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# COMMITMENTS UPDATE

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# Appendix P Commitments Update

This appendix of the Supplementary Report to the Environmental Impact Statement (SREIS) provides an update to the comprehensive list of commitments presented in the Commitments Summary (Appendix D) of the Bowen Gas Project (the Project) Environmental Impact Statement (EIS).

The Commitments Summary (Appendix D) of the EIS collated all of the (avoidance, mitigation, management, inspection and monitoring) commitments made in the impact assessment chapters of the EIS (i.e., Sections 8 to 31), where each commitment was allocated a unique identifier (e.g., [B001]).

These commitments were based on the proposed activities to be undertaken and considered individual specialist studies (as provided in the EIS technical reports), Arrow's knowledge of the Project area and the information available at the time this SREIS was submitted.

Commitments that relate to the social environment were included in the Social Impact Management Plan (SIMP) (Appendix V) of the EIS, and will be also included in the SIMP (Appendix N) of the SREIS, not this commitment summary.

The SREIS has identified additional commitments to those presented in the EIS. New and revised commitments presented in this update have resulted from changes made to the project description since the EIS was finalised and the decision to further clarify the intent of a commitment (e.g., through the consolidation of similar commitments to avoid inconsistent wording).

Commitment wording retained from the EIS is shown in Table 1 in black text and new commitments are shown in red text. The unique commitment numbering used in the EIS has been retained for ease of reference to the EIS commitment numbers. Where words have been added to the original EIS commitments, the text is also presented in red colour. Original commitment wording that is no longer relevant is shown with a strike through the text.

# Appendix P Commitments Update

## Table 1 Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Air Quality | 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 | 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 | 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 | B004 | Select equipment with consideration for low emissions to air (NOx, SOx), high energy efficiency and fuel efficiency | Construction / Operation | |
| Air Quality | B005 | Design facilities to meet relevant EPP (Air) objectives at sensitive receptors | Construction / Operation | |
| Air Quality | B006 | Minimise fuel consumption of vehicles by optimising transport logistics | Design | |
| Air Quality | B007 | Select gaskets, seals and vehicle exhaust systems that are suitable for the task | Design / Construction | |
| Air Quality | B008 | Arrow will develop a greenhouse gas management plan that will take into account both biodiversity and economic values of carbon | Construction / Operation | |
| Air Quality | B009 | Consider energy efficiency programs both locally and across the company that contribute to greenhouse gas emission reductions | Construction / Operation | |
| Air Quality | B010 | Arrow will participate actively in any government-approved emissions trading scheme | Operation | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Air Quality | 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 | 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 | 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 | B014 | Implement dust suppression measures for roads and construction sites to ensure that dust does not cause a nuisance | Construction / Operation | |
| Air Quality | B015 | Cover dust-generating materials prior to transportation | Construction | |
| Air Quality | B016 | Consult with potentially affected landowners prior to undertaking activities | Design / Construction | |
| Air Quality | B017 | Minimise the disturbance footprint and vegetation clearing | Design / Construction | |
| Air Quality | 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 | B019 | The number and sizes of stockpiles will be kept to minimum | Construction | |
| Air Quality | 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 | B021 | The cleared areas and stockpiles will be progressively rehabilitated through revegetation and/or mulching | Construction / Operation / Decommissioning | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Air Quality | 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 | |
| Air Quality | B023 | Ensure that odour emissions are considered during design to prevent nuisance or harm to sensitive receptors | Operation | |
| Air Quality | 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 | B025 | Minimise potential fugitive emissions from construction and operation of production wells and gas production infrastructure | Construction / Operation | |
| Air Quality | B026 | Use of low NOx equipment, where practical | Operation | |
| Air Quality | B028 | Minimisation of emissions from gas dehydration | Operation | |
| Air Quality | 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 | |
| Air Quality | B030 | Implementation of a quantifiable monitoring and measuring program | Operation | |
| Air Quality | B031 | Use of efficient gas and water separation methods on wellheads, gathering and process facilities to minimise fugitive gas release | Operation | |
| Air Quality | 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 | B033 | Clear areas progressively and implement rehabilitation as soon as practicable following construction and decommissioning activities | Construction / Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Air Quality | B034 | During the decommissioning phase, minimise greenhouse gas emissions by optimising transport logistics and minimising the footprint of disturbance | Decommissioning | |
| Air Quality | B035 | Assess the energy-efficiency opportunities and estimate greenhouse gas emissions associated with the Project in accordance with regulatory requirements. Calculate annual greenhouse gas emission s required under the National Greenhouse and Energy Reporting Act 2007 (Cwlth) (NGER Act) and Energy Efficiency Opportunities program, as well as future carbon price mechanisms | Construction / Operation / Decommissioning | |
| Air Quality | 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 | 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 | Amended to clarify intent |
| Air Quality | 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 | ~~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 | Deleted as commitment intent is included in B644 |
| Soils and Land Suitability | ~~B039~~ | ~~CSG structures and associated in-field gas / water pipeline facilities will be designed and constructed in accordance with AS1170.4:2007~~ | Design / Construction | Deleted as commitment is not called for under impact assessment. However, legislative requirements will be met |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | 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 | |
| Soils and Land Suitability | 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 | B042 | Appropriately stockpile topsoil and associated vegetation separately for rehabilitation prior to excavation or earthworks | Construction | |
| Soils and Land Suitability | 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 | B044 | Ensure sub-surface infrastructure does not impact on surface features or processes | Design / Construction | |
| Soils and Land Suitability | B045 | Prevent subsurface water flows and erosion | Design / Construction | |
| Soils and Land Suitability | B047 | Minimise land disturbance with the smallest practical area of land being disturbed in the shortest practicable time | Construction | |
| Soils and Land Suitability | 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 | B049 | Establish clear delineation of disturbance boundary limits of works prior to commencement of clearing and soil stripping | Construction | |
| Soils and Land Suitability | B050 | Planning of all operations to ensure minimal damage on any vegetation, cropping or pasture areas outside the limits to be cleared | Construction | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | B051 | Strip soil according to designated profile depths, subject to further field investigations during stripping | Construction | |
| Soils and Land Suitability | 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 | B053 | Separation of soils into windrows for later collection or re-spreading to minimise compression effects of heavy equipment | Construction | |
| Soils and Land Suitability | 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 | 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 | |
| Soils and Land Suitability | 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 | B057 | For long term soil stockpiling, seed and fertilise stockpiles as soon as possible | Construction / Operation / Decommissioning | |
| Soils and Land Suitability | B058 | Subsoil and topdressing will be spread to depths dependent on target land suitability | Construction / Operation / Decommissioning | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | 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 | |
| Soils and Land Suitability | B060 | Minimise vegetation clearing and land disturbance | Construction | |
| Soils and Land Suitability | 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 | B062 | Stabilise topsoil stockpiles as soon as practical. Develop and implement management strategies through an EM Plan and *Erosion and Sediment Control Plan* in line with all statutory legislation and regulations, Arrow Energy policies, procedures / management plans, and industry standards | Construction / Operation / Decommissioning | |
| Soils and Land Suitability | 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 | 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 | |
| Soils and Land Suitability | 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 | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | B066 | Erosion and Sediment Control Plans will be developed and maintained in accordance with the International Erosion Control Association (IECA) (2008) *Best Practice Erosion and Sediment Control* 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 | 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 | B068 | Strip, salvage and stockpile topsoil separately from subsoils | Construction | |
| Soils and Land Suitability | B069 | Minimise disruption to natural overland flow paths through re-establishment of natural surface drainage lines | Construction | |
| Soils and Land Suitability | B070 | Where possible the disturbance of contour banks and irrigation bays will be avoided | Construction | |
| Soils and Land Suitability | B071 | Where possible flood banks and artificial levees will be avoided | Construction | |
| Soils and Land Suitability | 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 | 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 | 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 | |
| Soils and Land Suitability | B075 | Discharge water from Project activities at a rate and location in accordance with approval conditions ~~that will not result in erosion and install additional erosion protection measures~~ | Construction / Operation | Amended to clarify intent |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | 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 | 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 | 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 | |
| Soils and Land Suitability | B079 | Ensure that appropriate spill response equipment including containment and recovery equipment is available onsite | Construction / Operation / Decommissioning | |
| Soils and Land Suitability | B080 | Assess and report contamination in accordance with documented operating procedures. This may include~~, but is not limited to~~:<br>• Undertake an assessment by a suitably qualified person ~~contaminated land specialist~~<br>• Undertake environmental site assessment in response to identification of contamination<br>• Characterise, remediate and validate contamination<br>• Carry out corrective actions as required | Construction / Operation / Decommissioning | Amended to clarify intent |
| Soils and Land Suitability | 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 | Amended to clarify intent |
| Soils and Land Suitability | ~~B082~~ | ~~Staff training as to identification of potential unexpected contamination~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B081 |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | B083 | Staff training as to appropriate handling, storage and containment practices for chemical, fuels and other potential chemicals as relevant | Construction / Operation / Decommissioning | |
| Soils and Land Suitability, Groundwater and Waste Management | B084 | Develop and implement emergency response and spill response procedures to ~~minimise~~ reduce 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 | Amended to clarify intent |
| Soils and Land Suitability | B085 | If Project activities occur on land that is listed on the EMR / CLR further assessment might be undertaken ~~maybe required~~ to determine if contamination exists | Construction / Operation / Decommissioning | Amended to clarify intent |
