ATTACHMENT 4

SURAT GAS PROJECT

Commitments Update

arrow energy
go further

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ATTACHMENT 4: COMMITMENTS UPDATE

This attachment of the supplementary report to the EIS (SREIS) provides an update to the comprehensive list of commitments presented in Attachment 8 of the Surat Gas Project Environmental Impact Statement (EIS) (Coffey Environments, 2012b).

Attachment 8 collated all of the (avoidance, mitigation, management, inspection and monitoring) commitments made in the impact assessment chapters of the EIS (i.e., Chapters 9 to 26), where each commitment was allocated a unique number (e.g., [C256]). These commitments were based on the proposed activities to be undertaken and considered individual specialist studies (as provided in the appendices), Arrow's knowledge and understanding of the project development area and the information available to it at the time the EIS was submitted, and its experience in design, construction and operation of coal seam gas infrastructure within regulatory environments. The commitments relate to the project development area in the Surat Gas Project as described in the EIS at time it was submitted.

The SREIS has identified 23 additional commitments to those presented in the EIS. The majority of these resulted from further development of the draft Social Impact Management Plan (Attachment 3). 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 transparency, through 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.

The Surat Gas Project Terms of Reference requires that any commitments which have not been included in the EIS environmental management plan be identified. Such commitments include those captured instead, by the social impact management plan. Commitments that are not included in the updated EIS environmental management plan (Attachment 2, Strategic Environmental Management Plan) are indicated in this attachment by ***bold, italicised*** text.

