Arrow operates	Design / Construction / Operation / Decommissioning
Air Quality	GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3 and Z.4.10.3)	B013	Ensure all engines, machinery equipment and pollution control mechanisms are operated and maintained in accordance with manufacturer's recommendations	Construction / Operation / Decommissioning
Air Quality	Air Quality chapter (Section 9.6.1) and EM Plan (Appendix Z, Section Z.4.1.3)	B014	Implement dust suppression measures for roads and construction sites to ensure that dust does not cause a nuisance	Construction / Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B015	Cover dust-generating materials prior to transportation	Construction
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B016	Consult with potentially affected landowners prior to undertaking activities	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B017	Minimise the disturbance footprint and vegetation clearing	Design / Construction
Air Quality	Air Quality chapter (Section 9.6.1), GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B018	The land cleared for construction purposes will be kept to the minimum necessary, especially during the drier months of the year	Construction
Air Quality	Air Quality chapter (Section 9.6.1) and EM Plan (Appendix Z, Section Z.4.1.3)	B019	The number and sizes of stockpiles will be kept to minimum	Construction
Air Quality	Air Quality chapter (Section 9.6.1) and EM Plan (Appendix Z, Section Z.4.1.3)	B020	Dust suppression shall be undertaken during construction and clearing activities, particularly during high wind conditions. Haul roads and other unsealed areas will be watered to suppress dust	Construction
Air Quality	Air Quality chapter (Section 9.6.1), GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B021	The cleared areas and stockpiles will be progressively rehabilitated through revegetation and/or mulching	Construction / Operation / Decommissioning
Air Quality	Air Quality chapter (Section 9.6.1), GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B022	Prevent venting and flaring of gas as far as practicable and where safe to do so, in accordance with the P&G Act	Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B023	Ensure that odour emissions are considered during design to prevent nuisance or harm to sensitive receptors	Operation
Air Quality	Air Quality chapter (Section 9.6.2), GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B024	Implementation of a preventative maintenance program to ensure gas engines are operating efficiently to minimise emissions of incomplete combustion products – CO and hydrocarbons (primarily methane, with minor VOC emissions)	Operation
Air Quality	Air Quality chapter (Section 9.6.2) and EM Plan (Appendix Z, Section Z.4.1.3)	B025	Minimise potential fugitive emissions from construction and operation of production wells and gas production infrastructure.	Construction / Operation
Air Quality	Air Quality chapter (Section 9.6.2) and EM Plan (Appendix Z, Section Z.4.1.3)	B026	Use of low NOx equipment, where practical	Operation
Air Quality	Air Quality chapter (Section 9.6.2) and EM Plan (Appendix Z, Section Z.4.1.3)	B028	Minimisation of emissions from gas dehydration	Operation
Air Quality	Air Quality chapter (Section 9.6.2), GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B029	Optimisation of gas driven generator operations to minimise time periods of operation at low efficiency levels that may result in excess greenhouse gas emissions and higher than normal levels of NOx emissions	Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Air Quality	Air Quality chapter (Section 9.6.2), GHG chapter (Section 10.5.4) and EM Plan (Appendix Z, Section Z.4.1.3)	B030	Implementation of a quantifiable monitoring and measuring program	Operation
Air Quality	Air Quality chapter (Section 9.6.2) and EM Plan (Appendix Z, Section Z.4.1.3)	B031	Use of efficient gas and water separation methods on wellheads, gathering and process facilities to minimise fugitive gas release	Operation
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B032	Commitment to clear areas progressively. Implement rehabilitation as soon as practicable following construction activities	Construction / Operation / Decommissioning
Air Quality and, Landscape and Visual Amenity and Soils and Land Suitability	GHG chapter (Section 10.5.4), Soils and Land Suitability chapter (Section 12.7.1) and EM Plan (Appendix Z, Section Z.4.1.3 and Z.4.3.3)	B033	Clear areas progressively and implement rehabilitation as soon as practicable following construction and decommissioning activities	Construction / Operation / Decommissioning
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B034	During the decommissioning phase, minimise greenhouse gas emissions by optimising transport logistics and minimising the footprint of disturbance	Decommissioning
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B035	Assess the energy-efficiency opportunities and estimate greenhouse gas emissions associated with the Project in accordance with regulatory requirements. Calculate annual greenhouse gas emissions required under the National Greenhouse and Energy Reporting Act 2007 (Cwth) (NGER Act) and Energy Efficiency Opportunities program, as well as future carbon price mechanisms	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B036	The method of measurement and reporting of air emissions will comply with the relevant sections of the DERM Air Quality Sampling Manual	Construction / Operation / Decommissioning
Air Quality	EM Plan (Appendix Z, Section Z.4.1.3)	B037	Annual greenhouse gas emissions and energy consumption / production from the Project will be reported as required under the NGER Act and Energy Efficiency Opportunities program, as well as future carbon price mechanisms	Construction / Operation / Decommissioning
Air Quality	GHG chapter (Section 10.6)	B317	Arrow is committed to exploring options for offsetting GHG emissions from the Project. GHG emissions produced by the Project could be offset by investing in third party projects, such as forestry projects, that reduce emissions below a demonstrated baseline	Operation
Soils and Land Suitability	Geology chapter (Section 13.7.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B038	Minimise the potential for induced seismicity as an indirect result of CSG-related activities (e.g. fracture stimulation) in consideration of site layout in regards to geological structural features and faults, on a CSG well field and bore basis	Design / Construction / Operation
Soils and Land Suitability	Geology chapter (Section 13.7.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B039	CSG structures and associated in-field gas / water pipeline facilities will be designed and constructed in accordance with AS 1170.4:2007	Design / Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B040	Stripped and salvaged soil will be re-used within a short period of time in areas where rehabilitation immediately follows installation of low key infrastructures	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.4 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B041	Development of landform management strategy identifying key areas to re-establish pre-development landform at decommissioning, with landform design provision for disturbed areas where infrastructure may be required for retention. Where pre-development landform is not practical, provide alternative landform design	Design / Construction / Decommissioning
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B042	Appropriately stockpile topsoil and associated vegetation separately for rehabilitation prior to excavation or earthworks	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.2) and EM Plan (Appendix Z, Section Z.4.2.3)	B043	Reduce flow concentration and gully creation by minimising disruption to natural overland flow paths through the re-establishment of natural surface drainage lines	Design / Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B044	Ensure sub-surface infrastructure does not impact on surface features or processes	Design / Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B045	Prevent subsurface water flows and erosion	Design / Construction

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B047	Minimise land disturbance with the smallest practical area of land being disturbed in the shortest practicable time	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B048	Drainage and sediment control measures will be installed prior to any clearing activities. Clearing may occur for the purpose of installing these measures, in which case, only the minimum clearing required to install such measures shall occur	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B049	Establish clear delineation of disturbance boundary limits of works prior to commencement of clearing and soil stripping	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B050	Planning of all operations to ensure minimal damage on any vegetation, cropping or pasture areas outside the limits to be cleared	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B051	Strip soil according to designated profile depths, subject to further field investigations during stripping	Construction

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6), Decommissioning and Rehabilitation Chapter (Section 29.6.7) and EM Plan (Appendix Z, Section Z.4.2.3)	B052	Where practicable, place stripped material directly onto area to be rehabilitated and spread immediately (if rehabilitation sequences and weather conditions permit) to avoid the requirement for stockpiling	Construction / Rehabilitation
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B053	Separation of soils into windrows for later collection or re-spreading to minimise compression effects of heavy equipment	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B054	Soil transported by dump trucks may be placed directly into storage. Soil transported by scrapers is best pushed to form stockpiles by other equipment (e.g. dozer) to avoid tracking over previously laid soil to minimise compaction	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B055	Surface of soil stockpiles should be left in as coarsely structured a condition as possible to promote infiltration and minimise erosion until vegetation is established or suitable erosion controls have been applied, and to prevent anaerobic zones from forming	Construction

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B056	A maximum stockpile height for topsoil of 2 m is maintained as a general rule. Clay soils should be stored in lower stockpiles for shorter periods of time compared to coarser textured sandy soils	Construction / Operation / Decommissioning
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B057	For long term soil stockpiling, seed and fertilise stockpiles as soon as possible	Construction / Operation / Decommissioning
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B058	Subsoil and topdressing will be spread to depths dependent on target land suitability	Construction / Operation / Decommissioning
Soils and Land Suitability	Decommissioning and Rehabilitation (Section 29.7.5), Soils and Land Suitability chapter (Section 12.7.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B059	Suitable topsoil should be re-spread directly onto rehabilitation areas where practicable. Topsoil should be spread, ameliorated (if required), treated with fertiliser and seeded in one consecutive operation to reduce topsoil loss potential to wind and water erosion. Where possible, soil ameliorants will be applied prior to topsoil stripping to ensure adequate mixing	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B060	Minimise vegetation clearing and land disturbance	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B061	Stage clearing activities where possible and limit activity in cleared areas which reduces the time the areas are exposed	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B062	Stabilise topsoil stockpiles as soon as practical. Develop and implement management strategies through an EM Plan and <i>Erosion and Sediment Control Plan</i> in line with all statutory legislation and regulations, Arrow Energy policies, procedures / management plans, and industry standards	Construction / Operation / Decommissioning
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B063	Pipeline construction to be conducted in a manner that limits the duration of exposure of soils. Stripped and salvaged soil will be re-used within a short period of time (i.e. 28 days) in areas where rehabilitation immediately follows the installation of pipelines	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.1 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B064	Develop rehabilitation plans addressing ground preparation requirements, natural and constructed drainage patterns, soil erodibility, contamination, slope steepness and length, vegetation cover, land use and landowner requirements	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B065	Areas of differential settlement associated with buried infrastructure that interrupt the pre-existing surface water flow within intensively cultivated areas will be remedied as near as possible to pre-development landform	Construction / Operation / Decommissioning
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B066	Erosion and Sediment Control Plans will be developed and maintained in accordance with the International Erosion Control Association (IECA) (2008) <i>Best Practice Erosion and Sediment Control</i> guidelines. All proposed erosion and sediment control measures will be implemented in advance of, or in conjunction with clearing activities	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B067	Long term stockpiling will require suitable stabilisation (i.e. polymer, cover crop or hydro mulch or similar) to protect the soil from raindrop impact and rill erosion	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.3 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B068	Strip, salvage and stockpile topsoil separately from subsoils	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B069	Minimise disruption to natural overland flow paths through re-establishment of natural surface drainage lines	Construction

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B070	Where possible the disturbance of contour banks and irrigation bays will be avoided	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B071	Where possible flood banks and artificial levees will be avoided	Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B072	Where possible, minimise impact on irrigation flow or current farming practices from underground structures and where such must cross actively farmed arable land, ensure soil cover above it is deep enough to allow normal cultivation practices to resume safely	Design / Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B073	To allow settlement of backfill, avoid soil mounding along pipelines in irrigated paddocks to the greatest extent practicable	Design / Construction
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B074	Prevent subsurface water flows and erosion along the backfilled trench by appropriate means, such as trench blocks and compaction of backfilled soils	Construction / Operation

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.2 and 12.7.6), Decommissioning and Rehabilitation Chapter (Section 29.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B075	Discharge water from Project activities at a rate and location that will not result in erosion and install additional erosion protection measures	Construction / Operation
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.2), Decommissioning and Rehabilitation Chapter (Section 29.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B076	All run-off water needs diversion into clean water drainage lines and off site into natural drainage systems	Construction / Operation
Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.5.2 and 12.7.6) and EM Plan (Appendix Z, Section Z.4.2.3)	B077	Suitably designed and constructed diversion drains will be implemented where required	Construction / Operation
Soils and Land Suitability, Terrestrial Ecology and Preliminary Hazard and Risk	EM Plan (Appendix Z, SEM Plan (Appendix Z, Section Z.4.2.3, Z.4.4.5 and Z.4.12.3)	B078	Apply appropriate international, Australian and industry standards and codes of practice for the handling and storage of hazardous materials, such as chemicals, fuels and lubricants	Construction / Operation / Decommissioning



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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.2) and EM Plan (Appendix Z, Section Z.4.2.3) EM Plan (Appendix Z, S	B079	Ensure that appropriate spill response equipment including containment and recovery equipment is available onsite	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.2) and EM Plan (Appendix Z, Section Z.4.2.3)	B080	Assess and report contamination in accordance with documented operating procedures. This may include, but is not limited to: <ul style="list-style-type: none"> <li>• Undertake an assessment by a suitably qualified contaminated land specialist</li> <li>• Undertake environmental site assessment in response to identification of contamination</li> <li>• Characterise, remediate and validate contamination</li> <li>• Carry out corrective actions as required</li> </ul>	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.2) and EM Plan (Appendix Z, Section Z.4.2.3)	B081	Records to be maintained of Notifiable Activities / incidents that have the potential to result in land contamination. Records will include information on storage location, personnel training, monitoring data and disposal procedures for appropriate chemicals, fuel and other potential contaminants	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.2)	B082	Staff training as to identification of potential unexpected contamination	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.2) and EM Plan (Appendix Z, Section Z.4.2.3)	B083	Staff training as to appropriate handling, storage and containment practices for chemical, fuels and other potential chemicals as relevant	Construction / Operation / Decommissioning

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability, Groundwater and Waste Management	Contaminated Land chapter (Section 11.6.2), Groundwater chapter (Section 14.6.5), Waste Management chapter (Section 28.4.2) and EM Plan (Appendix Z, Section Z.4.2.3, Z.4.6.3 and Z.4.11.3)	B084	Develop and implement emergency response and spill response procedures to minimise any impacts that could occur as a result of releases of hazardous materials or any loss of containment of storage equipment	Planning / Design / Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.2) and EM Plan (Appendix Z, Section Z.4.2.3)	B085	If Project activities occur on land that is listed on the EMR / CLR further assessment maybe required to determine if contamination exists	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B086	Assess whether soil from land parcel on the EMR / CLR may be required to be removed from that land parcel – suitable soil transport and disposal approvals from EHP will be required	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B087	Conduct site investigations on relevant land parcels to assess for presence of contamination to allow for appropriate siting decisions to be made	Design