| Soils and Land Suitability | B086 | ~~Assess whether~~ Where soil from a site ~~land parcel~~ on the EMR / CLR may be required to be removed, relevant ~~from that land parcel – suitable soil transport and disposal~~ approval~~s from EHP~~ will be obtained ~~required~~ | Construction / Operation / Decommissioning | Amended to clarify intent |
| Soils and Land Suitability | B087 | Conduct site investigations on relevant land parcels to assess for presence of contamination to allow for appropriate siting decisions to be made | Design | |
| Soils and Land Suitability, and Groundwater | 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 ~~*Draft Guidelines for the Assessment and Management of Contaminated Land* 1998~~ *Guideline for contaminated land professionals (EHP, 2012b)* | Design / Construction / Operation / Decommissioning | Amended in line with current legislation |
| Soils and Land Suitability | ~~B089~~ | ~~Undertake an assessment by a suitably qualified contaminated land specialist in accordance with the Queensland Government *Draft Guidelines for the Assessment & Management of Contaminated Land in Queensland* (Department of Environment, 1998)~~ | Design / Construction / Operation / Decommissioning | Deleted as commitment intent is included in B088 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Soils and Land Suitability | ~~B090~~ | ~~Stop works and avoid unnecessary disturbance of contaminated soil / groundwater if encountered during Project activities~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B280 |
| Soils and Land Suitability | B091 | Stop intrusive works involving disturbance of ~~previously un~~identified soil / groundwater contamination | Construction / Operation / Decommissioning | Amended to clarify intent |
| Soils and Land Suitability | B092 | Act immediately to protect human health and safety of site workers, public and environment | Construction / Operation / Decommissioning | |
| Soils and Land Suitability | B093 | Isolate areas containing contaminated soil~~ / groundwater~~, where possible | Construction / Operation / Decommissioning | Amended to clarify intent |
| Soils and Land Suitability, Landscape and Visual Amenity, Terrestrial Ecology and Aquatic Ecology | 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 | 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 | 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 | 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 | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Landscape and Visual Amenity | B097 | Re-establishment of vegetation cover on disturbed areas | Construction / Operation / Decommissioning | |
| Landscape and Visual Amenity | B098 | If possible promote and manage natural regeneration of native plants within the Project area | Construction / Operation / Decommissioning | |
| Landscape and Visual Amenity | B099 | Design lighting in a manner that limits disruption on landscape character, views and visual amenity and direct lighting into the infrastructure siting rather than dispersed into native vegetation when sites are adjacent to intact habitat | Design | Combined with commitment B147 to clarify intent |
| Landscape and Visual Amenity | 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 | ~~B101~~ | ~~Orientating infrastructure within the Project development area to minimise potential light spill~~ | Design | Deleted as commitment intent is included in B099 |
| Landscape and Visual Amenity | B102 | Shielding lights with hoods and louvers where practicable. Design lighting in accordance with AS 4282-1997 *Control of the Obtrusive Effects of Outdoor Lighting* | Design / Construction | |
| Landscape and Visual Amenity | 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 and avoid siting facilities within view of sensitive viewpoints | Design | Combined with commitment B105 to clarify intent |
| Landscape and Visual Amenity | 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 | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Landscape and Visual Amenity | ~~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 | Deleted as commitment intent is included in B103 |
| Landscape and Visual Amenity | 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 | 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 | B108 | Where possible establish screening barriers using endemic species in advance of construction of the facilities | Design / Construction | |
| Landscape and Visual Amenity | 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 | 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 | B111 | Conduct planned maintenance flaring during daylight hours to minimise light spill, where practicable | Operation | |
| Landscape and Visual Amenity | 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 | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Landscape and Visual Amenity | 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 | B114 | Minimise the disturbance footprint and vegetation clearing | Construction | |
| Landscape and Visual Amenity and Soils and Land Suitability | B115 | Use existing roads and designated access tracks, where practicable | Construction / Operation | Combined with commitment B148 to clarify intent |
| Landscape and Visual Amenity | 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 | 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 | B118 | Retention of existing vegetation where practical | Construction | |
| Landscape and Visual Amenity | B119 | Locate topsoil and spoil mounds in visually unobtrusive locations, where practicable | Construction | |
| Landscape and Visual Amenity | 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 | 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 | B122 | Minimise the length and width of roads and tracks | Design / Construction | |
| Landscape and Visual Amenity | B123 | Avoid roads traversing highly visible hills | Design / Construction | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Landscape and Visual Amenity | B124 | Minimise construction time near sensitive visual receptors | Construction | |
| Landscape and Visual Amenity | B125 | Develop and implement waste management procedures in accordance with the Queensland *Waste Reduction and Recycling Act 2011* | Construction | |
| Landscape and Visual Amenity | B126 | Develop an Erosion and Sediment Control Plan in accordance with the IECA (2008) *Best Practice Erosion & Sediment Control*, and install and maintain appropriate site-specific controls | Construction | |
| Landscape and Visual Amenity | 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 | 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 | 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 | |
| Terrestrial Ecology | B130 | Avoid all disturbance within Homevale National Park (Category A ESAs) | Design | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | B131 | Aim to avoid disturbance within the following areas:<br>• 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)<br>• Category B ESAs<br>• Category C ESAs including Arthur's Bluff State Forest and gazetted nature reserves<br>• Stock routes and state or regionally significant bioregional wildlife corridors<br>• Essential habitat<br>• Core habitat for EVNT species<br>• State forests and resource reserves<br>• State-listed 'of concern' REs | Design | |
| Terrestrial Ecology | B132 | Conduct pre-construction / pre-clearance surveys to identify any additional areas that need to be avoided. Include as a minimum:<br>• vegetation mapping at a scale suitable for site-specific planning<br>• identification of core habitats for EVNT species<br>• identification of site-specific sensitive areas (e.g. ESAs) that require avoidance or buffers) | Design | |
| Terrestrial Ecology | B133 | Attempt to locate wells, gathering lines and access tracks within previous clearings or non-remnant vegetation if possible | Design | |
| Terrestrial Ecology | 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 | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | B135 | Access track location should avoid the repeated isolation of small parcels of remnant vegetation from more continuous tracts | Design | |
| Terrestrial Ecology | 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 | B137 | Retain habitat trees where practicable | Design | |
| Terrestrial Ecology | B138 | Avoid removing riparian vegetation when directional drilling and reduction of right of ways where practical | Design | |
| Terrestrial Ecology | B139 | Construct infrastructure within previously disturbed vegetation in preference to areas with higher biodiversity values | Design | |
| Terrestrial Ecology | B140 | Deviate access tracks and pipelines around sensitive vegetation where practicable | Design | |
| Terrestrial Ecology | B141 | Avoid construction activities in waterbodies frequented by migratory species | Design | |
| Terrestrial Ecology | B142 | Apply sensitive infrastructure design principles to avoid watercourse, drainage lines and riparian areas where practicable | Design | |
| Terrestrial Ecology | B143 | Design creek crossings to ensure that existing flow regimes are maintained | Design | |
| Terrestrial Ecology | B144 | Preparation of biodiversity offsets (DSEWPaC, 2011; DERM, 2011~~b~~) for Commonwealth and State significant biodiversity values | Design | Reference updated |
| Terrestrial Ecology | B145 | Disturbance exclusion zones (or management buffers) will be established and managed during construction and operations to effectively protect ESAs as defined by the project's constraints mapping (outlined in Section 7 and detailed in Constraints Mapping (Appendix BB of the EIS). ~~This may include the following actions:~~ | Construction | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| | | ~~• 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:~~<br>~~— 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~~<br>~~— For areas mapped as moderate constraint, the following buffer zones, measured from the bank edge, will be adopted during all phases of the Project:~~<br>~~▪ a riparian buffer of 50 m width on either side of first and second order streams~~<br>~~▪ a riparian buffer of 100 m width on either side of third, fourth, fifth and higher order streams~~<br>~~• Clearly identify buffers for sensitive areas that require avoidance~~<br>~~• 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~~<br>~~• Demarcate ESA buffers and educate workers in regard to necessary site access protocols and requirements~~ | | |
| Terrestrial Ecology | B146 | Implement noise control techniques in accordance with the noise and vibration commitments and standard industry noise suppression techniques | Construction / Operation | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | ~~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 | Deleted as commitment intent is included in B099 |
| Terrestrial Ecology | ~~B148~~ | ~~Where possible restrict traffic to designated access tracks~~ | Construction / Operation | Deleted as commitment intent is included in B115 |
| Terrestrial Ecology | B149 | Prohibit harassment of wildlife and the unauthorised collection of flora or fauna, unless directed by a suitably qualified and experienced person | Construction / Operation | |
| Terrestrial Ecology | B150 | Fell trees away from existing vegetation not identified for removal where practicable | Construction | |
| Terrestrial Ecology | 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 | 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 | 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 or carer where practical | Construction | Amended to clarify intent |
| Terrestrial Ecology | B154 | Develop speed limits on Project controlled roads with due consideration to reduce the potential for vehicle collisions with wildlife | Construction | |
| Terrestrial Ecology | B155 | Undertake pre-clearing surveys to determine the likelihood of the species (including weeds) occurring | Construction / Operation / Decommissioning | Combined with commitment B231 to clarify intent |
| Terrestrial Ecology | 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 | B157 | Undertake rehabilitation of available areas consistent with pre-clearing habitats, to increase the rate of recovery | Construction / Operation | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | 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 | B159 | Trenches should be inspected and monitored as per the APIA *Code of Environmental Practice* | Construction / Operation / Decommissioning | |
| Terrestrial Ecology | B160 | Install and maintain appropriate sediment and erosion control structures at work sites | Construction | |
| Terrestrial Ecology | 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 | 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 | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | B165 | Consider targeted monitoring effort conducted in co-operation with the proponents of overlapping Projects. Particularly suited species to such monitoring include ornamental snake (*Denisonia maculata*), koala (*Phascolarctos cinereus*) and brigalow scaly-foot (*Paradelma orientalis*) | Construction / Operation / Decommissioning | |
| Terrestrial Ecology | B166 | ~~Inspect management buffers and areas of avoidance to e~~ Ensure avoidance boundaries are clearly delineated prior to clearing | Construction | Amended to clarify intent |
