

2.0

Key CSG water management
achievements to date



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Since QCLNG project approval in October 2010, QGC has commenced many of the activities required under the Stage 1 and 2 WMMPs.

Significant progress has occurred in the following areas:

- Establishment of monitoring bore and Vibrating Wire Piezometer (VWP) networks and data collection programs;
- Cumulative regional groundwater modelling by the QWC
- Improved understanding of geology and hydrogeology of the Walloon Coal Measures and Springbok Formations
- Private bore baseline surveys and groundwater chemistry data collection
- EPBC listed springs surveys through QWC
- Ground motion (subsidence) baseline surveys
- Water treatment plant design, construction and commissioning
- Central Gas Fields beneficial re-use scheme construction
- Northern Gas Fields beneficial re-use scheme planning and design
- Baseline water quality monitoring
- Brine management base case planning and design
- Selective Salt Recovery (SSR) research and pilot-scale trial development.

Planning of many Stage 2 activities is well-advanced and, in some cases, has commenced.

Key achievements of the Stage 1 WMMP are outlined in Table 1.



Water is a vital resource for communities, agriculture and industry throughout Queensland.

Key Achievements of the Stage 1 WMMP

Groundwater

- Establishment of Stage 1 monitoring bore network (Gubberamunda and Springbok Formations) across QGC's leases including test pumping and groundwater chemistry analysis
- Commencement of Stage 2 monitoring bore network (Gubberamunda to Precipice Formations)
- Establishment of additional Vibrating Wire Piezometer (VWP) monitoring points
- Commencement of automatic groundwater level data measurement in monitoring bores
- Completion of study on groundwater level trend analysis
- Development of detailed groundwater system balances across QGC leases
- Commencement of GEN3 dual-phase groundwater model build including:
 - Development of detailed Surat Basin geological model
 - Completion of detailed study of Springbok Formation stratigraphy
 - Development of detailed Surat Basin hydrogeological model (in progress)
- Development of groundwater and surface water response plans
- Advanced planning of trial re-injection bore in Northern Gas Fields
- Initiation of connectivity studies and advanced planning of long-term pumping trials
- Development of integrated CSG industry approach to EPBC listed springs early warning and threshold drawdown regional groundwater monitoring strategy
- Development of conceptual spring hydrogeological models
- Commencement of subsidence monitoring program and interpretation of initial data (in progress).

Hydraulic Fracturing

- Stimulation program water quality analysis and risk assessment

Water Management and Receiving Environment Monitoring

- Commissioning and operation of Windibri 6 ML/d Water Treatment Plant
- Construction of Kenya 12 ML/d relocatable WTP. Commissioning (in progress).
- Construction of Kenya 80 ML/d WTP (in progress)
- Construction of Kenya to Chinchilla pipeline (completed)
- Central Gas Fields two-year baseline surface water quality monitoring program completed. Data analysis in progress.
- Detailed design of Woleebee Creek 100 ML/d WTP (in progress)
- Development of base case Northern Gas Fields water management scheme.

Brine Management

- Development of base case brine management scheme
- \$20 million alliance with APLNG for four pilot salt recovery trials. Pilot programs have been completed and the evaluation is ongoing
- Stage 2 collaboration to determine commercial and technical feasibility.

Table 1 – Key achievements of the Stage 1 WMMP

2.1 COLLABORATION WITH INDUSTRY PROPONENTS

QGC encourages and is involved in promoting and developing cooperative links with other CSG producers in the Surat Basin in Queensland.

A key aim of industry cooperation is to develop common approaches to effectively ensure compliance with EPBC approval conditions as many conditions are common or similar for each proponent.

Issues where a common approach has been adopted or are being developed include:

- Approach to early warning monitoring of groundwater response to CSG water extraction between and near EPBC listed springs
- Springs monitoring plans
- Ground motion data collection and monitoring
- Monitoring of ground motion
- Fracture stimulation risk assessment and ecotoxicological testing.

Other areas of collaboration between CSG companies include:

- Development of specialised studies of common interest (e.g. assessment of connectivity between WCM and Condamine Alluvium)
- Planning of off-lease monitoring bores
- Investigation into joint approaches to brine collection, transfer, treatment processing and product distribution
- Assistance to QWC to develop the cumulative regional groundwater model.

2.2 INTERACTION WITH QUEENSLAND WATER COMMISSION

QGC has complied with legislative requirements to provide data and information to the QWC. This has included:

- Data to support the development of a regional groundwater model
- Farm bore baseline data.

QGC has received conditional approval from SEWPAC to use findings of the QWC Regional Groundwater Model for prediction of cumulative impact at the regional and sub-regional level. QWC's Spring Survey and Spring Impact Management Strategy should substantially comply with Condition 68.