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Soils and Land Suitability, and Groundwater	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3 and 4.6.3)	B088	Manage contaminated soil or groundwater that cannot be avoided through physical investigation; manage quantification of the type, severity and extent of contamination; and remediate or manage in accordance with the Queensland Government's <i>Draft Guidelines for the Assessment and Management of Contaminated Land 1998</i>	Design / Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3 and Z.4.4.5)	B089	Undertake an assessment by a suitably qualified contaminated land specialist in accordance with the Queensland Government <i>Draft Guidelines for the Assessment &amp; Management of Contaminated Land in Queensland</i> (Department of Environment, 1998)	Design / Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B090	Stop works and avoid unnecessary disturbance of contaminated soil / groundwater if encountered during Project activities	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B091	Stop intrusive works involving disturbance of previously unidentified soil / groundwater contamination	Construction / Operation / Decommissioning
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B092	Act immediately to protect human health and safety of site workers, public and environment	Construction / Operation / Decommissioning

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Soils and Land Suitability	Contaminated Land chapter (Section 11.6.1) and EM Plan (Appendix Z, Section Z.4.2.3)	B093	Isolate areas containing contaminated soil / groundwater, where possible	Construction / Operation / Decommissioning
Soils and Land Suitability, Landscape and Visual Amenity, Terrestrial Ecology and Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.2.3, Z.4.3.3, Z.4.4.5, and 4.5.3)	B094	Inspect at risk erosion and sediment control measures following significant rainfall events to ensure effectiveness of measures is maintained	Construction / Operation / Decommissioning
Soils and Land Suitability	EM Plan (Appendix Z, Section Z.4.2.3)	B095	Inspect pipeline RoWs routinely until ground stabilisation and natural revegetation or pasture grasses or crops are established	Construction / Operation / Decommissioning
Soils and Land Suitability	EM Plan (Appendix Z, Section Z.4.2.3)	B096	Conduct physical investigations on selected parcels of land to influence facility siting decisions on a localised scale (i.e., soil type and structure for constructability)	Planning and design
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15.3) and EM Plan (Appendix Z, Section Z.4.3.3)	B027	The colour contrast and reflectivity of materials and finishes will be taken into account when selecting construction materials with the aim of minimising any potential visual impacts	Construction
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15) and EM Plan (Appendix Z, Section Z.4.3.3)	B097	Re-establishment of vegetation cover on disturbed areas	Construction / Operation / Decommissioning

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Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15) and EM Plan (Appendix Z, Section Z.4.3.3)	B098	If possible promote and manage natural regeneration of native plants within the Project area	Construction / Operation / Decommissioning
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B099	Design lighting in a manner that limits disruption on landscape character, views and visual amenity	Design
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15) and EM Plan (Appendix Z, Section Z.4.3.3)	B100	Where practical colour selection and finishes for key infrastructure elements will be considered as part of the design process within the Project area	Design
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15.4) and EM Plan (Appendix Z, Section Z.4.3.3)	B101	Orientating infrastructure within the Project development area to minimise potential light spill	Design
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15.4) and EM Plan (Appendix Z, Section Z.4.3.3)	B102	Shielding lights with hoods and louvers where practicable. Design lighting in accordance with AS 4282-1997 <i>Control of the Obtrusive Effects of Outdoor Lighting</i>	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B103	Co-locate facilities where practicable and design infrastructure layouts to minimise the footprint (taking into consideration the elements that contribute to landscape character) to reduce visibility of the facilities	Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B104	Site each production facility in the landscape of lowest sensitivity, where practicable, such as next to existing industrial developments or existing CSG facilities	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B105	Avoid visually sensitive locations and landscapes when siting facilities, where practicable. Seek backdrops when siting facilities to protect the skyline in distant views. Avoid siting facilities within view of sensitive viewpoints	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B106	When siting production facilities, maintain the maximum distance practicable from, and minimise visual disturbance to, the most sensitive visual receptors. Seek to maintain at least 500 m separation from sensitive viewpoints, particularly tourist trails, roads, residences and built-up areas	Design
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B107	Hide or screen production facilities using natural landscape features or planted native vegetation barriers, where appropriate. Avoid removal of mature trees and other woodland features that screen views to facilities	Design
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B108	Where possible establish screening barriers using endemic species in advance of construction of the facilities	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B109	Integrate facilities into the landscape setting where screening is not practical, considering building and structure colour, texture and lines. Use matt and low-glare finishes two shades darker than the prevalent shading of the site, having regard to sun angles throughout the day and year and to the harvesting of crops, where practicable. Consider camouflage paints or finishes in highly sensitive landscapes	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B110	Consult with potentially impacted visual receptors (landowners and neighbours) in locating facilities. Seek to reduce the form and shape of facilities visible by landowners and residents	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B111	Conduct planned maintenance flaring during daylight hours to minimise light spill, where practicable	Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B112	Where it is not practicable to screen or integrate a facility into the landscape, consider designing the facility to be a feature in the landscape, taking into consideration the form, texture and arrangement of buildings and structures	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B113	When clearing vegetation, seek to avoid creating gaps in stands or patches and to avoid isolating parcels of remnant vegetation from more continuous tracts	Construction
Landscape and Visual Amenity	Soils and Land Suitability chapter (Section 12.7.1) and EM Plan (Appendix Z, Section Z.4.3.3)	B114	Minimise the disturbance footprint and vegetation clearing	Construction
Landscape and Visual Amenity and Soils and Land Suitability	Soils and Land Suitability chapter (Section 12.7.1) and EM Plan (Appendix Z, Section Z.4.3.3)	B115	Use existing roads and tracks, where practicable	Construction / Operation
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B116	Where practicable, plan the movement of equipment and materials during times of least visual impact (i.e., work day start and end)	Construction / Operation
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B117	Where feasible, target dry weather periods when undertaking construction in sensitive landscape areas (e.g., waterway crossings) to minimise visual impacts due to sedimentation and erosion	Construction
Landscape and Visual Amenity	Landscape and Visual Amenity chapter (Section 20.15) and EM Plan (Appendix Z, Section Z.4.3.3)	B118	Retention of existing vegetation where practical	Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B119	Locate topsoil and spoil mounds in visually unobtrusive locations, where practicable	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B120	Incorporate excess spoil from site excavations into bunding at the base of a planted vegetation screening barrier to increase the overall height of the barrier	Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B121	Utilise landscape features and contours, where practicable, to integrate linear infrastructure (access tracks, gathering lines) into the landscape	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B122	Minimise the length and width of roads and tracks	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B123	Avoid roads traversing highly visible hills	Design / Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B124	Minimise construction time near sensitive visual receptors	Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B125	Develop and implement waste management procedures in accordance with the Queensland <i>Waste Reduction and Recycling Act 2011</i>	Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B126	Develop an Erosion and Sediment Control Plan in accordance with the IECA (2008) <i>Best Practice Erosion &amp; Sediment Control</i> , and install and maintain appropriate site-specific controls	Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B127	Maintain visual amenity controls used to reduce landscape and visual impacts. Replace lost trees or shrubs in screening barriers to ensure they establish and maintain an effective barrier	Design\Construction
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B128	Remove surface infrastructure and reinstate disturbed areas as soon as practicable to pre-disturbance landscape characteristics or consult with landowners regarding reinstatement objectives	Decommissioning
Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.3.3)	B129	Road entrances, signage and boundary fencing to Arrow property should be maintained in good condition and tidy at all times to ensure they promote a legible and high quality responsible profile for Arrow	Construction / Operation / decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.1.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B130	Avoid all disturbance within Homevale National Park (Category A ESAs)	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.1.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B131	<p>Aim to avoid disturbance within the following areas:</p> <ul style="list-style-type: none"> <li>• Endangered EPBC Act TECs: Brigalow Ecological Community (REs 11.3.1, 11.9.1, 11.9.5, 11.4.8, 11.4.9 and 11.5.16); Natural Grasslands Ecological Community (RE 11.8.11); Semi-evergreen Vine Thicket Ecological Community (REs 11.5.15, 11.8.3 and 11.8.13); Weeping Myall Woodlands (REs 11.3.2 and 11.3.28)</li> <li>• Category B ESAs</li> <li>• Category C ESAs including Arthur's Bluff State Forest and gazetted nature reserves</li> <li>• Stock routes and state or regionally significant bioregional wildlife corridors</li> <li>• Essential habitat</li> <li>• Core habitat for EVNT species</li> <li>• State forests and resource reserves</li> <li>• State-listed 'of concern' REs</li> </ul>	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.1.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B132	<p>Conduct pre-construction / pre-clearance surveys to identify any additional areas that need to be avoided. Include as a minimum:</p> <ul style="list-style-type: none"> <li>• vegetation mapping at a scale suitable for site-specific planning</li> <li>• identification of core habitats for EVNT species</li> <li>• identification of site-specific sensitive areas (e.g. ESAs) that require avoidance or buffers)</li> </ul>	Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B133	Attempt to locate wells, gathering lines and access tracks within previous clearings or non-remnant vegetation if possible	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B134	Design infrastructure to avoid undisturbed tracts of remnant vegetation, where practical. Where collection and gathering infrastructure is to be placed within contiguous vegetation, collection networks should be designed to avoid dissection	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B135	Access track location should avoid the repeated isolation of small parcels of remnant vegetation from more continuous tracts	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B136	Minimise vegetation disturbance wherever practical. Corridors for linear infrastructure should be as narrow as practical, particularly when crossing linear corridors of vegetation (e.g. Isaac River and Suttor Creek). Areas cleared for field development should be as small as practical	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B137	Retain habitat trees where practicable	Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B138	Avoid removing riparian vegetation when directional drilling and reduction of right of ways where practical	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B139	Construct infrastructure within previously disturbed vegetation in preference to areas with higher biodiversity values	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B140	Deviate access tracks and pipelines around sensitive vegetation where practicable	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B141	Avoid construction activities in waterbodies frequented by migratory species	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.1) and EM Plan (Appendix Z, Section Z.4.4.5)	B142	Apply sensitive infrastructure design principles to avoid watercourse, drainage lines and riparian areas where practicable	Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan (Appendix Z, Section Z.4.4.5)	B143	Design creek crossings to ensure that existing flow regimes are maintained	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.6) and EM Plan (Appendix Z, Section Z.4.4.5)	B144	Preparation of biodiversity offsets (DSEWPaC, 2011; DERM, 2011b) for Commonwealth and State significant biodiversity values	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.6) and EM Plan (Appendix Z, Section Z.4.4.5)	B145	<p>Disturbance exclusion zones (or management buffers) will be established and managed during construction and operations to effectively protect ESAs. This may include the following actions:</p> <ul style="list-style-type: none"> <li>• Manage impacts to Category A, B and C ESAs through implementation of management buffers. The buffers outlined below are indicative based on current regulatory conditions, however these may be subject to change in future. The buffers that will be implemented for the project will be in line with the regulatory requirements at the time of implementation. Indicative buffers at this time include: <ul style="list-style-type: none"> <li>— In areas mapped as high constraint a buffer of 100 m, measured from the bank edge, will be adopted during all phases of the Project, with a further 100 m constrained to low impact activities; and</li> <li>— For areas mapped as moderate constraint, the following buffer zones, measured from the bank edge, will be adopted during all phases of the Project: <ul style="list-style-type: none"> <li>○ a riparian buffer of 50 m width on either side of first and second order streams</li> <li>○ a riparian buffer of 100 m width on either side of third, fourth, fifth and higher order streams</li> </ul> </li> </ul> </li> <li>• Clearly identify buffers for sensitive areas that require avoidance</li> </ul>	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
			<ul style="list-style-type: none"> <li>Develop site induction procedures to ensure that all worksite personnel, including contractors are made aware of the location of these sensitive habitats (and buffers) and are guided by qualified personnel when clearing is undertaken</li> <li>Demarcate ESA buffers and educate workers in regard to necessary site access protocols and requirements</li> </ul>	
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B146	Implement noise control techniques in accordance with the noise and vibration commitments and standard industry noise suppression techniques	Construction / Operation
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B147	All lighting should be directed into the infrastructure siting rather than dispersed into native vegetation when sites are adjacent to intact habitat	Design / Construction / Operation
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B148	Where possible restrict traffic to designated access tracks	Construction / Operation
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B149	Prohibit harassment of wildlife and the unauthorised collection of flora or fauna, unless directed by a suitably qualified and experienced person	Construction / Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B150	Fell trees away from existing vegetation not identified for removal where practicable	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2) and EM Plan (Appendix Z, Section Z.4.4.5)	B151	Avoid damaging trees (e.g. through scraping of tree trunk or breaking of limbs by equipment) not identified by removal where practicable	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.2 and 17.6) and EM Plan (Appendix Z, Section Z.4.4.5)	B152	A detailed pest management plan will be developed to mitigate and manage the potential spread of pest flora and fauna species	Construction / Operation
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan Appendix Z (section Z.4.4.5).	B153	Suitably qualified animal handler or ecologist to capture injured wildlife, where possible. Injured wildlife resultant from land clearing will be taken to a qualified veterinary surgeon where practical	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan Appendix Z (section Z.4.4.5)	B154	Develop speed limits on Project controlled roads with due consideration to reduce the potential for vehicle collisions with wildlife	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan Appendix Z (section Z.4.4.5)	B155	Undertake pre-clearing surveys to determine the likelihood of the species occurring	Construction / Operation / Decommissioning
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan Appendix Z (section Z.4.4.5)	B156	Undertake partial rehabilitation of gathering lines and other linear infrastructure to reduce edge effects (including weed invasion) and maintain movement rates	Design / Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan Appendix Z (section Z.4.4.5)	B157	Undertake rehabilitation of available areas consistent with pre-clearing habitats, to increase the rate of recovery	Construction / Operation
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan Appendix Z (section Z.4.4.5)	B158	Undertake weed monitoring and targeted weed control measures within sensitive EVNT habitats (particularly threatened communities such as brigalow and native grasslands)	Construction / Operation
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.3.3 and 17.7) and EM Plan Appendix Z (section Z.4.4.5)	B159	Trenches should be inspected and monitored as per the <i>APIA Code of Environmental Practice</i>	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.6) and EM Plan Appendix Z (section Z.4.4.5)	B160	Install and maintain appropriate sediment and erosion control structures at work sites	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.1.3 and 17.6) and EM Plan (Appendix Z, Section Z.4.4.5)	B161	Woody debris, logs and rocks should be retained for use in rehabilitation. Where practical, these should be piled along the edge of the cleared corridor. However, spreading these features over part or all of the corridor is preferred as it will provide refugia for crossing fauna. Systematic removal of surface debris should be avoided and cleared timber should never be burnt	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.5.1.3) and EM Plan (Appendix Z, Section Z.4.4.5)	B162	Plant species used for rehabilitation are specific to the original ecosystem and local provenance, wherever possible unless the area has been cropped or contains improved pasture to be reinstated	Construction / Operation / Decommissioning
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B163	Data collection, particularly of EVNT species identified during pre-clearing surveys, during trench checking or in other Project related activities, should be ongoing until rehabilitation is complete	Construction / Operation / Decommissioning
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B164	Monitoring programs should focus on those sensitive ecological values at risk of a high to extremely high level of residual impact	Construction / Operation / Decommissioning
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B165	Consider targeted monitoring effort conducted in co-operation with the proponents of overlapping Projects. Particularly suited species to such monitoring include ornamental snake ( <i>Denisonia maculata</i> ), koala ( <i>Phascolarctos cinereus</i> ) and brigalow scaly-foot ( <i>Paradelma orientalis</i> )	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B166	Inspect management buffers and areas of avoidance to ensure boundaries are clearly delineated prior to clearing	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B167	Monitor during and after clearing activities to ensure no unauthorised encroachment has occurred	Construction
Terrestrial Ecology and Dams	Terrestrial Ecology chapter (Section 17.5.3.3) and EM Plan (Appendix Z, Section Z.4.4.5 and Z.4.9.3)	B168	Reduce the impact of CSG water on soil structure and aquatic values, by designing and constructing wells in accordance with the <i>Code of Practice for Constructing and Abandoning CSG wells in Queensland</i> (DEEDI <i>et al.</i> , 2011)	Construction
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.6 and 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B169	Where EVNT species are identified in proposed development areas, consider mitigation measures such as translocation and/or propagation of flora species. Monitor progress of any translocation programs in accordance with the relevant translocation management plans	Construction / Operation / Decommissioning
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B170	Inspect food scrap bins and exclusion fences to ensure effectiveness	Construction / Operation / Decommissioning
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.7) and EM Plan (Appendix Z, Section Z.4.4.5)	B171	In accordance with the Pest Management Plan routinely inspect for pest flora and evidence of pest fauna within Project disturbed areas	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology and Aquatic Ecology	Terrestrial Ecology chapter (Section 17.6), Rehabilitation and Decommissioning (Section 29.7.8) and EM Plan (Appendix Z, Section Z.4.4.5 and Z.4.5.3)	B172	Design washdown facilities to ensure that runoff is contained on site and does not transfer weed seeds, spores or infected soils to adjacent areas. Treat or dispose of washdown solids in a registered landfill	Design
Terrestrial Ecology	Terrestrial Ecology chapter (Section 17.6) and EM Plan (Appendix Z, Section Z.4.4.5)	B173	Minimise the time a trench is left open. Construct exit points when construction is within 1 km of native vegetation, using appropriate material. Provide fauna refuges, such as sawdust-filled bags, regularly through areas of high fauna activity	Construction
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B175	Implement site planning, preparation and management requirements in accordance with a decommissioning and rehabilitation plan	Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B176	Reinstate self-supporting drainage lines	Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B177	Inspect rehabilitation areas after decommissioning for regrowth similar to the surrounding environment	Decommissioning
Terrestrial Ecology, Groundwater, Hazard and Risk, Waste, Preliminary Hazard and Risk	EM Plan (Appendix Z, Section Z.4.4.5, Z.4.6.3, Z.4.11.3 and Z.4.12.3)	B178	Apply appropriate international, Australian and industry standards and codes of practice for the design and installation of infrastructure associated with the storage of hazardous materials (such as chemicals, fuels and lubricants)	Planning / Design / Construction / Operation / Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B179	Carry out corrective actions upon the identification of any contamination of soil or groundwater that has occurred as a result of Project activities	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology and Aquatic Ecology	Decommissioning and Rehabilitation (Section 28.7.8) and EM Plan (Appendix Z, Section Z.4.4.5 and Z.4.5.3)	B180	When sourcing maintenance materials, ensure that such materials as bedding sand, topsoil, straw bales and sand bags are brought to site only after it is ascertained that the materials are not contaminated with weeds and plant or animal pathogens. Request a weed hygiene declaration form from the supplier where there is possible risk of contamination in products	Planning / Design / Construction / Operation / Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B182	Supervise construction activities in sensitive areas to ensure appropriate methods (e.g., narrowing of RoW) are being implemented, where required	Construction / Operation / Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B183	Carry out routine monitoring of rehabilitation success	Construction / Operation / Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B184	Erect fauna-exclusion fences around Project dams	Construction
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B185	Develop monitoring programs that are site specific and based on the identified risk to the conservation or maintenance of a viable population	Construction
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B186	During rehabilitation works, care will be taken when moving stockpiled logs and vegetation to avoid fauna mortality	Construction / Operation / Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B187	Develop threatened species management procedures as and when Project activities are identified as likely to impact upon individuals	Design
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B188	Ensure all relevant personnel are made aware of the location and extent of weed infestations in the vicinity of the work area and the risks involved in moving from one site or property to another	Construction / Operation / Decommissioning
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B189	Assess trees prior to felling for potential nesting hollows. If identified, fell trees in the presence of a qualified fauna spotter and roll them so that the hollows are facing upwards, allowing fauna to escape	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B190	Identify key koala trees and visually inspect prior to clearing to ensure that they are free of koalas. If koalas are located, the tree should be retained until the animals have moved on, typically overnight	Construction
Terrestrial Ecology and Aquatic Ecology	Decommissioning and Rehabilitation (Section 29.7.8) and EM Plan (Appendix Z, Section Z.4.4.5 and Z.4.5.3)	B191	Develop a declared weed and pest management plan in accordance with the <i>Petroleum Industry – Pest Spread Minimisation Advisory Guide</i> (Biosecurity Queensland, 2008). Undertake species-specific management for identified key weed species at risk of spread through Project activities (mesquite, parthenium, African lovegrass and lippia). Increase weed control efforts in areas particularly sensitive to invasion. The pest management plan should include, as a minimum, training, management of pest spread, management of pest infestations and monitoring effectiveness of control measures	Planning / Design / Construction
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B192	Minimise the width of construction RoWs within areas of sensitivity to the greatest extent practicable without compromising the safety of workers	Construction
Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.4.5)	B193	Design facilities to ensure natural surface water flows are not impounded, e.g., by installing culverts on roads and stormwater diversion ditches around production facilities	Design
Aquatic Ecology	Aquatic Ecology chapter (Section 16.6.3 and 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B194	The use of vehicles and machinery near waterways will be avoided wherever possible and expected to be minimal	Construction / Operation / Decommissioning
Aquatic Ecology	Aquatic Ecology chapter (Section 16.4.4) and EM Plan (Appendix Z, Section Z.4.5.3)	B195	CSG water received from the field and brine concentrate will be managed in dams adjacent to IPFs	Operation / Decommissioning
Aquatic Ecology	Aquatic Ecology chapter (Section	B196	Buffer zones will be adopted for Project activities (with the exception of required creek crossings), in different areas of constraint, as defined by the project's	Design / Construction /