| Terrestrial Ecology | B167 | Monitor during and after clearing activities to ensure no unauthorised encroachment has occurred | Construction | |
| Terrestrial Ecology and Dams | B168 | Reduce the impact of CSG water on soil structure and aquatic values, by designing and constructing wells in accordance with the *Code of Practice for Constructing and Abandoning CSG wells in Queensland* (~~DEEDI *et al.*, 2011~~NRM 2013) | Construction | Reference updated |
| Terrestrial Ecology | 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 | B170 | Inspect food scrap bins and exclusion fences to ensure effectiveness | Construction / Operation / Decommissioning | |
| Terrestrial Ecology | 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 | |
| Terrestrial Ecology and Aquatic Ecology | 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 | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | 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 | B175 | Implement site planning, preparation and management requirements in accordance with a decommissioning and rehabilitation plan | Decommissioning | |
| Terrestrial Ecology | B176 | Reinstate ~~self-supporting~~ drainage lines to pre-disturbance condition | Decommissioning | Amended to clarify intent |
| Terrestrial Ecology | 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 | 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 | 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 | |
| Terrestrial Ecology and Aquatic Ecology | 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 | B182 | Supervise construction activities in sensitive areas to ensure appropriate methods (e.g., narrowing of RoW) are being implemented, where required | Construction / Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology | B183 | Carry out routine monitoring of rehabilitation success | Construction / Operation / Decommissioning | |
| Terrestrial Ecology | B184 | ~~Erect~~ Prevent fauna being harmed from entrapment during construction and operation of dams~~ exclusion fences around Project dams~~ | Construction | Amened to clarify intent |
| Terrestrial Ecology | 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 | B186 | During rehabilitation works, care will be taken when moving stockpiled logs and vegetation to avoid fauna mortality | Construction / Operation / Decommissioning | |
| Terrestrial Ecology | B187 | Develop threatened species management procedures as and when Project activities are identified as likely to impact upon individuals | Design | |
| Terrestrial Ecology | 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 | 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 | |
| Terrestrial Ecology | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Terrestrial Ecology and Aquatic Ecology | B191 | Develop a declared weed and pest management plan in accordance with the *Petroleum Industry – Pest Spread Minimisation Advisory Guide* (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 | 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 | 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 | B194 | ~~The use of vehicles and machinery near~~ Minimise exposure of vehicles and machinery to waterways ~~will be avoided~~ wherever possible during construction ~~and expected to be minimal~~ | Construction / Operation / Decommissioning | Amended to clarify intent |
| Aquatic Ecology | B195 | CSG water ~~received~~ produced from the field and brine concentrate will be ~~managed~~ transferred to purpose built ~~in~~ dams ~~adjacent to IPFs~~ | Operation / Decommissioning | Amended to clarify intent |
| Aquatic Ecology | 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 constraints mapping (outlined in Section 7 and detailed in Constraints Mapping (Appendix BB of the EIS)<br>~~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:~~ | Design / Construction / Operation | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| | | ~~• 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~~<br>~~• For areas mapped as moderate constraint, the following buffer zones, measured from the bank edge, will be adopted during all phases of the Project:~~<br>~~— a riparian buffer of 50 m width on either side of first and second order streams~~<br>~~— a riparian buffer of 100 m width on either side of third, fourth, fifth and higher order streams~~ | | |
| Aquatic Ecology | ~~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 | Deleted as commitment intent is included in B115 |
| Aquatic Ecology | B199 | Tracks will be restricted in riparian zones and durations of impacts minimised, except in the immediate vicinity of creek crossings | Design / Construction | |
| Aquatic Ecology | 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 | 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 | 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 | B203 | Where the gathering line crosses waterways ensure that the trenching is perpendicular to the creek | Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Aquatic Ecology | 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 | |
| Aquatic Ecology | 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 | 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 | Amended to clarify intent |
| Aquatic Ecology | 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 | 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 | B209 | Monitoring where required will be undertaken including water quality, aquatic macroinvertebrates, fish, and other aquatic / semi-aquatic fauna | Construction / Operation / Decommissioning | |
| Aquatic Ecology | B210 | A sampling program will be undertaken if discharge or emergency release is required | Construction / Operation / Decommissioning | |
| Aquatic Ecology | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Aquatic Ecology | 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 | B213 | Inspections will be carried out ~~on an~~ in response to incidents ~~basis~~ to determine potential impacts to aquatic environments resulting from pollution events; or potential pollution events | Construction / Operation / Decommissioning | Amended to clarify intent |
| Aquatic Ecology | 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 | B215 | Routinely monitor buffer zones and Project footprint using satellite imagery | Construction / Operation / Decommissioning | |
| Aquatic Ecology | 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 | |
| Aquatic Ecology | ~~B217~~ | ~~Routinely inspect for pest flora and evidence of pest fauna species within Project disturbed areas~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B171 |
| Aquatic Ecology | B218 | Monitoring where required will be undertaken including water quality, aquatic macroinvertebrates, fish, and other aquatic/semi-aquatic fauna | Construction / Operation / Decommissioning | |
| Aquatic Ecology | B219 | Routinely inspect spill containment controls and spill response kits | Construction / Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Aquatic Ecology | 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 | 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 | 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 | B223 | If diversion of watercourse flows using pumps is required, screen the pump intakes with mesh to protect aquatic life | Construction | |
| Aquatic Ecology | B224 | Where appropriate, design ground disturbance works to minimise the need for cut-and-fill earthworks | Planning and Design | |
| Aquatic Ecology | 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 | 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 | 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 | B228 | Design the width of the pipeline RoWs to be narrower at watercourse crossings,where practicable | Planning and Design | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Aquatic Ecology | B229 | Co-locate pipelines into one watercourse crossing corridor, where practicable | Planning and Design | |
| Aquatic Ecology | 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 | ~~B231~~ | ~~Identify declared weeds during the preconstruction clearance survey~~ | Construction | Deleted as commitment intent in included in B155 |
| Aquatic Ecology | B232 | Store stockpiled, cleared vegetation away from watercourses or drainage lines | Construction | |
| Aquatic Ecology | 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 | |
| Groundwater | ~~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 | Deleted as commitment intent included in B260 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~B235~~ | ~~To reduce the likelihood of fuel, oil, or hazardous chemical releases entering the groundwater system, the following mitigation measures will be implemented:~~<br>• ~~Fuel, oil, and hazardous chemicals will be stored above ground and contained within bunded areas~~<br>• ~~Domestic and industrial waste will be stored and managed by licensed contractors~~<br>• ~~Recording and auditing will be undertaken for fuel, oil, and chemical volumes purchased and stored on-site~~<br>• ~~Audits of disposal facilities, disposal permits, and working conditions will be undertaken~~<br>• ~~Hazardous chemicals and effluent will be conveyed and stored in accordance with AS1940 *The Storage and Handling of Flammable and Combustible Liquids* and AS3780 T*he storage and handling of corrosive substances*, and other relevant industry standards~~ | Construction / Operation / Decommissioning | Deleted as commitment intent included in B302, B303, B318, B321 and B458 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B260 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |
| Groundwater | ~~B238~~ | ~~Conduct monitoring (water level and quality) of bores within the significant aquifers of the Blackwater Group~~ | Construction / Operation | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~B240~~ | ~~Make good measures to be implemented will be negotiated between Arrow and the bore owner depending on the aforementioned factors and may include:~~<br>• ~~Modifying the pumping infrastructure of the bore~~<br>• ~~Modifying or deepening the bore~~<br>• ~~Installing a new bore into the same aquifer~~<br>• ~~Installing a new bore into another aquifer~~<br>• ~~Supplying an alternative source of water~~<br>• ~~Monetary compensation~~ | Construction / Operation | Deleted as commitment intent is included in B260 |
| Groundwater | ~~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 | Commitment no longer aligns with the revised Coal Seam Gas Water and Salt Management Strategy (Appendix D) of the SREIS |
| Groundwater | B242 | Prepare groundwater monitoring reports in accordance with the relevant ~~environmental~~ authority for each tenure | Construction / Operation / Decommissioning | Amended to clarify intent |
| Groundwater | ~~B243~~ | ~~Define and undertake program of aquifer testing in dedicated groundwater monitoring wells to reduce areas of uncertainty, and aim to quantify aquifer properties, areas of potential interconnection, and groundwater velocities.~~ | Design | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | B245 | • Install an appropriate regional groundwater monitoring network (that satisfies Arrow's obligations as described in each UWIR) to:<br>— establish current groundwater level and groundwater quality conditions<br>— assess natural variation (~~i.e., seasonal variations~~) in groundwater levels<br>— monitor groundwater levels during the operational phase<br>— monitor groundwater quality during the operational phase<br>— establish suitable datum levels for each aquifer system<br>— ~~target sensitive areas where more frequent monitoring and investigation is required (e.g., groundwater-dependent ecosystems)~~<br>— ~~monitor groundwater depressurisation as a result of CSG extraction~~<br>— monitor impacts in accordance with the UWIR for each tenure, Water Act and regulations | Construction / Operation / Decommissioning | Amended as intent is included in B647 |
| Groundwater | B246 | Manage potential impacts to groundwater dependent ecosystems (including on identified spring complexes) by:<br>• Supporting the identification of specific aquifers that serve as a groundwater source for the groundwater dependent ecosystem discharge springs<br>• Assessing groundwater dependent ecosystems springs that are predicted to be subject to unacceptable impacts through the source aquifer<br>• Developing monitoring and mitigation ~~a~~ strategies~~y~~ to avoid or minimise unacceptable impacts ~~manage groundwater drawdown and changes in groundwater quality that could impact on groundwater dependent ecosystems and natural springs~~ | Design / Construction / Operation | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~B247~~ | ~~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:~~<br>• ~~Verify groundwater levels in the nominated bores and investigate groundwater levels and groundwater quality in compliance monitoring bores against established trigger thresholds~~<br>• ~~Request bore information and groundwater data from affected parties~~<br>• ~~Review and assess data~~<br>• ~~Advise bore owners in writing of findings~~ | Operation | Deleted as commitment intent is included in B260 |
| Groundwater | ~~B248~~ | ~~Develop a groundwater monitoring strategy to identify trends in groundwater levels~~ | Operation | Deleted as commitment intent is included in B245 |