Table 1 Commitments update

Commitment Number	Commitment	Relevant Phase	Change
C001	Conduct site-specific air quality modelling once site locations are known to ~~ensure~~ ~~show~~ demonstrate that project-related air emissions meet EPP (Air) objectives at the nearest sensitive receptor.	Planning and Design	Clarification of commitment intent.
C002	Select equipment with consideration for low emissions to air (NOx, SOx), high energy efficiency and fuel efficiency.	Planning and Design	
C003	Design facilities to meet relevant EPP (Air) objectives at sensitive receptors.	Planning and Design	
C004	Minimise fuel consumption of vehicles by optimising transport logistics.	Planning and Design Construction Operations Decommissioning	No change. Clarification of applicable phase.
C005	Select gaskets, seals and vehicle exhaust systems that are suitable for the task.	Planning and Design	
C006	Arrow will develop a greenhouse gas management plan that will take into account both biodiversity and economic values of carbon.	Planning and Design Operations	
C007	Consider energy efficiency programs both locally and across the company that contribute to greenhouse gas emission reductions.	Planning and Design Operations	
C008	Arrow will participate actively in any government-approved emissions trading scheme.	Planning and Design Operations	
C009	Routinely monitor water quality in dams.	Inspection and Monitoring	
C010	Consider supporting through corporate community involvement programs the development of energy efficiency initiatives in the areas where Arrow operates.	Planning and Design Operations	
C011	~~Ensure~~ Operate and maintain all engines, machinery equipment and pollution control mechanisms ~~are operated and maintained~~ in accordance with manufacturers' recommendations.	Planning and Design Construction Operations Decommissioning	Clarification of commitment intent.
C012	Implement dust suppression measures for roads and construction sites where there is a potential for ~~to ensure that~~ dust to ~~does not~~ cause ~~a~~ nuisance effects.	Construction Operations Decommissioning	Clarification of commitment intent.
C013	Cover dust-generating materials prior to transportation on public roads.	Construction Operations Decommissioning	Clarification of commitment intent.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C014	Consult with potentially affected landowners prior to undertaking activities.	Construction Decommissioning	
C015	Clear areas progressively and implement rehabilitation as soon as practicable following construction and decommissioning activities.	Construction Operations Decommissioning	
C016	Prevent venting and flaring of gas as far as practicable and where safe to do so.	Construction Operations	
C017	Manage odours so that they do not cause a nuisance or harm to sensitive receptors.	Construction Operations	
C018	Optimise gas-engine operation to ~~minimise duration of operation at low-efficiency levels that may result in increased emissions.~~ maintain high efficiency levels to keep greenhouse gas and air emissions as low as practicable.	Construction Operations Decommissioning	Clarification of commitment intent.
C019	Inspect and observe site locations for the presence of contamination prior to commencement of intrusive activities.	Planning and Design	
C020	Minimise the disturbance footprint and vegetation clearing.	Planning and Design Construction Operations and maintenance Decommissioning	No change. Relevant phase revised.
C021	During the construction phase, minimise greenhouse gas emissions as much as reasonably practicable through selection of equipment and the commitment to clear areas progressively. Implement rehabilitation as soon as practicable following construction activities.	Construction	Clarification of commitment intent.
C022	Consider supporting gas industry initiatives that seek to improve technology or processes, such as contributions or sponsorship of research and development.	Planning and Design Operations	
~~C023~~	~~During the decommissioning phase, minimise greenhouse gas emissions by optimising transport logistics and minimising the footprint of disturbance.~~	~~Decommissioning~~	Commitment superseded by existing commitments C004 and C020.
C024	Install and maintain diversion drains to divert clean surface runoff water around production facilities and away from construction areas.	Planning and Design Construction Operations Decommissioning	
C025	Select permanent infrastructure, equipment and materials to withstand future predicted increases in ambient air temperature with consideration for cost implications.	Planning and Design Construction	Expanded to consolidate intent of C029.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C026	Design and construct the production facilities in accordance with current Australian standards addressing climatic factors including wind, bushfires and floods.	Planning and Design Construction	
C027	~~Deploy~~ Develop preventive and responsive measures for bushfire management and flooding~~, as set out in Chapter 25, Preliminary Hazard and Risk~~.	Planning and Design Construction Operations Decommissioning	Removal of reference to chapter.
C028	~~Incorporate climate change induced health risks into future workplace health, safety and environmental management plans, as set out in Chapter 25, Preliminary Hazard and Risk.~~	Planning and Design Construction Operations Decommissioning	Workplace health and safety is governed by existing regulations.
C029	~~Estimate and include climate change costs in business cost projection and consider emerging business opportunities that climate change may generate.~~	Planning and Design Construction Operations Decommissioning	Commitment superseded by commitment C025.
C030	~~Engage~~ Participate in government or industry climate change programs~~ as set out in Chapter 10, Greenhouse Gas Emissions~~.	Planning and Design Construction Operations Decommissioning	Clarification of commitment intent.
C031	Arrow will manage its impacts to ~~Maintain the integrity of~~ private roads and tracks and minimise dust generation, where appropriate, in consultation with relevant landowners and council.	Planning and Design Construction Operations Decommissioning	Clarification of commitment intent.
C032	Use existing roads and tracks, where practicable.	Planning and Design Construction Operations Decommissioning	
C033	Confine project traffic to designated roads and access tracks, where practicable.	Planning and Design Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C034	Develop an erosion and sediment control plan and install and maintain appropriate site-specific controls, established on the basis of the sensitivity of the surrounding environment.	Planning and Design Construction Operations Decommissioning	Expanded to capture expert advice provided in supplementary assessment.
C035	Apply appropriate international, Australian and industry standards and codes of practice for the handling of hazardous materials (such as chemicals, fuels and lubricants).	Planning and Design Construction Operations Decommissioning	
C036	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 and Design Construction Operations Decommissioning	Clarification of commitment intent.
C037	Ensure appropriate spill response equipment, including containment and recovery equipment, is available on site, or can be mobilised to the impacted site within an acceptable response time and that relevant personnel are appropriately trained.	Planning and Design Construction Operations Decommissioning	Expanded to clarify the intent of the commitment.
C038	Carry out corrective actions immediately upon the identification of any contamination of soil or groundwater that has occurred as a result of project activities.	Planning and Design Construction Operations Decommissioning	
C039	Assess contamination that may have occurred as a result of project activities in accordance with documented operating procedures. Appoint one or more suitably qualified and experienced contaminated land specialists.	Planning and Design Construction Operations Decommissioning	
C040	Undertake an environmental site assessment in response to the identification of contamination that may have occurred as a result of project activities.	Planning and Design Construction Operations Decommissioning	
C041	Avoid the Chinchilla Sands Local Fossil Fauna Site and educate project personnel on the importance of the site.	Planning and Design Construction Operations Decommissioning	
C042	Design infrastructure located in cracking clays to withstand the differential shrink-swell ground movement.	Planning and Design	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C043	Complete excavation, remediation, characterisation and validation activities in response to the identification of contamination that may have occurred as a result of project activities.	Planning and Design Construction Operations Decommissioning	
C044	Incorporate construction methods and treatments to deal with reactive gilgai and cracking clays in infrastructure design.	Planning and Design	
C045	Time construction works and access to sites to avoid wetter periods, where practicable.	Planning and Design	
C046	Design and plan the project to avoid steep slopes and areas dissected by gully networks, where practicable. Where these are unavoidable, ensure the required infrastructure (e.g., roads) is appropriately designed for erosion control purposes.	Planning and Design	
C047	Locate pipelines to avoid or ~~minimise~~ reduce the impact on irrigation flow or current farming practices. If the ROW must cross actively farmed arable land, ensure soil cover above the pipeline is deep enough to allow normal cultivation practices to resume.	Planning and Design	Clarification of commitment intent.
C048	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 and Design Construction Operations Decommissioning	
C049	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).	Planning and Design	
C050	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	
C051	Allocate bins for different waste streams to achieve solid waste segregation. Provide appropriate domestic waste disposal facilities at designated work sites to assist in segregation of waste.	Construction Operations Decommissioning	
C052	Reduce flow concentration and gully creation by minimising disruption to natural overland flow paths through the re-establishment of natural surface drainage lines.	Construction	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C053	Avoid disrupting overland natural flow paths and, where avoidance is not practicable, maintain connectivity of flow in watercourses.	Construction	
C054	Do not disturb or remove flood banks and artificial levees except in consultation with parties benefitting from the structures and the relevant authorities.	Construction	
C055	Avoid disturbance of contour banks and irrigation bays.	Construction	
C056	Avoid mounding of soil along pipelines in irrigated paddocks, to the greatest extent practicable, allowing for settlement of backfill.	Construction	
C057	Reduce ~~Conduct pipeline construction to minimise~~ the duration of exposure of soils to as low as reasonably practicable during pipeline construction.	Construction	Clarification of commitment intent.
C058	Arrow will apply the following hierarchy of management options to all waste generated during the project activities: • Source reduction: avoid, eliminate, change or reduce practices that result in the generation of wastes. • Reuse: reuse waste materials that are in their original form. • Recycling: where possible, send waste to appropriate facilities to convert waste into other usable materials. • Treatment and disposal: render wastes safe by neutralisation or other treatment methods and dispose of waste products that can no longer be reused or recycled either through landfilling or incineration.	Construction Operations Decommissioning	
C059	Avoid excessive watering of saline soils to reduce leaching of salts and rising groundwater.	Construction	
C060	Avoid excessive watering of surface-crusting soils to reduce crust formation.	Construction	
C061	Provide regular access points to pipeline construction ROWs to limit rutting and compaction of soils from vehicles travelling along the ROW.	Construction	
C062	Strip, salvage and stockpile topsoil near the work site separately to subsoils (in consultation with landowners). Ensure topsoil stockpiles are designed in accordance with best practise principles and are protected from erosion by wind, rain and floods. Stockpile topsoil to a maximum height of 2.5 m to maintain fertility and if stored for extended periods, sow with appropriate vegetation to maintain organic matter and microbial activity.	Construction ~~Operations~~ Decommissioning	Expanded to clarify the intent of the commitment and correct the relevant phases.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C063	Carry out ground investigations in soils prone to salinity prior to major earthworks to establish the depth at which saline conditions occur.	Construction	
C064	Avoid disturbance of contaminated soil and groundwater when it is identified or observed during intrusive works.	Construction	
C065	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 (DE, 1998).~~Guideline for contaminated land professionals (EHP, 2012b).	Construction Operations Decommissioning	Updated to reflect current guidelines.
C066	Discharge water from project activities at a rate and location that will not ~~result in~~ cause or exacerbate erosion ~~as far as practicable~~. Install ~~additional~~ erosion protection measures, including energy dissipation structures, at discharge outlets.	Planning and Design Construction Operations Decommissioning	Clarification of commitment intent.
C067	Ensure coal seam gas water used on highly productive soils is of comparable water quality to that used for irrigation in the specific area.	Operations	
C068	Ensure the use of coal seam gas water meets beneficial-use licence conditions where it is to be used on GQAL or strategic cropping land or within heritage-listed or indicative sites.	Operations	
C069	~~Incorporate into an emergency response plan or water management plan procedures for the controlled discharge of coal seam gas water under emergency conditions. Develop procedures for the discharge of coal seam gas water will that include water balance modelling, weather monitoring and forecasting, streamflow data, notification and reporting.~~	Operations	Commitment superseded by expanded Commitment, C498.
C070	Develop rehabilitation plans based on environmental sensitivities that address ground preparation requirements, natural and constructed drainage patterns, soil erodibility, contamination, slope steepness and length, rainfall frequency and intensity, potential flow magnitudes, vegetation cover, land use and landowner requirements.	Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C071	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	
C072	Remedy areas of differential settlement associated with buried infrastructure that interrupt the pre-existing surface water flow within intensively cultivated areas.	Decommissioning	
C073	Excavate any saline material during rehabilitation of coal seam 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	No change. Note this commitment supersedes C114.
C074	Implement a decommissioning and rehabilitation plan in accordance with the dam design plan.	Decommissioning	
C075	Comply with the provisions of the *Petroleum and Gas (Production and Safety) Act 2004* and the Land Access Code (DEEDI, 2010a) prior to accessing private land. All appropriate agreements (with accompanying maps of the area of interest and detail on infrastructure development) will be in place prior to entry onto the land. Arrow will ensure all appropriate landowners are notified prior to access being required to allow stock to be moved and access routes to be cleared of machinery or materials.	Planning and Design Construction Operations Decommissioning	
C076	Avoid infrastructure and associated farm management areas of intensive farming operations, including piggeries, feedlots, vineyards, orchards, horticultural enterprises, poultry farms and small-lot plantations.	Planning and Design Construction Operations Decommissioning	
C077	Maintain the grievance process (complaint management system) for the community to register complaints, issues, comments and suggestions.	Planning and Design Construction Operations Decommissioning	
C078	Retain and regularly inspect erosion and sediment control structures until reinstated soils have been stabilised and sown. If any problems are encountered, implement corrective actions as soon as practicable.	Planning and Design Construction Operations Decommissioning	Expanded to clarify the intent of the commitment.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C079	Arrow will enforce a no hydraulic fracturing (fraccing) policy in the project development area.	Planning and Design Construction Operations Decommissioning	
C080	Plan and integrate construction and operations activities with harvesting, spraying and withholding periods.	Planning and Design Construction Operations Decommissioning	
C081	Develop and implement a compensation framework to 'add value' rather than just compensating for impacts.	Planning and Design	
C082	Develop coal seam gas development property plans to address key issues raised by landowners relating to potential impacts on intensively farmed land.	Planning and Design	
C083	Investigate the opportunity to increase well spacing from 160 acres (65 ha) to 320 acres (129 ha) or greater to reduce the footprint on strategic cropping land.	Planning and Design	
C084	Consult and agree with landowners on the appropriate location for infrastructure and access routes (to well sites and to and along pipelines). Clearly identify the outcome of the discussions on scaled plans of the property and clearly indicate agreed access routes using signs, temporary fencing, barricade tape or traffic control measures.	Planning and Design	
C085	Study methods to reduce impacts and maintain the soil profile during gathering system pipeline construction by understanding the soil type, reducing pipe diameters, plowing (instead of trenching) and potentially burying deeper than the minimum standard.	Planning and Design	
C086	Develop or facilitate the development of a method for assessing impacts on productivity (crop yields) that incorporates statistical analysis and appropriate control and sampling sites.	Planning and Design	
C087	Investigate alternative drilling technologies, such as using directional drilling to access coal measures, reducing gathering system pipe diameters and drilling multiple wells from one drill pad to potentially reduce the footprint on strategic cropping land.	Planning and Design	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C088	Consult with landowners on the most appropriate method to minimise disruption to cultivation paddocks (including the introduction of additional headlands) and loss of productive land in controlled-traffic paddocks. The following measures will be considered in reaching agreement: • Locate infrastructure (in order of preference) outside of cultivation areas, in headlands or at the corners of cultivated areas, adjacent to boundary fences or in areas of a paddock with the lowest-quality soil. • Utilise existing access tracks and trafficked areas. • Locate new access tracks in headlands or adjacent to boundary fences. • Align gathering lines and new access tracks parallel to the direction of cultivation, soil conservation structures and controlled traffic runs and avoid perpendicular or lateral connections. • Lay out drill pads in accordance with landowner requirements, subject to safety requirements, to reduce the overall impact on cultivation, where practicable.	Planning and Design	Clarification of commitment intent and reordering of bullets.
C089	Develop construction methods and design access tracks in cultivation paddocks to maintain the existing hydrologic and hydraulic regime of the site and in a way that does not cause erosion.	Planning and Design	
C090	Backfill soils in the reverse order of removal, and undertake backfilling progressively and regularly during pipeline construction.	Construction Operations Decommissioning	
C091	Ensure construction activities do not extend beyond the work site boundaries.	Construction Operations Decommissioning	
C092	Ensure dams for coal seam gas water and brine are not constructed on intensively farmed land.	Construction Operations Decommissioning	
C093	Install gates in fences of an appropriate standard to restrict access to authorised personnel, vehicles, plant and equipment.	Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C094	Ensure an Arrow representative is in attendance at the time of first entry to check contractors have the appropriate environmental management procedures and property-specific information.	Construction Operations Decommissioning	
C095	Maintain the integrity and efficiency of surface irrigation systems by adopting the following measures: • Locate infrastructure at or adjacent to the end of head ditches or tail drains and in a manner that does not significantly interfere with swept paths of boom irrigators to avoid severance or fragmentation of water delivery systems. • Locate wells, gathering lines and access tracks adjacent to boundary fences, where practicable. • Align gathering lines and access tracks perpendicular to the direction of head ditches and tail drains (i.e., parallel to the direction of surface flows and cultivation).	Construction Operations Decommissioning	
C096	Use surface tanks (not pits) to manage drilling muds on black soils when drilling production wells.	Construction Operations Decommissioning	
C097	Fence the exclusion zone of production wells. ~~sites (i.e., 10 m by 10 m) to exclude unauthorised personnel, stock and wildlife from that area~~.	Construction Operations Decommissioning	Revised to account for differing exclusion zone requirements (e.g., multi-well pads) and to recognise that a multitude of factors influence the final fencing.
C098	Inspect work sites and access routes for notifiable weeds and pest plants and animals prior to accessing the site; and if detected, manage in accordance with the Petroleum Industry – Minimising Pest Spread Advisory Guidelines, Queensland Department of Primary Industries and Fisheries, June 2008 (Biosecurity Queensland, 2008).	Construction Operations Decommissioning	
C099	Wash down vehicles and equipment that have potentially been in contact with weeds before entering new work sites.	Planning and Design Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C100	When operating on black soils, collect, contain and store drilling fluids and waste (solid and liquid) on site in appropriate storage tanks until recycled, treated (if necessary) or disposed of off site.	Construction Operations Decommissioning	
C101	Stockpile drilling cuttings adjacent to the well or in containers and dispose of appropriately in consultation with the landowner.	Construction Operations Decommissioning	
C102	Store onsite materials in suitable containment systems constructed to industry standards and Australian standards (AS 1940-2004, The Storage and Handling of Flammable and Combustible Liquids (Standards Australia, 2004a), and AS 3780, The Storage and Handling of Corrosive Substances (Standards Australia, 2008b) at a minimum). Maintain quality control and quality assurance procedures to monitor volumes and quantities. Bund aboveground storage areas to contain spills.	Construction Operations Decommissioning	
C103	Manage soil contaminated by oil, fuel and grease in accordance with the project hydrocarbon management plan ~~(prepared as part of the Arrow HSEMS)~~, which includes procedures for the excavation and removal to a licensed landfill or remediation at site. Where contamination has occurred, investigate and remediate in accordance with Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Department of Environment, 1998 (DE, 1998).	Construction Operations Decommissioning	Clarification to link plan to Surat Gas Project activities.
C104	Maintain a minimum separation, as agreed with the landowner, between animal enclosures and production wells and facilities.	Construction Operations Decommissioning	
C105	Suspend works when rainfall or storm events produce onsite conditions that, if trafficked or worked, would compromise the effectiveness of erosion and sediment control structures, or would lead to rutting and compaction of soils or mixing or inversion of soil horizons.	Construction Operations Decommissioning	
C106	Stockpile cleared or mulched vegetation along the inside edge of the work sites (separate from soil stockpiles), to aid the control of runoff and ensure stockpiled vegetation does not pose a bushfire hazard.	Construction Operations Decommissioning	
C107	Control sediment runoff from stockpiles.	Construction	
C108	Construct batters and embankments of drill pads and production facility benches at appropriate slopes and protect from erosion.	Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C109	Stockpile imported fill for bedding of pipes adjacent to the trench and away from vegetation, topsoil and subsoil stockpiles.	Construction Operations Decommissioning	
C110	Remove excess imported fill and residual subsoil from the work site, and reuse or dispose of in accordance with landowner requirements.	Construction Operations Decommissioning	
C111	Maintain the operation and effectiveness of soil conservation structures by ~~adopting~~ considering the following measures: • Avoid breaching, diversion or disturbance of contour banks, waterways and dams. • Avoid earthworks that affect waterway function. • Locate wells, access tracks and gathering lines downhill and parallel to soil conservation structures and avoid perpendicular or lateral connections. • Utilise existing access tracks and trafficked areas.	Construction Operations Decommissioning	Clarification of commitment intent.
C112	Remove sediment fencing prior to cultivation and dispose of in accordance with landowner requirements or in accordance with the waste management plan of the Arrow HSEMS.	Construction Operations Decommissioning	
C113	Cap or fit wellhead equipment to wells at the completion of drilling to ensure no uncontrolled release of gas or water.	Construction Operations Decommissioning	
~~C114~~	~~Remove salt from the landscape as part of decommissioning works and dispose of in an approved and regulated landfill.~~	~~Construction~~ ~~Operations~~ ~~Decommissioning~~	Commitment superseded by existing commitment C073.
C115	Replace or rehabilitate all disturbed infrastructure to predisturbance condition.	Decommissioning	
C116	Regrade work sites to original surface contours following reinstatement of soil.	Decommissioning	
C117	Mulch vegetation and reuse in site rehabilitation.	Decommissioning	
C118	Deep rip and cross rip all construction areas and temporary access tracks to a depth of at least 0.4 m. Repeat following topsoil reinstatement to promote infiltration and assist the re-establishment of connections between soil horizons.	Decommissioning	
C119	Compact padding material and subsoils used to backfill pipeline trenches to reduce settling. Limit compaction to no deeper than 0.5 m below natural surface level.	Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C120	Prepare a baseline assessment plan to establish benchmark data in registered third-party bores (where possible) prior to the commencement of Arrow extraction activities in accordance with the Water Act. ~~including the preparation and implementation of a groundwater monitoring and investigation strategy~~.	Planning and Design	Clarification of requirements for a baseline assessment plan.
C121	Rehabilitate clean water diversions, down-gradient soil erosion control works and temporary sediment dams to preconstruction site levels~~, and rip~~ prior to sowing with crops or pasture grasses.	Decommissioning	Clarification of commitment intent recognising site-specific conditions dictate best rehabilitation outcomes.
C122	Clean and reinstate (if necessary) erosion and sediment control structures prior to and following storm events and periodically during long periods of rain.	Decommissioning	
C123	Visually inspect rehabilitated work sites for flow diversions and evidence of erosion associated with trench settling or incomplete reinstatement of surface contours. If any problems are encountered, implement corrective actions as soon as practicable.	Decommissioning	Expanded to clarify the intent of the commitment.
C124	Consider local biological, groundwater and surface water conditions when identifying sites for coal seam gas water dams and brine dams.	Planning and Design	
C125	Consider local groundwater conditions when identifying sites for the installation of buried infrastructure (e.g., gathering lines).	Planning and Design	
C126	Avoid unnecessary impervious surface coverings and ~~minimise~~ reduce land footprint and vegetation clearing when designing facilities.	Planning and Design	Clarification of commitment intent.
C127	Undertake bore assessments of third-party bores (where possible) in accordance with the Water Act, including: • Having the Office of Groundwater Impact Assessment (the former Queensland Water Commission) for the Surat Cumulative Management Area identify bores requiring assessment. • Developing make-good agreements that include the outcome of bore assessments and implementation of make-good measures in the event that impaired capacity occurs.	Planning and Design	Update to reflect departmental name change.
C128	Continue an investigative program that will help quantify the connectivity between the Condamine Alluvium and the Walloon Coal Measures. The program will involve: • Monitoring the effects of groundwater extraction	Planning and Design	