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
	16.6.1, 16.7.6 and 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)		<p>constraints mapping (outlined in Section 7 and detailed in Constraints Mapping (Appendix BB of the EIS).</p> <p>The buffers outlined below are indicative based on the current regulatory conditions, however these may be subject to change in future. The buffers that will be implemented for the project will be in line with the regulatory requirements at the time of implementation. Indicative buffers at this time include:</p> <ul style="list-style-type: none"> <li>• In areas mapped as high constraint a buffer of 100 m, measured from the bank edge, will be adopted during all phases of the Project, with a further 100 m constrained to low impact activities</li> <li>• For areas mapped as moderate constraint, the following buffer zones, measured from the bank edge, will be adopted during all phases of the Project: <ul style="list-style-type: none"> <li>— a riparian buffer of 50 m width on either side of first and second order streams</li> <li>— a riparian buffer of 100 m width on either side of third, fourth, fifth and higher order streams</li> </ul> </li> </ul>	Operation
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B198	Construction of access tracks will be kept to a minimum, with the use of existing tracks and roads preferred wherever possible	Design / Construction / Operation / Decommissioning
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B199	Tracks will be restricted in riparian zones and durations of impacts minimised, except in the immediate vicinity of creek crossings	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B200	Where waterway crossings are unavoidable, measures will be taken to ensure that the movement of aquatic species is not impacted	Design / Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B201	During the design and construction of waterway crossings, care will be taken to minimise the footprint of the structure and to avoid unnecessary disturbance to stream beds and banks	Design / Construction / Operation
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B202	Construction that will potentially affect waterways will occur during dry months (periods of low rainfall and low flow) where possible. The use of machinery and vehicles on stream beds and banks will be avoided wherever possible	Design / Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B203	Where the gathering line crosses waterways ensure that the trenching is perpendicular to the creek	Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B204	Where practical the width of the easement would also be narrowed at these points, further reducing impacts on stream banks, beds and riparian zones by restricting the area of waterway that would be disturbed	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B205	Where possible trenching within or in the vicinity of watercourses would occur during the drier months of the year, which will reduce the potential for water quality decline as a result of sediment mobilisation	Design / Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B206	Gathering line and access road creek crossings will be kept to a minimum where possible by designing the gathering system so that multiple feeder lines are gathered into one gathering line prior to crossing	Design / Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B207	A Water Management Plan, Erosion and Sediment Control Plan, and Waste Management Plan will be designed to avoid or minimise the potential impacts of Project	Design / Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.5.3)	B208	Limit the use of herbicides in the vicinity of watercourses or within riparian zones. Use non-toxic, non-persistent (i.e., biodegradable) herbicides to treat weeds, except on properties where organic or biodynamic farming is practiced, for which the method of weed treatment is to be agreed with the landowner	Design / Construction
Aquatic Ecology	Aquatic Ecology chapter (Section 16.8.1) and EM Plan (Appendix Z, Section Z.4.5.3)	B209	Monitoring where required will be undertaken including water quality, aquatic macroinvertebrates, fish, and other aquatic / semi-aquatic fauna	Construction / Operation / Decommissioning
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B210	A sampling program will be undertaken if discharge or emergency release is required	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Aquatic Ecology	Aquatic Ecology chapter (Section 16.8.1) and EM Plan (Appendix Z, Section Z.4.5.3)	B211	The reporting of monitoring analysis results would include both standalone and cumulative interpretation to provide for a comprehensive understanding of significant change, if any, over time	Construction / Operation / Decommissioning
Aquatic Ecology	Aquatic Ecology chapter (Section 16.8.1) and EM Plan (Appendix Z, Section Z.4.5.3)	B212	Environmental auditing processes would include both internal and external audit components to ensure consistency and compliance with the regulatory framework	Construction / Operation / Decommissioning
Aquatic Ecology	Aquatic Ecology chapter (Section 16.8.2) and EM Plan (Appendix Z, Section Z.4.5.3)	B213	Inspections will be carried out on an incident basis to determine potential impacts to aquatic environments resulting from pollution events; or potential pollution events	Construction / Operation / Decommissioning
Aquatic Ecology	Aquatic Ecology chapter (Section 16.8.2) and EM Plan (Appendix Z, Section Z.4.5.3)	B214	Where a discharge triggers a mandatory incident procedure that includes the need for point-source assessment, at a minimum, water quality would be assessed at the point source, as well as downstream of that point to the estimated downstream limit of impact	Construction / Operation / Decommissioning
Aquatic Ecology and Terrestrial Ecology	EM Plan (Appendix Z, Sections Z.4.4.5 and Z.4.5.3)	B215	Routinely monitor buffer zones and Project footprint using satellite imagery	Construction / Operation / Decommissioning
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B216	Visually inspect physical form and monitor hydrology, turbidity and pH upstream and downstream of crossings immediately prior to, during and after construction of watercourse crossings	Construction / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B217	Routinely inspect for pest flora and evidence of pest fauna species within Project disturbed areas	Construction / Operation / Decommissioning
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B218	Monitoring where required will be undertaken including water quality, aquatic macroinvertebrates, fish, and other aquatic/semi-aquatic fauna	Construction / Operation / Decommissioning
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B219	Routinely inspect spill containment controls and spill response kits	Construction / Operation / Decommissioning
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B220	Minimise watercourse crossings, where practicable, during route selection. Where required, select crossing locations to avoid or minimise disturbance to aquatic flora, waterholes, watercourse junctions and watercourses with steep banks	Planning and Design
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B221	Construct watercourse crossings in a manner that minimises sediment release to watercourses, stream bed scouring, obstruction of water flows and disturbance of stream banks and riparian vegetation (i.e., the crossing location will be at a point of low velocity, and straight sections will be targeted, with the pipeline or road orientated as near to perpendicular to water flow as practicable)	Construction
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B222	Ensure flumes used to construct watercourse crossings are suitably sized to maintain flows and enable fish passage. Protect the bed of the watercourse from scouring at the site of the downstream discharge of any flumes or pipes	Construction
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B223	If diversion of watercourse flows using pumps is required, screen the pump intakes with mesh to protect aquatic life	Construction
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B224	Where appropriate, design ground disturbance works to minimise the need for cut-and-fill earthworks	Planning and Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B225	Avoid transport of equipment across watercourses unless an appropriate crossing that minimises disturbance to the watercourse bed and banks and to riparian vegetation is available	Construction
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B226	Design watercourse crossings to enable passage of flows resulting from a 1 in 100 year average recurrence interval flood event, as a minimum	Planning and Design
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B227	Design gathering lines and tracks to avoid watercourses, drainage lines and riparian areas (particularly permanent watercourses or perennial aquatic habitat), where practicable	Planning and Design
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B228	Design the width of the pipeline RoWs to be narrower at watercourse crossings, where practicable	Planning and Design
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B229	Co-locate pipelines into one watercourse crossing corridor, where practicable	Planning and Design
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B230	Plan construction and maintenance activities to minimise movement of plant and equipment between properties or areas with weed infestations	Planning and Design
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B231	Identify declared weeds during the preconstruction clearance survey	Construction
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B232	Store stockpiled, cleared vegetation away from watercourses or drainage lines	Construction
Aquatic Ecology	EM Plan (Appendix Z, Section Z.4.5.3)	B233	Backfill and rehabilitate excavations, particularly pipeline trenches and drilling sumps. Conduct backfilling in a manner that will promote successful rehabilitation, including capping of exposed subsoil with topsoil and replacement of the land surface to preconstruction levels to reduce trench subsidence and concentration of flow. Mounding of soils to allow for settling may be required in some areas. However, in laser-levelled paddocks, this may not be practicable, and backfilling should be carried out in consultation with the landowner	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.6.4.2) and EM Plan (Appendix Z, Section Z.4.6.3)	B234	If impaired capacity is confirmed (bore can no longer produce quality or quantity of groundwater for the authorised purpose, and the impact is due to CSG activities), negotiate make good agreement with bore owner and implement make-good measures in accordance with the make-good agreement	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.6.4.3)	B235	To reduce the likelihood of fuel, oil, or hazardous chemical releases entering the groundwater system, the following mitigation measures will be implemented: <ul style="list-style-type: none"> <li>• Fuel, oil, and hazardous chemicals will be stored above ground and contained within bunded areas</li> <li>• Domestic and industrial waste will be stored and managed by licensed contractors</li> <li>• Recording and auditing will be undertaken for fuel, oil, and chemical volumes purchased and stored on-site</li> <li>• Audits of disposal facilities, disposal permits, and working conditions will be undertaken</li> <li>• Hazardous chemicals and effluent will be conveyed and stored in accordance with AS1940 <i>The Storage and Handling of Flammable and Combustible Liquids</i> and AS 3780 <i>The storage and handling of corrosive substances</i>, and other relevant industry standards</li> </ul>	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.3) and EM Plan (Appendix Z, Section Z.4.6.3)	B236	Prepare baseline assessment plans for each tenure prior to commencement of production as per the Water Act. Prepare an underground water impact report including a water monitoring strategy including a spring impact management strategy for each tenure	Construction / Operation
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B237	Establish baseline data set of groundwater level and quality within significant aquifers in the Project area to enable future comparison (during and at end of Project)	Construction / Operation
Groundwater	Groundwater chapter (Section 14.6.5)EM Plan (Appendix Z, S	B238	Conduct monitoring (water level and quality) of bores within the significant aquifers of the Blackwater Group	Construction / Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.6.5) EM Plan (Appendix Z, S	B239	Assess natural (i.e. seasonal rainfall) and cumulative (i.e. mine-related) variations in groundwater levels (using background monitoring points outside predicted zone of influence)	Construction / Operation
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B240	Make good measures to be implemented will be negotiated between Arrow and the bore owner depending on the aforementioned factors and may include: <ul style="list-style-type: none"> <li>• Modifying the pumping infrastructure of the bore</li> <li>• Modifying or deepening the bore</li> <li>• Installing a new bore into the same aquifer</li> <li>• Installing a new bore into another aquifer</li> <li>• Supplying an alternative source of water</li> <li>• Monetary compensation</li> </ul>	Construction / Operation
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B241	Perform groundwater modelling simulations to predict impacts on groundwater resources in overlying and underlying aquifers to evaluate the suitability of these resources for use in make-good measures	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.6.5) EM Plan (Appendix Z, S	B242	Prepare groundwater monitoring reports in accordance with the environmental authority for each tenure	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B243	Define and undertake program of aquifer testing in dedicated groundwater monitoring wells to reduce areas of uncertainty and aim to quantify aquifer properties and groundwater velocities / inter-aquifer flows.	Design
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B244	To ensure groundwater depressurisation is not impacting the connectivity between the Blackwater Group and other aquifers, continue the investigative program that monitors / quantifies this connectivity.	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B245	<ul style="list-style-type: none"> <li>• Install an appropriate regional groundwater monitoring network (that satisfies Arrow's obligations as described in each UWIR) to:               <ul style="list-style-type: none"> <li>— establish current groundwater level and groundwater quality conditions</li> <li>— assess natural variation (i.e., seasonal variations) in groundwater levels</li> <li>— monitor groundwater levels during the operational phase</li> <li>— monitor groundwater quality during the operational phase</li> <li>— establish suitable datum levels for each aquifer system</li> <li>— target sensitive areas where more frequent monitoring and investigation is required (e.g., groundwater-dependent ecosystems)</li> <li>— monitor groundwater depressurisation as a result of CSG extraction</li> <li>— monitor impacts in accordance with the UWIR for each tenure, Water Act and regulations.</li> </ul> </li> </ul>	Construction / Operation / Decommissioning
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B246	Develop a strategy to manage groundwater drawdown and changes in groundwater quality that could impact on groundwater dependent ecosystems and natural springs	Design / Construction / Operation
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B247	<p>Develop a procedure for investigating the impaired capacity of third-party bores. The investigation will be comprised (but not limited to) the following phased investigation response:</p> <ul style="list-style-type: none"> <li>• Verify groundwater levels in the nominated bores and investigate groundwater levels and groundwater quality in compliance monitoring bores against established trigger thresholds</li> <li>• Request bore information and groundwater data from affected parties</li> <li>• Review and assess data</li> <li>• Advise bore owners in writing of findings</li> </ul>	Operation
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B248	Develop a groundwater monitoring strategy to identify trends in groundwater levels	Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B249	Construct all CSG production wells in accordance with the standards described in the P&G Act and regulations to that Act	Construction
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B250	Construct all monitoring wells in accordance with the <i>Minimum Construction Requirements for Water Bores in Australia</i> (National Minimum Bore Specifications Committee, 2003) and the minimum standards for the construction and reconditioning of water bores that intersect the sediments of artesian basins in Queensland (EHP, 2012)	Construction
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B251	Select drilling fluids to minimize potential groundwater impacts. Do not use oil-based drilling fluids	Construction
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B252	Consider local groundwater conditions when identifying sites for the installation of underground infrastructure (e.g. gathering lines). Install pipelines in accordance with relevant standards	Design / Construction
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B253	Avoid unnecessary impervious surface coverings and minimise land footprint and vegetation clearing when designing facilities	Design
Groundwater	Groundwater chapter (Section 14.6.5) and EM Plan (Appendix Z, Section Z.4.6.3)	B254	Store and manage all waste materials (domestic and industrial) in accordance with industry regulations and EHP EA conditions. Use licensed waste management contractors. Conduct audits of disposal facilities, disposal permits and onsite operations to ensure adherence to regulations	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.6.5) EM Plan (Appendix Z, Section Z.4.6.3)	B255	Design and construct new regulated dams (either raw water, treated water or brine dams) in accordance with the requirements of the most recent version of <i>Manual for Assessing Hazard Categories and Hydraulic Performance of Dams</i> and under the supervision of a suitably qualified and experienced person, and in accordance with relevant EHP schedule of conditions relating to dam design, construction, inspection and mandatory reporting requirements	Design / Construction
Groundwater	Groundwater chapter (Section 14.6.5)	B256	The number of monitoring wells and their location will take into account site-specific hydrogeology, preferential pathways and potential receptors of impacts	Design / Construction
Groundwater	Groundwater chapter (Section 14.6.5)	B257	Further investigation will be considered where potential adverse impacts to groundwater quality are identified	Design / Construction / Operation
Groundwater	Groundwater chapter (Section 14.7.2)	B258	A key element of the management plan is to use the monitoring data to validate and update the numerical groundwater model. The model will be recalibrated to reduce uncertainty in predictions and thereby provide information for improving the monitoring, management and mitigation measures	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.3) and EM Plan (Appendix Z, Section Z.4.6.3)	B259	A groundwater monitoring program will be developed that can anticipate the spread of groundwater drawdown to stakeholder bores and environmental values within and beyond the tenement boundaries	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.3)	B260	Based on the Potential Impact Area, landholder bores that are 'at risk' can be identified. The following will apply to these existing bores: <ul style="list-style-type: none"> <li>Preparation and development of Baseline Assessment Plans for each tenure prior to the commencement of production testing or production in accordance with the Water Act</li> <li>Implementation of the Baseline Assessment Plan including assessment of each water bore in the tenure in accordance with the timetable contained in the plan</li> </ul>	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
			<ul style="list-style-type: none"> <li>• Collection of baseline data from each water bore including water level, water quality, bore construction and the type of infrastructure used to pump water from the bore</li> <li>• Supply of the collected data to the bore owner and regulator as required by the Water Act</li> <li>• Preparation of an Underground Water Impact Report (UWIR) including a Water Monitoring Strategy for each tenure in accordance with the Water Act</li> <li>• Identification of Immediately Affected Area Bores in the UWIR in accordance with the Water Act by undertaking groundwater modelling to identify areas in each aquifer where the bore trigger threshold will be exceeded within the subsequent three years</li> <li>• Completion of a bore assessment for each Immediately Affected Area Bore</li> <li>• Negotiation of a Make Good Agreement for each Immediately Affected Area Bore</li> <li>• Installation and sampling of the network of monitoring bores identified in the Water Monitoring Strategy</li> </ul>	
Groundwater	Groundwater chapter (Section 14.7.5)EM Plan (Appendix Z, S	B261	<p>It is considered that a structured database will host all the groundwater data (including groundwater levels and groundwater quality). Groundwater monitoring reporting will be conducted in accordance with the requirements of the administering authority. Reports will be submitted annually and will provide comment on:</p> <ul style="list-style-type: none"> <li>• Changes (augmentation and alteration) to the groundwater monitoring network</li> <li>• Recent groundwater monitoring quality and water level results and trends;</li> <li>• Comparison of background and baseline groundwater levels and modelled projected levels</li> <li>• Recent model predictions of groundwater impacts</li> </ul>	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B262	Compile a robust baseline data set for: <ul style="list-style-type: none"> <li>Determining natural fluctuation, both water level and hydrochemistry</li> <li>Evaluate site-specific groundwater environmental values</li> </ul>	Construction / Operation / Decommissioning
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B263	Construct, calibrate and refine a groundwater model to suitably simulate the groundwater values and provide accurate estimates of impact	Construction / Operation / Decommissioning
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B264	To assess alteration to groundwater, quality and quantity, over the life of the Project (construction, operations, and post-closure) to evaluate possible environmental harm and if necessary implement corrective action	Construction / Operation / Decommissioning
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B265	Provide a configuration of monitoring bores that allows identification of drawdown across the Project development area and within all key aquifers	Construction / Operation / Decommissioning
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B266	Gain further understanding of aquifer interactions and verify the understanding of regional hydrogeology	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.5.1) and EM Plan (Appendix Z, Section Z.4.6.3)	B267	Develop an 'early warning system' that identifies areas potentially impacted by Project activities and allows early intervention (e.g. placement of monitoring bores in critical locations)	Operation
Groundwater	Groundwater chapter (Section 14.7.5.1)	B268	To ensure that the impacts of groundwater drawdown on existing groundwater users and other identified environmental values is minimised through cause identification, response implementation, consultation and in the case of existing groundwater users, through the negotiation of alternative water supply agreements	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.7.5.3)	B269	<p>To mitigate potential adverse effects from CSG production on a regional scale, a groundwater monitoring program that includes a representative suite of bores in the shallow, intermediate and deep aquifers will be implemented. The major groundwater systems to be monitored include:</p> <ul style="list-style-type: none"> <li>• Shallow groundwater systems (water-table) comprised of: <ul style="list-style-type: none"> <li>— Quaternary alluvium</li> <li>— Tertiary basalt and sediments</li> </ul> </li> <li>• Intermediate groundwater systems (confined/unconfined) of Triassic outcrop formations including the Clematis Sandstone; and</li> <li>• Deep groundwater systems (confined aquifers) of <ul style="list-style-type: none"> <li>— Blackwater Group at the CSG target depths</li> <li>— Blackwater Group sub-crops including the Rangal Coal Measures, Fort Cooper Coal Measures and Moranbah Coal Measures</li> </ul> </li> </ul>	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.5.3)	B270	The monitoring program may use nested standpipe monitoring bores and vibrating wire piezometers in the aquifers vulnerable to groundwater drawdown. The nested sites will allow for both ongoing groundwater monitoring, assess induced flow, and allow discrete (aquifer) sampling	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.5.3)	B271	Some nested bores may also be installed at locations with negligible CSG impacts to provide ongoing background monitoring of climatic effects and/or resource developments that are independent of the proposed Project development	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.7.5.4) and EM Plan (Appendix Z, Section Z.4.6.3)	B272	Monitoring will be conducted in compliance with relevant standards, but at a minimum, a suitable network of shallow (seepage) monitoring bores will be installed adjacent to water and waste storage facilities to ensure effectiveness of seepage mitigation designs. The number of monitoring bores and their location will take into account site-specific hydrogeology, preferential pathways, and potential receptors of impacts	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	Groundwater chapter (Section 14.7.5.4) and EM Plan (Appendix Z, Section Z.4.6.3)	B273	Monitoring bores installed near dams will monitor groundwater levels, electrical conductivity values, pH, TDS, major cations, and major anions to allow preparation of piper plots and interpretation of results over time	Construction / Operation / Decommissioning
Groundwater	Groundwater chapter (Section 14.8.2)	B274	If a landholder bore is 'at risk' of potential impacts and impaired capacity, or observes an impaired capacity in a bore due to CSG operations, then Arrow will undertake a bore assessment which will include the following: <ul style="list-style-type: none"> <li>• A field verification of groundwater levels in the nominated bore</li> <li>• Baseline bore information and groundwater data</li> <li>• A review and assessment of the available data</li> <li>• Advice to the bore owner in writing of findings</li> </ul>	Operation
Groundwater	Groundwater chapter (Section 14.8.2) and EM Plan (Appendix Z, Section Z.4.6.3)	B275	Following completion of a bore assessment for 'at risk' bores a program of monitoring to confirm the findings of the bore assessment will be implemented. Make good measures will be implemented if the bore assessment and subsequent monitoring indicates the bore(s) is likely to experience an impaired capacity. Make good measures will be evaluated by considering several factors of the impaired bore and will be negotiated between Arrow and the bore owner	Operation
Groundwater	Groundwater chapter (Section 14.8.3)	B276	Where beneficial use schemes are proposed for untreated associated water, a Land and Water Environmental Management Plan may be required to ensure the scheme is sustainable and does not result in land degradation, environmental impact and/or water resource impact	Construction / Operation / Decommissioning
Groundwater and Contaminated Land	EM Plan (Appendix Z, Section Z.4.6.3) and Contaminated Land chapter (Section 11.6.1)	B277	Inspect and observe site locations for the presence of contamination prior to commencement of intrusive activities	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B278	Avoid development on contaminated land through the completion of appropriate register searches and desktop investigations (i.e., avoid land or the contaminated portion of a parcel of land that is listed on the Contaminated Land Register or the Environmental Management Register, where practicable)	Construction
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B279	Conduct physical investigations on selected parcels of land to influence facility siting decisions on a localised scale (i.e., target the portion of land that is not contaminated by understanding the extent of contamination)	Planning and Design / Construction
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B280	Avoid disturbance of contaminated soil and groundwater when it is identified or observed during intrusive works	Construction
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B281	Connect wastewater and sewerage systems to sewers where locally present. Alternatively, install wastewater treatment or reuse systems in accordance with AS/NZS 1547:2012 <i>On-site Domestic Wastewater Management</i> ; the <i>Framework for managing sewerage infrastructure to reduce overflows and environmental impacts</i> (EPA and QPWS, 2010); and Queensland water recycling guidelines (DERM, 2012d); and Queensland water recycling guidelines (DERM, 2012d)	Construction
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B284	Decommission or repair all production wells and monitoring bores, either at the end of their operating life span or in the event of a failed integrity test in accordance with the minimum construction requirements for water bores in Australia (LWBC and NMBSC, 2003) and the P&G Act and regulations to that act. Should production wells be converted into monitoring bores, do so in accordance with relevant regulations	Decommissioning
Groundwater	EM Plan (Appendix Z, Section Z.4.6.3)	B285	Undertake periodic integrity checks to ensure well construction	Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B286	Watercourse crossings to be designed minimise impacts on geomorphology and river flows	Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B287	Where practical major facilities will be constructed above the 1:100 year flood level	Design / Construction
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B288	Develop, implement and maintain a procedure to minimise the risk of drilling waste (in the form of drilling fluids and hydraulic stimulation fluids) contaminating watercourses during drilling, completion, hydraulic stimulation and workover activities	Design / Construction
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B289	Develop, implement, and maintain a waste management plan for the disposal of wastes produced as a result of drilling activities	Design / Construction
Surface Water	Surface Water chapter (Section 15.5.3), Decommissioning and Rehabilitation Section (29.7.6) and EM Plan (Appendix Z, Section Z.4.7.3)	B290	Develop a site-specific Erosion and Sediment Control Plan to include: <ul style="list-style-type: none"> <li>Localised erosion and sediment control and energy dissipation structures</li> <li>Stabilise exposed areas</li> </ul>	Design / Construction
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B291	Storage and refuelling areas to be designed to minimise the ingress of stormwater	Design
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B292	Areas of disturbed or exposed soil will be managed to reduce sediment mobilisation and erosion	Construction
Surface Water	Surface Water chapter (Section 15.5.3)	B293	Construction activities will be undertaken during the dry season where scheduling allows	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B294	Topsoil will be stockpiled away from drainage lines to reduce chances of erosion	Construction
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B295	Vegetation clearing will not be carried out during heavy rainfall	Construction
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B296	Dust suppression measures will be implemented	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B297	Vehicle wash-downs will be located away from drainage lines or watercourses	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3), Decommissioning and Rehabilitation (Section 29.7.1), and EM Plan (Appendix Z, Section Z.4.7.3)	B298	Regular inspections of pipeline and roads alignments will be undertaken to ensure that disturbed surfaces are stable and not subject to concentration of flows or erosion. Repair works will be undertaken proactively to prevent erosion from occurring or worsening	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B299	As soon as practical following pipe laying, the trench will be backfilled with excavated material, compacted and topsoil replaced and erosion controls implemented	Construction
Surface Water	Surface Water chapter	B300	Minimise potential impacts on surface waters through implementation of the	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
	(Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)		<p>following measures during construction of watercourse crossings:</p> <ul style="list-style-type: none"> <li>• Watercourse crossings should be timed to occur during the dry season during periods of low flow, where possible;</li> <li>• Construction of watercourse crossings will be conducted in the shortest possible time and in accordance with the DERM (2012a) guideline <i>Activities in a watercourse, lake or spring carried out by an entity</i> .</li> <li>• Avoid disrupting overland natural flow paths and, where avoidance is not practicable, maintain connectivity of flow in watercourses</li> <li>• Delay clearance of stream banks until the watercourse crossing is due to be constructed, to the greatest extent practicable. Implement appropriate erosion and sediment control measures on watercourse approaches and banks and ensure prompt completion of construction</li> <li>• Check for flood warnings or subscribe to flood warning services where relevant during construction of watercourse crossings</li> <li>• Construct watercourse crossings in a manner that minimises sediment release to watercourses, stream bed scouring (e.g., the crossing location will be at low-velocity, straight sections, with the pipeline or road orientated as near to perpendicular to water flow as practicable), obstruction of water flows and disturbance of stream banks and riparian vegetation (i.e., the crossing location will be at a point of low velocity, and straight sections will be targeted, with the pipeline or road orientated as near to perpendicular to water flow as practicable). Avoid, where practicable, the use of rock gabions, as they are unsuited to watercourses of the region</li> <li>• All crossings will be constructed and reinstated to ensure that flows are not impeded and water is not ponded by the crossing. Where the temporary damming of flows is necessary during construction then flow will be diverted where required to maintain flows and allow for fish movement</li> <li>• Minimise the number of channels to be crossed</li> <li>• Avoid permanent pools</li> </ul>	