| Groundwater | B249 | Construct, decommission or repair all CSG production wells in accordance with the *Code of Practice for Constructing and Abandoning Coal Seam Gas Wells in Queensland* (DEEDI, 2011b), or relevant code at the time of construction, which details mandatory requirements for well installations, monitoring, management and eventual decommissioning. Should production wells be converted into monitoring bores, do so in accordance with relevant regulations~~standards described in the P&G Act and regulations to that Act~~ | Construction | Amended in line with current legislation |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | B250 | Construct, decommission or repair all water bores (including monitoring wells) in accordance with the pertinent legislation; either the relevant minimum requirements; *Minimum Construction Requirements for Water Bores in Australia* ~~(National Minimum Bore Specifications Committee, 2003)~~ (NUDLC, 2012) ~~and~~ or the *Minimum Standards for the Construction and Reconditioning of Water Bores that Intersect the Sediments of Artesian Basins in Queensland* ~~minimum standards for the construction and reconditioning of water bores that intersect the sediments of artesian basins in Queensland (EHP, 2012)~~(DERM, 2004); or the *Code of Practice for Constructing and Abandoning Coal Seam Gas Wells in Queensland* (DEEDI, 2011b) | Construction | Amended in line with current legislation |
| Groundwater | B251 | Select drilling fluids to minimise potential groundwater impacts. Do not use oil-based drilling fluids | Construction | |
| Groundwater | ~~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 | Deleted as commitment intent is included in B353 |
| Groundwater | B253 | Avoid unnecessary impervious surface coverings ~~and minimise land footprint and vegetation clearing~~ when designing facilities | Design | Amended to avoid duplication with B017, B103 and B114 |
| Groundwater | ~~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 | Deleted as intent is included in B414 to B416, B419, B425 to B427, B431, B454, B455, B614, B458 and B522 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | B255 | Develop the construction, design and monitoring requirements for ~~new dams Design and construct~~ 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 *Manual for Assessing ~~Hazard~~ Consequence Categories and Hydraulic Performance of Structures ~~Dams~~* (EHP, 2013b). Construct the dams ~~and~~ under the supervision of a suitably qualified and experienced person~~, and~~ in accordance with relevant ~~EHP~~DERM schedule of conditions relating to dam design, construction, inspection and mandatory reporting requirements | Design / Construction | Amended to clarify intent and in line with current legislative documentation |
| Groundwater | B256 | Install groundwater monitoring bores near dams as a leak detection measure:<br>• The number of monitoring wells and their location will take into account site-specific hydrogeology, preferential pathways and potential receptors of impacts<br>• Monitoring bores installed near dams will have groundwater levels and relevant water quality parameters monitored on a routine basis<br>• The number of monitoring bores or associated monitoring frequencies will be increased and further investigation will be triggered where impacts are identified | Design / Construction | Combined with commitment B257, B273 and B361 to clarify intent |
| Groundwater | ~~B257~~ | ~~Further investigation will be considered where potential adverse impacts to groundwater quality are identified~~ | Design / Construction / Operation | Combined with commitment B256 to clarify intent |
| Groundwater | ~~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 | Combined with commitment B260 to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |
| Groundwater | B260 | ~~Based on the Potential Impact Area, I~~Landholder bores~~ that are 'at risk' can~~ will be identified within the Project area. The following will apply to these existing bores:<br>• 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<br>• Implementation of the Baseline Assessment Plan including assessment of each water bore in the tenure in accordance with the timetable contained in the plan<br>• Collection of baseline data from each water bore where possible including water level, water quality, bore construction and the type of infrastructure used to pump water from the bore<br>• Supply of the collected data from the baseline assessment to the bore owner and regulator as required by the Water Act<br>• Preparation of an Underground Water Impact Report (UWIR) ~~including a Water Monitoring Strategy~~ for each tenure in accordance with the Water Act<br>• 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<br>• Implement the procedure for undertaking a bore assessment to determine impaired capacity for each Immediately Affected Area Bore. The assessment will:<br>— Verify groundwater levels in the bore<br>— Request bore information and groundwater data from affected | Construction / Operation / Decommissioning | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| | | parties<br>— Review and assess data<br>— Advise bore owners in writing of findings<br>— 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 in accordance with the Water Act with bore owner and implement make-good measures in accordance with the make-good agreement<br>• Review the UWIR annually by considering groundwater extraction volumes and groundwater monitoring data to evaluate whether the groundwater modelling predictions made are still applicable<br>• Where the groundwater modelling predictions are no longer valid, or every three years, update the groundwater model and prepare a new UWIR<br>• ~~Completion of a bore assessment for each Immediately Affected Area Bore~~<br>• ~~Negotiation of a Make Good Agreement for each Immediately Affected Area Bore~~<br>• ~~Installation and sampling of the network of monitoring bores identified in the Water Monitoring Strategy~~ | | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | B261 | ~~It is considered that~~ Develop a structured database ~~will~~ to host ~~all the~~ groundwater data from the Project (including groundwater levels and groundwater quality).<br>~~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:~~<br>• ~~Changes (augmentation and alteration) to the groundwater monitoring network~~<br>• ~~Recent groundwater monitoring quality and water level results and trends;~~<br>• ~~Comparison of background and baseline groundwater levels and modelled projected levels~~<br>• ~~Recent model predictions of groundwater impacts~~ | Construction / Operation / Decommissioning | Combined with commitment B242 to clarify intent |
| Groundwater | ~~B262~~ | ~~Compile a robust baseline data set for:~~<br>• ~~Determining natural fluctuation, both water level and hydrochemistry~~<br>• ~~Evaluate site-specific groundwater environmental values~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B245 |
| Groundwater | ~~B263~~ | ~~Construct, calibrate and refine a groundwater model to suitably simulate the groundwater values and provide accurate estimates of impact~~<br>~~Observed responses in monitoring bores that reflect aquifer behaviour during coal seam gas extraction~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B260 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~B266~~ | ~~Gain further understanding of aquifer interactions and verify the understanding of regional hydrogeology~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B260 |
| Groundwater | ~~B269~~ | ~~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:~~<br>~~• Shallow groundwater systems (water-table) comprised of:~~<br>~~— Quaternary alluvium~~<br>~~— Tertiary basalt and sediments~~<br>~~• Intermediate groundwater systems (confined/unconfined) of Triassic outcrop formations including the Clematis Sandstone; and~~<br>~~• and~~<br>~~o Deep groundwater systems (confined aquifers) of Blackwater Group at the CSG target depths~~<br>~~o Blackwater Group sub-crops including the Rangal Coal Measures, Fort Cooper Coal Measures and Moranbah Coal Measures~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B245 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B245 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B256 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B256 |
| Groundwater | ~~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:~~<br>~~• A field verification of groundwater levels in the nominated bore~~<br>~~• Baseline bore information and groundwater data~~<br>~~• A review and assessment of the available data~~<br>~~• Advice to the bore owner in writing of findings~~ | Operation | Deleted as commitment intent is included in B260 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | ~~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 | Deleted as commitment intent is included in B260 |
| Groundwater | ~~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 | Deleted as this commitment is inconsistent with current legislation |
| Groundwater and Contaminated Land | B277 | Inspect and observe site locations for the presence of contamination prior to commencement of intrusive activities | Construction | |
| Groundwater | ~~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 | Deleted as commitment intent is included in B087 |
| Groundwater | ~~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 | Deleted as commitment intent is included in B088 |
| Groundwater | ~~B280~~ | ~~Avoid disturbance of contaminated soil and groundwater when it is identified or observed during intrusive works~~ | Construction | Deleted as commitment intent is included in B088 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | 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~~2000 *On-site Domestic Wastewater Management*; (Standards Australia, 2012); DERM guideline for managing sewerage infrastructure to reduce overflows and environmental impacts (DERM, 2010) ~~the *Framework for managing sewerage infrastructure to reduce overflows and environmental impacts* (EPA and QPWS, 2010);~~ and Queensland water recycling guidelines (DERM, ~~2012d~~2005)~~; and Queensland water recycling guidelines (DERM, 2012d)~~ | Construction | Amended in line with current legislation |
| Groundwater | ~~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 | Deleted as commitment intent is included in B250 |
| Groundwater | B285 | Undertake periodic integrity checks to ensure well integrity ~~construction~~ | Operation | Amended to clarify intent |
| Surface Water | ~~B286~~ | ~~Watercourse crossings to be designed minimise impacts on geomorphology and river flows~~ | Design | Deleted as commitment intent is included in B201 |
| Surface Water | B287 | Where practical major facilities will be constructed above the 1:100 year flood level | Design / Construction | |
| Surface Water | 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 | B289 | Develop, implement, and maintain a waste management plan for the disposal of wastes produced as a result of drilling activities | Design / Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Surface Water | B290 | Develop a site-specific Erosion and Sediment Control Plan to include:<br>• Localised erosion and sediment control and energy dissipation structures<br>• Stabilise exposed areas | Design / Construction | |
| Surface Water | B291 | Storage and refuelling areas to be designed to minimise the ingress of stormwater | Design | |
| Surface Water | B292 | Areas of disturbed or exposed soil will be managed to reduce sediment mobilisation and erosion | Construction | |
| Surface Water | B293 | Construction activities will be undertaken during the dry season where scheduling allows | Construction | |
| Surface Water | B294 | Topsoil will be stockpiled away from drainage lines to reduce chances of erosion | Construction | |
| Surface Water | B295 | Vegetation clearing will not be carried out during heavy rainfall unless opportunity exists to established and secure adequate erosion controls prior to rainfall | Construction | Amended to clarify intent |
| Surface Water | ~~B296~~ | ~~Dust suppression measures will be implemented~~ | Construction / Operation | Deleted as commitment intent is included in B313 |
| Surface Water | B297 | Vehicle wash-downs will be located away from drainage lines or watercourses | Construction / Operation / Decommissioning | |
| Surface Water | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Surface Water | B300 | Minimise potential impacts on surface waters through implementation of the following measures during construction of watercourse crossings:<br>• Watercourse crossings should be timed to occur during the dry season during periods of low flow, where possible<br>• Construction of watercourse crossings will be conducted in the shortest possible time and in accordance with the DERM (2012a) guideline *Activities in a watercourse, lake or spring carried out by an entity*<br>• Avoid disrupting overland natural flow paths and, where avoidance is not practicable, maintain connectivity of flow in watercourses<br>• 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<br>• Check for flood warnings or subscribe to flood warning services where relevant during construction of watercourse crossings<br>• 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<br>• 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 | Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| | | then flow will be diverted where required to maintain flows and allow for fish movement<br>• Minimise the number of channels to be crossed<br>• Avoid permanent pools<br>• Avoid mid-channel alluvial bars and islands<br>• 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<br>• Retain coarse alluvial material from watercourse crossings for backfill armouring over the finer unconsolidated material<br>• Stabilise watercourse crossings as soon as possible using bedrock where available<br>• Rehabilitate and revegetate banks as soon as possible after construction | | |
