APPENDIX F: EVIDENTIARY STANDARDS

Appendix F. Examples of information that is considered in hydrogeological assessments, some of which may be utilised as evidentiary standards when establishing baseline conditions, reference values, triggers, thresholds and limits.

Details	Primary Data	Analysis or Interpretation	Data QAQC
Bore Details			
Bore ID	X		
Latitude	X		
Longitude	X		
Elevation	X		
Accurate surveys of coordinates and reference elevation levels?			X
Photographic record	X		X
Development area	X		
Map illustrating bore location in relation to local topography	X		
Total Depth	X		
Screened Interval (m) (to include entire thickness of possible open hole)	X		
Screened Interval (lithology)	X		
Screened Interval (formation)		X	
Bore construction details	X		
Bore construction diagram		X	
Bore construction adequate for pressure/level monitoring?			X
Petrophysical log	X	X	
Verification: QGC's well construction and data acquisition procedures have been audited by the Queensland Government and found to be in line with best practice.			X
GW Level Montitoring Data			
Start of gw level monitoring	X		
End of gw level monitoring	X		
Duration of gw level records	X		
Frequency of records (eg hourly)	X		
Number of records	X		
Primary measurement technique (eg manual dip, transducer etc)	X		
Secondary measurement verification technique (eg manual dip)	X		
Downhole temperature measurements available at gauge?	X		
Graph of groundwater level fluctuation over time? Must be at suitable scale to identify threshold excedances		X	
Environmental Monitoring Data			
Barometric pressure monitoring station	X		
Graph of barometric pressure and gw pressure in KpA plotted over time?		X	
Weather/rainfall monitoring station	X		
Graph of rainfall residual mass curve plotted over time?		X	
Groundwater Chemistry Monitoring Data			
Groundwater sample collection by third party independent contractors using standard approved sampling methodologies including QA/QC protocols			X
Independent third party laboratory analysis with NATA certification			X
samples within holding times			X
Graphs and plots of hydrochemistry over time	X	X	
Graphs and plots grouping bores with similar trends			X
Ionic balance acceptable			X

Details	Primary Data	Analysis or Interpretation	Data QAQC
Other Groundwater Users			
Bore baseline data	X		
Map illustrating bore location in relation to Third Party Bores within 2 km radius (all	X		
Number of Third Party Bores within 2 km radius (all aquifers)	X		
Distance to nearest groundwater extraction bore	X		
Distance to nearest groundwater extraction bore within same aquifer	X		
Water level data for third party bore	X		
Hydrochemistry data	X		
Bore construction details	X		
Approximate extraction rate of nearest bore (if unknown, state purpose of bore)		X	
Gas Production			
Map illustrating bore location in relation to production wells within 2km radius and mapped geological stuctures.	X		
Number of gas production bores within 2km radius	X		
Horizontal distance to nearest operational gas production bore (m)	X		
Vertical distance between monitored interval and top of open hole within nearest CSG extraction bore	X		
Adequate aquitard layer >5m thickness present between production zone and screened interval?		X	
Water production volumes over time from production wells within, up, down or across dip from bore?	X		
Horizontal distance from nearest other proponent operating CSG bore	X		
up, down or across dip from bore?	X		
Existing Reports			
Within IAA in UWIR?		X	
Within LAA of UWIR?		X	
OGIA predicted maximum likely drawdown (m)		X	
Existing reports documenting examples of simiar responses/trends		X	X
Existing study undertaken in analogous hydrogeological setting?		X	X
Conceptualisation			
Map illustrating bore location in relation to other groundwater users, weather station, rivers and topography?	X		
Representative cross section available illustrating geology, faults, monitoring bore, production zone and other users, including their screened intervals?		X	
Estimate of Kh of screened interval?		X	
Estimate of Kv of screened interval?		X	
Estimate of S for screened interval?		X	
Primary porosity or secondary porosity?		X	
Estimate of Porosity?		X	
Assumed aquifer thickness (b)?		X	
Hydraulic parameters based on what? (source)	X		
2D analytical model for bore		X	
Diagran illustrating overal hydrogeological conceptualisation for local area		X	
Proximity to recharge zone? (distance)		X	

Details	Primary Data	Analysis or Interpretation	Data QAQC
Interpretation			
Trend of entire dataset		X	
Multiple trends, or single trend?		X	
Magnitude of fluctuation		X	
Overall gradient (m/yr)		X	
Visible inflection points within trend?		X	
Does trend of dataset correlate to any other datasets in region, regardless of aquifer screened?		X	
Report outlining results of trend analysis		X	
Is there confidence in the accuracy of data (ie. is trend real)?			X
Magnitude of gw level fluctuation (kPa)		X	
Magnitude of baro pressure fluctuation (kPa)		X	
Sufficient data to create map of pre-CSG potentiometric surface and current potentiometric surface within aquifer for surrounding 50 km?		X	X
Map illustrating groundwater drawdown across region since onset of monitoring		X	
Trend meets minimum data set duration required (Y/N)			X
Meets minimum number of data points required for legitimate assessment (Y?N)			X
Actual vertical distance between monitored interval and top of open hole within nearest CSG extraction bore	X		
Suspect catastrophic failure of bore?		X	