	in the Walloon Coal Measures on the Condamine Alluvium to estimate horizontal and vertical hydraulic conductivity between the alluvium and the Walloon Coal Measures. • An investigative drilling program that will provide greater definition of the interface between the two units and will evaluate the geological and hydrogeological properties of the material at the interface of the units. • Groundwater chemistry studies to characterise mixing and migration between the units. • Groundwater modelling, utilising the connectivity data obtained through investigative components of the program, to understand important processes in the system and predict potential impacts.		
C129	Continue a program of aquifer testing in dedicated groundwater monitoring bores to increase the predictability of aquifer properties and groundwater movement.	Planning and Design	
C130	Collect relevant geological and hydrogeological data from existing and future production wells, monitoring bores and registered third-party bores (where possible) together with information collated collaboratively with other proponents and regulatory authorities.	Planning and Design	
C131	Update and calibrate the geological model and the numerical groundwater model with relevant data on an ongoing basis, including: • Aquifer thicknesses and interfaces between formations. • Aquifer properties, e.g., porosity, permeability. • The location of sensitive areas, e.g., groundwater discharge springs. • Observed responses in monitoring bores that reflect aquifer behaviour during coal seam gas extraction.	Planning and Design	
C132	Utilise the updated geological and numerical groundwater models to: • Make ongoing predictions regarding changes to groundwater levels and groundwater quality as the project develops. • Improve confidence in the understanding of the sensitivity and resilience of the aquifers within the identified groundwater systems.	Planning and Design	
C133	Perform groundwater modelling simulations to predict impacts on groundwater resources in overlying and underlying aquifers. This information will subsequently be used to evaluate the suitability of these resources for use in make-good measures.	Planning and Design	
C134	Verify the preferred water management strategy by modelling the effectiveness of substitution (‘virtual injection’) and injection (~~where~~ if conducted) in offsetting depressurisation impacts in ~~aquifers~~ the Condamine Alluvium.	Planning and Design	Clarification of commitment intent.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C135	Consider injection of coal seam gas water ~~or brine~~ of a suitable quality (if proven technically feasible) into shallow or deep aquifers to offset depressurisation impacts in aquifers.	Operations	Clarification of commitment intent.
C136	Address the potential for surface deformation through participation by Arrow in a collaborative study with other proponents using historical and baseline data from the Advanced Land Observation Satellite covering a time-lapse period from January 2007 until January 2011. This will allow a detailed analysis of the region and will enable the analysis of the evolution of measured surface deformation in space and time. The assessment will correlate and calibrate data deliverables (calibrated global map and vector files for measurement points) from the Advanced Land Observation Satellite to show the mean deformation rate, identify areas of large-scale deformation and compare patterns with other information (e.g., geology, basin structure, extraction wells and injection data).	Planning and Design	
C137	Construct all coal seam gas production infrastructure in accordance with the standards described in the P&G Act and regulations to that act.	Construction	
C138	Construct, decommission or repair all monitoring bores in accordance with the minimum construction requirements for water bores in Australia (National Uniform Drillers Licencing Committee, 2012) and the minimum standards for the construction and reconditioning of water bores that intersect the sediments of artesian basins in Queensland (DERM, 2004).	Construction Operations Decommissioning	Revised to reflect latest edition.
C139	Select drilling fluids to minimise potential groundwater impacts. Do not use oil-based drilling fluids.	Construction	
C140	Ensure well drilling is monitored by a suitably qualified geologist to ensure aquifers are accurately identified for correct well construction.	Construction	
C141	Develop the construction, design and monitoring requirements for new 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, 2011a~~ EHP, 2012f). Construct the dams under the supervision of a suitably qualified and experienced person in accordance with the relevant DERM schedule of conditions relating to dam design, construction, inspection and mandatory reporting requirements.	Construction	Revised to reflect latest version of the manual.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C142	Manage potential impacts to groundwater-dependent ecosystems (including ~~on identified~~ spring complexes) by: • Supporting the identification of specific aquifers that serve as a groundwater source for the groundwater-dependent ecosystem. ~~discharge springs~~. • Assessing groundwater-dependent ecosystems ~~springs~~ that are predicted to be subject to unacceptable impacts through the source aquifer. • Developing monitoring and mitigation strategies to avoid or minimise unacceptable impacts.	Operations	Clarification of commitment intent.
C143	Implement a well integrity management system during commissioning and operation of production wells.	Operations	
C144	Minimise impacts of groundwater depressurisation on sensitive areas (e.g., groundwater-dependent ecosystems).	Operations	
C145	Develop a procedure for investigating the impaired capacity of third-party bores. The investigation will comprise (but not be limited to) the following phased investigation response: • Verify groundwater levels in the nominated bores and investigate groundwater levels and groundwater quality in compliance monitoring bores against established trigger thresholds. • Request bore information and groundwater data from affected parties. • Review and assess data. • Advise bore owners in writing of findings.	Operations	
C146	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 coal seam gas activities), implement make-good measures in accordance with the Water Act.	Operations	
C147	Include where possible make-good measures such as ~~substitution of groundwater allocations of equal or better quality to maintain user supply~~, deepening of bores, modification of pumps, or supply of ~~ground~~ water from an alternative source.	Operations	Clarification of commitment intent.
C148	Connect wastewater and sewerage systems to sewers where locally present. Alternatively, install wastewater treatment or reuse systems in accordance with AS/NZS 1547:2000, On-site Domestic Wastewater Management (Standards Australia, 2000); DERM guideline for managing sewerage infrastructure to reduce overflows and environmental impacts (DERM, 2010b); and Queensland water recycling guidelines (DERM, 2005).	Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C149	Store and manage all waste materials (domestic and industrial) in accordance with industry regulations and ~~DERM~~ EHP conditions. Use licensed waste management contractors. Conduct audits of disposal facilities, disposal permits and onsite operations to ensure adherence to regulations.	Operations	Revised to address departmental change.
C150	Construct, decommission or repair all coal seam gas 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 (National Uniform Drillers Licencing Committee, 2012)~~ 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 ~~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.	Construction Operations Decommissioning	Revised to reflect latest edition.
C151	When siting production facilities, avoid wetlands and consider the following: • Stream processes that may result in channel migration (either over time or as a result of project activities) and areas that are highly susceptible to erosion (i.e., dispersive soils). • Downstream values of nearby watercourses or wetlands. • Minimising changes to natural drainage lines and flow paths. • Flooding regimes and areas subject to inundation.	Planning and Design	Clarification of commitment intent.
C152	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	
C153	Avoid permanent pools, chains of ponds, and alluvial islands, where practicable, when selecting watercourse crossing points.	Planning and Design	
C154	Design coal seam gas water dams in accordance with relevant legislation, ~~and Queensland~~ standards and ~~DERM~~ guidelines.	Planning and Design	Clarification of commitment intent and opening up to relevant standards and guidelines.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C155	Site facilities above the 1-in-100-year average flood recurrence interval, ~~W~~where practicable, ~~site facilities above the 1 in 100 year average flood recurrence interval.~~ and design infrastructure taking into consideration overland flow and flooding regimes to reduce impacts on immediate and surrounding areas.	Planning and Design	Expanded to clarify the intent of the commitment.
C156	Manage potential impacts on Lake Broadwater Conservation Park (Category A ESA) through implementation of ~~the~~ relevant buffers in accordance with legislative requirements at the time of development in this region ~~proposed in Table 2~~.	Planning and Design	Commitment updated to reflect Queensland Government review of buffers.
C157	Arrow will implement a buffer zone ~~of 100m~~ from the high bank of all watercourses to ~~ensure that no~~ prevent development or clearance occurring~~s~~ within the~~se~~ buffer~~s~~ (other than construction of watercourse crossings for roads and~~,~~ pipelines, ~~and~~ discharge infrastructure and associated stream monitoring equipment). Determine the buffer zone distance in accordance with the legislative requirements at the time of development or through preconstruction clearance surveys.	Planning and Design Construction	Commitment updated to reflect Queensland Government review of buffers.
C158	Develop site-specific management plans for permanent and semi-permanent watercourse crossings detailing construction and environmental management requirements, including consideration of the scour potential of the watercourse.	Planning and Design	
C159	Design culverts and drains to maintain flow and prevent headward erosion.	Planning and Design	
C160	Consider the bank and stream bed stability when siting watercourse crossings and, where practicable, utilise existing stable crossings or locations where bedrock control exists to ~~minimise~~ reduce the potential for ~~risk of~~ erosion and generation of sediment.	Planning and Design	Clarification of commitment intent.
C161	Plan construction of watercourse crossings to occur during periods of low rainfall and low flow, when practicable.	Planning and Design	
C162	Minimise potential impacts on surface waters through implementation of the following measures during construction of watercourse crossings: • 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 (e.g., silt fences, sediment basins and erosion berms) on watercourse approaches and banks and ensure prompt completion of construction.	Construction	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C163	Check for flood warnings or subscribe to flood warning services where relevant during construction of watercourse crossings.	Construction	
C164	Construct watercourse crossings in a manner that ~~minimises~~ reduces 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.	Construction	Revised to omit duplicated wording and clarify commitment intent.
C165	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.	Construction	
C166	Retain coarse alluvial material from watercourse crossings for backfill armouring over the finer unconsolidated material.	Construction	
C167	Stabilise and maintain stream banks following watercourse crossings.	Construction	
C168	Develop and implement a hydrostatic testing procedure prior to commencement of hydrotest activities that includes but is not limited to the following measures: • Conduct consultation with landowners and relevant regulatory authorities prior to sourcing and disposing of hydrotest water. • Avoid or minimise harmful chemical additives and reuse hydrotest water on adjacent pipeline sections where practicable. • Ensure hydrotest water that is discharged or recycled for secondary uses meets relevant statutory water quality guidelines.	Construction	
C169	Grade soil away from watercourses.	Construction	
C170	Locate soil stockpiles away from watercourses and wetlands to ~~minimise~~ reduce potential for sediment runoff to enter the watercourse or wetland.	Construction	Clarification of commitment intent.
C171	Develop and implement incident reporting, emergency response and corrective action systems or procedures. Include systems for reporting, investigation and communications of lessons learned.	Construction Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C172	Segregate stormwater discharge from potential contaminant process areas.	Operations	
C173	Inspect rehabilitated watercourse channels and banks following significant flow events and undertake remedial works as required.	Operations	
C174	Maximise beneficial use of coal seam gas water.	Operations	
C175	~~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.~~	Operations	Commitment superseded by revised Commitment, C498.
C176	Where used ~~coal seam gas water~~ for dust suppression on roads or for construction and operations activities coal seam gas water quality will be, ~~authorised in the environmental authority~~ in accordance with relevant permits and/or consents. ~~the water quality parameters described in the environmental authority~~.	Construction Operations	Clarification of commitment intent.
C177	Minimise the inventory of hazardous materials stored on site.	Operations	
C178	Decommission infrastructure in such a manner that it will not adversely affect overland or flood flows and in accordance with relevant legislation and regulations.	Decommissioning	
C179	~~Ensure~~Advise all relevant personnel ~~are made aware~~ of the location and extent of weed infestations in the vicinity of ~~the~~ work areas and the risks involved in moving from one site or property to another.	Planning and Design Construction Operations Decommissioning	Clarification of commitment intent.
C180	Do not wash down vehicles in watercourses.	Planning and Design Construction Operations Decommissioning	
C181	Avoid the use of vehicles and machinery in the vicinity of or within watercourses and riparian zones, wherever practicable.	Planning and Design Construction Operations Decommissioning	
C182	Locate self-contained portable toilet facilities at designated work sites at appropriate distances from watercourses, ~~ensuring that they~~ where they are accessible to all operations and maintenance personnel. Regularly maintain the facilities and ~~are regularly maintained. D~~dispose of sewage and greywater from toilet facilities via a chemical treatment system or transport to a municipal sewage treatment plant using a licensed contractor.	Planning and Design Construction Operations Decommissioning	Clarification of commitment intent.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C183	Where appropriate, design ground disturbance works to minimise the need for cut-and-fill earthworks.	Planning and Design	
C184	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	
C185	Design the width of the pipeline ROWs to be narrower at watercourse crossings, where practicable.	Planning and Design	
C186	Co-locate pipelines into one watercourse crossing corridor, where practicable.	Planning and Design	
C187	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.	Planning and Design	
C188	Develop a declared weed and pest management plan in accordance with the Petroleum industry (including coal seam methane gas) minimising pest spread advisory guidelines (Biosecurity Queensland, 2008), or relevant legislation at the time. 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, requirements for crossing and working around pest fences and monitoring the effectiveness of control measures.	Planning and Design	Changed to expand on intent of commitment and refer to updated guidelines.
C189	Plan construction and maintenance activities to minimise movement of plant and equipment between properties or areas with weed infestations.	Planning and Design	
C190	When sourcing maintenance materials, ~~ensure that such~~ check materials such as bedding sand, topsoil ~~straw bales~~ and sand bags ~~are brought to site only after it is ascertained that the materials are not~~ for ~~contaminated with~~ weeds and plant materials or animal pathogens. Request a weed hygiene declaration form from the supplier where there is possible risk of contamination in products or materials.	Planning and Design Construction Operations Decommissioning	Changed to expand on intent of commitment.
C191	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	
C192	Obtain all relevant permits required under the *Fisheries Act 1994* (Qld), including permits for construction of waterway barriers or disturbance of fish habitat.	Planning and Design	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C193	Identify declared weeds during the preconstruction clearance survey.	Construction	
C194	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	
~~C195~~	~~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~~	Superseded by Commitment C164.
C196	~~Ensure~~ Design flumes used to construct watercourse crossings ~~are~~ to a suitable~~y~~ size~~d~~ 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	Clarification of commitment intent.
C197	Store stockpiled, cleared vegetation away from watercourses or drainage lines.	Construction	
C198	If diversion of watercourse flows using pumps is required, screen the pump intakes with mesh to protect aquatic life.	Construction	
C199	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 practised, for which the method of weed treatment is to be agreed with the landowner.	Operations	
C200	Adhere to the following mitigations specific to Landscape Type I: forested steep hills, Captains Mountain (comprising Captains Mountain, Commodore Peak and Mt Domville): • Avoid locating production facilities adjacent to and on Captains Mountain. • Avoid locating production wells and gathering systems on the forested steep slopes and ridges of Captains Mountain. • Avoid ROWs perpendicular to the slope when locating production wells and gathering systems adjacent to the forested steep hills of Captains Mountain.	Planning and Design Construction	
C201	Develop and continually maintain the coal seam gas water and salt management strategy throughout the project life to optimise the investigation and implementation of the potential coal seam gas water management options in alignment with the overall project development.	Planning and Design	Updated to reflect revised strategy title.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C202	Contain coal seam gas water in dams for treatment through reverse osmosis.	Construction Operations Decommissioning	
C203	Demonstrate the requirement for disposal when beneficial uses are unavailable, including details of the control measures that will be implemented.	Operations	
C204	Maintain water balance models for long-term planning and management of coal seam gas water. Review and update modelling in alignment with the production-forecasting schedule.	Planning and Design Construction Operations Decommissioning	
C205	Identify strategies to minimise coal seam gas water surface storage and to promote increased efficiency.	Planning and Design	
C206	Subject each dam 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.	Planning and Design	
C207	Implement the dam operating plan.	Inspection and Monitoring	
C208	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 Operations	
C209	Use an independent, suitably qualified, third party to certify that dams meet the dam design plan.	Planning and Design	
C210	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.	Planning and Design	
C211	Design and size dams to account for predicted flood conditions.	Planning and Design	