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
			<ul style="list-style-type: none"> <li>• Avoid mid-channel alluvial bars and islands</li> <li>• Stockpile watercourse bed material in the watercourse channel adjacent to the construction ROW only when the watercourse is dry, and site the stockpile to avoid impacts on riparian vegetation and in-stream features</li> <li>• Retain coarse alluvial material from watercourse crossings for backfill armouring over the finer unconsolidated material</li> <li>• Stabilise watercourse crossings as soon as possible using bedrock where available</li> <li>• Rehabilitate and revegetate banks as soon as possible after construction</li> </ul>	
Surface Water	EM Plan (Appendix Z, Section Z.4.9.3)	B301	Where regulated dams are decommissioned and rehabilitated, their contents will be drained and disposed of at appropriately licensed waste facilities	Decommissioning
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B302	Temporary and permanent chemical and fuel storage areas to be appropriately bunded in accordance with relevant Australian Standards (e.g. AS 1940)	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B303	All transfers of fuels and chemicals will be controlled to prevent spillage outside bunded areas	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B304	Refuelling to occur in accordance with AS1940 at a distance of greater than 50 m from any watercourses;	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B305	All vehicles, plant and equipment to be checked regularly for fuel tank and line failures	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B306	Bunds and sumps should be frequently drained and treated/ disposed of appropriately;	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B307	Contaminants and spillages to be collected by a licensed waste collection and transport contractor for disposal at licensed facility	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B308	Contaminated soil to be removed and remediated	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B309	Spill clean-up kits in accordance with AS 1940 and AS 3780 to be located in appropriate locations, including where required inside machinery and vehicles	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B310	In the event of a spill occurring, ensure it is controlled, contained and cleaned up to prevent the mobilisation of pollutants in drainage lines or watercourses	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B311	A drilling waste management plan will be developed to ensure that drilling wastes are managed accordingly	Construction
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B312	A hydrostatic testing strategy will be developed to manage hydrotest activities	Construction / Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B313	Dust suppression water quality will meet the prescribed specification prior to use so that water does not pool on the surface, or enter surface waterways via surface runoff	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B314	Operate and maintain appropriate sediment detention measures for overland flow from disturbed areas	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B315	Undertake routine inspection and maintenance of existing erosion and sediment control measures	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B316	Design surface flows from unsealed areas to flow to adjacent grassed areas at low velocities	Design
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B318	Hazardous chemical bunds and sumps within them should be emptied after each rainfall event to maintain capacity requirements as per AS 1940. Water and oily water from fuel and oil storage areas removed from bunds and sumps should be appropriately treated and/or disposed of appropriately	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B319	Contaminants and major spills should be collected by a licensed waste collection and transport contractor for disposal at licensed facility	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B320	Spill clean-up kits are to be located in appropriate locations, based on the risk of a spill occurring and potential volume of material that might be spilled at the particular location	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B321	Workers involved in storage, handling and management of fuels and chemicals are to receive training in spill prevention and control	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B322	Instructions on spill containment and clean-up to be available at refuelling locations and in vehicles where there is a moderate risk associated with spill events	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B323	Spills are to be contained and cleaned up as soon as practical to prevent the mobilisation of pollutants in drainage lines or watercourses	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B324	Wastewater from the vehicle wash-down should be treated and recirculated for use in the wash-down facility	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B325	Establish water quality monitoring stations upstream and downstream of discharge points to watercourses as part of a monitoring program to ensure compliance with environmental authority conditions and relevant standards	Construction / Operation / Decommissioning
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B326	Design and construction supervision of regulated dam embankments undertaken by a suitably qualified and experience engineer (as defined by EHP)	Design / Construction
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B327	Rapid stabilisation of constructed regulated dam embankments through the implementation of suitable erosion controls	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B328	An Effluent Irrigation Management Plan is prepared for any effluent irrigation area	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B329	Management and maintenance of the sewage treatment plant must be carried out by suitably trained and/or qualifications to ensure the effective operation of that treatment system	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B330	Monitoring of effluent discharge points and records kept for follow up management	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B331	Treated effluent from the sewage treatment plant must only be discharged for irrigation in compliance with the requirements for Class C (refer to the DERM (2005) Queensland Water Recycling Guidelines)	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B332	Releases of effluent must not have any properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B333	Treated effluent must not be released from the site to any waters or the bed and banks of any waters	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B334	Water or storm water contaminated by sewage treatment activities must not be released to any waters or the bed and banks of any waters (i.e. effluent irrigation must not occur during rainfall events)	Construction / Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B335	When conditions prevent the discharge of the treated effluent for irrigation (such as during or following rain events), the contaminants must be directed to an emergency / wet weather storage or alternative measures must be taken to store or lawfully dispose of effluent (such as wet weather storage or tanking off site to another treatment plant or sewer)	Construction / Operation
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B336	Spill containment procedures will be implemented in response to releases of contaminated water as a consequence of pipeline failures	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3), Decommissioning and Rehabilitation (Section 29.6.7) and EM Plan (Appendix Z, Section Z.4.7.3)	B337	Implement best practice erosion and sediment control measures during decommissioning works in accordance with the requirements of the IECA (2008) <i>Best Practice Erosion and Sediment Control</i> manual	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B338	Separate clean water and impacted water from active and rehabilitated areas	Construction / Operation / Decommissioning
Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.7.3)	B339	Develop and implement a rehabilitation management plan for decommissioning which includes monitoring and maintenance of rehabilitated areas until rehabilitation is complete	Construction / Operation / Decommissioning
Surface Water	EM Plan (Appendix Z, Section Z.4.7.3)	B340	Locate Project infrastructure with consideration of downstream values.	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Surface Water	EM Plan (Appendix Z, Surface Water chapter (Section 15.5.3])	B341	Avoid permanent pools when selecting watercourse crossing points	Design / Construction
CSG Water	EM Plan (Appendix Z, Section Z.4.8.3)	B342	Identify strategies to minimise CSG water surface storage and to promote increased efficiency	Design / Construction / Operation
CSG Water	EM Plan (Appendix Z, Section Z.4.8.3)	B343	Ensure CSG water used for dust suppression on roads or for construction and operation activities is treated if required	Construction / Operation / Decommissioning
CSG Water	EM Plan (Appendix Z, Section Z.4.8.3)	B344	Develop and continually maintain the CSG water management plan throughout the Project life to optimise the investigation and implementation of the potential CSG water management options in alignment with the overall Project development	Construction / Operation / Decommissioning
Soils and Land Suitability, CSG Water, Surface Water, Groundwater and Aquatic Ecology	Surface Water chapter (Section 15.5.3), Contaminated Land chapter (Section 11.6.2) and EM Plan (Appendix Z, Section Z.4.8.3, Z.4.6.3 and Z.4.5.3)EM Plan (Appendix Z, S	B345	Incorporate into an emergency response plan or water management plan procedures for the controlled discharge of CSG water	Planning / Design / Construction / Operation / Decommissioning
CSG Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.8.3)	B346	Design discharge structures to minimise erosion of the bed and banks of the receiving waterway by implementing erosion controls, including energy dissipation structures, at discharge outlets at the point of discharge	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
CSG Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.8.3)	B347	Employ beneficial use options for CSG water wherever practical	Construction / Operation / Decommissioning
CSG Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.8.3)	B348	Undertake specific investigations to assess the assimilative capacity of the receiving environment at proposed discharge locations	Construction / Operation / Decommissioning
CSG Water	EM Plan (Appendix Z, Section Z.4.8.3)	B349	All water for discharge from site will meet approved discharged criteria	Construction / Operation / Decommissioning
CSG Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.8.3)	B350	Ensure that antiscalants or other chemicals used within the reverse osmosis process are captured within the reject waste stream	Construction / Operation / Decommissioning
CSG Water	EM Plan (Appendix Z, Section Z.4.8.3)	B351	Measure the volume and quality of treated CSG water released to surface waters on a routine basis in accordance with regulatory requirements and approved release limits	Construction / Operation / Decommissioning
CSG Water	EM Plan (Appendix Z, Section Z.4.8.3)	B352	Ensure that the quality of CSG water used for dust suppression meets the prescribed limits	Construction / Operation / Decommissioning
Dams and Groundwater	EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.6.3) and Groundwater chapter (Section 13.6.5).	B353	Consider local groundwater and surface water conditions when identifying sites for CSG water storage dams, treated water facilities and associated brine storage facilities, production facilities and related storage areas	Design / Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Dams	Surface Water chapter (Section 15.5.3)	B355	Design regulated dams in accordance with relevant legislation and Queensland standards and EHP guidelines	Design
Dams and Hazard and Risk	EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.12.3)	B356	Use an independent, suitably qualified, third party to certify that regulated dams meet the dam design plan	Design / Construction
Dams	EM Plan (Appendix Z, Section Z.4.9.3)	B357	Apply dam operation plans, which will apply for all facilities forming part of the Project development	Operation
Dams and Hazard and Risk	EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.12.3)	B358	Have in place a system for the collection and proper disposal of any contaminants that move beyond the bounds of the containment system of brine dams	Construction / Operation / Decommissioning
Dams and Hazard and Risk	Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.12.3)	B359	Develop the construction, design and monitoring requirements for new regulated dams (either raw water, treated water or brine dams) and determine the hazard category of the dam in accordance with the requirements of the most recent version of <i>Manual for Assessing Hazard Categories and Hydraulic Performance of Dams</i> (DERM, 2011b). Construct the dams under the supervision of a suitably qualified and experienced person in accordance with the relevant EHP schedule of conditions relating to dam design, construction, inspection and mandatory reporting requirements	Design / Construction / Operation
Dams and Hazard and Risk	EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.12.3)	B360	Design dams to have an egress (escape point) for wildlife	Design
Dams	EM Plan (Appendix Z, Section Z.4.9.3)	B361	Monitoring bores installed near regulated dams will have groundwater levels and electrical conductivity, TDS, EC, pH, major cations, major anions, bi-annual monitoring to allow preparation of piper plots and interpretation of results over time	Construction / Operation