| Surface Water | B301 | Where regulated dams are decommissioned and rehabilitated, their contents will be ~~drained and disposed of at appropriately licensed waste facilities~~ managed in accordance with relevant environmental approvals | Decommissioning | Amended to clarify intent |
| Surface Water | B302 | Temporary and permanent chemical and fuel storage areas to be appropriately bunded in accordance with relevant Australian Standards (e.g. AS1940) | Construction / Operation / Decommissioning | |
| Surface Water | B303 | All transfers of fuels and chemicals will be controlled to prevent spillage outside bunded areas | Construction / Operation / Decommissioning | |
| Surface Water | B304 | Refuelling to occur in accordance with AS1940 at a distance of greater than 50 m from any watercourses; | Construction / Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Surface Water | B305 | All vehicles, plant and equipment to be checked regularly for fuel tank and line failures | Construction / Operation / Decommissioning | |
| Surface Water | ~~B306~~ | ~~Bunds and sumps should be frequently drained and treated/ disposed of appropriately;~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B318 |
| Surface Water | 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 | B308 | Contaminated soil resulting from spills to be removed and/or remediated | Construction / Operation / Decommissioning | Amended to clarify intent |
| Surface Water | B309 | Spill clean-up kits in accordance with AS1940 and AS3780 to be located in appropriate locations based on the potential risk, volume and type of spill~~, including where required inside machinery and vehicles~~ | Construction / Operation / Decommissioning | Combined with commitment B320 to clarify intent |
| Surface Water | 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 | B311 | A drilling waste management plan will be developed to ensure that drilling wastes are managed accordingly | Construction | |
| Surface Water | B312 | A hydrostatic testing strategy will be developed to manage hydrotest activities to prevent contaminants from entering watercourses | Construction / Operation | Amended to clarify intent |
| Surface Water | 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~~ will be undertaken in accordance with relevant approvals, including management of MNES | Construction / Operation / Decommissioning | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Surface Water | B314 | Operate and maintain appropriate sediment detention measures for overland flow from disturbed areas | Construction / Operation / Decommissioning | |
| Surface Water | B315 | Undertake routine inspection and maintenance of existing erosion and sediment control measures | Construction / Operation / Decommissioning | |
| Surface Water | B316 | Design surface flows from unsealed areas to flow to any existing adjacent grassed areas at low velocities | Design | Amended to clarify intent |
| Surface Water | B318 | Hazardous chemical bunds and sumps within them should be emptied after each rainfall event to maintain capacity requirements as per AS1940. 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 | ~~B319~~ | ~~Contaminants and major spills should be collected by a licensed waste collection and transport contractor for disposal at licensed facility~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B307 |
| Surface Water | ~~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 | Deleted as commitment intent is included in B309 |
| Surface Water | 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 | 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 | ~~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 | Deleted as commitment intent is included in B310 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Surface Water | B324 | Wastewater from the vehicle wash-down should be treated and recirculated for use in the wash-down facility | Construction / Operation / Decommissioning | |
| Surface Water | 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 | ~~B326~~ | ~~Design and construction supervision of regulated dam embankments undertaken by a suitably qualified and experience engineer (as defined by EHP)~~ | Design / Construction | Deleted as commitment intent is included in B359 |
| Surface Water | B327 | ~~Rapid~~ Maintain stabilisation of constructed regulated dam embankments through the implementation of suitable erosion controls and/or maintenance | Construction | Amended to clarify intent |
| Surface Water | B328 | An Effluent Irrigation Management Plan is prepared for any effluent irrigation area | Construction / Operation | |
| Surface Water | B329 | Management and maintenance of the sewage treatment plant must be carried out by suitably trained and/or ~~qualifications~~ qualified persons to ensure the effective operation of that treatment system | Construction / Operation | Amended to clarify intent |
| Surface Water | B330 | Monitoring of effluent discharge points and records kept for follow up management | Construction / Operation | |
| Surface Water | B331 | Treated effluent from the sewage treatment plant must only be discharged for irrigation in compliance with relevant approvals ~~the requirements for Class C (refer to the DERM (2005) Queensland Water Recycling Guidelines)~~ | Construction / Operation | Amended to clarify intent |
| Surface Water | ~~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 | Deleted as commitment intent is included in B328 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Surface Water | B333 | Treated effluent must not be released from the site to any waters or the bed and banks of any waters unless specifically authorised | Construction / Operation | Amened to clarify intent |
| Surface Water | 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 | |
| Surface Water | 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~~ a relevant 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 | Amended to clarify intent |
| Surface Water | 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 | B337 | Implement best practice erosion and sediment control measures during decommissioning works in accordance with the requirements of the IECA (2008) *Best Practice Erosion and Sediment Contro*l manual | Construction / Operation / Decommissioning | |
| Surface Water | B338 | When disposing of site dam water during decommissioning, ~~S~~ separate clean water and impacted water for separate appropriate disposal ~~from active and rehabilitated areas~~ | Construction / Operation / Decommissioning | Amended to clarify intent |
| Surface Water | B339 | Develop and implement a rehabilitation management plan for decommissioning which includes monitoring and maintenance of rehabilitated areas until rehabilitation sign off criteria is met ~~is complete~~ | Construction / Operation / Decommissioning | Amended to clarify intent |
| Surface Water | B340 | Locate Project infrastructure with consideration of downstream values | Design / Construction | |
| Surface Water | B341 | Avoid permanent pools when selecting watercourse crossing points | Design / Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| CSG Water | B342 | Identify strategies to minimise CSG water surface storage and to promote increased efficiency | Design / Construction / Operation | |
| CSG Water | ~~B343~~ | ~~Ensure CSG water used for dust suppression on roads or for construction and operation activities is treated if required~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B313 |
| CSG Water | 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 | Amended to clarify intent |
| Soils and Land Suitability, CSG Water, Surface Water, Groundwater and Aquatic Ecology | B345 | ~~Incorporate into an emergency response plan or~~ Implement water management plan ~~procedures~~ for ~~the~~ proposed controlled discharge of CSG water | Planning / Design / Construction / Operation / Decommissioning | Amended to clarify intent |
| CSG Water | 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 | |
| CSG Water | B347 | Employ beneficial use options for CSG water wherever practical | Construction / Operation / Decommissioning | |
| CSG Water | B348 | When applying for approval to discharge, ~~U~~ undertake specific investigations to assess the assimilative capacity of the receiving environment at proposed discharge locations | Construction / Operation / Decommissioning | Amended to clarify intent |
| CSG Water | B349 | CSG ~~All~~ water ~~for~~ will be released to surface waters in accordance with ~~discharge from site will meet~~ approved discharged criteria | Construction / Operation / Decommissioning | Amended to clarify intent |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| CSG Water | 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 | 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 | Amended to clarify intent |
| CSG Water | B352 | Ensure that the quality of CSG water used for dust suppression meets the prescribed limits | Construction / Operation / Decommissioning | |
| Dams and Groundwater | B353 | Consider local groundwater and surface water conditions when identifying sites for CSG water storage dams, underground infrastructure, treated water facilities and associated brine storage facilities, production facilities and related storage areas | Design / Construction / Operation / Decommissioning | Combined with commitment B252 to clarify intent |
| Dams | B355 | Design regulated dams in accordance with relevant legislation and Queensland standards and EHP guidelines | Design | |
| Dams and Hazard and Risk | B356 | Use an independent, suitably qualified, third party to certify that regulated dams meet the dam design plan | Design / Construction | |
| Dams | B357 | Apply dam operation plans, which will apply for all facilities forming part of the Project development | Operation | |
| Dams and Hazard and Risk | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Dams and Hazard and Risk | ~~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 *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (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 | Deleted as commitment intent is included in B355 and B363 |
| Dams and Hazard and Risk | ~~B360~~ | ~~Design dams to have an egress (escape point) for wildlife~~ | Design | Deleted as commitment intent is included in B184 |
| Dams | ~~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 | Deleted as commitment intent is included in B256 |
| Dams | B362 | Stabilisation of constructed dam embankments through the implementation of suitable erosion controls (e.g.: hydromulch or similar) | Construction | |
| Dams and Surface Water | B363 | Annual regulated dam inspections to be undertaken by a suitably qualified and experienced person ~~engineer (as defined by EHP)~~ | Operation | Amended to clarify intent |
| Dams | B364 | If the cut and fill materials from dams is contaminated, soils will be managed in accordance with the Draft Contaminated Land Guideline 1998 or updated versions thereof ~~excavated and treated and disposed of~~ as described in Section Z.4.2. of the Draft EM Plan | Construction | Amended to clarify intent |
| Noise and Vibration | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Noise and Vibration | 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 | B367 | The noise levels from the final design will be modelled to confirm that compliance with the Project criteria is still predicted | Decommissioning | |
| Noise and Vibration | B368 | All complaints are registered, addressed and closed out | Construction / Operation / Decommissioning | |
| Noise and Vibration | B369 | Applicable noise and vibration levels are met at the sensitive receptor | Construction / Operation / Decommissioning | |
| Noise and Vibration | 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 | 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 | 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 | 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 | 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 | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Noise and Vibration | 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 | B376 | Preferential selection of sites in sparsely populated areas | Planning and Design | |
| Noise and Vibration | 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 | 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 | 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 | B380 | Consider the following factors prior to any blasting operations being conducted:<br>• The type of rock and stratigraphy being blasted and any associated faulting<br>• The distance of the blast site from sensitive receptors<br>• The type, size and number of charges used<br>• The depth and manner in which the charge is installed<br>• The meteorological conditions<br>• Methods of controlling blast noise and vibration, such as mats or smaller blasts | Construction | |