C212	Inspect food scrap bins and exclusion fences to ensure they are properly operated and maintained.	Inspection and Monitoring	
C213	Line banks of dam with an impervious lining.	Construction	
C214	Design dams to have an egress (escape point) for wildlife.	Construction	
C215	Establish overflow and operational controls in accordance with the dam operating plan.	Operations	
C216	Inspect and maintain dam integrity.	Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C217	Avoid the following areas: • Wondul Range National Park~~, Bendidee National Park~~ and Lake Broadwater Conservation Park (Category A ESAs). • Chinchilla Sands Local Fossil Fauna Site. • 'Critically endangered' EPBC Act communities within the project development area (REs 11.3.21, 11.3.24, 11.8.2a) including three natural grassland road reserves (Dalby Kogan, Dalby St George and Dalby Cecil Plains).	Planning and Design	Updated as Bendidee National Park is no longer within the project development area.
C218	Aim to avoid: • Additional national- and state-listed communities: Brigalow (REs 11.3.1, 11.4.3, 11.4.10, 11.9.5, 11.9.6), Semi-evergreen vine thickets (REs 11.9.4a, 11.8.3), Weeping Myall Woodlands, and Coolibah-Blackbox Woodlands (RE 11.3.3). • Category B ESAs. • Category C ESAs, including Gurulmundi State Forest, ~~Bendidee State Forest,~~ Binkey State Forest and Barakula State Forest. • Wyaga-Kindon Ooline populations. • Stock routes and state or bioregional wildlife corridors. • Essential and core habitat (supporting listed wildlife species). • State forests and resources reserves. • State-listed 'of concern' regional ecosystems.	Planning and Design	Updated as Bendidee State Forest is no longer within the project development area.
C219	Where avoidance is not possible, and significant residual impacts remain to threatened species and communities, implement an offset strategy approved by a relevant government agency and comply with reporting conditions of an offset plan.	Planning and Design	Expanded to clarify the intent of the commitment.
C220	Conduct preconstruction clearance surveys to identify any additional areas that may need to be avoided.	Planning and Design	
C221	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.	Planning and Design	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C222	Arrow will carry out waste audits and reporting for waste generating activities to: • Provide waste data to enable continuous improvement of waste avoidance, reduction and management measures throughout the project life. • Assess whether action is required to fulfil set waste objectives and management. • Assess the adequacy of proposed mitigation measures and identify where mitigation measures need revision or additional measures. • Monitor potential environmental impacts that will enable positive action to be implemented in case of incidents or accidents related to waste activities. • Provide actual waste management results by comparing predicted impacts and mitigation measures.	Construction Operations Decommissioning	
C223	Develop fire plans for production facilities.	Planning and Design Operations	
C224	Develop ~~threatened species~~ management procedures, inclusive of buffers where required, for threatened communities and species as and when project activities are identified as likely to have an impact on these values ~~upon individuals~~.	Planning and Design	Clarification of commitment intent.
C225	Avoid construction activities in waterbodies frequented by migratory species.	Planning and Design	
C226	Store liquid waste generated (other than coal seam gas water and sewage) and periodically remove it for disposal or recycling.	Construction Operations Decommissioning	
C227	Manage potential impacts on Category A, B and C ESAs through implementation of ~~the~~ buffers ~~proposed in Table 2.~~ in accordance with legislative requirements at the time.	Construction	Commitment updated to reflect Queensland Government review of buffers.
C228	~~Ensure~~ Mark site boundaries ~~are clearly marked~~ clearly for site-specific sensitive areas that require avoidance.	Construction	Clarification of commitment intent.
C229	~~Ensure~~ Inform relevant workers, including contract plant and machinery operators~~, are made aware~~ of the location of significant remnant vegetation and buffers and ~~are~~ use qualified personnel to guide~~d~~ clearing activities ~~by qualified personnel when clearing is undertaken~~.	Construction	Clarification of commitment intent.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C230	Demarcate buffers and inform workers and machinery operators of buffer locations when working within the vicinity of national- and state-listed species, communities and areas identified for ~~potential~~ avoidance.	Construction	Clarification of commitment intent.
C231	~~Minimise~~ Reduce the width of construction ROW within areas of sensitivity to the greatest extent practicable without compromising the safety of workers.	Construction	Clarification of commitment intent.
C232	Conduct preconstruction clearance surveys and include as a minimum: • Vegetation mapping at a scale suitable for site-specific planning. • Identification of core habitats and listed species. • Identification of site-specific sensitive areas that require avoidance or buffer areas.	Construction	
C233	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	
C234	Retain habitat trees, where practicable.	Construction	
C235	Assess trees prior to felling for potential nesting hollows. If identified, fell trees in the presence of a qualified fauna spotter-catcher and roll them so that the hollows are facing upwards, allowing fauna to escape.	Construction	Updated to incorporate consistent terminology of role.
C236	Identify key koala trees (*Eucalyptus tereticornis* and *Eucalyptus populnea*), 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	
C237	Use appropriately trained personnel or a spotter-catcher ~~wildlife handler~~ to capture injured wildlife, where possible. If further action is required, consult with a qualified vet to determine appropriate action.	Construction	Updated to incorporate consistent terminology of role.
C238	Retain woody debris, logs and rocks for use in rehabilitation~~. These should be~~ spreading them over part or all of the corridor or, as a minimum, piled along the edge of the cleared corridor to provide refuge for crossing fauna.	Construction	Clarification of commitment intent.
C239	Translocate or propagate significant species where it is deemed necessary for use during rehabilitation or in offsets in accordance with relevant legislation.	Construction	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C240	Construct production wells, gathering lines and access tracks within cleared areas, where practicable, with the aim of avoiding sensitive areas ~~remnant vegetation and high-value regrowth~~.	Construction	Amended to reflect legislative change of vegetation mapping.
C241	Fell trees away from existing stands where practicable. Where trees unavoidably fall into a stand, leave trees in situ to emulate natural tree fall and provide habitat for ground-dwelling species, where practicable.	Construction	
C242	Avoid damaging standing trees not identified for removal. Limit the scraping of standing tree trunks and breaking of limbs by equipment as far as practicable.	Construction	
C243	Erect fauna-exclusion fences around project dams.	Construction	
C244	Consider the preconstruction clearance survey baseline characterisation when rehabilitating project sites.	Decommissioning	
C245	Implement site planning, preparation and management requirements in accordance with a developed and approved decommissioning and rehabilitation plan.	Decommissioning	
C246	Decommission the pipeline corridors in a manner that minimises potential impacts on the environment.	Decommissioning	
C247	Identify areas for rehabilitation.	Decommissioning	
C248	Prioritise areas for rehabilitation based on the preconstruction clearance survey baseline characteristics.	Decommissioning	
~~C249~~	~~Where not possible to avoid Bendidee State Forest (which provides habitat for the 'endangered' bull oak jewel butterfly), conduct activities in predisturbed areas following the development and implementation of a bull oak jewel butterfly management plan with regard to the existing recovery plan (Lundie-Jenkins & Payne, 2000).~~	~~Planning and Design~~	Bendidee State Forest is no longer within the project development area.
C250	Advise, through procedures and plans, on requirements for rehabilitation in identified areas that are no longer in use.	Decommissioning	
C251	Reinstate self-supporting drainage lines.	Decommissioning	
C252	Inspect rehabilitation areas after decommissioning for regrowth similar to the surrounding environment.	Decommissioning	
C253	Select plant species for the purposes of rehabilitation that are specific to the original ecosystem and of local provenance, wherever practicable.	Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C254	Implement noise control techniques in accordance with the project's noise and vibration commitments and standard industry noise suppression techniques.	Construction Operations Decommissioning	Clarification of commitment intent.
C255	~~Minimise~~ Reduce light spill resulting from project activities to reduce disturbance to nocturnal fauna.	Construction Operations Decommissioning	Clarification of commitment intent.
C256	Prohibit disturbance or harassment of wildlife and the unauthorised collection of flora and forest products.	Construction Operations Decommissioning	
C257	Dispose of waste that cannot be reused or recycled at appropriately licensed facilities.	Construction Operations Decommissioning	
C258	Dispose of food scraps in large skips or bins that prevent animal access. Empty these storage devices regularly in a manner that does not involve disposal to onsite trenches or waste dumps.	Construction Operations Decommissioning	
C259	Train field personnel to identify key pest species and to maintain constant vigilance for weeds and pest fauna species throughout the project life to ensure early detection and intervention.	Construction Operations Decommissioning	
C260	Implement speed limits on project-controlled roads to reduce the potential for vehicle collisions with wildlife.	Construction Operations Decommissioning	
C261	Install and maintain appropriate sediment and erosion control structures at work sites.	Construction Operations Decommissioning	
C262	Use shrouded, downcast lighting to minimise spill and restrict it to the minimum required for safety and security. Design lighting in accordance with AS 4282-1997, Control of the Obtrusive Effects of Outdoor Lighting (Standards Australia, 1997).	Planning and Design	
C263	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.	Planning and Design	
C264	Site each production facility in the landscape of lowest sensitivity, where practicable, such as next to existing industrial developments or existing coal seam gas facilities.	Planning and Design	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C265	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, particularly the bird hide and camping area at Lake Broadwater, Captains Mountain, Jimbour House, the Cunningham Highway, towns, schools and private residences.	Planning and Design	
C266	When siting production facilities, maintain the maximum distance practicable from, and ~~minimise~~ reduce 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.	Planning and Design	Clarification of commitment intent.
C267	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. Establish screening barriers using endemic species in advance of construction of the facilities.	Planning and Design	
C268	Integrate facilities into the landscape setting where screening is not practicable, 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.	Planning and Design	
C269	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.	Planning and Design	
C270	Conduct planned maintenance flaring during daylight hours to minimise light spill, where practicable.	Planning and Design	
C271	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.	Planning and Design	
C272	When clearing vegetation, seek to avoid creating gaps in stands or patches and to avoid isolating parcels of remnant vegetation from more continuous tracts.	Planning and Design	
C273	Plan the movement of equipment and materials during times of least visual impact (i.e., work day start and end), where practicable.	Construction	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C274	Target dry weather periods when undertaking construction in sensitive landscape areas (e.g., waterway crossings), where feasible, to minimise visual impacts due to sedimentation and erosion.	Construction	
C275	Locate topsoil and spoil mounds in visually unobtrusive locations, where practicable.	Construction	
C276	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	
C277	Utilise landscape features and contours, where practicable, to integrate linear infrastructure (access tracks, gathering lines) into the landscape.	Construction	
C278	~~Minimise~~ Optimise the length and width of roads and tracks.	Construction	Clarification of commitment intent.
C279	Avoid roads traversing highly visible hills.	Construction	
C280	Minimise construction time near sensitive visual receptors.	Construction	
C281	Develop and implement waste management procedures in accordance with the Queensland Environmental Protection (Waste Management) Policy 2000.	Construction	
C282	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.	Operations	
C283	Remove surface infrastructure and reinstate disturbed areas as soon as practicable to predisturbance landscape characteristics or consult with landowners regarding reinstatement objectives.	Decommissioning	
C284	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 or the Department of Transport and Main Roads.	Planning and Design Operations Decommissioning	No change. Appropriate project phase identified.
C285	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 DTMR (if a state road).	Planning and Design	
C286	Undertake threshold assessments to determine whether upgrading of rail crossings is warranted.	Planning and Design	
C287	Implement driver training and fatigue awareness for employees and contractors and incorporate journey management practices.	Planning and Design	Expanded to clarify the intent of the commitment.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C288	Implement an in-vehicle monitoring system for project vehicles.	Planning and Design	
C289	Schedule roster changes to avoid peak traffic times.	Planning and Design	
C290	Develop project logistics plans to provide safe movement of people and materials, as well as to minimise traffic volumes.	Planning and Design	
C291	Develop journey management plans in consideration of high-risk roads.	Planning and Design	
C292	Use heavy-vehicle routes that avoid unsuitable bridges.	Planning and Design	
C293	Where assessed necessary, identify and implement improvement measures (e.g., ~~provide~~ protected turning lanes) for entry to permanent facilities to address road safety issues.	Construction	Commitment refined to clarify intent.
C294	Ensure access driveways to project facilities and infrastructure have appropriate sight distances.	Construction	
C295	Implement traffic controls, including signage (e.g., reduced speed limits, warning signs) and restrictions of movements (e.g., no travel during school bus pick-up and drop-off times).	Construction Operations Decommissioning	
C296	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 pull-over areas where necessary.	Construction Operations Decommissioning	
C297	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 Operations Decommissioning	
C298	Coordinate with relevant authorities (e.g., Queensland Police, ~~local law enforcement,~~ Department of Transport and Main Roads and council) for movement of heavy or oversized loads.	Construction Operations Decommissioning	Revised to clarify coordination of heavy or oversized loads.
C299	Implement journey management plans.	Construction Operations Decommissioning	
C300	Manage project-related activities in the vicinity of existing stock routes in accordance with the Land Protection (Pest and Stock Route Management) Act.	Construction Operations Decommissioning	
C301	Where noise reduction devices are deemed necessary, ensure devices (such as mufflers, low-noise fans and possibly enclosures) are fitted and work correctly.	Planning and Design Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C302	Operate equipment and handle materials in a manner that does not cause unnecessary noise. (e.g., excessive revving or dropping materials).	Planning and Design Construction Operations Decommissioning	
C303	Develop site-specific monitoring programs for threatened species and communities ~~that are site specific and~~ based on the identified risk to the conservation or maintenance of a viable population.	Inspection and Monitoring	Commitment refined to clarify intent.
C304	Manage noise in accordance with the relevant permits and/or consents ~~environmental authority conditions~~. Where night-time activities are planned (10 p.m. to 6 a.m.) and are likely to exceed the prescribed noise criteria, conduct prior consultation with affected parties.	Planning and Design Construction Operations Decommissioning	Commitment refined to clarify intent.
C305	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.	Planning and Design Construction Operations Decommissioning	
C306	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.	Planning and Design Construction Operations Decommissioning	
C307	Implement a grievance management system that responds to noise complaints. If necessary, undertake noise monitoring of construction activities to facilitate a response to the grievance.	Planning and Design Construction Operations Decommissioning	
C308	Routinely monitor integrity and amenity on project-related roads.	Inspection and Monitoring	
C309	Preferential selection of sites in sparsely populated areas.	Planning and Design	
C310	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. 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	
C311	Locate equipment associated with production wells and associated wellhead infrastructure at a distance of 200 m or more from a sensitive receptor.	Planning and Design	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C312	Consider the following factors prior to any blasting operations being conducted: • The type of rock and stratigraphy being blasted and any associated faulting. • The distance of the blast site from sensitive receptors. • The type, size and number of charges used. • The depth and manner in which the charge is installed. • The meteorological conditions. • Methods of controlling blast noise and vibration, such as mats or smaller blasts.	Construction	
C313	Where practicable, schedule planned flaring events (e.g., those preceding shut-down maintenance) for the period between 6 a.m. and 10 p.m.	Operations	
C314	Monitor compliance with the project's road safety requirements through regular review of reports generated by the in-vehicle monitoring system.	Inspection and Monitoring	
C315	Conduct regular safety inspections of project vehicles.	Inspection and Monitoring	
C316	***Encourage contractors engaged by the project to utilise Australian and Queensland Government skills and training programs where possible, including the Australian Apprenticeship Program. This should include providing information about and developing awareness of government incentives and programs among all contractors engaged and directing contractors to relevant agencies.***	***Construction Operations Decommissioning***	
C317	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	
C318	If directed by the administering authority in response to a valid noise complaint, undertake noise monitoring in accordance with the DERM (2000) Noise Measurement Manual.	Inspection and Monitoring	
C319	***Continue to support programs such as the CSG/LNG Industry Training Program to develop coal seam gas industry skills in the local workforce.***	***Construction Operations Decommissioning***	
C320	***Collaborate with state government, local councils, local industry, industry organisations, and coal seam gas 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 Surat Gas Project from other sectors.***	***Construction Operations Decommissioning***	***Grammatic correction.***