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Dams	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.9.3)	B362	Stabilisation of constructed dam embankments through the implementation of suitable erosion controls (eg: hydromulch or similar)	Construction
Dams and Surface Water	Surface Water chapter (Section 15.5.3) and EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.7.3)	B363	Annual regulated dam inspections to be undertaken by a suitably qualified and experience engineer (as defined by EHP)	Operation
Dams	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.9.3 and Z.4.11.3)	B364	If the cut and fill materials from dams is contaminated, soils will be excavated and treated and disposed of as described in Section Z.4.2. of the EM Plan	Construction
Noise and Vibration	Noise and Vibration chapter (Section 22.6.2) and EM Plan Appendix Z (Z.4.10.3)	B365	Arrow will undertake the selection of locations for production facilities and wells on the basis of many criteria including environmental and engineering constraints, and the setback distances for noise will be one of them	Planning and Design
Noise and Vibration	Noise and Vibration chapter (Section 22.6.2) and EM Plan Appendix Z (Z.4.10.3)	B366	During the detailed design of the production facilities, the mitigation packages will be selected based on the attenuation required to achieve the Project criteria at the nearest receptor	Planning and Design
Noise and Vibration	Noise and Vibration chapter (Section 22.6.2) and EM Plan Appendix Z (Z.4.10.3)	B367	The noise levels from the final design will be modelled to confirm that compliance with the Project criteria is still predicted	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B368	All complaints are registered, addressed and closed out	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B369	Applicable noise and vibration levels are met at the sensitive receptor	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B370	Where noise reduction devices are deemed necessary, ensure devices (such as mufflers, low-noise fans and possibly enclosures) are fitted and work correctly	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B371	Operate equipment and handle materials in a manner that does not cause unnecessary noise (e.g., excessive revving or dropping materials)	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B372	Manage noise in accordance with the relevant EA conditions. Where night-time activities are planned (10.00 pm to 6.00 am) and are likely to exceed the prescribed noise criteria, conduct prior consultation with affected parties	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B373	Consult with those who may be affected by increased noise levels due to construction activities with particular reference to the type and timing of works	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B374	Conduct risk-based assessment or potential vibration monitoring during any construction activity that occurs within 100 m of a sensitive receptor that might be subject to vibration	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B375	Implement a grievance management system to manage noise complaints. If necessary, undertake noise monitoring of construction activities to facilitate a response to the grievance	Construction / Operation / Decommissioning
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B376	Preferential selection of sites in sparsely populated areas	Planning and Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B377	Site-specific detailed noise modelling of production facilities and the application of acoustic treatments where the modelled noise from facilities exceeds the established noise criteria at one or more sensitive receptors	Planning and Design
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B378	Consideration of intrinsically quieter equipment or design of acoustic treatments such as hospital-grade exhaust systems and mufflers, or barriers and equipment housing will be given	Planning and Design
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B379	Locate equipment associated with production wells and associated wellhead infrastructure at a distance of 70 m or more from a sensitive receptor	Planning and Design
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B380	Consider the following factors prior to any blasting operations being conducted: <ul style="list-style-type: none"> <li>• The type of rock and stratigraphy being blasted and any associated faulting</li> <li>• The distance of the blast site from sensitive receptors</li> <li>• The type, size and number of charges used</li> <li>• The depth and manner in which the charge is installed</li> <li>• The meteorological conditions</li> <li>• Methods of controlling blast noise and vibration, such as mats or smaller blasts</li> </ul>	Construction
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B381	Where practicable, schedule planned flaring events (e.g., those preceding shut-down maintenance) for the period between 6.00 am and 10.00 pm	Operations
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B382	Implement monitoring and inspection of avoidance, mitigation and management measures to ensure the residual impacts continue to be negligible throughout the lifetime of the Project	Inspection and Monitoring
Noise and Vibration	EM Plan Appendix Z (Z.4.10.3)	B383	If directed by the administering authority in response to a valid noise complaint, undertake noise monitoring in accordance with the DERM (2000) Noise Measurement Manual	Inspection and Monitoring