| Noise and Vibration | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Noise and Vibration | 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 | B383 | If directed by the administering authority in response to a valid noise complaint, undertake noise monitoring in accordance with the ~~DERM~~ EHP (20~~00~~13) Noise Measurement Manual | Inspection and Monitoring | Reference updated |
| Waste Management | 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 | 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 | 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 | B387 | Personnel will be trained and competent to undertake waste identification, segregation, storage and disposal activities | Construction / Operation / Decommissioning | |
| Waste Management | 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 | B389 | Operations and Projects will evaluate the types and quantities of waste to be generated | Operation | |
| Waste Management | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B391 | Onsite waste storage areas will be developed in accordance with industry practice and relevant waste management regulations | Construction | |
| Waste Management | B392 | Procure materials in bulk where practicable to minimise containers and movement of material | Planning and Design | |
| Waste Management | B393 | Provide training in the principles of the waste hierarchy to personnel handling wastes on a regular basis | Planning and Design | |
| Waste Management | 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 | B395 | Waste will only be disposed of in appropriate, approved disposal sites using approved methods and contractors. Regulated ~~W~~ waste tracking records will be maintained, in line with legal requirements | Construction / Operation / Decommissioning | Amended to clarify intent |
| Waste Management | B396 | Appropriate domestic waste storage facilities will be provided at designated work sites to assist in segregation of waste | Construction / Operation / Decommissioning | |
| Waste Management | ~~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 *Draft Guidelines for the Assessment and Management of Contaminated Land* 1998~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B088 |
| Waste Management | 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 lined as appropriate, 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 | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B399 | Wastewater (sewage) to be collected and transported offsite to a municipal treatment facility or treated onsite | Construction / Operation / Decommissioning | |
| Waste Management | 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 | |
| Waste Management | 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 | 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 AS1940: 2004 *The Storage and Handling of Flammable and Combustible Liquids* and other relevant dangerous goods standards | Construction / Operation / Decommissioning | |
| Waste Management | 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 | 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 will be disposed of at licensed facilities | Construction | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | 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 | |
| Waste Management | 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 | B407 | Construction of production wells: Soil to be stockpiled and used for rehabilitation onsite. Stockpiles will be located away from water sources and in clear areas, and stabilised for the duration of the activity | Construction / Decommissioning | Amended to clarify intent |
| Waste Management | B408 | ~~CSG water contaminated soils, CSG~~ Construction of production wells: RO water filters and filter media ~~containing solids not removed in upstream filtration processes are to be~~ disposed to appropriate licensed landfill | Construction / Operation / Decommissioning | Amended to clarify intent |
| Waste Management | B409 | Construction of wells: 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 managed onsite, or 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.<br>Any onsite management of residual drilling material will utilise methods that are in accordance with environmental authority conditions | Construction | Amended to clarify intent |
| Waste Management | B410 | Waste solids will be treated and reused where possible or disposed to landfill | Construction / Operation / Decommissioning | |
| Waste Management | B411 | Drill fluids will be reused or recycled where possible | Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B412 | Construction of wells: Soil contaminated with oil or chemicals ~~is to~~ will be ~~left insitu or~~ taken to a licensed waste processing facility for recycling or disposal | Construction / Operation / Decommissioning | Amended to clarify intent |
| Waste Management | 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 | B414 | Empty drums and containers to be recycled where possible, or taken to an appropriately licensed waste facility | Construction / Operation / Decommissioning | |
| Waste Management | 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 | B416 | Spent and unused solvents, paints and paint wastes to be transported to an appropriately licensed waste facility | Construction / Operation / Decommissioning | |
| Waste Management | B417 | Acids and caustics to be collected and disposed of at licensed / authorised waste facilities | Construction / Operation / Decommissioning | |
| Waste Management | B418 | Paper and cardboard to be reused or recycled, where practical | Construction / Operation / Decommissioning | |
| Waste Management | B419 | General waste from workers' accommodation areas to be recycled or reused where practical and transported to a licensed waste facility | Construction / Operation / Decommissioning | |
| Waste Management | B420 | Construction and operation of facilities, gas and water gathering system: Grey water ~~(contaminated stormwater runoff) to~~ shall be either collected and treated onsite or transported offsite to a municipal treatment facility ~~or receive onsite treatment~~ | Construction / Operation / Decommissioning | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | 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 | 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 | B423 | Construction and operation of facilities, gas and water gathering system: Hydrostatic test water ~~to~~ shall be reused ~~in other areas or disposed of through the CSG water management system~~, or, at the end of its useful life, collected in segregated storage for removal to a licenced facility for processing | Operation | Amended to clarify intent |
| Waste Management | ~~B424~~ | ~~Used chemicals and oils to be recycled where possible, or taken to an offsite licensed waste facility~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B413 |
| Waste Management | B425 | Scrap swarf (high-definition polyethylene fillings) to be reused or recycled where possible, or taken to an offsite licensed waste facility | Construction | |
| Waste Management | 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 | 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 | B428 | Membrane modules to be collected and disposed of in an offsite regulated waste facility | Operation | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B429 | Lead acid batteries to be recycled or transported to an offsite regulated facility | Construction / Operation / Decommissioning | |
| Waste Management | B430 | Concrete waste to be reused or recycled where possible | Construction / Operation / Decommissioning | |
| Waste Management | 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 | B432 | Wooden pallets, formwork to be reused or recycled where possible, otherwise transported offsite to a regulated waste disposal facility | Construction / Operation / Decommissioning | |
| Waste Management | 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 | B434 | Oily rags and sorbents to be transported offsite to a regulated waste disposal facility | Construction / Operation / Decommissioning | |
| Waste Management | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B437 | Spent filter media bulk bags to be transported offsite to a regulated waste disposal facility | Construction / Operation / Decommissioning | |
| Waste Management | B438 | Steel offcuts and scrap metal to be reused or recycled, were practical | Construction / Operation / Decommissioning | |
| Waste Management | B439 | ~~Crystallised salt to~~ Construction and operation of facilities, gas and water gathering system: Waste salt concentrate (solid product resulting from solar evaporation of RO brine) shall ~~be~~ be transported offsite to a regulated waste disposal facility ~~unless an alternative can be found~~ | Operation / Decommissioning | Amended to clarify intent |
| Waste Management | 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 | B441 | Anti-seize compounds to be collected and disposed of in regulated waste facilities | Construction / Operation / Decommissioning | |
| Waste Management | B442 | Domestic cleaning products to be collected and disposed of in regulated waste facilities | Construction / Operation / Decommissioning | |
| Waste Management | B443 | Fuels to be reused, recycled or collected and disposed of in regulated waste facilities | Construction / Operation / Decommissioning | |
| Waste Management | B444 | Greases and oils to be reused, recycled or collected and disposed of in regulated waste facilities | Construction / Operation / Decommissioning | |
| Waste Management | B445 | Triethylene glycol to be reused or collected and disposed of in a regulated waste facility | Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B446 | Contaminated stormwater runoff to be collected and treated within the wastewater treatment system | Construction / Operation / Decommissioning | |
| Waste Management | B447 | Lube oil to be collected and disposed of in an offsite regulated waste facility | Construction / Operation / Decommissioning | |
| Waste Management | 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 | 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 | B450 | Reverse osmosis treatment chemicals to be collected, piped and stored in a suitable dam | Operation / Decommissioning | |
| Waste Management | 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 | B452 | Wastewater (sewage) to be collected and transported offsite to a municipal treatment facility or treated onsite | Construction / Operation / Decommissioning | |
| Waste Management | B453 | A specific waste management plan will be developed to guide waste management during decommissioning | Decommissioning | |
| Waste Management | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | 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 | 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 | B458 | Onsite waste monitoring and auditing procedures will be developed | Construction / Operation / Decommissioning | |
| Waste Management | 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 | |
| Waste Management | 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 | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Waste Management | B463 | Maintain a waste stream inventory identifying the type, classification, storage, transport and disposal requirements for the waste | Construction / Operation / Decommissioning | |
| Waste Management | B464 | Inspect waste storage locations to ensure waste management measures are being adhered to | Construction / Operation / Decommissioning | |
| Waste Management | B465 | Maintain a regulated waste tracking system, as required | Construction / Operation / Decommissioning | Amended to clarify intent |
| Hazard and Risk | 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 | B467 | The design, construction and operation of regulated dams will be ~~highly regulated~~ managed through the use of standards and monitoring requirements | Design / Construction / Operation | Amended to clarify intent |
| Hazard and Risk | 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 | B469 | Design and size of dams to account for predicted flood conditions in accordance with the relevant regulations at the time of construction | Design | Amended to clarify intent |
| Hazard and Risk | B470 | Fences and escape facilities will be installed to prevent access and harm to people or livestock | Construction | |
| Hazard and Risk and Terrestrial Ecology | B471 | Develop fire management plans for production facilities | Design / Construction / Operation / Decommissioning | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk and Roads and Transport | B472 | Implement an in-vehicle monitoring system for Project vehicles | Planning / Design / Construction / Operation / Decommissioning | |
| Hazard and Risk | 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 | B474 | Implement Arrow's HSEMS for all activities and phases of development | Construction / Operation / Decommissioning | |
| Hazard and Risk | 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 | B476 | Select locations for Project infrastructure with full consideration of and allowance for the minimum buffer zones indicated by the quantitative risk assessment, and in consultation with authorities responsible for existing infrastructure provision | Design | Amended to clarify intent |