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C321	***Consider building construction worker ~~camps~~ TWAFs prior to construction of production facilities to minimise any impacts on property markets during early phase construction works.***	***Planning and Design***	***Use of abbreviation for consistency.***
C322	***Accommodate workers required to construct ~~camps~~ TWAFs in temporary accommodation wherever practicable.***	***Planning and Design***	***Use of abbreviation for consistency.***
C323	***The social impact management plan details the mitigation measures that will be implemented by Arrow through the life of the project.***	***Planning and Design***	
C324	Inspect known 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 cultural heritage management plan.	Inspection and Monitoring	
C325	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 cultural heritage management plan.	Inspection and Monitoring	
C326	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.	Inspection and Monitoring	
C327	***Examine options for establishing a local cooperative service or a network or alliances to connect local businesses and enable collaboration in meeting service supply requirements of the coal seam gas industry.***	***Construction Operations Decommissioning***	
C328	***Inform local council, economic development organisations, the Industry Capability Network and state government of goods and services required by the Surat Gas Project that are not currently available or underserviced from within the Darling Downs.***	***Construction Operations Decommissioning***	
C329	***Where proponent-owned land is available and it is suitable and safe to do so, consider leasing to farmers to support agricultural production on that land.***	***Construction Operations Decommissioning***	
C330	Store putrescible solid waste in covered containers to prevent odours, public health hazards and access by fauna.	Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C331	***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 to help them position themselves to reduce response times to planning applications, particularly as the number of planning applications is likely to increase.***	***Construction Operations Decommissioning***	
C332	***Collaborate with the Queensland Government and other proponents of major projects being developed in the region to identify peak periods when one or more proponents will require common resources simultaneously, to allow adequate and appropriate planning.***	***Construction Operations Decommissioning***	
C333	***Continue to provide state and local government departments responsible for educational, health and other social infrastructure with forecasts of workforce numbers and projected families to assist in their future service planning. Provide this information in an agreed format that will allow these departments to plan for cumulative population change.***	***Construction Operations Decommissioning***	
C334	***Encourage local population growth where it is desired and planned for, enforcing the expectation that non-local operations employees will relocate to the project development area as there are no plans to establish fly-in, fly-out or drive-in, drive-out operations.***	***~~Construction~~ Operations***	***No change. Appropriate phase identified.***
C335	***Provide information and Australian cultural awareness briefing for overseas workers and their families on how to undertake day-to-day activities; for example, provide advice on banking and shopping.***	***Construction Operations***	
C336	***Provide opportunities for qualified females and people from other underrepresented groups.***	***Construction Operations Decommissioning***	
C337	***Implement an Operations Workforce Policy preferring local residence for operations staff.***	***Operations***	
C338	***~~Continue with training and employment programs for local school leavers.~~ Develop a policy identifying training pathways for students and school leavers to assist students in gaining employment upon graduation. The policy will be developed in consultation with Education Queensland. Where relevant training programs have been initiated by other project proponents, Arrow will consider coordinating support with these, where appropriate.***	***Construction Operations***	***Revised commitment resulting from updated draft Social Impact Management Plan.***