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B384	Solid wastes, chemicals and other wastes to be disposed or recycled at appropriate facilities in accordance with legislative requirements and the Arrow Waste Management Procedure (Arrow, 2012)	Construction / Operation / Decommissioning
Waste Management	EM Plan (Appendix Z, Section Z.4.11.3)	B385	Continuous improvement of the volume of waste generated per unit measure for each activity, with respect to proportion disposed of and proportion reused and recycled	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B386	Operations and Projects will understand their legislative requirements as they relate to waste management and update the Health, Safety and Environment compliance register as appropriate	Operation
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B387	Personnel will be trained and competent to undertake waste identification, segregation, storage and disposal activities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B388	An environmental awareness program for personnel and contractors associated with equipment or procedures specific to waste, will be conducted prior to and during activities, to discuss environmental impacts and proposed management measures to reduce waste impacts	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B389	Operations and Projects will evaluate the types and quantities of waste to be generated	Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B390	Sites will develop a plan that considers minimisation, storage, segregation, treatment, reuse, recycling and disposal. This plan will be a standalone document or part of a broader Operational EM Plan	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1), Aquatic Ecology chapter (Section 16.7.10) and EM Plan (Appendix Z, Section Z.4.11.3)	B391	Onsite waste storage areas will be developed in accordance with industry practice and relevant waste management regulations	Construction
Waste Management	EM Plan (Appendix Z, Section Z.4.11.3)	B392	Procure materials in bulk where practicable to minimise containers and movement of material	Planning and Design
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B393	Provide training in the principles of the waste hierarchy to personnel handling wastes on a regular basis	Planning and Design
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B394	As far as practical, facilities will be designed using modular components that provide the ability to reconfigure to meet site requirements and relocate facilities during the Project life to accommodate changing Project needs	Planning and Design
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B395	Waste will only be disposed of in appropriate, approved disposal sites using approved methods and contractors. Waste tracking records will be maintained, in line with legal requirements	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B396	Appropriate domestic waste storage facilities will be provided at designated work sites to assist in segregation of waste	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B397	Contaminated soil or groundwater that cannot be avoided will be managed through quantification of the type, severity and extent of contamination, and remediated or managed in accordance with the Queensland Government's <i>Draft Guidelines for the Assessment and Management of Contaminated Land 1998</i>	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B398	Liquid waste generated (other than CSG water and sewage) will be stored and periodically removed for disposal or recycling. All waste drilling fluids resulting from drilling activities will be contained in properly lined dams or storage tanks prior to re-use, recycling, treatment or disposal. Putrescible solid waste will be stored in covered containers to prevent odours, public health hazards and access by fauna	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B399	Wastewater (sewage) to be collected and transported offsite to a municipal treatment facility or treated onsite	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B400	In the majority of cases, both non-hazardous and hazardous wastes will be transported off-site for appropriate disposal. Non-hazardous may be removed from site by either Arrow staff or a contracted waste collector. These wastes should be kept segregated during transport, and disposed of at the appropriate facility	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4.1) and EM Plan (Appendix Z, Section Z.4.11.3)	B401	Hazardous and/or regulated wastes must be removed by a company that holds a current certification / licence, issued by the administering government authority to undertake removal of that particular waste. Arrow staff and contractors must always check the currency of the waste contractor's certification. Arrow staff and contractors also have duty of care to ensure that the disposal facility is also suitably licensed to receive the particular hazardous or regulated waste	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.2) and EM Plan (Appendix Z, Section Z.4.11.3)	B402	Regulated wastes will be handled, stored and disposed of in accordance with relevant standards and the Environmental Protection (Waste Management) Regulation 2008 (EP (Waste Management) Regulation). The storage of flammable and combustible liquids will be in accordance with the AS 1940: 2004 <i>The Storage and Handling of Flammable and Combustible Liquids</i> and other relevant dangerous goods standards	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.2) and EM Plan (Appendix Z, Section Z.4.11.3)	B403	Spill containment material and spill kits will be placed at designated locations. Spill response procedures will be developed and published in the Emergency Response Plan and all relevant personnel will be required to undergo spill containment and response training	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B404	Where possible, fluids will be re-used from well to well, or treated at a centralised facility for re-use; only in instances where it is not suitable for re-use or treatment, will it be disposed of at licensed facilities	Construction
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B405	Surface tank / skip storage will be provided to contain drill cuttings, drilling fluids and cement returns to minimise contamination when drilling in high quality agricultural areas	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B406	Land holders to be consulted and best practices implemented such as: use in progressive rehabilitation; respreading over disturbed land to minimise erosion; or, left onsite for habitat use. Where practicable remove material from site and reuse in other areas	Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B407	Soil to be stockpiled and used for rehabilitation onsite. Stockpiles will be located away from water sources and in clear areas	Construction / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B408	CSG water contaminated soils, CSG water filters and filter media containing solids not removed in upstream filtration processes are to be disposed to appropriate licensed landfill	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B409	Drilling fluids will typically be removed by tanker or vacuum truck either for direct re-use, or to an authorised treatment facility prior to reuse or recycling. Where reuse or recycling of drilling fluids is not practical fluids may be taken to a licensed disposal facility as a least preferred option. Drill cuttings will be reused or recycled wherever possible, with direct disposal to licenced landfill only undertaken where no other practical alternative exists	Construction
Waste Management	EM Plan (Appendix Z, Section Z.4.11.3)	B410	Waste solids will be treated and reused where possible or disposed to landfill	Construction / Operation / Decommissioning
Waste Management	EM Plan (Appendix Z, Section Z.4.11.3)	B411	Drill fluids will be reused or recycled where possible	Construction
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B412	Soil contaminated with oil or chemicals is to be left insitu or taken to a licensed waste processing facility for recycling or disposal	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B413	Used lubricating oil and filters and unused or spent chemicals to be recycled where possible and transported by a licensed contractor to an appropriately licensed waste facility for disposal	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B414	Empty drums and containers to be recycled where possible, or taken to an appropriately licensed waste facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B415	Hard waste, including excess concrete, wood pallets, scrap metal, other packaging materials to be taken to an appropriately licensed waste processing facility for recycling or disposal	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B416	Spent and unused solvents, paints and paint wastes to be transported to an appropriately licensed waste facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B417	Acids and caustics to be collected and disposed of at licensed / authorised waste facilities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B418	Paper and cardboard to be reused or recycled, where practical	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B419	General waste from workers' accommodation areas to be recycled or reused where practical and transported to a licensed waste facility	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B420	Grey water (contaminated stormwater runoff) to be either collected and treated onsite or transported offsite to a municipal treatment facility or receive onsite treatment	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B421	In instances where material and land conditions are suitable, drill cuttings may be reused by mixing with soil, aggregate or organic material for soil stabilisation or as soil conditioner to assist in the process of site rehabilitation. Where on-site re-use is not a suitable option, drill cuttings will be beneficially reused (e.g. in composting, fill material, construction material), and will only be sent for direct disposal to off-site landfill facilities where no other practical option exists	Construction
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B422	Waste that cannot be reused on site will be removed to an appropriate licensed facility. As with the production wells, waste liquids will be removed by a tanker for treatment at a nearby IPF	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B423	Hydrostatic test water to be reused in other areas or disposed of through the CSG water management system	Operation
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B424	Used chemicals and oils to be recycled where possible, or taken to an offsite licensed waste facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B425	Scrap swarf (high-definition polyethylene fillings) to be reused or recycled where possible, or taken to an offsite licensed waste facility	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B426	Debris from blow out (cleaning) of pipes to be stored in a sealed container in a bunded area or will remain in drilling pit before being transported to a licensed waste facility	Operation
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B427	Unused composite pipe and unused high definition polyethylene to be recycled where possible or disposed to an offsite licensed waste facility	Construction
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B428	Membrane modules to be collected and disposed of in an offsite regulated waste facility	Operation
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B429	Lead acid batteries to be recycled or transported to an offsite regulated facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B430	Concrete waste to be reused or recycled where possible	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B431	Domestic wastes such as general wastes (office consumables, paper, plastic, glass, etc.), kitchen refuse, garden waste, packing waste (cardboard, plastic, wood pallets, etc.) to be reused or recycled where possible. Otherwise transported offsite to a licensed waste disposal facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B432	Wooden pallets, formwork to be reused or recycled where possible, otherwise transported offsite to a regulated waste disposal facility	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B433	Glass, reinforced plastic pipe offcuts to be reused or recycled where possible, otherwise transported offsite to a regulated waste disposal facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B434	Oily rags and sorbents to be transported offsite to a regulated waste disposal facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B435	Packaging materials (cardboard, styrofoam, plastic wrappers, bunting, lining, end caps, containers) to be reused or recycled where possible, otherwise transported offsite to a regulated waste disposal facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B436	Plastic pipe offcuts / scrap, electric cable waste to be reused or recycled where possible, otherwise transported offsite to a regulated waste disposal facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B437	Spent filter media bulk bags to be transported offsite to a regulated waste disposal facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B438	Steel offcuts and scrap metal to be reused or recycled, where practical	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B439	Crystallised salt to be transported offsite to a regulated waste disposal facility unless an alternative can be found	Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B440	Rubber and tyres to be reused where possible. Collected for removal by licensed transporter for processing at a licensed facility for recycling or disposal	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B441	Anti-seize compounds to be collected and disposed of in regulated waste facilities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B442	Domestic cleaning products to be collected and disposed of in regulated waste facilities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B443	Fuels to be reused, recycled or collected and disposed of in regulated waste facilities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B444	Greases and oils to be reused, recycled or collected and disposed of in regulated waste facilities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B445	Triethylene glycol to be reused or collected and disposed of in a regulated waste facility	Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B446	Contaminated stormwater runoff to be collected and treated within the wastewater treatment system	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4)	B447	Lube oil to be collected and disposed of in an offsite regulated waste facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B448	Oil entrained in the compression process to be reused, recycled or collected and disposed of in regulated waste facilities	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B449	Paint waste to be collected and stored onsite for reuse, where possible, or transported offsite to a licensed regulated waste facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B450	Reverse osmosis treatment chemicals to be collected, piped and stored in a suitable dam	Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B451	Waste or wash out liquids to be reused or removed by licensed tanker or carrier to a licensed commercial waste facility	Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B452	Wastewater (sewage) to be collected and transported offsite to a municipal treatment facility or treated onsite	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B453	A specific waste management plan will be developed to guide waste management during decommissioning	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B454	Construction debris, chemical / oil contaminated soil and sludge to be recycled or reused where possible or taken to an offsite licensed waste facility	Construction
Waste Management	EM Plan (Appendix Z, Section Z.4.11.3)	B455	Electrical cables to be abandoned or stored for recycling or reused where possible, or taken to an offsite licensed waste facility	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B456	Fencing to be left in consultation with landowners or stored for reuse (some excess pipe is maintained for future maintenance and repair requirements) or collected for disposal to licensed landfill	Decommissioning
Waste Management	Waste Management chapter (Section 28.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B457	Gas compressors, low pressure high-density polyethylene gas pipelines, medium pressure gas pipelines, production well heads, power generators, pumps, sewage treatment plant and tanks and storage tanks to be abandoned or stored for reuse (some excess pipe is maintained for future maintenance and repair requirements), or collected for disposal to licensed landfill	Decommissioning
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B458	Onsite waste monitoring and auditing procedures will be developed	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.3) and EM Plan (Appendix Z, Section Z.4.11.3)	B459	In compliance with the legislative requirements on the movement of trackable waste within, into or out of Queensland under Part 4 of the EP (Waste Management) Regulation, all waste produced during the construction, operation and abandonment phases of the Project will be recorded and tracked	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B460	Monthly waste generation and management performance shall be benchmarked against that of other facilities and those within the same industry reported to the Department Manager, and used to promote continual improvement	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B461	Inspection and monitoring of avoidance, mitigation and management measures will be implemented to ensure the residual impacts continue to be low throughout the lifetime of the Project	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B462	Inspection will be undertaken regularly to ensure mitigation measures are effective and to intervene early, rather than monitor or inspect the effect of the impact	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B463	Maintain a waste stream inventory identifying the type, classification, storage, transport and disposal requirements for the waste	Construction / Operation / Decommissioning
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B464	Inspect waste storage locations to ensure waste management measures are being adhered to	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Waste Management	Waste Management chapter (Section 28.4.4) and EM Plan (Appendix Z, Section Z.4.11.3)	B465	Maintain a waste tracking system	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B466	The risk of loss of containment from process equipment and pipelines will be managed through Arrow's Asset Integrity and Process Safety framework	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B467	The design, construction and operation of regulated dams will be highly regulated through the use of standards and monitoring requirements	Design / Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B468	Each dam will be subject to separate approvals by the regulating authority; each approval will require the incorporation of general and specific controls to avoid, mitigate or manage threats associated with flooding	Design
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B469	Design and size dams to account for predicted flood conditions	Design
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B470	Fences and escape facilities will be installed to prevent access and harm to people or livestock	Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk and Terrestrial Ecology	EM Plan (Appendix Z, Section Z.4.12.3 and Z.4.12.3)	B471	Develop fire plans for production facilities	Design / Construction / Operation / Decommissioning
Hazard and Risk and Roads and Transport	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3 and Z.4.15.3)	B472	Implement an in-vehicle monitoring system for Project vehicles	Planning / Design / Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B473	Prepare Project safety management plans for the construction, operations and decommissioning of the infrastructure that form part of the present development	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6) and EM Plan (Appendix Z, Section Z.4.12.3)	B474	Implement Arrow's HSEMS for all activities and phases of development	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B475	Conduct appropriate safety reviews during design of new and modified facilities, including the use of hazard and risk assessment processes. Base safety reviews on well-recognised methodologies, e.g., hazard and operability studies and AS 2885	Design / Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B476	Select locations for Project infrastructure with full consideration of and allowance for the minimum buffer zones indicated by the quantitative risk assessment	Design
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.3.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B477	Design and construct Project infrastructure and facilities in accordance with applicable codes and standards	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.1) and M Plan Appendix Z (Section Z.4.12.3)	B478	Facilities will be designed with the ability to shut down and be isolated in preparation for impending bushfires	Design
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B479	Design and install combustion sources (such as generators and gas-fired compressors) on Arrow facilities in accordance with engineering codes and standards, thus ensuring they will have safety mechanisms built-in	Design / Construction /
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.7) and EM Plan (Appendix Z, Section Z.4.12.3)	B480	Arrow will develop emergency response plans in consultation with emergency services organisations that includes a list of required equipment, training and other resources, and foreseeable emergency and crisis situations (including escapes, blowouts, gas fire, bushfire, critical equipment failure, trapped or missing people, flooding, cyclones, power failure, security incidents and threats, and transport incidents). The plans will include safe evacuation procedures, communication protocols (internal and to emergency services, including the Petroleum and Gas Inspectorate), accounting for personnel and visitors, roles and responsibilities, and requirements for training	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B481	Design all pipes and vessels to cope with maximum expected pressure	Design
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B482	Consider installing flow and pressure instrumentation to transmit upset conditions and plant shutdown valves status, where necessary	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B483	Consider remote-control isolation on gas and water lines	Design / Construction / Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B484	Design equipment to withstand considerable heat load, e.g., through use of heat resistant (fire-safe) isolation valves on production facilities	Design
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B485	Design radiation exclusion zones around flares according to API standard	Design
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B486	Register pipelines and below-ground electrical services with Dial Before You Dig	Construction
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.5.3) and EM Plan (Appendix Z, Section Z.4.12.3)	B487	Minimise enclosed spaces where flammable gas may accumulate	Design / Construction
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.6) and EM Plan (Appendix Z, Section Z.4.12.3)	B488	Emergency shutdown valves will be installed on pipelines so that their exposure to facility incidents is minimised	Design / Construction
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.1) and EM Plan (Appendix Z, Section Z.4.12.3)	B489	Arrow will manage flooding risk through site location and drainage, particularly for production facilities	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B490	Design appropriate drainages for waste spills within chemical bunds	Design
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B491	Apply dam safety guidelines, which will apply for all facilities forming part of the Project development	Design / Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B492	Production wells will be designed and constructed so that the well is cased or concreted through aquifers other than the coal seam to prevent transmission of water and gas between strata	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B493	To reduce mosquito breeding in dams, dams and dam inner banks will be maintained so that they are as free of vegetation as practicable	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6) and EM Plan (Appendix Z, Section Z.4.12.3)	B494	Implement Arrow's HSEMS for all activities and phases of development	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.3.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B495	Consider the Australian Pipeline Industry Association <i>Construction Health and Safety Guidelines</i> (APIA, 2008) for pipeline construction and development of Construction Health and Safety Plan	Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B496	Conduct pre-job safety meetings prior to the start of and during construction activities	Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B497	Perform blowout of pipes and equipment, to remove construction debris, using well-established procedures and under strict controls, including those detailed in risk assessments	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6) and EM Plan (Appendix Z, Section Z.4.12.3)	B498	Develop an integrated risk management plan (in alignment with the relevant NSW Department of Primary Industries hazardous industry planning advisory paper)	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B499	Install, inspect and service fire-fighting equipment in accordance with risk assessments and relevant legislation and standards	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.3) and EM Plan (Appendix Z, Section Z.4.12.3)	B500	Implement transport-related safety programs, including driver training, journey management plans and preventative maintenance programs of vehicles	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B501	Develop and implement safety training programs for personnel and contractors, including induction training of new starters	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B502	Conduct pressure testing and inspection of equipment and pipelines in accordance with relevant legislative requirements and standards	Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B503	Bury gathering lines at a minimum depth of 600 mm. Where gathering lines are present above the ground (at wellheads and at vents or drains), maintain a clear area. The size of the cleared area will be determined on a site-by-site basis with consideration of the site-specific risk of bushfire	Construction
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.2) and EM Plan (Appendix Z, Section Z.4.12.3)	B504	Install isolation valves on pipelines in accordance with relevant standards and industry practices	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B505	Commission fire-safety equipment in the early phase of the construction period	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B506	Fit all buildings and production facilities with smoke or fire alarms	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B507	Fit pumps with automatic pump shutdown or other safety devices to prevent leak in case of pumping against a blockage	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B508	Install fire and gas detection systems to shutdown compressors	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B509	Implement security controls e.g. fencing and locked gates	Design / Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B510	Install lightning mast and earthing grid to minimise risk of lightning strike at production facilities	Design / Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B511	Machine guard all rotating equipment in accordance with Australian standards	Design / Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B512	Where necessary, automate emergency shutdown systems at production facilities and, if necessary, include remote monitoring and control	Design / Construction / Operation
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.7) and EM Plan (Appendix Z, Section Z.4.12.3)	B513	Develop and implement incident reporting, emergency response and corrective action systems or procedures. Include systems for reporting, investigation and communications of lessons learned	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B514	To reduce mosquito breeding in dams, dams and dam inner banks will be maintained so that they are as free of vegetation as practicable	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B515	Establish overflow and operational controls in accordance with the dam operating plan	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B516	Inspect and maintain dam integrity	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.5) and EM Plan (Appendix Z, Section Z.4.12.3)	B519	Conduct systematic risk assessments (which include hazard identification, assessment, treatment and monitoring) in accordance with relevant legislation and standards during design, construction and operations	Design / Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B520	Implement a permit to work system that includes a job safety analysis process	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B521	Implement management of change processes, including protocols for communication of changes to appropriate levels of management	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B522	Implement internal and external (independent) hazard audit programs	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B523	Communicate results from audit to management	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B524	Barricade fall points and use personal fall-arrest equipment and wrist straps and lanyards to secure tools when working at heights	Construction / Operation / Decommissioning