| Hazard and Risk | B477 | Design and construct Project infrastructure and facilities in accordance with applicable codes and standards | Design / Construction | |
| Hazard and Risk | B478 | Facilities will be designed with the ability to shut down and be isolated in preparation for impending bushfires | Design | |
| Hazard and Risk | 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 / | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | 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 | B481 | Design all pipes and vessels in accordance with applicable Australian Standards ~~to cope with maximum expected pressure~~ | Design | Amended to clarify intent |
| Hazard and Risk | B482 | Consider installing flow and pressure instrumentation to transmit upset conditions and plant shutdown valves status, where necessary | Design / Construction | |
| Hazard and Risk | B483 | Consider remote-control isolation on gas and water lines | Design / Construction / Operation | |
| Hazard and Risk | B484 | Design equipment ~~to withstand considerable~~ in accordance with applicable Australian Standards to withstand expected heat load, e.g., through use of heat resistant (fire-safe) isolation valves on production facilities | Design | Amended to clarify intent |
| Hazard and Risk | B485 | Design radiation exclusion zones around flares according to API standard | Design | |
| Hazard and Risk | B486 | Register pipelines and below-ground electrical services with Dial Before You Dig | Construction | |
| Hazard and Risk | B487 | Minimise enclosed spaces where flammable gas may accumulate | Design / Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | B488 | Emergency shutdown valves will be installed on pipelines so that their exposure to facility incidents is minimised | Design / Construction | |
| Hazard and Risk | B489 | Arrow will manage flooding risk through site location and drainage, particularly for production facilities | Construction / Operation / Decommissioning | |
| Hazard and Risk | B490 | Design appropriate drainages for waste spills within chemical bunds | Design | |
| Hazard and Risk | B491 | ~~Apply~~ Implement operating management plans ~~dam safety guidelines, which will apply~~ for all dams, including dam integrity inspections, storage availability monitoring and maintenance as ~~facilities forming~~ part of the Project development | Design / Construction / Operation / Decommissioning | Combined with commitment B516, B537 and B555 to clarify intent |
| Hazard and Risk | 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 | 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 | B494 | Implement Arrow's HSEMS for all activities and phases of development | Construction / Operation / Decommissioning | |
| Hazard and Risk | B495 | Consider the Australian Pipeline Industry Association *Construction Health and Safety Guidelines* (APIA, 2008) for pipeline construction and development of Construction Health and Safety Plan | Construction | |
| Hazard and Risk | B496 | Conduct pre-job safety meetings prior to the start of and during construction activities | Construction | |
| Hazard and Risk | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | 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 | |
| Hazard and Risk | B499 | Install, inspect and service fire-fighting equipment in accordance with risk assessments and relevant legislation and standards | Construction / Operation / Decommissioning | |
| Hazard and Risk | B500 | Implement transport-related safety programs, including driver training, journey management plans and preventative maintenance programs of vehicles | Construction / Operation / Decommissioning | |
| Hazard and Risk | B501 | Develop and implement safety training programs for personnel and contractors, including induction training of new starters | Construction / Operation / Decommissioning | |
| Hazard and Risk | B502 | Conduct pressure testing and inspection of equipment and pipelines in accordance with relevant legislative requirements and standards | Construction / Operation | |
| Hazard and Risk | 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 | B504 | Install isolation valves on pipelines in accordance with relevant standards and industry practices | Design / Construction | |
| Hazard and Risk | B505 | Commission fire-safety equipment in the early phase of the construction period | Construction / Operation / Decommissioning | |
| Hazard and Risk | B506 | Fit all buildings and production facilities with smoke or fire alarms | Design / Construction | |
| Hazard and Risk | B507 | Fit pumps with automatic pump shutdown or other safety devices to prevent leak in case of pumping against a blockage | Design / Construction | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | B508 | Install fire and gas detection systems to shutdown compressors | Design / Construction | |
| Hazard and Risk | B509 | Implement security controls e.g. fencing and locked gates | Design / Construction / Operation / Decommissioning | |
| Hazard and Risk | B510 | Install lightning mast and earthing grid to minimise risk of lightning strike at production facilities | Design / Construction | |
| Hazard and Risk | B511 | Machine guard all rotating equipment in accordance with Australian standards | Design / Construction / Operation | |
| Hazard and Risk | B512 | Where necessary, automate emergency shutdown systems at production facilities and, if necessary, include remote monitoring and control | Design / Construction / Operation | |
| Hazard and Risk | 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 | ~~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 | Deleted as commitment intent is included in B493 |
| Hazard and Risk | B515 | Establish overflow and operational controls in accordance with the dam operating plan | Construction / Operation / Decommissioning | |
| Hazard and Risk | ~~B516~~ | ~~Inspect and maintain dam integrity~~ | Construction / Operation / Decommissioning | Deleted as commitment intent is included in B491 |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | 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 | B520 | Implement a permit to work system that includes a job safety analysis process | Construction / Operation / Decommissioning | |
| Hazard and Risk | B521 | Implement management of change processes, including protocols for communication of changes to appropriate levels of management | Construction / Operation / Decommissioning | |
| Hazard and Risk | B522 | Implement internal and external (independent) hazard audit programs | Construction / Operation / Decommissioning | |
| Hazard and Risk | B523 | Communicate results from audit to management | Construction / Operation / Decommissioning | |
| Hazard and Risk | 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 | |
| Hazard and Risk | 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 | B526 | Wear appropriate personal protective equipment on a site- and duty-specific basis | Construction / Operation / Decommissioning | |
| Hazard and Risk | B527 | Where applicable, establish blowout preventer and other well control measures | Construction / Operation | |
| Hazard and Risk | B528 | Certify all equipment for drilling, where applicable | Construction | |

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| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | B529 | Ensure equipment and vehicle operators are licensed | Construction / Operation / Decommissioning | |
| Hazard and Risk | B530 | Prepare a risk control action plan as part of the safety assessment process | Construction / Operation / Decommissioning | |
| Hazard and Risk | B531 | Purge equipment of oxygen prior to introducing flammable gas | Construction / Operation / Decommissioning | |
| Hazard and Risk | B532 | Purge equipment after shutdowns | Construction / Operation / Decommissioning | |
| Hazard and Risk | B533 | Develop protocols for the control of operational activities during extreme fire danger periods, e.g., flaring or shutdowns | Construction / Operation / Decommissioning | |
| Hazard and Risk | B534 | Consider non-static protective clothing for operations personnel | Construction / Operation / Decommissioning | |
| Hazard and Risk | B535 | Establish lone-worker protocols and communication | Construction / Operation / Decommissioning | |
| Hazard and Risk | B536 | Conduct regular patrols and inspections of pipeline easements, including status of signposting subsidence and of fire breaks | Construction / Operation | |
| Hazard and Risk | ~~B537~~ | ~~Automate the chemical dosage system for water treatment at integrated processing facilities~~ | Operation | Deleted as commitment intent is included in B491 |
| Hazard and Risk | B538 | Consider the use of non-toxic gases for water treatment if gases are used | Operation | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | B539 | Ensure operator supervision for unloading of hazardous materials at production facilities | Construction / Operation | |
| Hazard and Risk | B540 | Provide escape ropes and ladders at strategic locations within a dam | Construction / Operation / Decommissioning | |
| Hazard and Risk | B541 | Use suitably trained and supervised staff or contractors to carry out depressurising and purging activities | Operation / Decommissioning | |
| Hazard and Risk | B542 | 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:<br>• All staff to work with a valid permit where required;<br>• Gas tests to be conducted where required<br>• Verification of isolation prior to work commencing and use of specified life protecting equipment<br>• Authorisation to be obtained prior to entering a confined space<br>• Authorisation to be obtained prior to overriding or disabling any critical safety equipment<br>• All persons to protect themselves against a fall when working at a height;<br>• No walking under a suspended load<br>• No smoking outside designated areas;— No alcohol or drugs while working or driving<br>• No phones to be used while driving and speed limits not to be exceeded<br>• Seat belts to be worn at all times<br>• Prescribed journey management plan to be followed | Construction / Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | 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 | 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 | |
| Hazard and Risk | B545 | Install manual isolation valves at the production well and skid edge | Construction | |
| Hazard and Risk | 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 | B548 | Daily operations will be managed with consideration of the fire danger current at that time | Construction / Operation / Decommissioning | |
| Hazard and Risk | B549 | Implement a decommissioning and rehabilitation plan in accordance with the dam design plan | Decommissioning | |
| Hazard and Risk | B550 | Develop rig move plans | Construction / Decommissioning | |
| Hazard and Risk | B551 | Depressurise and degas all plant and equipment in flammable-gas use prior to decommissioning | Decommissioning | |
| Hazard and Risk | ~~B552~~ | ~~Implement the dam operating plan~~ | Operation | Deleted as commitment is included in B491 |
| Hazard and Risk | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Hazard and Risk | ~~B555~~ | ~~Have a suitably qualified person routinely monitor the integrity and available storage of dams~~ | Construction / Operation | Deleted as commitment intent is included in B491 |
| Hazard and Risk | B556 | The Project HSEMS will detail the requirements for monitoring, measurement and reporting of health, safety and environmental performance | Construction / Operation / Decommissioning | |
| Indigenous Cultural Heritage | B557 | Negotiate CHMPs with the Aboriginal Parties, based on the avoidance / manage / mitigate principle | Design / Construction | |
| Indigenous Cultural Heritage | 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 | 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 | B560 | Avoid known cultural heritage sites, where practicable, through site selection | Design / Construction | |
| Non-Indigenous Cultural Heritage | 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 *Queensland Heritage Act 1992* | Design / Construction | |
| Non-Indigenous Cultural Heritage | B562 | Conduct pre-construction clearance surveys of sites to identify the presence of heritage sites | Design / Construction | |
| Non-Indigenous Cultural Heritage | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Non-Indigenous Cultural Heritage | 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:<br>• A stop work requirement on initial discovery<br>• Appropriate reporting and recording<br>• Archaeological assessment by a qualified heritage practitioner<br>• Avoidance or salvage | Design / Construction | |
| Non-Indigenous Cultural Heritage | B566 | Consult with the local community regarding the management of threatened historic sites and places | Design / Construction / Operation / Decommissioning | |
| Non-Indigenous Cultural Heritage | 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 | |