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C339	*Provide training opportunities for Arrow employees including:* • *Vocational and trade training to allow employees the opportunity to gain nationally recognised qualifications.* • *Specialist training to ensure employee skills are up to date.* • *Graduate development program, which provides a planned development path for newly degree-qualified employees.*	*Construction* *Operations* *Decommissioning*	*Updated to consolidate C340 and C341 and to clarify training opportunities.*
~~*C340*~~	~~*Provide specialist training for each employee in their area of expertise, to ensure employees' skills are up to date.*~~	~~*Construction*~~ ~~*Operations*~~ ~~*Decommissioning*~~	*Commitment superseded by C339.*
~~*C341*~~	~~*Provide a graduate development program offering a planned development path for newly degree-qualified employees that allows them to become professionals in their chosen disciplines.*~~	~~*Construction*~~ ~~*Operations*~~	*Commitment superseded by C339 and C342.*
C342	*Provide opportunities for students and recent graduates, including:* • *Graduate development program, offering a planned development path for newly degree-qualified employees.* • *Scholarships to first-year university students who want to pursue a career in the coal seam gas industry.* • *Vacation employment for undergraduates in their penultimate year of study, with 12 weeks' paid employment within the company.* • *School-based training for year 11 and 12 students in Dalby and Moranbah who want to gain vocational qualifications at the Certificate II level.*	*Construction* *Operations*	*Updated to include intent of C341 regarding student and graduate opportunities.*
~~*C343*~~	~~*Design vacation employment for undergraduates in their penultimate year of study, that provides 12 weeks' paid employment within the company.*~~	~~*Construction*~~ ~~*Operations*~~	*Commitment superseded by C342.*
~~*C344*~~	~~*Provide school-based training for year 11 and 12 students in Dalby and Moranbah who want to gain vocational qualifications at the Certificate II level.*~~	~~*Construction*~~ ~~*Operations*~~	*Commitment superseded by C342.*
~~*C345*~~	~~*Provide medium- and long-term contract position opportunities.*~~	~~*Construction*~~ ~~*Operations*~~ ~~*Decommissioning*~~	*Commitment superseded by C346.*
C346	*Facilitate opportunities for workers to transition to other project phases (e.g., facility construction to facility operation).*	*Construction* *Operations* *Decommissioning*	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C347	***Consider flexible shift hours and rosters to encourage participation of underemployed sectors (e.g., family-friendly shift arrangements for locally-based operations workforce).***	***Construction Operations Decommissioning***	
C348	***Continue to ensure that equal opportunity policies are in place addressing ethnicity, gender or disability.***	***Construction Operations Decommissioning***	
C349	***Implement a hierarchy of preferred employment for employees and contractors based on home or source location, with the highest preference for those living within the study area.***	***Construction Operations Decommissioning***	
C350	***Liaise with local employment and education or training institutions (e.g., Southern Queensland Institute of TAFE) on training and skills development programs, to identify workers within the region who have the ability to obtain qualifications based on recognition of prior learning.***	***Planning and design Construction Operations***	***No change. Appropriate project phase identified.***
C351	***Identify the range of skills required for the labour force and undertake a gap analysis against skills availability. Where gaps exist, in consultation with Energy Skills Queensland, Manufacturing Skills Queensland and Construction Skills Queensland, identify the method or strategy through which these skills gaps will be filled (e.g., ~~drive-in, drive-out options;~~ training).***	***~~Construction Operations~~ Planning and design***	***Appropriate project phase identified and key example highlighted.***
C352	***Undertake regular review of labour requirements and current skills sets to ensure that training strategies meet these needs.***	***Construction Operations Decommissioning***	
C353	***Continue to build on existing training and skills development programs, including apprenticeships, scholarships, vocational training, support for work readiness programs and pretrade training.***	***Construction Operations Decommissioning***	
C354	***Participate in existing state and federal government employment and training programs (e.g., Critical Skills Investment Fund, Productivity Places Program, Indigenous Cadetship Support, Indigenous Employment Program, Skilling Queenslanders for Work Initiative).***	***Construction Operations Decommissioning***	
C355	***Work with Skills Queensland to deliver work readiness and skills development training programs for vulnerable local people, such as the long-term unemployed or underskilled, to assist them to gain employment.***	***Construction Operations Decommissioning***	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C356	*Notify local people of employment opportunities through recruitment websites, local advertising, local recruitment agencies and information sessions.*	*Construction Operations Decommissioning*	
~~*C357*~~	~~*To increase employment and enterprise opportunities for Indigenous people, develop an Indigenous participation policy and implementation plan that identifies strategies relating to Indigenous employment and enterprise opportunities.*~~	~~*Construction Operations Decommissioning*~~	*Commitment superseded by C355, C550, C551 and C552.*
C358	~~*Develop a local industry participation plan, in consultation with the Department of Employment, Economic Development and Innovation, which will be consistent with the Australian Industry Participation Plan.*~~ *Implement the Australian Industry Participation Plan (AIPP), which provides detailed information about the strategies and approaches to be undertaken by Arrow to:* • *Encourage contractors to source local goods and services where possible.* • *Encourage business to consider Indigenous procurement to maximise Indigenous employment opportunities.* • *Engage with key business bodies regarding appropriate opportunities for local businesses to supply goods and services to the project.* *The AIPP was developed in consultation with the state government and is consistent with the Queensland Resource Council (QRC) Code of Conduct.*	*Construction Operations Decommissioning*	*Revised commitment resulting from updated draft Social Impact Management Plan.*
C359	*Continue to use the Industry Capability Network database for potential suppliers in the area.*	*Construction Operations Decommissioning*	
C360	*Develop and maintain a business vendor register.*	*Construction Operations Decommissioning*	
C361	*Organise local supplier information sessions to inform business of Arrow's development plans, tender opportunities for local business and how to complete tender requirements.*	*Construction Operations Decommissioning*	
C362	*Provide industry support organisations with the information that they require to assist local businesses to improve their skills base and respond to project needs.*	*Construction Operations Decommissioning*	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C363	***Collaborate with the existing job referral services set up by other proponents to make available information on positions vacant in local businesses with similar trade or skills requirements. This will allow applicants to choose between industry and non-industry jobs.***	***Construction Operations Decommissioning***	
C364	***Continue regular consultation with landowners and other stakeholders through ~~such~~ mechanisms such as the Arrow Intensively Farmed Land Committee ~~which provides a forum for Arrow and landowners to identify and discuss issues and potential solutions relating to the construction and operation of coal seam gas infrastructure.~~ and the Surat Community Reference Group.*** ***The Arrow Intensively Farmed Land Committee considers opportunities to co-create a plan for coexistence between coal seam gas and farming.*** ***The Arrow Surat Community Reference Group provides a strong consultative forum for community and industry groups.***	***Construction Operations Decommissioning***	***Revised commitment resulting from updated draft Social Impact Management Plan.***
C365	***All project personnel will only ~~A~~access land ~~only~~ in accordance with DEEDI's (2010a) Land Access Code~~, and in accordance~~ Section 24A of the Petroleum and Gas (Production and Safety) Act 2004 and Arrow's land access rules and protocols.***	***Construction Operations Decommissioning***	***Revised commitment resulting from updated draft Social Impact Management Plan.***
C366	***Consult with councils and the regional community consultative committee for their views on which social, community or recreational infrastructure in Western Downs region is being directly impacted by the project and the extent of this. Liaise with the relevant body to coordinate efforts across all proponents and identify opportunities that may potentially ease or mitigate impacts.***	***Construction Operations Decommissioning***	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C367	~~*Expand the opportunities available for the region under the Brighter Futures program and the Social Investment Plan.*~~ *Arrow acknowledges it has a shared responsibility with government, and society more broadly, to help facilitate the development of strong and sustainable communities. It is committed to managing the residual social impacts of its activities that cannot be avoided or sufficiently minimised and to contributing to the social and economic wealth of the communities in which it operates through its social investment program. Arrow has already committed to the Brighter Futures Program, providing funding for community grants, sponsorships and partnership opportunities.*	*Construction Operations Decommissioning*	*Revised commitment resulting from updated draft Social Impact Management Plan.*
C368	*Encourage resident employees and contractors to integrate and become involved in their local communities (e.g., volunteer work, participation in clubs and organisations).*	*Construction Operations Decommissioning*	
C369	*Engage ~~closely~~ with landowners to develop a strategy for minimising impacts on land and existing agricultural activities (e.g., through siting of project facilities).*	*Construction Operations Decommissioning*	*Expanded to clarify the intent of the commitment.*
C370	*Communicate with landowners at least three months before any activities take place on private property.*	*Construction Operations Decommissioning*	
C371	*Continue to provide Community Officers, Land Liaison Officers and the 1800 free-call number for people to ask questions or raise concerns about Arrow's activities. This includes the establishment of the Dalby Community Information Centre.*	*Construction Operations Decommissioning*	*Expanded to clarify the intent of the commitment.*
C372	*Provide medical assistance with opportunities to extend to wider communities, where possible.*	*Construction Operations Decommissioning*	
C373	~~*Continue to provide a medivac service to respond to various community or project-related emergency situations.*~~ *Arrow, in collaboration with Origin Energy, QGC and Santos, has funded since 2011 the Surat Gas Aero Medical Service in the region. The service is provided by CareFlight, one of only two fully integrated aero medical retrieval operations in the world. CareFlight employs its own full time emergency doctors, paramedics and flight crews. The Aero Medical Retrieval Service provides 150 free hours to Queensland Health for community based aero medical recovery services. Arrow will continue to support this initiative.*	*Construction Operations Decommissioning*	*Revised commitment resulting from updated draft Social Impact Management Plan.*