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B525	Use whip check or safety chain and tie downs (or equivalent) on all high-pressure lines and pressurised air hoses	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B526	Wear appropriate personal protective equipment on a site- and duty-specific basis	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B527	Where applicable, establish blowout preventer and other well control measures	Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B528	Certify all equipment for drilling, where applicable	Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B529	Ensure equipment and vehicle operators are licensed	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B530	Prepare a risk control action plan as part of the safety assessment process	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B531	Purge equipment of oxygen prior to introducing flammable gas	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B532	Purge equipment after shutdowns	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B533	Develop protocols for the control of operational activities during extreme fire danger periods, e.g., flaring or shutdowns	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B534	Consider non-static protective clothing for operations personnel	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B535	Establish lone-worker protocols and communication	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B536	Conduct regular patrols and inspections of pipeline easements, including status of signposting subsidence and of fire breaks	Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B537	Automate the chemical dosage system for water treatment at integrated processing facilities	Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B538	Consider the use of non-toxic gases for water treatment if gases are used	Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B539	Ensure operator supervision for unloading of hazardous materials at production facilities	Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B540	Provide escape ropes and ladders at strategic locations within a dam	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B541	Use suitably trained and supervised staff or contractors to carry out depressurising and purging activities	Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.4) and EM Plan (Appendix Z, Section Z.4.12.3)	B542	<p>Ensure all personnel are familiar with Arrow's 12 Life Saving Rules, which embed safe practices in the day-to-day activities of the workforce. The rules encompass the following controls:</p> <ul style="list-style-type: none"> <li>• All staff to work with a valid permit where required;</li> <li>• Gas tests to be conducted where required</li> <li>• Verification of isolation prior to work commencing and use of specified life protecting equipment</li> <li>• Authorisation to be obtained prior to entering a confined space</li> <li>• Authorisation to be obtained prior to overriding or disabling any critical safety equipment</li> <li>• All persons to protect themselves against a fall when working at a height;</li> <li>• No walking under a suspended load</li> <li>• No smoking outside designated areas;— No alcohol or drugs while working or driving</li> <li>• No phones to be used while driving and speed limits not to be exceeded</li> <li>• Seat belts to be worn at all times</li> <li>• Prescribed journey management plan to be followed</li> </ul>	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.1) and EM Plan (Appendix Z, Section Z.4.12.3)	B543	Train relevant personnel in the identification and avoidance of potentially hazardous wildlife. Use qualified handlers to move wildlife from Project areas when encountered	Construction / Operation / Decommissioning
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.4.1) and EM Plan (Appendix Z, Section Z.4.12.3)	B544	Vegetation surrounding production facilities and wellheads will be maintained in a manner that limits the amount of combustible material in the area. The size of the cleared area will be determined on a site-by-site basis with consideration of the site-specific risk of bushfire	Operation

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B545	Install manual isolation valves at the production well and skid edge	Construction
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B547	Keep access tracks to well sites clear of dry grass and combustible material wherever practicable and where there is a higher risk of bushfire (to minimise the risk of dry grass being ignited by hot components of vehicles accessing the sites)	Construction / Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B548	Daily operations will be managed with consideration of the fire danger current at that time	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B549	Implement a decommissioning and rehabilitation plan in accordance with the dam design plan	Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B550	Develop rig move plans	Construction / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B551	Depressurise and degas all plant and equipment in flammable-gas use prior to decommissioning	Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B552	Implement the dam operating plan	Operation
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B553	Schedule inspections and develop a monitoring program to ensure that the safety management systems are functioning properly and that it is appropriate to the hazards identified	Construction / Operation / Decommissioning
Hazard and Risk	EM Plan (Appendix Z, Section Z.4.12.3)	B555	Have a suitably qualified person routinely monitor the integrity and available storage of dams	Construction / Operation
Hazard and Risk	Preliminary Hazard and Risk chapter (Section 27.6.1) and EM Plan (Appendix Z, Section Z.4.12.3)	B556	The Project HSEMS will detail the requirements for monitoring, measurement and reporting of health, safety and environmental performance	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Indigenous Cultural Heritage	EM Plan (Appendix Z, Section Z.4.13.3)	B557	Negotiate CHMPs with the Aboriginal Parties, based on the avoidance / manage / mitigate principle	Design / Construction
Indigenous Cultural Heritage	Indigenous Cultural Heritage chapter (Section 25.6) and EM Plan (Appendix Z, Section Z.4.13.3)	B558	Maintain a GIS database of sites of Indigenous cultural heritage that are known or found during the course of investigations and works (where Aboriginal parties allow the listing of the sites)	Construction / Operation / Decommissioning
Indigenous Cultural Heritage	EM Plan (Appendix Z, Section Z.4.13.3)	B559	Ensure site inductions provide cultural heritage awareness for places and objects (to avoid) and the appropriate procedures to follow should there be any new discoveries	Construction / Operation / Decommissioning
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B560	Avoid known cultural heritage sites, where practicable, through site selection	Design / Construction
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B561	Develop a cultural heritage management plan in consultation with the Queensland Heritage Office prior to commencement of ground disturbance works that will mitigate and manage potential impacts on non-Indigenous cultural heritage sites. This plan will include detail on legislative reporting requirements of the <i>Queensland Heritage Act 1992</i>	Design / Construction
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B562	Conduct pre-construction clearance surveys of sites to identify the presence of heritage sites	Design / Construction