| Non-Indigenous Cultural Heritage | 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 | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Roads and Transport | B570 | 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:<br>• A strategy to safely manage road usage by construction vehicles<br>• Interaction of Project vehicles with school bus routes<br>• Interaction between stock and freight routes<br>• Detail safe driver behaviour and fatigue management protocols<br>• Consideration of specific requirements for over dimensional vehicles<br>• Interaction between Project traffic and at grade road / rail crossings<br>• Dust mitigation strategy<br>• Detail road maintenance and/or road upgrade requirements<br>• Liaise with relevant stakeholders<br>• Define community engagement strategies<br>• Suitability of existing road infrastructure | Design / Planning | |
| Roads and Transport | 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 | 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 | B573 | Undertake threshold assessments to determine whether upgrading of rail crossings is warranted | Design / Planning | |
| Roads and Transport | B574 | Implement driver training and fatigue awareness for employees and contractors | Design / Planning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Roads and Transport | B575 | Schedule roster changes to avoid peak traffic times | Design / Planning | |
| Roads and Transport | 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 | B577 | Develop journey management plans in consideration of high-risk roads | Design / Planning | |
| Roads and Transport | B578 | Use heavy-vehicle routes that avoid unsuitable bridges | Design / Planning | |
| Roads and Transport | B579 | Where assessed necessary, provide protected turning lanes for entry to permanent facilities to address road safety issues | Construction | |
| Roads and Transport | B580 | Ensure access driveways to Project facilities and infrastructure have appropriate sight distances | Construction | |
| Roads and Transport and Landscape and Visual Amenity | 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 | B582 | Confine Project traffic to designated roads and access tracks, where practicable | Construction / Operation / Decommissioning | |
| Roads and Transport | 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 | 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 | B585 | Coordinate with local law enforcement for movement of heavy or oversized loads | Construction / Operation / Decommissioning | |
| Roads and Transport | B586 | Implement journey management plans | Construction / Operation / Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Roads and Transport | B587 | Manage Project-related activities in the vicinity of existing stock routes in accordance with the *Land Protection (Pest and Stock Route Management) Act 2002* | Construction / Operation / Decommissioning | |
| Roads and Transport | B588 | Routinely monitor integrity and amenity on Project-related roads | Construction / Operation / Decommissioning | |
| Roads and Transport | 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 | B590 | Conduct regular safety inspections of Project vehicles | Construction / Operation / Decommissioning | |
| Decommissioning and Rehabilitation | 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 | 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 where required | Decommissioning | Amened to clarify intent |
| Decommissioning and Rehabilitation | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Decommissioning and Rehabilitation | 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 | B595 | Where required, rehabilitation will occur in consultation with the relevant landholders | Decommissioning | |
| Decommissioning and Rehabilitation | ~~B596~~ | ~~Infrastructure decommissioned in accordance with the relevant regulatory standards to prevent gas and water leakage~~ | Decommissioning | Deleted as commitment intent is included in B249 |
| Decommissioning and Rehabilitation | B597 | Statutory signposts installed to mark the location of decommissioned wells | Decommissioning | |
| Decommissioning and Rehabilitation | ~~B598~~ | ~~Wells decommissioned in accordance with the relevant regulatory standards to prevent groundwater mixing and future leakage to groundwater systems~~ | Decommissioning | Deleted as commitment intent is included in B249 |
| Decommissioning and Rehabilitation | B599 | Gathering lines decommissioned in accordance with the relevant regulatory standards to prevent gas and water leakage into the ground | Decommissioning | |
| Decommissioning and Rehabilitation | B600 | Contents of gathering lines collected to prevent discharge to receiving environment | Decommissioning | |
| Decommissioning and Rehabilitation | B601 | Solid or liquid wastes associated with facilities collected and removed to licenced waste or recycling facilities | Decommissioning | |
| Decommissioning and Rehabilitation | B602 | Any contaminated land remediated to appropriate human health and environmental standards | Decommissioning | |
| Decommissioning and Rehabilitation | 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 | B604 | Any underground infrastructure filled with an inert substance to prevent subsidence, where applicable | Decommissioning | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Decommissioning and Rehabilitation | B605 | Soil ripped or scarified by another suitable technique in highly trafficked areas to promote free drainage | Decommissioning | |
| Decommissioning and Rehabilitation | B606 | A suitable vegetation cover to enable natural vegetation progression and minimal weed invasion | Decommissioning | |
| Decommissioning and Rehabilitation | B607 | Ensure final ~~G~~ ground conditions are rehabilitated to a state that is conducive to support further natural regeneration at Project closure | Decommissioning | Amended to clarify intent |
| Decommissioning and Rehabilitation | B608 | Where dams are removed, any waste will be managed appropriately | Decommissioning | |
| Decommissioning and Rehabilitation | B609 | Brine residue will be managed in accordance with regulatory requirements ~~the Brine & Salt Management Plan~~ | Decommissioning | Amended to clarify intent |
| Decommissioning and Rehabilitation | B610 | Former dam backfilled and ground surface reshaped to promote natural drainage patterns and limit pooling of surface water | Decommissioning | |
| Decommissioning and Rehabilitation | B611 | Modular infrastructure removed from the site and reused elsewhere where possible | Decommissioning | Amended to clarify intent |
| Decommissioning and Rehabilitation | B612 | Borrow pits contoured to establish a stable landform | Decommissioning | |
| Decommissioning and Rehabilitation | B613 | If appropriate, permanent office infrastructure left in place for continued operation or third-party use | Decommissioning | |
| Decommissioning and Rehabilitation | B614 | Solid or liquid wastes associated with accommodation camps collected and removed to licensed waste facilities or managed appropriately | Decommissioning | |
| Decommissioning and Rehabilitation | B615 | Former disturbance area reduced to as small as practicable, with ground surface shaped | Decommissioning | |
| Decommissioning and Rehabilitation | 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 | |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Economic | 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 | 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 | 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 | 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 | 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 | 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 | 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 P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Economic | B624 | Develop and implement ~~a local industry participation plan~~ an Australian 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 | Amended in line with current legislation |
| Economic | 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 | 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 | B627 | Where suitable proponent-owned land is available, consider leasing to farmers to support agricultural production of that land | Operation | |
| Economic | 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 | Amended to clarify intent |
| Economic | 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 | 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 | Amended to clarify intent |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Economic | B631 | Ensure all disturbed land is rehabilitated as appropriate when gas facilities are decommissioned | Decommissioning | |
| Economic | B632 | Consider building construction worker camps prior to construction of production facilities | Construction | |
| Economic | B633 | Accommodate workers required to construct camps in temporary accommodation wherever possible | Construction | |
| Economic | B634 | Maintain dialogue with construction industry bodies, state government and local councils regarding timing and scale of anticipated worker accommodation requirements | Construction | |
| Economic | 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 | 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 | 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 | 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 P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Economic | 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 | 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 | B641 | Appropriate erosion control methods implemented to ensure sites do not erode during the period of establishment of vegetation cover | Decommissioning | |
| Nosie and Vibration | B642 | Following detailed design, strategies for management of noise impact from flaring will be incorporated into an environmental management plan associated with a site specific Environmental Authority application. These strategies would follow the management hierarchy for an activity involving noise given in the *Environmental Protection (Noise) Policy 2008*:<br>1. Avoid the noise impact (e.g. locating the position of the flare(s) in area(s) away from sensitive receptors wherever possible)<br>2. Minimise the noise impact, in the following order of preference:<br>a. Orient the activity to minimise the noise<br>b. Use best available technology<br>3. Manage the noise impact | Construction / Operation / Decommissioning | New commitment |
| Noise and Vibration | B643 | Noise level predictions in the EIS and SREIS will also be used to inform the Project in the selection of suitable site locations for plant and facilities by taking into consideration the contribution of individual plant toward cumulative noise impacts and the site environmental setting | Construction / Operation / Decommissioning | New commitment |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | B644 | If the need to hydraulically stimulate any wells arises, prior to the commencement of hydraulic stimulation activities Arrow will develop and implement a procedure that satisfies the relevant regulatory requirements relating to hydraulic stimulation, for each hydraulic stimulation campaign | Construction / Operation / Decommissioning | New commitment |
| Groundwater | B645 | Arrow will continue to provide information to the Office of Groundwater Impact Assessment (OGIA), as required by the Underground Water Impact Report, to enable continual development and updates to the regional cumulative model administered by OGIA | Construction / Operation / Decommissioning | New commitment |
| Groundwater | B646 | Design all hydraulic stimulation wells and events in accordance with relevant requirements of the Petroleum and Gas (Production and Safety) Regulation 2004 and the Environmental Protection Act 1994 (EP Act 1994) | Construction / Operation / Decommissioning | New commitment |
| Groundwater | B647 | Manage non-spring groundwater-dependent ecosystems (GDE) according to the following framework:<br>• Identify potential GDE landscapes<br>• Use modelling to predict impacts<br>• Identify GDEs at risk of impact through a risk assessment. Where identified as being at risk of impact, conduct further assessment including field studies and monitoring to ascertain connectivity of GDE to underlying aquifers<br>• Monitor and manage impacts as required | Construction / Operation / Decommissioning | New commitment |
| Groundwater | B648 | Investigate potentially impacted sites of Indigenous cultural and spiritual importance that may have dependence on groundwater to determine the status of the feature, confirm groundwater-dependence and develop mitigation measures where required | Construction / Operation / Decommissioning | New commitment |

## Appendix P Commitments Update

| Environmental Value | Commitment Number | Commitment | Relevant Phase | Rationale |
|---|---|---|---|---|
| Groundwater | B649 | Where sites of cultural and spiritual significance within the Project area that may have dependence on groundwater will be potentially impacted by Project activities:<br>• Liaise with traditional owners of the land in accordance with any endorsed Cultural Heritage Management Plan to located potentially impacted features and further understand their significance<br>• Undertake field surveys to confirm the status of potentially impacted features (i.e. whether feature still exists and/or is actively used) associated with groundwater<br>• Develop monitoring, management and mitigation measures to assess, manage, avoid or minimise impact to the feature(s) | Construction / Operation / Decommissioning | New commitment |