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C374	***Develop traffic management plans that include:*** • ***Preferred routes for travel and measures to reduce risk of accidents.*** • ***Road safety awareness initiatives for project personnel and local residents.*** • ***Procedure for notifying council and road authorities prior to any traffic disruptions or road closures.*** • ***Road management strategy to manage any increased road maintenance requirements imposed by the project.***	***Construction*** ***Operations*** ***Decommissioning***	
C375	Maintain a waste stream inventory identifying the type, classification, storage, transport and disposal requirements for the waste.	Inspection and Monitoring	
C376	***Continue to develop and implement Arrow's site-selection process for project facilities (such as integrated processing facilities and TWAFs) that considers the availability and capacity of existing utilities. Consult with councils and other utility providers during the project facility design process to understand existing capacity, and consider installing stand-alone utilities as required, to reduce demand on community utilities.***	***Planning and Design*** ***Construction***	
C377	***Provide developer contribution and head works charges for infrastructure.***	***Construction*** ***Operations*** ***Decommissioning***	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C378	~~*Provide TWAFs for non-resident construction workforce.*~~ *Develop a Construction Workforce Accommodation Strategy three months after Financial Investment Decision (FID).* *The strategy will:* • *Include a commitment to provide high quality Temporary worker accommodation facility (TWAF) accommodation for all non-resident construction workers.* • *Identify the preferred approach for facilitating accommodation for construction workers who relocate to the local area for the project, based on the state of the market to meet project generated demand and required market interventions to ~~minimise~~ reduce adverse impacts upon the community.* • *Identify opportunities to bring forward facilitation of housing intended for the operations workforce that can be used for the construction workforce.*	*Planning and Design* *Construction*	*Revised commitment resulting from updated draft Social Impact Management Plan.*
C378	• *Consider:* – *Continued participation in initiatives set out in the Major Resource Projects Housing Policy and the Western Downs Regional Council Affordability Strategy.* – *Supporting the intent of the Surat Basin Regional Planning Framework and working with State government, Councils, Economic Development Queensland, building industry, realtors and other project proponents to identify co-operative strategies that address cumulative housing impacts and to ensure that developable land is brought to market to meet demand.*		
C379	*Prior to decommissioning the TWAFs, consider their use during the operations phase to ease housing demand in towns.*	*Construction* *Operations*	
C380	*Continue to collaborate with other proponents in the region and identify opportunities to share temporary accommodation where possible for the construction and operations workforces.*	*Construction* *Operations*	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C381	***Develop an Operations Accommodation Strategy 12 months prior to the commencement of operations. The strategy will identify the preferred approach for facilitating accommodation for the operational workforce based on the ability of the market to meet project generated demand and required market interventions to ~~minimise~~ reduce adverse impacts on the community as much as reasonably practicable.*** ***The strategy will consider:*** • ***Continued participation in initiatives set out in the Major Resource Projects Housing Policy and the~~, Draft Resource Town Housing Affordability Strategy, and the proposed~~ Western Downs Regional Council ~~housing a~~ Affordability ~~s~~Strategy.~~, as well as implementation of the Surat Basin Future Directions Statement (DEEDI, 2010b)~~.*** • ***Support the intent of the Surat Basin Regional Planning Framework and work with ~~key stakeholders (i.e.,~~ state government, councils~~, Urban Land Development Authority,~~ building industry, realtors and other project proponents to identify co-operative strategies that address cumulative housing impacts and to ensure that developable land is brought to market to meet demand.*** • ***Providing incentives to private investors and developers of accommodation, such as through head leasing agreements or rental guarantees.*** • ***Contributing to a government-sponsored community and affordable housing initiative.*** • ***Housing 'rent to buy scheme' option for workers.***	***~~Construction~~ Operations Decommissioning***	***Revised commitment resulting from updated draft Social Impact Management Plan.***
C382	***Encourage workers relocating to the area to move to towns better suited to growth by:*** • ***Providing accommodation advice services for workers and their families.*** • ***Providing work shuttle buses between work site and towns with an employment pool (e.g., Toowoomba, Dalby, Cherbourg).***	***Construction Operations Decommissioning***	
C383	***Support government reviews on housing availability and affordability and on impacts on low-income groups.***	***Construction Operations Decommissioning***	
C384	***Have visiting workers stay in TWAFs rather than in hotel or motel accommodation, where possible.***	***Construction Operations Decommissioning***	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C385	***Avoid reserving hotel and motel accommodation for long blocks of time without a demonstrable need.***	***Construction Operations Decommissioning***	
C386	***Inform the tourist body and other peak business bodies of anticipated time frames for peak temporary accommodation demand.***	***Construction Operations Decommissioning***	
C387	~~***Liaise with all levels of the Queensland Police Service regarding vehicle movement.***~~	***Construction Operations Decommissioning***	Superseded by Commitment C298.
C388	Inspect waste storage locations to verify containment and segregation measures ~~ensure waste management measures are being adhered to~~.	Inspection and Monitoring	Clarification of commitment intent.
C389	***Maintain an emergency management plan that will cover joint emergency response planning in collaboration with emergency service providers.***	***Construction Operations Decommissioning***	
C390	***Proceed with implementation of the community engagement program and other measures to notify the community of project activities and to identify and address community issues.***	***Construction Operations Decommissioning***	
C391	***Publicly release information on how environmental impacts are being offset by the project.***	***Construction Operations Decommissioning***	
C392	~~***Ensure***~~ ***Communicate progress of*** ~~***workplace health and safety***~~ ***the project*** ~~***is communicated***~~ ***to the public and the regional community consultative committee as part of Arrow's annual sustainability reporting.***	***Construction Operations Decommissioning***	***Clarification of commitment intent.***
C393	***Have Land Liaison Officers and Community Officers available to discuss landowner and residents' concerns.***	***Construction Operations Decommissioning***	
C394	***Develop and implement mitigation measures that address the potential impacts relating to air and noise emissions through environmental management plans.***	***Construction Operations Decommissioning***	
C395	***Enforce a workforce Code of Conduct including disciplinary procedures, and a policy on appropriate worker behaviour and interaction with the public.***	***Construction Operations Decommissioning***	
C396	Prepare CHMPs or equivalent agreements in accordance with the provisions of the Aboriginal Cultural Heritage Act.	Planning and Design Construction Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C397	Complete comprehensive initial cultural heritage assessments where disturbance is proposed (noting that this will be staged in line with proposed development schedules), with direct input from relevant Aboriginal parties.	Planning and Design Construction Operations	
C398	Assess the results of the initial cultural heritage assessments in collaboration with the Aboriginal parties and develop a program for the management of all significant Aboriginal areas and objects to be affected by the project. Include management measures required prior to construction and those required throughout the life of the project.	Planning and Design Construction Operations	
C399	Commission high-order constraints papers from Aboriginal parties to identify places of Aboriginal cultural heritage significance. Ensure avoidance of these places is considered during detailed design. Ensure that operations gives effect to the avoidance principle as enunciated in the Aboriginal Cultural Heritage Act.	Planning and Design Construction Operations	
C400	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).	Planning and Design Construction Operations	
C401	Obtain all necessary permits and approvals prior to the commencement of works.	Planning and Design Construction Operations	
C402	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.	Planning and Design Construction Operations	
C403	Avoid known cultural heritage sites, where practicable, through site selection.	Planning and Design Construction Operations	
C404	Develop a 'chance finds' procedure for the discovery of unknown sites during construction as part of the cultural heritage management plan. This should include a stop work requirement on initial discovery, appropriate reporting and recording, and such management measures as avoidance, salvage or destruction.	Planning and Design Construction Operations	
C405	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.	Planning and Design Construction Operations	Changed to clarify consultation requirements.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C406	Conduct preconstruction clearance surveys of sites to identify the presence of heritage sites.	Planning and Design Construction Operations	
C407	Develop site-specific cultural heritage management plans in consultation with the ~~Queensland Heritage Office~~ Department of Environment and Heritage Protection three months prior to construction, should ~~construction~~ project activities be planned within 100 m of listed heritage sites.	Planning and Design Construction Operations	Changed to clarify consultation requirements.
C408	Consult with the local community regarding the management of threatened historic sites and places.	Planning and Design Construction Operations	
C409	Incorporate cultural heritage awareness into site induction procedures, including information on heritage values of the region, legal obligations and implementation of the 'chance finds' procedure.	Planning and Design Construction Operations	
C410	Record and report unknown sites identified during construction as chance finds. The cultural heritage management plan will include all measures for managing the discovery of chance finds.	Planning and Design Construction Operations	
C411	Contain all waste fluids and muds resulting from drilling activities in properly lined dams or storage tanks for in situ treatment or disposal.	Construction Operations Decommissioning	
C412	Notify the ~~Queensland Heritage Office~~ relevant administering authority if any cultural heritage sites or items of significance are uncovered during construction, in accordance with section 89 of the *Queensland Heritage Act 1992* (Qld).	Planning and Design Construction Operations	Changed to clarify consultation requirements.
C413	Undertake archaeological assessment by a qualified heritage practitioner if cultural heritage sites or artefacts are uncovered during construction.	Planning and Design Construction Operations	
C414	Maintain a database of all sites where non-Indigenous cultural heritage is known or found during the course of investigations and works.	Planning and Design Construction Operations	
C415	Take particular care when working in areas where significant heritage places are located within 500 m of proposed wells, pipelines or other infrastructure.	Planning and Design Construction Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C416	Prepare project safety management plans for the construction, operations and decommissioning of the infrastructure that form part of the present development.	Planning and Design	
C417	Implement Arrow's health, safety and environmental management system for all activities and phases of development.	Planning and Design Construction	
C418	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 (Standards Australia, 2008a) risk assessment (safety management studies).	Planning and Design	
C419	Select locations for project infrastructure with full consideration of and allowance for the minimum buffer zones indicated by the quantitative risk assessment.	Planning and Design	
C420	Design and construct project infrastructure and facilities in accordance with applicable codes and standards.	Planning and Design	
C421	Facilities will be designed with the ability to be shut down and be isolated in preparation for impending bushfires.	Planning and Design	Grammatical correction.
C422	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.	Planning and Design	
C423	Develop protocols for the control of construction activities during extreme fire danger periods.	Planning and Design	
C424	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 of gas, blowouts, gas fire, bushfire, critical equipment failure, trapped or missing people, flooding, cyclones, power failure, security incidents and threats, and transport incidents). The plans should 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.	Planning and Design Operations	Clarification of commitment intent.
C425	Design all pressured pipes and vessels in accordance ~~to cope~~ with applicable codes of practice and Australian standards, as revised from time to time. ~~maximum expected pressure.~~	Planning and Design	Clarification of commitment.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C426	Install pressure transmitters that remotely monitor high- and low-pressure alarms.	Planning and Design	
C427	Consider remote-control isolation on gas and water lines.	Planning and Design	
C428	Design equipment to withstand considerable heat load, e.g., through use of heat-resistant (fire-safe) isolation valves on production facilities.	Planning and Design	
C429	Design radiation exclusion zones around flares according to API standard.	Planning and Design	
C430	Register pipelines and below-ground electrical services with Dial Before You Dig.	Planning and Design	
C431	~~Minimise~~ Reduce enclosed spaces where flammable gas may accumulate in accordance with relevant safety requirements.	Planning and Design	Clarification of commitment intent.
C432	Consider installing flow and pressure instrumentation to transmit upset conditions and plant shutdown valves status, where necessary.	Planning and Design	
C433	~~Arrow will~~ Manage flooding risk through site location, drainage, etc., particularly for production facilities.	Planning and Design	Clarification of commitment intent.
C434	Design appropriate drainages for waste spills within buildings.	Planning and Design	
C435	Apply dam safety guidelines, which will apply for all facilities forming part of the project development.	Planning and Design	
C436	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	
C437	Conduct pre-job safety meetings prior to the start of and during construction activities.	Construction	
C438	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	
C439	Develop an integrated risk management plan with consideration for relevant industry and Australian standards (~~in alignment with the for example the relevant NSW Department of Primary Industries hazardous industry planning advisory paper~~).	Planning and Design Construction Operations Decommissioning	Amended to reflect adherence to Australian standards.
C440	Install, inspect and service fire-fighting equipment in accordance with risk assessments and relevant legislation and standards.	Construction	
C441	Implement transport-related safety programs, including driver training, journey management plans and preventive maintenance programs of vehicles.	Construction	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C442	Develop and implement safety training programs for personnel and contractors, including induction training of new starters. Include supervision requirements for drilling and construction activities.	Construction Operations	
C443	Conduct pressure testing and inspection of equipment and pipelines in accordance with relevant legislative requirements and standards.	Construction Operations	
C444	Design, construct, maintain and rehabilitate the gathering system network in accordance with the APIA code of practice Upstream PE gathering networks CSG industry version 2, or relevant Australian standards, as revised from time to time. ~~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	Amended to reflect legislative update and recognise relevant standards.
C445	Install isolation valves on pipelines in accordance with relevant standards and industry practices.	Construction	
C446	Commission fire-safety equipment in the early phase of the construction period.	Construction	
C447	Fit all buildings and production facilities (CGPFs and field compression facilities) with smoke or fire alarms.	Construction	Expanded to clarify the intent of the commitment.
C448	Fit pumps with automatic pump shutdown or other safety devices to prevent leak in case of pumping against a blockage.	Construction	
C449	Install fire and gas detection systems to shutdown compressors.	Construction	
C450	Implement security controls, e.g., fencing and locked gates.	Construction Operations	
C451	Install lightning mast and earthing grid to minimise risk of lightning strike at production facilities.	Construction	
C452	Machine guard all rotating equipment in accordance with Australian standards.	Construction	
C453	Where necessary, automate emergency shutdown systems at production facilities and, if necessary, include remote monitoring and control.	Construction Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C454	Determine the reuse of waste largely by the salvage value of the material. Reuse requires onsite segregation and storage and will include the following measures: • Reuse of cleared vegetation for mulch and soil erosion control. • Reuse of brine for production of potentially saleable salt products and implementing salt crystallisation (see Chapter 5, Project Description, of the EIS for options relating to beneficial use of brine and coal seam gas water). • Segregation of wastewater streams, i.e., contaminated stormwater, waste waters and coal seam gas water. • Reuse of treated waste water for dust suppression, construction activities or irrigation. • Reuse of treated coal seam gas water for town water supply, where of appropriate quality. • Reuse of hydrotest water. • Reuse of treated water for agricultural use, industrial use, potable water supply or injection into aquifers. • Treatment and reuse of solid wastes, such as drilling muds and cuttings, where practicable.	Construction Operations Decommissioning	
C455	Conduct systematic risk assessments (which include hazard identification, assessment, treatment and monitoring) in accordance with relevant legislation and standards during design, construction and operations.	Operations	
C456	Implement a permit to work system that includes a job safety analysis process.	Operations	
C457	Implement management of change processes, including protocols for communication of changes to appropriate levels of management.	Operations	
C458	Implement internal and external (independent) hazard audit programs. Communicate results from audit to management.	Operations	
C459	Barricade fall points and use personal fall-arrest equipment and wrist straps and lanyards to secure tools when working at heights.	Operations	
C460	Use whip check or safety chain and tie downs (or equivalent) on all high-pressure lines and pressurised air hoses.	Operations	
C461	Wear appropriate personal protective equipment on a site- and duty-specific basis.	Operations	
C462	Where applicable, establish blowout preventer and other well control measures.	Operations	
C463	Certify all equipment for drilling, where applicable.	Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C464	Ensure equipment and vehicle operators are licensed.	Operations	
C465	Prepare a risk control action plan as part of the safety assessment process.	Operations	
C466	Purge equipment of oxygen prior to introducing flammable gas.	Operations	
C467	Purge equipment after shutdowns.	Operations	
C468	Develop protocols for the control of operational activities during extreme fire danger periods, e.g., flaring or shutdowns.	Operations	
C469	Use onsite waste treatment for such purposes as sewage, coal seam gas water and other specified wastes. Sewage will be treated in packaged sewage treatment plants. Sewage treatment plants will be located at production facilities and include settlement, digestion, aeration, clarification and disinfection equipment.	Construction Operations Decommissioning	
C470	Consider non-static protective clothing for operations personnel.	Operations	
C471	Establish lone-worker protocols and communication.	Operations	
C472	Conduct regular patrols and inspections of pipeline easements, including status of signposting subsidence and of fire breaks.	Operations	
C473	~~During rehabilitation works, care will be taken when~~ Review site-specific management plans before moving stockpiled logs and vegetation to ~~avoid~~ reduce potential for fauna mortality.	Decommissioning	Clarification of action required.
C474	Automate the chemical dosage system for water treatment at integrated processing facilities.	Operations	
C475	Consider the use of non-toxic gases for water treatment if gases are used.	Operations	
C476	Ensure operator supervision for unloading of hazardous materials at production facilities.	Operations	
C477	Provide escape ropes and ladders at strategic locations within a dam.	Operations	
C478	Carry out routine monitoring of rehabilitated sites. ~~success.~~	Inspection and Monitoring	Minor change to clarify commitment.
C479	Use suitably trained and supervised staff or contractors to carry out depressurising and purging activities.	Operations	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C480	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: • All staff to work with a valid permit where required. • Gas tests to be conducted where required. • Verification of isolation prior to work commencing and use of specified life-protecting equipment. • Authorisation to be obtained prior to entering a confined space. • Authorisation to be obtained prior to overriding or disabling any critical safety equipment. • All persons to protect themselves against a fall when working at a height. • No walking under a suspended load. • No smoking outside designated areas. • No alcohol or drugs while working or driving. • No phones to be used while driving and speed limits not to be exceeded. • Seat belts to be worn at all times. • Prescribed journey management plan to be followed.	Operations	
C481	Train relevant personnel in the identification and avoidance of potentially hazardous wildlife. Use qualified spotter-catchers ~~handler~~s to move wildlife from project areas when encountered.	Operations	
C482	Inspect and monitor the success of newly propagated or translocated listed species, in accordance with the approved translocation or management plan.	Inspection and Monitoring	
C483	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.	Operations	
C484	~~Install manual isolation valves at the production well and skid edge.~~ Implement safety procedures to manage maintenance of wells including if necessary, isolation of infrastructure from gas flow.	Construction Operations	Revised to provide outcome-focused commitment & allow for appropriate safety procedures to be developed through detailed design.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C485	Maintain facilities so that flammable and combustible material does not accumulate on site.	Operations	
C486	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).	Operations	
C487	Daily operations will be managed with consideration of the fire danger current at that time.	Operations	
C488	Develop rig move plans.	Decommissioning	
C489	Depressurise and degas all plant and equipment in flammable-gas use prior to decommissioning.	Decommissioning	
C490	Develop onsite waste storage areas in accordance with industry practice and relevant waste management regulations.	Planning and Design	
C491	Procure materials in bulk, where practicable, to minimise containers and movement of material.	Planning and Design	
C492	Design the storage capacity of coal seam gas water and brine dams to be sufficient to manage waste liquids until such time that permanent disposal options are operational.	Planning and Design	
C493	Maintain a waste tracking system.	Inspection and Monitoring	
C494	Handle, store and dispose of regulated wastes in accordance with relevant standards and the Environmental Protection (Waste Management) Regulation 2000.	Construction Operations Decommissioning	
C495	Comply with Queensland Government waste tracking requirements.	Construction Operations Decommissioning	
C496	Segregate general waste, treat it if necessary and store it onsite prior to disposal. Segregation will include the separation of liquid from solid waste, separation of regulated from non-regulated waste, and separation of reusable and recyclable from non-reusable and non-recyclable waste.	Construction Operations Decommissioning	
C497	Use coal seam gas water of appropriate quality, ~~used~~ for dust suppression on roads ~~or~~ and for construction and operation activities ~~is treated if required~~ to reduce impact on land use.	Planning and Design Construction Operations Decommissioning	Changed to incorporate C540.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C498	Develop a ~~protocol~~ strategy for the discharge of coal seam gas water to watercourses in accordance with relevant legislation. The strategy will incorporate a water quality monitoring program with locations upstream and downstream of the discharge point to inform site specific water quality objectives. A detailed environmental flows assessment informed by water quality monitoring data and an aquatic ecology monitoring program will inform the discharge strategy. Periodic inspections of the physical form and hydrology of the watercourse are to be incorporated in the strategy to monitor geomorphic performance. ~~a controlled manner under emergency situations, taking the sensitivity of the receiving watercourse into consideration. Conduct discharge events in accordance with specific parameters, including discharge volumes, flows and duration, and water quality.~~	Planning and Design	Revised to account for changes to the project description and to encompass commitments C069, C175, C526 and C527 in one place.
~~***C499***~~	~~***Ensure all project personnel adhere to land access rules.***~~	~~***Construction Operations Decommissioning***~~	***Commitment superseded by C365.***
C500	Inspect and manage open trenches in accordance with the following: • Inspect trenches for the presence of fauna daily (preferably in the morning), as well as immediately prior to closing a trench. • Have appropriately trained personnel remove any fauna from a trench to minimise stress to the animal and to avoid personal injury. • Record details of trapped fauna for inclusion in the EHP ~~DERM~~ Wildnet database.	Inspection and Monitoring	Revised to reflect current database.
~~***C501***~~	~~***Adhere to Arrow Energy's land access rules and protocols as published on the Arrow website.***~~	~~***Construction Operations Decommissioning***~~	***Commitment superseded by C365.***
C502	Provide training in the principles of the waste hierarchy to personnel handling wastes on a regular basis.	Inspection and Monitoring	
C503	Prevent subsurface water flows and erosion along the backfilled trench by appropriate means, such as trench blocks and compaction of backfilled soils.	Construction Operations Decommissioning	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C504	Install groundwater monitoring bores near dams as a leak detection measure: • The number of monitoring bores and their location will take into account site-specific hydrogeology, preferential pathways and potential receptors of impacts. • Monitoring bores installed near dams will have groundwater levels and relevant water quality parameters monitored on a routine basis. • The number of monitoring bores or associated monitoring frequencies will be increased and further investigation will be triggered where impacts are identified.	Planning and Design Construction Inspection and Monitoring	No change. Clarification of applicable phase.
C505	Inspect erosion and sediment control measures following significant rainfall events ~~to ensure effectiveness of measures is maintained~~ and carry out repairs and/or maintain as required to retain the effectiveness of the measures.	Inspection and Monitoring	Changed to expand on intent of commitment.
C506	Inspect pipeline ROWs routinely until ground stabilisation and natural revegetation or pasture grasses or crops are established.	Inspection and Monitoring	
C507	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.	Inspection and Monitoring	
C508	Routinely inspect for pest flora and evidence of pest fauna species within project disturbed areas.	Inspection and Monitoring	
C509	Routinely monitor buffer zones and project footprint using satellite imagery.	Inspection and Monitoring	
C510	Prepare groundwater monitoring reports in accordance with the P&G Act, EP Act and Water Act.	Inspection and Monitoring	
C511	Monitoring and inspection of mitigation and management measures will be implemented to ensure that the calculated ground-level concentrations of relevant pollutants do not exceed EPP (Air) objectives throughout the lifetime of the project.	Inspection and Monitoring	
C512	Assess the energy-efficiency opportunities and estimate greenhouse emissions associated with the project in accordance with regulatory requirements. Calculate annual greenhouse gas emissions from the project as required under the NGER Act and Energy Efficiency Opportunities program, as well as future carbon price mechanisms.	Inspection and Monitoring	