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B563	Notify the Queensland Heritage Office if any cultural heritage sites or items of significance are uncovered during construction	Construction / Operation / Decommissioning
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B564	Take particular care to ensure buffers are adequately delineated when working in areas where significant heritage places are located within 500 m of proposed wells, pipelines or other infrastructure	Construction / Operation / Decommissioning
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B565	Develop a 'chance-find' procedure for the discovery of unknown heritage places during construction as part of the cultural heritage management plan. This will include: <ul style="list-style-type: none"> <li>• A stop work requirement on initial discovery</li> <li>• Appropriate reporting and recording</li> <li>• Archaeological assessment by a qualified heritage practitioner</li> <li>• Avoidance or salvage</li> </ul>	Design / Construction
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B566	Consult with the local community regarding the management of threatened historic sites and places	Design / Construction / Operation / Decommissioning
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B567	Incorporate cultural heritage awareness into site induction procedures, including information on heritage values of the region, legal obligations and implementation of the 'chance-find' procedure	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.5) and EM Plan (Appendix Z, Section Z.4.14.3)	B568	Maintain a database of all sites where non-Indigenous cultural heritage is known or found during the course of investigations and works	Construction / Operation / Decommissioning
Non-Indigenous Cultural Heritage	Non-Indigenous Cultural Heritage chapter (Section 26.7) and EM Plan (Appendix Z, Section Z.4.14.3)	B569	Inspect known non-Indigenous sites identified as having the potential for being impacted by the Project and subsequently acknowledged for avoidance, in accordance with the relevant approval and permit conditions, including the CHMP	Design / Construction
Roads and Transport	Roads and Transport chapter (Section 21.10) and EM Plan (Appendix Z, Section Z.4.15.3)	B570	<p>A RUMP will be prepared to manage and mitigate the risks and impacts of any transport related issues. The RUMP will evolve as detailed design and operation details are finalised, however an outline of the components that the RUMP should include are as follows:</p> <ul style="list-style-type: none"> <li>• A strategy to safely manage road usage by construction vehicles</li> <li>• Interaction of Project vehicles with school bus routes</li> <li>• Interaction between stock and freight routes</li> <li>• Detail safe driver behaviour and fatigue management protocols</li> <li>• Consideration of specific requirements for over dimensional vehicles</li> <li>• Interaction between Project traffic and at grade road / rail crossings</li> <li>• Dust mitigation strategy</li> <li>• Detail road maintenance and/or road upgrade requirements</li> <li>• Liaise with relevant stakeholders</li> <li>• Define community engagement strategies</li> <li>• Suitability of existing road infrastructure</li> </ul>	Design / Planning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B571	Assess and identify works required to manage the increased traffic volumes and road safety issues associated with the Project in road use management plans prepared and regularly reviewed in consultation with the relevant council TMR	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B572	Assess and identify the need to upgrade unsealed roads or widen sealed roads where Project activities and traffic will create road safety issues. Such works will be done in consultation with the relevant council (if a local government road) or TMR (if a state road)	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B573	Undertake threshold assessments to determine whether upgrading of rail crossings is warranted	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B574	Implement driver training and fatigue awareness for employees and contractors	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B575	Schedule roster changes to avoid peak traffic times	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B576	Develop Project logistics plans to provide safe movement of people and materials, as well as to minimise traffic volumes	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B577	Develop journey management plans in consideration of high-risk roads	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B578	Use heavy-vehicle routes that avoid unsuitable bridges	Design / Planning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B579	Where assessed necessary, provide protected turning lanes for entry to permanent facilities to address road safety issues	Construction
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B580	Ensure access driveways to Project facilities and infrastructure have appropriate sight distances	Construction



## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Roads and Transport and Landscape and Visual Amenity	EM Plan (Appendix Z, Section Z.4.15.3 and Z.4.3.3)	B581	Maintain the integrity of private roads and tracks and minimise dust generation, where appropriate, in consultation with relevant landowners and council	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B582	Confine Project traffic to designated roads and access tracks, where practicable	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B583	Limit Project traffic on school bus routes during pick-up and drop-off times on school days or install appropriate school bus infrastructure, e.g., signage or pullover areas where necessary	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B584	Make workers aware of school bus routes, as well as typical pick-up and drop-off times in the vicinity of the work sites	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B585	Coordinate with local law enforcement for movement of heavy or oversized loads	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B586	Implement journey management plans	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B587	Manage Project-related activities in the vicinity of existing stock routes in accordance with the <i>Land Protection (Pest and Stock Route Management) Act 2002</i>	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B588	Routinely monitor integrity and amenity on Project-related roads	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B589	Monitor compliance with the Project's road safety requirements through regular review of reports generated by the in-vehicle monitoring system	Construction / Operation / Decommissioning
Roads and Transport	EM Plan (Appendix Z, Section Z.4.15.3)	B590	Conduct regular safety inspections of Project vehicles	Construction / Operation / Decommissioning
Decommissioning and Rehabilitation	Decommissioning and Rehabilitation chapter (Section 19.7.10) and EM Plan (Appendix Z, Section Z.5.5)	B591	Monitoring of the rehabilitated areas will be undertaken to identify whether the general objectives of the rehabilitation strategy are being met, and whether a sustainable and stable landform has been achieved. Monitoring will be conducted by suitably skilled and qualified persons at representative locations. Annual reviews of monitoring data will be conducted during operations, and post closure, to assess trends and performance	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B592	A final rehabilitation report and a decommissioning plan, including a contaminated land assessment where required, landowner commitments and agreements, and rehabilitation status, will be prepared and submitted to the appropriate authorities for approval	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B593	Corrective actions will be undertaken in accordance with the outcomes of incident investigations, audits, monitoring results or advice given by the relevant regulatory authority	Decommissioning
Decommissioning and Rehabilitation	Decommissioning and Rehabilitation chapter (Section 29.7.1)	B594	The area disturbed within the pipeline corridor during the laying of the pipelines will be progressively rehabilitated as soon as practicable after completion of the pipeline installation. Fences, roads and tracks and other existing infrastructure impacted during construction of the pipeline will be repaired and/or replaced as required	Decommissioning
Decommissioning and Rehabilitation	Decommissioning and Rehabilitation chapter (Section 29.7.1)	B595	Where required, rehabilitation will occur in consultation with the relevant landholders	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B596	Infrastructure decommissioned in accordance with the relevant regulatory standards to prevent gas and water leakage	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B597	Statutory signposts installed to mark the location of decommissioned wells	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B598	Wells decommissioned in accordance with the relevant regulatory standards to prevent groundwater mixing and future leakage to groundwater systems	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B599	Gathering lines decommissioned in accordance with the relevant regulatory standards to prevent gas and water leakage into the ground	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B600	Contents of gathering lines collected to prevent discharge to receiving environment	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B601	Solid or liquid wastes associated with facilities collected and removed to licenced waste or recycling facilities	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3 and Z.5.1.5)	B602	Any contaminated land remediated to appropriate human health and environmental standards	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3)	B603	Former wellheads reduced to as small as practicable, with ground surface shaped to promote natural drainage patterns and limit pooling of surface water	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3 and Z.5.5)	B604	Any underground infrastructure filled with an inert substance to prevent subsidence, where applicable	Decommissioning
Decommissioning and Rehabilitation	Decommissioning and Rehabilitation (Section 29.7.6) and EM Plan (Appendix Z, Section Z.5.4.3)	B605	Soil ripped or scarified by another suitable technique in highly trafficked areas to promote free drainage	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Decommissioning and Rehabilitation	Rehabilitation and Decommissioning (Section 29.7.7) and EM Plan (Appendix Z, Section Z.5.4.3 and Z.5.5)	B606	A suitable vegetation cover to enable natural vegetation progression and minimal weed invasion	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4.3 and Z.5.5)	B607	Ground conditions conducive to natural regeneration	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B608	Where dams are removed, any waste will be managed appropriately	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B609	Brine residue will be managed in accordance with the Brine & Salt Management Plan	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B610	Former dam backfilled and ground surface reshaped to promote natural drainage patterns and limit pooling of surface water	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B611	Modular infrastructure removed from the site and reused elsewhere	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B612	Borrow pits contoured to establish a stable landform	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B613	If appropriate, permanent office infrastructure left in place for continued operation or third-party use	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B614	Solid or liquid wastes associated with accommodation camps collected and removed to licensed waste facilities or managed appropriately	Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B615	Former disturbance area reduced to as small as practicable, with ground surface shaped	Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.5)	B616	Excavate any saline waste material during rehabilitation of CSG water dams or brine dams and select an appropriate option for management for the material (e.g., treat for reuse, or dispose of in a registered landfill)	Decommissioning
Economic	Economic chapter (Section 23.8)	B617	Encourage contractors engaged by the Project to use Australian and Queensland government skills and training programs where possible, including the apprenticeship programs	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B618	Continue working with Construction Skills Queensland to identify potential strategies for increasing the capacity of local job seekers to develop appropriate skills for construction	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B619	Collaborate with other CSG proponents and Energy Skills Queensland to identify opportunities for securing funding through the Skills Queensland Strategic Investment Fund	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B620	Continue to support programs such as the CSG / LNG Industry Training Program to develop CSG industry skills in the local workforce	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B621	Collaborate with state government, local councils, local industry, industry organisations, and CSG proponents to develop programs and strategies aimed at addressing issues of skill retention and back-filling vacancies as a result of labour being drawn to the Project from other sectors	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B622	Inform local business of the goods and services required of the Project, service provision opportunities and requirements of business to secure contracts	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B623	Establish and implement a local business development strategy that assists qualified local and regional businesses to tender for provision of goods and services that support the Project	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Economic	Economic chapter (Section 23.8)	B624	Develop and implement a local industry participation plan, including the development of relevant networks to assist qualified local and regional businesses tender for provision of goods and services to support the Project. The benefits of such a network could be enhanced where all CSG proponents in the Catchment Area participate, linking the CSG industry to local service providers through a common pathway such as a web portal operated by relevant economic or industry organisations	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B625	Examine options for establishing a local cooperative service or network/ alliances to connect local business and enable collaboration in meeting service supply requirements of the CSG industry	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B626	Inform local councils, economic development organisations, the Industry Capability Network and state government of goods and services required by the Project that are not currently available or under-serviced from within the Catchment Area	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B627	Where suitable proponent-owned land is available, consider leasing to farmers to support agricultural production of that land	Operation
Economic	Economic chapter (Section 23.8)	B628	Consult with landowners on the most appropriate method to minimise disruption (including the introduction of additional headlands) to cultivation paddocks, and loss of productive land in controlled traffic paddocks	Design / Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B629	Work with landholders to configure well development plans to minimise impacts on prime agricultural land to the extent practical, including placement of gas wells and infrastructure in areas that avoid high quality agricultural land to the extent practical and possible	Design
Economic	Economic chapter (Section 23.8)	B630	Negotiate and provide appropriate compensation for landholders where impacts cannot be avoided. This will also provide funds to allow farmers to re-adjust their farm models to increase productivity, to some extent offsetting the decline associated with the Project	Design

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Economic	Economic chapter (Section 23.8)	B631	Ensure all disturbed land is rehabilitated as appropriate when gas facilities are decommissioned	Decommissioning
Economic	Economic chapter (Section 23.8)	B632	Consider building construction worker camps prior to construction of production facilities	Construction
Economic	Economic chapter (Section 23.8)	B633	Accommodate workers required to construct camps in temporary accommodation wherever possible	Construction
Economic	Economic chapter (Section 23.8)	B634	Maintain dialogue with construction industry bodies, state government and local councils regarding timing and scale of anticipated worker accommodation requirements	Construction
Economic	Economic chapter (Section 23.8)	B635	Inform relevant councils, state government departments, local businesses and industry of goods and services needs of the Project to allow appropriate planning and release of required industrial and commercial land	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B636	Collaborate with state government and local councils to assess the suitability of current planning arrangements to handle a likely increase in demand for industrial and commercial developments, and position themselves to reduce response times to planning applications, particularly as the number of planning applications is likely to increase	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B637	Inform local councils of anticipated increases in demands on roads and other transport infrastructure from the Project, and identify appropriate contributions for upgrades and maintenance	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.8)	B638	Identify and communicate anticipated population growth and associated infrastructure requirements and impacts as early as possible to relevant government authorities	Construction / Operation / Decommissioning

## Appendix D Commitments Summary

Environmental Value	Chapter and Section	Commitment Number	Commitment	Relevant Phase
Economic	Economic chapter (Section 23.8)	B639	Provide information as needed to enable relevant government authorities to investigate and develop anticipated cost estimates to provide social and economic infrastructure required to meet demand generated by the Project, and identify appropriate cost recovery strategies for developing this infrastructure	Construction / Operation / Decommissioning
Economic	Economic chapter (Section 23.9)	B640	Monitoring and inspection of avoidance, mitigation and management measures will be implemented to ensure the impacts and residual risks continue to be low throughout the lifetime of the Project. Monitoring will also be undertaken to demonstrate achievement of objectives	Construction / Operation / Decommissioning
Decommissioning and Rehabilitation	EM Plan (Appendix Z, Section Z.5.4)	B641	Appropriate erosion control methods implemented to ensure sites do not erode during the period of establishment of vegetation cover.	Decommissioning