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C513	***~~Monitor emerging opportunities to manage potential changes in climate that may have an impact on the project.~~***	***Inspection and Monitoring***	***Design standards are continually reviewed to reflect changing climate. Consequently design of facilities will incorporate such considerations***
C514	Monitor soil salinity in salinity prone areas prior to major earthworks.	Inspection and Monitoring	
C515	Provide chemical monitoring of contaminated soils and groundwater in relevant monitoring bores.	Inspection and Monitoring	
C516	Routinely inspect spill containment controls and spill response kits.	Inspection and Monitoring	
C517	Visually inspect physical form downstream of watercourse discharge locations.	Inspection and Monitoring	
C518	Conduct inspection and monitoring in accordance with relevant permits and/or consents ~~environmental authority conditions and regulatory requirements~~.	Inspection and Monitoring	Clarification of possible inspection and monitoring requirements.
C519	Monitor crop productivity or pasture health periodically to measure productivity on disturbed areas.	Inspection and Monitoring	
C520	Review landowner grievances regularly, including status of project actions and close-outs.	Inspection and Monitoring	
C521	Ensure methods used to monitor groundwater levels and quality, together with monitoring frequencies and parameters are in accordance with approved regulatory standards.	Inspection and Monitoring	
C522	Develop a structured database to host groundwater data from the project (i.e., groundwater levels and groundwater quality).	Inspection and Monitoring	
~~C523~~	~~Should Arrow seek to work within disturbed areas within the Bendidee State Forest, a preconstruction clearance survey of the forest will also be conducted with input from a butterfly specialist to inform the critical habitat and food resource of the bull oak jewel butterfly (*Hypochrysops piceata*).~~	~~Construction~~	Bendidee State Forest is no longer within the project development area.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C524	Install an appropriate regional groundwater monitoring network (that satisfies Arrow's obligations as described in the underground water impact reports) to: • Establish baseline groundwater level and groundwater quality conditions. • Assess natural variation (i.e., seasonal variations) in groundwater levels. • Monitor groundwater levels during the operations phase. • Monitor groundwater quality during the operations phase. • Establish suitable datum levels for each aquifer system. • Target sensitive areas where more frequent monitoring and investigation is required (e.g., groundwater-dependent ecosystems). • Monitor groundwater drawdown as a result of coal seam gas extraction. • Monitor impacts in accordance with the Water Act and regulations. • Provide an 'early warning system' that identifies areas potentially impacted by project activities to allow early intervention.	Inspection and Monitoring	
C525	Comply with inspection and monitoring requirements of the Surat Cumulative Management Area Underground Water Impact Report administered by the ~~Queensland Water Commission~~ Queensland Government Office of Groundwater Impact Assessment ~~in relation to groundwater drawdown and springs~~.	Inspection and Monitoring	Revised to reflect departmental change and release of report.
C526	Visually inspect physical form and monitor hydrology, turbidity and pH upstream and downstream of central gas processing and integrated processing facility stormwater and coal seam gas water discharge points.	Inspection and Monitoring	
C527	Routinely visually inspect physical form integrity and monitor hydrology, turbidity, total suspended solids, pH, dissolved metals and total petroleum hydrocarbons upstream and downstream of authorised locations where water is to be discharged directly to a watercourse.	Inspection and Monitoring	
C528	Monitor dam levels.	Inspection and Monitoring	
C529	Measure the volume and quality of ~~treated~~ coal seam gas water released to surface waters on a routine basis in accordance with ~~regulatory~~ legislative requirements and approved release limits.	Inspection and Monitoring	Clarification of commitment intent.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C530	Routinely measure the volume and quality of treated sewage effluent in accordance with regulatory requirements and approved release limits.	Inspection and Monitoring	
C531	~~Routinely visually inspect physical form integrity, macroinvertebrates, flow, turbidity, total suspended solids, pH, dissolved metals and total petroleum hydrocarbons upstream and downstream of authorised locations where water is discharged directly to a watercourse.~~	Inspection and Monitoring	Duplication of Commitment C527.
C532	Have a suitably qualified person routinely monitor the integrity and available storage of dams.	Inspection and Monitoring	
C533	Inspect areas of avoidance to ensure that boundaries are clearly marked prior to clearing activities.	Inspection and Monitoring	
C534	Monitor clearing activities to ensure marked boundaries are adhered to.	Inspection and Monitoring	
C535	Inspect marked areas after clearing activities to ensure areas of avoidance remain and that no unauthorised encroachment has occurred.	Inspection and Monitoring	
C536	Supervise construction activities in sensitive areas to ensure appropriate methods (e.g., narrowing of ROW) are being implemented, where required.	Inspection and Monitoring	
C537	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.	Planning and Design Construction	
C538	The State Planning Policy 1/03 for mitigating the adverse impact of flood, bushfire and landslide will be taken into regard.	Planning and Design Construction Operations Decommissioning	
C539	Maintain and update a water balance model that includes but is not limited to: • Monitoring of volume and quality of coal seam gas water produced and treated. • Monitoring of disposition volumes of treated and untreated coal seam gas water. • Monitoring of the volume of brine and its by-products used beneficially or disposed to landfill.	Inspection and Monitoring	
~~C540~~	~~Ensure that the quality of coal seam gas water used for dust suppression meets the prescribed limits.~~	~~Inspection and Monitoring~~	Commitment superseded by C497.
C541	Salvage seed from threatened flora species unavoidably disturbed for use in rehabilitation as propagation material or natural regeneration.	Construction	New commitment.
C542	Stabilise and revegetate long-term stockpiles as soon as possible to reduce potential for erosion.	Construction Decommissioning	New commitment.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C544	Develop an Emergency Response and Well Control Contingency Response Plan.	Planning and Design	New commitment.
C545	Adopt appropriate safety procedures to manage simultaneous operations such as those activities undertaken at a multi-well pad.	Planning and Design Construction	New commitment.
C547	Design multi-well pads to address the risk of propagation of an incident to adjacent wells.	Planning and Design	New commitment.
C548	Arrow will consult with state and local government and community stakeholders to deliver the most appropriate program for providing affordable housing options in the region including continued participation in the Western Downs Housing Trust Reference Group.	Planning and Design Construction Operations	New commitment.
C549	Implement policies and programs to maintain the wellbeing of project personnel.	Planning and Design Construction Operations	New commitment.
C550	Implement the Arrow Reconciliation Action Plan (RAP) which outlines Arrow's commitment to Indigenous Australians, working with Traditional Owners and negotiating Indigenous Land Use Agreements (ILUA's) around the four goals of: • Ensuring Arrow is culturally safe and culturally competent. • Recruiting and retaining Aboriginal and Torres Strait Islander staff • Connecting Aboriginal and Torres Strait Islander people with business and employment opportunities. • Supporting Aboriginal and Torres Strait Islander education.	Planning and Design Construction Operations	New commitment.
C551	Implement actions within Arrow's Aboriginal and Torres Strait Islander Reconciliation Action Plan (RAP) relating to educational opportunities for Indigenous students.	Planning and Design Construction Operations	New commitment.
C552	Continue the Arrow Energy Whanu Binal project to provide assistance to Traditional Owners and other interested members of the Indigenous community to further develop business development, employment and training and workforce planning capacity and capability.	Planning and Design Construction Operations	New commitment.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C553	Provide cultural awareness training to Arrow employees and contractors within three months of employment or engagement by the company. Educate Arrow employees on cultural awareness as part of the induction program. Include the following as objectives for the awareness and training programs: • Staff and contractors effectively engage and work with Indigenous people, suppliers and communities. • Indigenous staff are understood, respected and retained in the organisation. • Arrow maintains positive relationships with Indigenous communities.	Planning and Design Construction Operations	New commitment.
C554	Continue to support the "Careers in Gas" website or other similar initiatives.	Planning and Design Construction Operations	New commitment.
C555	Arrow Diversity Council to continue to work with industry groups that focus on increasing the engagement of women in the industry and developing pathways for women to work in non-traditional roles.	Planning and Design Construction Operations	New commitment.
C556	Undertake regular reviews of non-project related labour requirements and current skills sets for the study area by engaging with state agencies and other skills bodies to facilitate the development of training strategies.	Planning and Design Construction Operations	New commitment.
C557	Design infrastructure to avoid disturbance of state significant vegetation and other high value ecological corridors where practicable.	Planning and Design	New commitment.
C558	Develop a site-specific management plan to reduce changes to wetland habitat hydrology, including water quality, in areas of ground-truthed populations of *Microcarpaea agonis* adjacent to work sites.	Planning and Design	New commitment.
C559	Demarcate in order to restrict access to any ground truthed populations of *Microcarpaea agonis* identified adjacent to work sites.	Construction Operations	New commitment.
C560	Consult with landowners downstream of discharge points on access requirements for vehicular and stock crossings of the affected watercourse reaches, and manage discharges to reduce disruption to existing access arrangements.	Planning and Design Construction Operations	New commitment.
C561	Identify reaches vulnerable to bank erosion from the discharge of coal seam gas water and develop site-specific erosion control and management plans for vulnerable reaches.	Planning and Design Construction Operations	New commitment.

Table 1 Commitments update (cont'd)

Commitment Number	Commitment	Relevant Phase	Change
C562	Ensure Arrow's overhead distribution powerlines are visible when construction is planned in proximity to waterbodies frequented by an important population of listed migratory bird species.	Planning and Design Construction	New commitment.
C563	Record the location of any newly identified populations of Machin's macrozamia (*Macrozamia machinii*) and confidentially notify relevant authorities.	Planning and Design Construction Operations	New commitment.
C564	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.	Planning and Design Construction Operations	New commitment.
C565	Arrow is committed to offsetting its component of modelled likely flux impacts to the Condamine Alluvium in the area of greatest predicted drawdown as a result of coal seam gas water extraction from the Walloon Coal Measures.	Planning and Design Construction Operations	New commitment. Modelled likely flux impacts are defined as those simulated in the calibrated OGIA Surat CMA Groundwater Model realisation occurring over the period referred to in the UWIR for the Surat CMA (QWC, 2012) i.e., the next 100 years.

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